PRINCIPLES OF ENERGY MARKET REGULATION – SECURING EFFICIENT & RESILIENT ENERGY TRADING

Report prepared for Energy Traders Europe

19 APRIL 2024

WWW.FRONTIER-ECONOMICS.COM

Contents

frontier economics

KEY POLICY RECOMMENDATIONS

Energy Traders Europe has instructed Frontier Economics ("Frontier") and Luther Lawfirm ("Luther") to assess the envisaged review of the Ancillary Activity Exemption ("AAE") under MiFID II[1].

This instruction is prompted by the mandate under Art. 90 (5) MiFID II given to the European Commission ("EC") in consultation with ESMA, EBA and ACER[2], which explicitly asks to be based on a **comprehensive assessment of the markets** for commodity derivatives, emission allowances and derivatives thereof. Energy Traders Europe decided to commission an own report to contribute to the overall discussion and decision-making process.

After a thorough review of the existing regulatory framework, with observations made during the crisis and quantitative analysis, we arrive at the following **seven high-level policy recommendations**.

Key policy recommendations at a glance

1. **Ancillary Activity Exemption** – liquid, competitive and efficient EU energy markets are key to ensuring an affordable, secure and sustainable energy supply. The AAE is an important regulatory instrument to deliver these outcomes. **The current scope of the AAE should therefore be kept in place**.

2. **Control mechanisms of exchanges** – policymakers should monitor how surveillance instruments and control mechanisms are applied by exchanges, which were sharpened and recalibrated in response to the energy crisis, and how they unfold in practice, but **not pursue action before the position limit regime review** (foreseen for 2025) and **let the 'market correction mechanism' expire**.

3. **Clearing and liquidity management** – the central clearing system and margining process proved to be resilient in the energy crisis. Policymakers should **support industry-initiatives**, such as a standard liquidity management manual and **monitor practical implementation of improved clearing and margining processes** but should **not pursue any immediate actions after EMIR 3.0**.

4. **Efficient reporting** – we suggest to **harmonise the regulatory reporting standards between physical energy and energy derivatives markets reporting** (to the extent possible) and to **create a comprehensive single data set** which is sent out in a similar process and timeline to all regulatory stakeholders.

---

1 Markets in Financial Instruments Directive II, Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast)

2 ESMA stands for 'European Securities and Markets Authority', EBA for 'European Banking Authority' and ACER for 'Agency for the Cooperation of Energy Regulators'.

5. **Market integrity** – we suggest giving **authorities the competency and encouraging them to stop (government-induced) market distortions in both the physical energy and energy derivatives markets immediately** - at least temporarily - instead of acting retroactively.

6. **Energy transition** – legislative action should be guided by **maintaining open and liquid energy trading markets** without undue market entry barriers for non-financial firms as risk-takers to **ensure private financing of renewable assets** and the delivery of the EU's priorities on sustainable energy.

7. **Global competitiveness** – we suggest **keeping global competitiveness a major legislative objective, aligning regulatory actions with recommendations by the International Organisation of Securities Commissions** ("IOSCO") and **abstaining from actions which have no precedence** in competing jurisdictions and lead to an uneven international playing field.

The review by the EC must consider all dimensions of energy markets in a single regulatory and economic assessment

The **review by the EC must take care of the interdependencies between physical power and gas markets with energy derivatives markets** and **consider a holistic picture of the entire set of applicable regulation**. As such, the review needs to include an impact assessment of, in particular, MiFID II, MiFIR, EMIR, MAR, IFR/D and REMIT[3] as these regulations form the main overall regulatory framework for these energy markets.

In particular, the review by the EC requires a single, comprehensive regulatory and economic assessment that should include as stakeholders on the policymaker level the relevant representatives of at least DG FISMA, DG ENER, DG CLIMA[4] as well as the prescribed technical advice from ESMA, ACER and EBA.

Any isolated review would potentially lead to unintended adverse effects such as impairing the liquidity of EU energy markets. Consequently, it would (most likely) miss the overall regulatory objectives defined for this MiFID II review, which itself extends beyond the primary regulatory focus of MiFID II.

[3] MiFIR stands for 'Markets in Financial Instruments Regulation', EMIR stands for 'European Market Infrastructure Regulation', MAR stands for 'Market Abuse Regulation', IFR/D stands for 'Investment Firm Regulation / Directive' and REMIT stands for 'Regulation on Wholesale Energy Market Integrity and Transparency'.

[4] DG stands for 'Directorate General', with FISMA for 'Financial Stability, Financial Services and Capital Markets Union', ENER for 'Energy' and CLIMA for 'Climate Action'.

Criteria for the review of commodity derivatives markets under Art. 90 (5) MiFID II

This report considers various strategic **legal** and **economic dimensions** and focusses on the:

- **liquidity and proper functioning of markets** for energy commodity derivatives and physical power and gas;
- ability of the markets to **withstand external shocks**;
- **prevention of market abuse** and support for orderly pricing and settlement conditions;
- need to **manage risks arising from energy business activities**;
- need to maintain **competitive liquid markets** for energy and energy derivatives that ensure the **open strategic autonomy** of the European Union ("EU");
- **facilitation of the energy transition** and the delivery of the EU's priorities on sustainable energy;

altogether outlined as **key considerations** and **learnings** from the energy crisis in recital (14) MiFID II.

We further take into account the **explicit review criteria of Art. 90 (5) MiFID II** which are:

- the **ability of affected firms to effectively reduce risks** directly relating to its commercial or treasury activity;
- the **application of requirements for investment firms** set out in Regulation (EU) 2019/2033; and
- the **requirements for financial counterparties** laid down in Regulation (EU) 648/2012.

In the course of the review, we highlight **three guiding principles** for regulatory action (Figure 1).

Figure 1 Three guiding principles for regulatory actions

Source: Frontier Economics

Key policy recommendations in detail

1. Keep the current scope of the AAE under MiFID II (section 3.2)

Liquid, competitive and efficient EU energy markets are key to ensuring an affordable, secure and sustainable energy supply. The current AAE under MiFID II is an important regulatory instrument to deliver these outcomes.[5] **The current scope of the AAE is appropriately calibrated to ensure such proper market functioning and efficient risk management by market participants. It should therefore be kept in place**.

To submit energy market participants to an investment firm status through narrowing or abandoning the AAE would not address any of the root causes of the energy crisis or perceived regulatory shortfalls, but rather negatively impact the liquidity and reliability of both physical and financial energy markets. It has no precedence in competing commodity markets in other jurisdictions.

Energy Traders Europe member firms had and still have sufficient liquidity to meet margin calls at clearing houses. Forcing them into investment firm status would have worsened their liquidity situation during the energy crisis, limited their ability to access the market for hedging and thereby deteriorated the situation for all market participants.

In order to tackle the root cause of the energy crisis (which was physical scarcity of gas and power) and avoid similar situations in future, policymakers and regulators must focus on the physical side of energy markets (e.g., improving the physical availability of energy supplies, increase investments in physical transmission infrastructure to reduce bottlenecks[6], reducing market entry barriers, avoiding undue supply concentration and foster diversification, including gas storage and transportation options, improve mandatory gas storage filling regimes and demand-side reduction of energy consumption).

We therefore strongly suggest keeping the current scope of the AAE as is.

---

5 The AAE as provided for under Art. 2 para. 1 lit j) MiFID II exempts energy companies for which trading is ancillary to their main business from the requirement for authorisation and hence inter alia from capital requirements for investment firms. See Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065; see also the Commission Delegated Regulation of 1.12.2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to Regulatory Technical Standards for the criteria to establish when an activity is considered to be ancillary to the main business of https://ec.europa.eu/finance/securities/docs/isd/mifid/rts/161201-rts-20_en.pdf

6 The need for well-integrated physical energy markets across EU Member States has also been acknowledged in a recent report by Enrico Letta on the future of the EU Single Market. In particular, Letta notes that energy infrastructure is crucial for the success of the EU Single Market for energy, with well-integrated physical markets supporting affordable energy supply for end-consumers (e.g., industry or households) and ensuring the deployment of new clean energy generation assets. He further points out that investments in security of supply (e.g., in infrastructure and reserve capacities) for enhancing market resilience in crisis situations should be coordinated among neighbouring EU Member States to ensure optimal investment sizing and prevent market fragmentation due to unilateral actions. See Enrico Letta (2024), "Much more than a market", https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf

2. Monitor and support flexible surveillance and control measures of exchanges (section 3.3)

The currently available instruments to oversee actual trading behaviour at trading venues are sufficient and have been sharpened and recalibrated where appropriate. For example, volatility safeguards, such as circuit breakers, have been tightened as part of the exchanges' regular review process as well as in reaction to the obligation to establish an intra-day volatility management mechanism laid down in the Regulation (EU) 2022/2576 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders. In its assessment of the mechanism[7], ESMA writes that the implemented intraday volatility mechanisms ("IVMs") generally seem adequately calibrated, with the caveat that the assessment was carried out in a period with no evidence of protracted volatility episodes affecting energy commodity derivatives trading.

We suggest that policymakers monitor how these partly reconfigured instruments work and unfold in practice and, hence, do not pursue any action before the review of the Position Limit Regime, foreseen for 2025.

With regard to the EC's 'market correction mechanism'[8], we suggest letting this instrument expire.

3. Facilitate clearing and liquidity management (section 3.3)

The central clearing system, and the associated processes for the calculation and provision of margins to collateralise the exposure of exchange trading towards the central clearing counterparty, proved resilient during the crisis.

Even so, in order to enhance liquidity management of firms in such situations, policymakers have already responded by improved rules under EMIR 3.0 which will, inter alia, increase the transparency and predictability of margin calls and broaden the scope of eligible collateral. These instruments will be accompanied by initiatives of the private sector, such as first actions of clearing houses to optimise their models, and the current development of a liquidity risk management manual by Energy Traders Europe in order to set industry standards.

We suggest that policymakers follow and support this industry initiative and monitor the practical implementation of the improved clearing and margining processes, but do not pursue any immediate additional action after EMIR 3.0.

---

7 ESMA (2023), "Final Report on the implementation and functioning of the Intra-day Volatility Management Mechanism", https://www.esma.europa.eu/sites/default/files/2023-06/ESMA70-156-6509_Final_Report_Intra-day_Volatility_Management_Mechanism.pdf

8 See European Council/Council of the European Union (2022), "Council agrees on temporary mechanism to limit excessive gas prices", https://www.consilium.europa.eu/en/press/press-releases/2022/12/19/council-agrees-on-temporary-mechanism-to-limit-excessive-gas-prices/

4. Ensure efficient reporting (section 4)

The currently applicable regimes of regulatory reporting of physical and financial transactions have certain weaknesses and lead to scattered reporting schemes, with limited room for regulators to form a market view close to real time and to act accordingly in a crisis situation. Even in the light of recent improvements, data exchange and collaboration between regulatory entities comes too late to identify crisis situations before or during the event.

There exists no national or EU authority which forms a view on a comprehensive single data set covering physical energy and energy derivatives markets, and which is entitled to act with effect to all traded energy markets. Consequently, actions are often taken too late. The 'market correction mechanism' is a perfect example of an instrument coming into effect after the crisis has largely been overcome.

We suggest harmonising the regulatory reporting standards between physical energy and energy derivatives market reporting to the extent possible, and to create a comprehensive single data set which is sent out in a similar process and timeline, to all relevant regulatory stakeholders.

5. Maintain market integrity (section 5)

The current regulatory regimes to maintain market integrity and prevent market abuse offer a suitable set of instruments for authorities to prevent insider trading and market manipulation on all energy markets. On the other hand, these regimes fall short in cases of unprecedented and unexpected behaviour of – inter alia state-endorsed – market participants and in offering instant legal injunctions to make transparent or to stop (state-initiated) trading behaviour causing market disruptions. These shortfalls are not yet fully addressed in the recent improvements.

We suggest giving authorities the competency, and encouraging them to stop (government-induced) market distortions, in both the physical energy and energy derivatives markets immediately - at least temporarily - instead of acting retroactively.

6. Facilitate the energy transition (section 6)

EU policymakers have set out the objective of achieving a genuine energy union, by securing the supply of abundant, affordable and clean energy, that serves the dual objective of pursuing European energy sovereignty and climate neutrality.[9]

Liquid energy wholesale markets are a prerequisite for market participants to support this EU objective and empower them to invest in renewable assets. As government support changes and gradually phases out (e.g., zero bid tenders for offshore in Germany and the Netherlands), the availability of market-based opportunities for reducing risks (such as renewable power-

[9] European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", p.10, https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

purchase-agreements and futures contracts) becomes increasingly important to make new renewable investments financeable. For the de-risking of investments as a prerequisite to attract financial institutions as lenders, renewable investors need trading partners from the energy industry capable to warehouse and trade away these risks.

We suggest that legislative action should be guided by maintaining open and liquid energy and energy derivatives markets, without undue market entry barriers for non-financial firms as risk takers, in order to ensure private financing of energy transition investments and the delivery of the EU's priorities on sustainable energy.

7. Protect global competitiveness (section 7)

The current regulatory framework for energy commodity trading in the EU is based on the IOSCO principles and meets the G20-Commitments, developed in light of the financial crisis. Compared to other key jurisdictions for commodity trading, it currently maintains a level playing field on an international level.

Requiring investment firm status for energy market participants from the non-financial sector has no precedents in competing key jurisdictions (including the United States), and would put at risk the competitiveness of European markets and its ability to maintain a high level of liquidity and to attract investments in new assets, such as those required for the delivery of the energy transition (see before). In addition, it would impair the competitive position of European market participants on the global market for energy and natural resources, including having a negative impact on European security of supply.

We suggest keeping global competitiveness as a key legislative objective[10], aligning regulatory measures with IOSCO recommendations, and refraining from measures which have no precedence in competing jurisdictions and lead to an uneven international playing field.

10 This is consistent with recent policy initiatives by the EU, aiming to boost long-term competitiveness for economic activity and productivity. See European Commission (2023), "EU competitiveness beyond 2030: looking ahead at the occasion of the 30th anniversary of the Single Market", https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1668

SECTION OVERVIEW

In the following, we summarise the key report findings for each section.

Section 1 – Introduction: Efficient and resilient trading requires consistent and harmonised regulation across energy and financial markets

Policy recommendation

Following an in-depth review of the regulatory environment and recent market developments of the commodity derivatives market, Frontier/Luther arrived at three guiding principles for regulatory actions:

- Energy and financial markets are closely interlinked, and actions taken in one market affect the other, and vice versa.
- Energy Trading Europe's member firms cannot abstain from trading on energy derivative markets without adverse effects on the physical market and therefore need constant unrestricted financial market access at foreseeable costs.
- In crisis situations, resilient energy trading requires well-informed decision-making bodies which are in a position to take immediate decisions to prevent market distortion before it occurs.

Background and purpose of the study

Energy Traders Europe has instructed Frontier and Luther to assess the envisaged regulatory review of the AAE under MiFID II. The report considers various strategic legal and economic dimensions:

- It particularly focusses on liquidity and proper market functioning, the ability to withstand external shocks, prevention of market abuse and support for orderly price formation.
- It further highlights the need for risk management from energy business activities, the importance of competitive and liquid energy markets for the strategic autonomy of the European Unition and the facilitation of the open energy transition.

Energy trading is a necessary ancillary activity for market participants to conduct their main business

Energy market participants[11] ("EMPs") operate in a complex supply chain, and face various commercial risks from producing, buying and selling energy commodities. Trading is a key prerequisite that energy markets are efficient, and reflect scarcities in the supply and demand balances through corresponding price signals to market participants. It is also an essential ancillary activity, allowing energy firms to actively manage risks from their main commercial business of energy generation and supply, and (inter alia) provides risk transformation between the supply and demand side, as well as valuable insights into current and future market developments for EMPs that allows for competitive pricing of energy commodities.

The regulatory environment for energy trading considers both energy and financial markets

Energy commodities such as (renewable) power, gas, oil and prospectively (green) hydrogen form the basis for economic activity in the EU. This requires an appropriate regulatory framework that ensures an affordable, secure and sustainable energy supply to the benefit of the European economy and population. The recent energy crisis and related policy interventions provided a stress test for the current regulatory framework for energy markets in the EU.

In addition to energy markets, policy makers have also identified the need for regulatory oversight and intervention in the financial markets where energy derivatives are traded. As energy and financial markets are closely interlinked, policymakers and regulators should keep in mind that actions taken in one market will have an impact on the other, and vice versa.

[11] We use **energy market participants** largely as synonym for **non-financial entity**, which may e.g., be an energy producer or supplier or an energy intensive industrial user. Legally defined these are persons, which are none of the following:
- an investment firm authorised in accordance with Directive 2014/65/EU;
- a credit institution authorised in accordance with Directive 2013/36/EU;
- an insurance or reinsurance undertaking authorised in accordance with Directive 2009/138/EC;
- a UCITS and, where relevant, its management company, authorised in accordance with Directive 2009/65/EC, unless that UCITS is set up exclusively for the purpose of serving one or more employee share purchase plans;
- an institution for occupational retirement provision (IORP), as in point (1) of Article 6 of Directive (EU) 2016/2341;
- an alternative investment fund (AIF), as defined in point (a) of Article 4(1) of Directive 2011/61/EU; or
- a central securities depository authorised in accordance with Regulation (EU) No 909/2014.

Section 2 – Regulation should promote energy trading, which is a key factor for affordable, secure and sustainable energy supply

Policy recommendation

The regulatory framework for energy trading should promote stable and liquid market conditions, orderly and transparent price formation, low barriers to entry, and an adequate level of investments under fair and open competition in interconnected markets.

Such targeted and comprehensive regulation would allow EMPs to support efficient and resilient energy markets by adequately managing the various risks throughout the energy supply chain, and optimising their risk management for hedging activities. However, it is further of particular importance for non-hedging trading activities as they provide competitive pricing of energy commodities, and allow diversification of business activities, ultimately enabling the wider European economy to take full advantage of the benefits of energy trading.

Trading is a key prerequisite for liquid, competitive and efficient energy markets (section 2.1)

- **European end-consumers benefit from energy trading through affordable, secure and sustainable energy supply (section 2.1.1):** energy trading is essential for liquid and competitive energy markets, with energy resources efficiently allocated through accurate and orderly formed price signals. Trading incentivises long-term investments in the energy sector, including those in renewable assets to facilitate the energy transition, and reduces wholesale transaction costs to the ultimate benefit of end-consumers downstream.

- **Hedging and non-hedging trading activities by market participants play a crucial role in achieving liquid, competitive and efficient energy markets (section 2.1.2):** EMPs engage in trading to hedge prices from energy generation and consumption over location and time. However, motives for energy trading go beyond hedging, and play a crucial role in creating liquid energy derivatives markets. These motives include risk transformation, price discovery and business diversification, as well as own account trading.

- **Energy commodity markets are closely linked at various levels (section 2.1.3):** efficient and resilient energy trading requires liquid markets for different commodities (e.g., power or gas) traded across contract types (e.g., spot and derivatives), channels (e.g., exchanges and “over-the-counter”) and geographies that are closely linked amongst each other. The variety of energy commodities (and markets thereof) reflect the complexity of the supply chain EMPs are operating in, and highlights the importance for a targeted and consistent regulatory framework.

Sound risk management strategies are of particular importance for professional energy trading (section 2.2)

- **Market participants apply centralised and consistent risk management frameworks for their trading activities (section 2.2.1):** as industry standard, risk management is a central company function for EMPs, which is typically guided by existing regulatory and legal frameworks (e.g., MaRisk[12]). Within their risk management frameworks, EMPs trade under strict and pre-defined risk mandates, and apply comprehensive methods to manage three main risk types (market, credit, and cash liquidity risk). Liquid markets allow EMPs to manage these risks more efficiently, ultimately resulting in lower transaction costs to the benefit of end-consumers downstream.

- **Managing cash liquidity risk is an integral part of daily risk mitigation procedures (section 2.2.2):** for managing the cash liquidity risk, which has been of particular importance in the energy crisis, EMPs rely on a range of methods in their daily operations. This includes a continuous assessment of cash reserves, stress testing and scenario analysis, the diversification of funding and comprehensive reporting and monitoring.

12 Bundesbank (2022), "Annotated text of the Minimum Requirements for Risk Management (MaRisk) in the version of 16.08.2021", https://www.bafin.de/SharedDocs/Downloads/EN/Rundschreiben/rs_1021_marisk_ba_en.html and Regierungskommission (2022), "German Corporate Governance Code as amended on 28 April 2022", https://www.dcgk.de//files/dcgk/usercontent/en/download/code/220627_German_Corporate_Governance_Code_2022.pdf

Section 3 – Appropriate regulation should support resilient energy markets in periods of high price volatility

Policy recommendation

- **Keep the current scope of the AAE under MiFID II:** liquid, competitive and efficient EU energy markets are key to ensuring an affordable, secure and sustainable energy supply. The AAE[13] under MiFID II[14] is an important regulatory instrument to deliver these outcomes. The current scope of the AAE is appropriately calibrated to ensure such proper market functioning and efficient risk management by market participants, and should therefore be kept in place. To submit energy market participants to an investment firm status through narrowing or abandoning the AAE would not address any root causes of the energy crisis, or perceived regulatory shortfalls during the energy crisis, but rather negatively impact the liquidity and reliability of both physical and financial energy markets.[15]

- **Monitor and support flexible surveillance and control measures of exchanges:** the currently available instruments to oversee actual trading behaviour at trading venues are sufficient, and have been sharpened and recalibrated where appropriate. For example, volatility safeguards, such as circuit breakers, have been tightened as part of the exchanges' regular review process, as well as in reaction to the obligation to establish an intra-day volatility management mechanism as laid down in the Regulation (EU) 2022/2576 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders. In its assessment of the mechanism, ESMA writes that the implemented intra-day volatility mechanisms ("IVMs") generally seem adequately calibrated, with the caveat of the assessment being done in a period with no evidence of protracted volatility episodes affecting energy commodity derivatives trading. We suggest that policymakers monitor how these partly reconfigured instruments work and unfold in practice and, hence, do not pursue any action before the

13 The AAE exempts energy companies for which trading is only ancillary to their main business from an authorisation requirement and hence inter alia prudential capital requirements for investment firms. See Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065

14 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065.

15 In order to tackle the root cause of the energy crisis and avoid similar situations in future, regulators must focus on the physical side of energy markets (e.g., improving the physical availability of energy supplies, increase investments in physical transmission infrastructure to reduce bottlenecks, reduce market entry barriers, avoid undue supply concentration and foster diversification, including storage and transportation options, improving storage filling regimes and demand-side reduction of energy consumption).

review of the Position Limit Regime, foreseen for 2025. With regard to the EC's 'market correction mechanism' , we suggest letting this instrument expire.

- **Facilitate clearing and liquidity management:** the central clearing system and associated processes for the calculation and provision of margins to collateralise the exposure of exchange trading towards the central clearing counterparty, proved to be resilient during the crisis. Nevertheless, in order to improve liquidity management of firms in such situations, the EU legislator has already responded by improved rules under EMIR 3.0, which will increase the transparency and predictability of margin calls and broaden the scope of eligible collateral. These instruments will be accompanied by initiatives of the private sector, such as first actions of clearing houses to optimise their models, and the current development of a standard liquidity manual by Energy Traders Europe in order to set industry standards.[16] We suggest that policymakers follow and support this industry initiative, and monitor the practical implementation of the improved clearing and margining processes, but do not pursue any immediate additional action after EMIR 3.0.

The recent energy crisis and related policy interventions provided a stress test for the resilience of energy markets (section 3.1)

- **Supply shocks for gas and power, in combination with a high concentration of gas supply, were the root cause for price spikes during the energy crisis in Europe (section 3.1.1):** in August 2022, market prices for power and gas reached unprecedented levels, creating a "perfect storm": a massive drop in Russian pipeline gas supplies to Europe that coincided with a significant reduction in available power generation capacity (e.g. low availability of French nuclear power generation). Market interventions, such as the *"safety ceiling on gas prices"* under the EC's *"Market Correction Mechanism"*[17] ("MCM"), and gas storage filling obligations in some Member States (e.g., Germany and Italy)[18] prevented energy markets from operating efficiently, which resulted in additional challenges for EMPs in an already stressed market environment.

- **Market participants quickly identified and undertook adequate remedial actions to manage the increased cash liquidity risk (section 3.1.2):** rising wholesale prices further led to a sharp increase in collateral requirements ("margin calls") for EMPs at

16 Energy Traders Europe are currently preparing a liquidity risk manual for their member firms (similar to existing manuals, e.g., on credit risks). The liquidity risk manual will provide guidance on achieving transparency for liquidity management, contingency planning, funding sources, proactive management of the risk triangle, stress-testing and the organisational setup / governance.

17 See European Council/Council of the European Union (2022), "Council agrees on temporary mechanism to limit excessive gas prices", https://www.consilium.europa.eu/en/press/press-releases/2022/12/19/council-agrees-on-temporary-mechanism-to-limit-excessive-gas-prices/

18 See for example ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p. 45-47 and 80ff., and VIS (2023) at the request of ACER and the Council of European Energy Regulators (CEER), Study on the impact of the measures included in the EU and National Gas Storage Regulations for the European Union Agency for the Cooperation of Energy Regulators", p. 38ff.

energy exchanges. Market participants responded by deploying short-term emergency measures and improving their pre-existing risk management capabilities.

The regulatory framework should aim for an adequate liquidity regime and avoid artificially limiting market resilience under the investment firm regulation (section 3.2)

- **The EC's review mandate primarily focuses on liquidity and market functioning, proper risk management and the facilitation of the energy transition (section 3.2.1):** the review mandate of commodity derivatives regime by the EC explicitly relates to market liquidity and proper market functioning, risk management by EMPs, the strategic autonomy of the EU, the ability to withstand external shocks and the facilitation of the energy transition.

- **Investment firm status is disproportionate to the business model of market participants (section 3.2.2)**

  - **Material prudential capital requirements under investment firm status**: in order to comply with an investment firm status, EMPs would either require additional capital resources to continue business activities as usual, or those activities would need to be curtailed. A six-month survey led by Energy Traders Europe[19], held among the largest European energy market participants, shows that the investment firm status would result in mean capital requirements of more than EUR 3 billion for survey participants, and a mean capital deficit of EUR 910 million.[20]

    The investment firm regulation would adversely impact overall market liquidity and efficiency, with the capital required to comply with financial regulation "trapped" and therefore unavailable for investments such as those required for the energy transition (see for details section 6). Additionally, liquidity requirements under the investment firm regulation do further not assess the cash needs for each EMP in the ordinary course of business (e.g., for margining of cleared transactions), but what cash would be needed for a potential orderly wind-down scenario.[21]

---

19 For confidentiality reasons, the survey was conducted by an independent advisor. Frontier has been provided with key results and a description of methodology (see Annex C).

20 As we set out in the report, capital requirements estimated by survey participants vary considerably, e.g., driven by the strategy and operating model of each firm (see section 3.2.2).

21 Consistent with the capital requirements, liquidity requirements have been calculated under investment firm regulation (Regulation (EU) 2019/2033 of the European Parliament and of the Council of 27 November 2019 on the prudential requirements of investment firms, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R2033). Performing the survey calculations has been a complex undertaking for the survey participants, requiring a combination of skills and calculation capability. Uncertainty remained on the correct treatment for certain common physical energy market transaction types and risks, highlighting that the investment firm regulations is not designed for the business conducted by EMPs. Calculating specific liquidity requirements set out in Article 42 of Directive (EU) 2019/2034 of the European Parliament and of the Council of 27 November 2019 on the prudential supervision of investment firms and amending Directives 2002/87/EC, 2009/65/EC, 2011/61/EU, 2013/36/EU, 2014/59/EU and 2014/65/EU is even more complex, with competent authorities, such as national regulators, having discretionary choices how to apply their supervisory power and

- **Organisational restructuring:** business models of EMPs are fundamentally different to those targeted under investment firm regulation such as banks. An investment firm status would require EMPs to reconsider their whole group structure for their ancillary trading activity, with the sole purpose of complying with investment firm regulation. In particular, there are several areas where current systems of EMPs would need to be significantly changed to perform ongoing capital and liquidity calculations under investment firm regulation (e.g., IT systems, operational organisation, etc.), which would further require specialist resources.

- **Knock-on effect under EMIR for EMPs:** investment firm status under MiFID would imply that EMPs gain status as "Financial Counterparty" under EMIR resulting in additional cash burden under mandatory OTC collateralisation for derivatives with an initial margin of around EUR 180 million per survey participant on average, up to EUR 1 billion for one firm.[22]

- **Investment firm status would limit market resilience, in particular in crisis situations (section 3.2.3)**

  - **No impact on physical energy shortage:** extending the scope of prudential capital requirements to energy traders, by revoking the AAE, would neither address the root cause of the energy crisis (physical scarcity of gas and power), nor improve the cash liquidity crunch from surging collateral requirements (“margin calls”) for cleared transactions at energy exchanges. Prudential capital requirements are designed to cover potential losses at adverse market developments but do not result in additional generation capacity or LNG supply.

  - **Adverse impact on risk management and market liquidity:** on the contrary, larger energy traders would have either faced an even more severe liquidity burden (from mandatory collateralisation of OTC derivatives trading) or would have exited the market, further reducing liquidity in the energy wholesale market which was already low during the energy crisis (for exactly this reason). This could have further deteriorated the quality of the price signal and made it more difficult to find counterparties for risk management (e.g., hedging assets or retail customer contracts). In particular, it would imply that EMPs would no longer be in a position to trade-off their market, cash liquidity and credits risks according to their individual needs and preference, which was a key mitigating measure during the energy crisis.

design the calculation approach for specific liquidity requirements. Given this uncertainty, and in an effort to provide meaningful results across EMPs located across the EU, the survey refrained from calculating specific liquidity requirements in the context of this study. Based on conversations held with members of Energy Traders Europe, the specific liquidity requirements would likely be higher than those calculated in the survey. However, this does not alter the overall conclusions of this study. In particular, the specific liquidity requirements would not have alleviated the energy crisis. Specific liquidity requirements have no impact on the physical availability of energy commodities, but rather increased the cash liquidity crunch for EMPs through mandatory margining for OTC trading under EMIR (see also section 3.2.3).

22 Survey results on the EMIR knock-on effect based on a second survey led by Energy Traders Europe, see section 3.2.2 and Annex D.

- **Investment firm status stands in contrast to the regulatory objectives for energy commodity derivatives set out in the EC's review mandate (section 3.2.4):** when compared to the EC's review mandate for the commodity derivatives regulation, the investment firm status would result in less liquid and less efficient energy markets, with reduced hedging opportunities for energy market participants and contradict EU policy goals with a detrimental impact on the energy transition and a lower ability to withstand external shocks.

Existing instruments for crisis prevention and management are well suited to address regulatory concerns articulated in the energy crisis (section 3.3)

- **Position limits prevent market cornering and may address excessive commodity price volatility (section 3.3.1):** position limits and position management controls are existing instruments meant to support orderly price formation and prevent market distortion. In a rapidly changing market environment, position management instruments calibrated by exchanges are more flexible and allow for quicker responses as opposed to controls requiring a full regulatory procedure for endorsement. Position limits in particular can unfold negative side effects by hindering the development of new and nascent trading products. Consequently, they should continue to apply to critical commodity benchmarks only.

- **Accountability limits and position management controls applied by exchanges limit the clustering of risks by individual market participants (section 3.3.2):** under accountability limits, a market participant exceeding an accountability level may be asked by the exchange to provide additional information relating to the position. We conclude that the system of accountability limits and position management controls appears to be efficient. If it comes to the interaction between short-term physical and longer-term derivatives markets, such as in the case of storage filling obligations, scrutinising the position of (state-endorsed) market participants and evaluating their commercial objectives could be applied at an earlier stage.

- **Circuit breakers and price limits prevent sharp price movements (section 3.3.3):** circuit breakers are an existing emergency instrument to temporarily prevent fundamentally unjustified sharp price moves and to limit price volatility. There are currently no legal restrictions on the design and adaptation of circuit breakers for use in crisis situations. Important to note, circuit breakers are an exceptional instrument and are associated with negative effects as they impair hedging options and may shift liquidity to less transparent trading channels. After the recalibration of circuit breakers by exchanges[23] in light of the energy crisis, we see no need for further legal action and suggest letting these instruments develop and prove their effectiveness.

[23] ESMA (2023), "Supervisory briefing on the calibration of circuit breakers", https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf.

Another instrument to prevent market distortions in extreme price scenarios is the introduction of maximum prices above which transactions at exchanges are not matched and exceeding orders are neglected (e.g., the MCM introduced by the EC in the energy crisis). The introduction of hard price caps works against the principle to ensure a continuous price discovery function, to have open and accessible markets and to enable the market participants to comply with their contractual obligations and to de-risk their positions. Such instruments should therefore be deprioritised and discontinued.

- **Central clearing as risk mitigating tool to protect against counterparty default and preserve market stability (section 3.3.4):** the central clearing system proved to be resilient during the crisis and the credit risk of the energy industry was mitigated effectively, however, at the cost of severe challenges to the cash liquidity management of some market participants. Therefore, going forward, transparency on the calculation of margins and the predictability of margin calls is key for stable and resilient liquidity planning[24] by EMPs.

  In that regard, the EC has, in the course of the revised EMIR, already put forward some helpful proposals to improve the predictability of margin calls for the benefit of market participants. EMPs shall be better informed about:

  - the calculation methodology of the margin requirements;
  - situations and conditions that may trigger margin calls; and
  - the procedures used to establish the margin amounts to be posted and to receive a simulation of such margin requirements.

- **Supervision of algorithmic trading (section 3.3.5):** the use of trading technology has evolved significantly over the last decade and algorithmic trading is increasingly used not only in the financial markets, but also the wholesale energy markets. Already today, there is sufficient oversight to avoid from amplifying the price effects of the energy crisis in the energy derivatives market, and will in future be accompanied by the notification of the use of algorithmic trading in the energy wholesale market to the National (Energy) Regulatory Authorities (“NRAs”) and ACER and the requirement to implement effective and suitable risk controls.

- **The C.6 carve-out under MiFID II is an appropriate key differentiator between physical and financial market regulation (section 3.3.6):** the C.6 carve-out ensures the applicability of the tailor-made market integrity regime under the Regulation on Wholesale Energy Market Integrity and Transparency (“REMIT”)[25] to prevail, which is the targeted integrity regime for energy markets. In addition, the C.6 carve-out is an

24 The continuous accessibility of clearing facilities beyond the clearing mandate is essential to allow for market access without unwanted counterparty credit risk on a voluntary basis or to replace it by voluntary clearing.

25 Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1227

instrument to prevent double regulation and aligns the scope of financial regulation in the EU with the understanding in other key jurisdictions.

- **New EU developments regarding market efficiency and stability (section 3.3.7):** the experiences of the energy supply crisis and related market events have triggered a number of regulatory actions to address market resilience in stress situations. This concerns physical as well as the financial markets and are anchored in energy and financial market legislation. While policymakers and regulators need to address the root causes of the energy crisis in physical markets, and while most of the measures in recent energy and financial market regulation contribute to better and more resilient markets, it is important to understand that interventions in the financial energy markets will also affect the physical markets and vice versa. The introduction of mandatory gas filling levels in gas storage facilities is a relevant example for such interaction which should be further addressed in more comprehensive legislation.

Section 4 – The current regulation provides for comprehensive market transparency and supervision

Policy recommendation

Ensure efficient reporting: we suggest harmonising the reporting standards between physical energy and energy derivatives markets reporting (to the extent possible) and create a comprehensive single data set which is sent out in a similar process and timeline to all regulatory stakeholders.

Reporting requirements under EMIR and REMIT support key objectives of financial market regulation for energy trading but could be more efficient (section 4.1)

Reporting is an essential tool for achieving market-wide transparency by enabling regulators to detect, stop and prevent market abuse. This requires timely information about transactions in the physical energy and energy derivatives market and would benefit from corresponding access to fundamental data, showing the supply and demand balance for the underlying physical gas and power flows. In order to take informed decisions in complex crisis situations and detect market distortions early, regulators should be able to form a view not only on either the derivative or physical energy market but include both sides into their assessment.

EMPs are currently subject to a dual regulatory reporting system:

- for financial market transactions including energy derivatives according to EMIR, and
- for physical energy wholesale products according to REMIT.

Under both regimes, EMPs need to timely submit a detailed set of information on transaction data, including price, volume, counterparty, and tenure. REMIT also extends to the reporting of market fundamental data regarding the underlying physical energy flows, the publication of inside information and the reporting of orders to trade.

Each set of reporting has to be completed and sent out separately via the defined reporting channel to the ultimate recipients from the side of the financial authorities on the one hand, and the side of the energy authorities on the other. Consequently, there is no single regulatory authority instantly receiving a comprehensive data set covering both the physical energy and energy derivatives market at the same time.

Better coordination between regulators will improve market transparency and supervision (section 4.2)

There have always been mandatory communication channels between financial market and energy market regulators on EU and national level. New rules under EMIR 3.0, the reviewed

MAR and REMIT 2.0 will further strengthen the coordination and data exchange between the different stakeholders at EU and national level. However, the mechanisms of data exchange and coordination that are in place under the current legal framework do not yet address the duality in the existing reporting systems and its inherent shortfall: the individual reports only cover a subset of relevant market data.

This appears to be unsatisfactory from a supervisory angle: no single individual regulator has an immediate and complete overview of transactions in the financial as well as in the physical energy market at the same time and will therefore not be in a position to take informed close to real time action to prevent market distortions from the outset.

A harmonised single data set would be highly beneficial in achieving comprehensive market transparency. Consequently, EMPs should send the same harmonised single data set to all relevant entities under applicable regulation. This would have a threefold beneficial effect:

- energy and financial market regulators can focus their view on a holistic data set covering physical and financial energy markets and easier identify cross market distortions;
- EMPs' compliance is facilitated as they have to compose only once a data set instead of multiple times; and
- the reporting scheme becomes more efficient.

The harmonised single data set should satisfy the transaction reporting obligations under EMIR and REMIT. It could preferably also include reporting by Organised Market Places ("OMPs") under financial market regulation.

The submission of harmonised data sets is also proposed in a parallel discussion on better supervision of the EU Capital Markets Union. It would also contribute to smarter and better regulation by harmonising regulatory frameworks, encouraging mutual recognition, streamlining reporting data, and continuing the initiative to reduce reporting as outlined in the conclusions of the European Council of 17 and 18 April 2024.[26]

[26] European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", p.11f., https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

Section 5 – Adequate market integrity regulation promotes orderly price formation for efficient energy markets

Policy recommendation

Maintain market integrity: we suggest giving the authorities the competency and encouraging them to stop (government-induced) market distortions in both the physical energy and energy derivatives markets immediately - at least temporarily - instead of acting retroactively.

Energy market participants require accurate and reliable price signals (section 5.1)

Orderly formed prices convey important information for EMPs. Accurate and reliable price signals are necessary for an efficient allocation of resources (e.g., where to invest in new generation capacity and which technology), effective decision-making and adequate risk management by EMPs individually, which would further contribute to an efficient energy market organisation as a whole for the benefit of society. The regulatory environment for energy trading should therefore ensure orderly price formation through adequate rules on market integrity.

Existing market integrity obligations under REMIT and MAR safeguard efficient energy trading (section 5.2)

Market integrity obligations under REMIT and Market Abuse Regulation ("MAR")[27] ensure orderly price formation by addressing market manipulation and insider trading in the physical energy as well as the energy derivatives market.

Instruments include preventive and repressive measures. In practice, EMPs must comply with the obligations set out in REMIT and MAR at the same time.

On the preventive side, EMPs in particular are obliged to

- register in order to disclose their identity;
- publish inside information in a timely manner under REMIT – inside information (data which is likely to have a significant effect on prices if it were to be made public) is to be published immediately at a registered Inside Information Platform (IIP) and kept up to date;
- report transactional and fundamental data.

[27] Regulation (EU) 596/2014 of the European Parliament and the Council of 16 April 2014, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0596

On the repressive side, Member States enforce the prohibitions through their respective national sanction mechanism, addressing violations of insider trading and market manipulation via administrative and/or criminal sanctions.

Both regimes follow similar objectives and are currently complimentary to each other:

- MAR applies to financial instruments including energy derivatives;
- REMIT applies specifically to wholesale energy products.

Going forward, the REMIT market integrity regime will extent to such energy wholesale products, which at the same time meet the definition of financial instruments[28]. This will in particular affect the integrity regime for exchange traded energy products.

Coordination and enforcement in each of the two separate integrity regimes is currently done in two separate streams supervised by financial regulators on the one side, and energy regulators on the other.

Therefore, in the presence of such dual market integrity regimes with complementary, but also overlapping authority of different regulators for the physical energy and the energy derivatives markets, such approach requires close cooperation and information exchange to achieve its regulatory purpose in the best possible way and to manage and overcome any demarcation issues arising from the overlapping regulation with a similar purpose.

The early detection and suppression of market abuse or other market distorting behaviour on interlinked markets is a complex undertaking and requires close to real time holistic information on all traded energy markets and the legal authority to take immediate action in relation to these markets.

Albeit recent improvements in material integrity provisions in REMIT and strengthened collaboration between financial and energy market regulators under MAR, a gap regarding pre-emptive correction measures still persists. In particular, in cases where timely corresponding trading actions in both physical energy and energy derivatives markets create market distortions, these should be made transparent and put – at least temporarily – on halt to avoid misleading market participants and to allow for rapid corrective action.

Such shortfall materialised during the energy crisis of 2022 when, as a consequence of mandatory gas filling obligations, state-endorsed entities entered into unhedged gas purchases in an unprecedented and unexpected way. This has sent potentially misleading information about the real balance of supply and demand to EMPs.

[28] See the deletion of former Art.1 para 2 s. 1 under REMIT 2.0 which abandons the former delineation between the two regimes.

Section 6 – Liquid energy markets facilitate the energy transition

Policy recommendation

Facilitate the energy transition: legislative action should be guided by maintaining open and liquid energy trading markets without undue market entry barriers for non-financial firms as risk takers, in order to ensure private financing and the delivery of the EU's priorities on sustainable energy.

The European energy transition requires several hundred billion euros of investments annually, which increases the need for managing commercial risks through energy trading (section 6.1)

EU policymakers have set out the objective of achieving a genuine energy union, by securing the supply of abundant, affordable and clean energy, that serves the dual objective of pursuing European energy sovereignty and climate neutrality.[29]

To achieve this objective, the European energy transition requires several hundred billion euros of investments annually. As government support changes and gradually phases out (e.g., zero or negative bid tenders for offshore in Germany and the Netherlands)[30], the availability of market-based opportunities for reducing risks (such as renewable PPAs and futures) in liquid wholesale markets becomes increasingly important to attract new investments and make them bankable. To facilitate such hedging deals, renewable investors need energy traders on the other market side that are willing to offer hedging products and take risk into their portfolio ("warehousing") or externalise risks by aggregating and trading them on wholesale energy markets.

Applying investment firm status would adversely impact renewable investments (section 6.2)

The capital required under investment firm status would be 'trapped' and unavailable for long-term capital-intense activities such as renewable investments with a lifetime of 20 years or more (e.g., offshore wind park). Firms would therefore either reduce their investments in renewable assets or could only deliver those at higher costs of capital[31] (which would require

29 European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", p.10, https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

30 See for Germany, BNetzA (2023), "Results of dynamic bidding procedures in offshore wind power auctions", https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230712_OffshoreResults.html?n%20n=404530

31 Financing costs for investments such as those in renewable assets are typically measured by the weighted average cost of capital ("WACC"), which considers a company's cost of equity and cost of debt. In section 6 of the report, we show that

adequate refinancing, e.g., through public funding). Higher costs of capital could increase investment costs for the energy transition by approximately EUR 2 to 8 bn annually until 2030.[32]

the prudential capital regulations can increase both capital cost components on a group level and therefore result in a higher WACC.

32 Based on a stylised example of an offshore wind project, a change to WACC for an EMP under IFR could increase LCOE by 2% to 8%. Using 2% (or 8%) LCOE increase multiplied with EUR 103bn per year investment costs for the energy transition on the supply side. See on investment volume European Commission (2023), "Answer given by Executive Vice-President Timmermans on behalf of the European Commission (9.6.2023)".

Section 7 – Any revision of European energy trading regulation must consider global implications

Policy recommendation

Protect global competitiveness: we suggest keeping global competitiveness as a major legislative objective, aligning regulatory actions with International Organisation of Securities Commissions ("IOSCO") recommendations and abstaining from actions which have no precedence in competing jurisdictions and lead to an uneven international playing field.

In order to maintain its competitive position, European regulation for energy trading has to be in line with principles acknowledged on a global level (section 7.1)

Policymakers have reaffirmed maintaining and strengthening European competitiveness as a fundamental objective of EU policy. This includes **energy sovereignty**, accompanied by a **better** and **smarter** regulatory framework, as set out in Enrico Letta's report[33] on the EU Single Market in Spring 2024 that was welcomed by the European Council.[34] These objectives and a new European competitiveness deal should guide any action when recalibrating the regulatory environment for energy trading.

The current regulatory framework for energy commodity trading in the EU is based on the G20 commitments made in the wake of the financial crisis. Compared to other key jurisdictions for commodity trading (such as the US, UK and Singapore), it currently maintains a level playing field for EU EMPs.

It further reflects and implements the IOSCO principles for the regulation and supervision of commodity derivatives markets, inter alia:

- pre- and post-trade transparency requirements;
- position limits and position reporting for commodity derivatives; and
- a dedicated framework ensuring the integrity of traded energy markets and, in particular, its price formation and discovery.

33 Letta (2024), "Much more than a market", https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf

34 European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

Investment firm status for energy market participants in Europe has no precedence in other leading global markets (section 7.2)

Requiring investment firm status for energy market participants from the non-financial sector is not part of IOSCO principles and has no precedents in competing key jurisdictions with liquid commodity markets such as the US. It would put the competitiveness of European markets at risk and limit its ability to maintain a high level of liquidity and to attract investments in new assets.

In addition, it would impair the competitive position of EMPs in the even more global market for energy and natural resources after the energy crisis and thus have a negative impact on European security of supply.

All jurisdictions compared (the US, UK and Singapore) seek to achieve the common objectives of

- maintaining the stability of the financial system;
- fostering the integrity of price formation of traded commodity markets; and
- ensuring market transparency for the benefit of regulatory oversight and market participants.

However, none of them are discussing to mandate investment firm authorisation for EMPs for any of these purposes. To the opposite, the US jurisdiction explicitly allows for unlimited futures trading of EMPs and offers significant headroom for non-hedging OTC swap dealing.

Policymakers need to consider regulatory trends outside the EU to prevent competitive disadvantages (section 7.3)

Policymakers in other key jurisdictions focus on improving transparency and the margining practices. This includes higher market transparency through implementing or extending position limits and accountability levels (e.g., the US and UK) or establishing dynamic volatility levels (e.g., the US). International organisations (like IOSCO) also call for extended transparency requirements and further suggest the broadening of collateral for margining beyond cash instruments.

Such important regulatory trends include:

- Financial Stability Board: eight particular policy recommendations to increase liquidity preparedness of market participants.
- IOSCO: recommendations on transparency and predictability of margin calls.
- UK: position limits to be set and supervised by trading venues instead of the FCA and the wider application of accountability levels on trading venues.
- US: application of special price fluctuation limits, such as dynamic circuit breakers.

The EU should focus on these trends rather than abandoning or narrowing the current scope of AAE, which would result in a competitive disadvantage for EU markets and EU EMPs, and is misaligned with the EU's own regulatory objectives of financial and energy market regulation.

1 Introduction: Efficient and resilient trading requires consistent and harmonised regulation across energy and financial markets

KEY TAKEAWAYS

Policy recommendation

Following an in-depth review of the regulatory environment and recent market developments of the commodity derivatives market, Frontier/Luther arrived at three guiding principles for regulatory actions:

- Energy and financial markets are closely interlinked, and actions taken in one market affect the other, and vice versa.
- Energy Trading Europe's member firms cannot abstain from trading on energy derivative markets without adverse effects on the physical market, and therefore need constant unrestricted financial market access at foreseeable costs.
- In crisis situations, resilient energy trading requires well-informed decision-making bodies which are in a position to take immediate decisions to prevent market distortion before it occurs.

Background and purpose of the study

Energy Traders Europe has instructed Frontier and Luther to assess the envisaged regulatory review of the AAE under MiFID II.

The report considers various strategic legal and economic dimensions:

- It particularly focusses on liquidity and proper energy market functioning, the ability to withstand external shocks, the prevention of market abuse and the support for orderly price formation.
- It further highlights the need for risk management from energy business activities, the importance of competitive and liquid energy markets for the strategic autonomy of the European Unition and the facilitation of the energy transition.

Energy trading is a necessary ancillary activity for market participants to conduct their main business

Energy market participants[35] ("EMPs") operate in a complex supply chain, and face various commercial risks from producing, buying and selling energy commodities. Trading is a key prerequisite that energy markets are efficient, and reflect scarcities in the supply and demand balances through corresponding price signals to market participants. It is also an essential ancillary activity, allowing energy firms to actively manage risks from their main commercial business of energy generation and supply, and (inter alia) provides risk transformation between the supply and demand side, as well as valuable insights into current and future market developments for EMPs that allows for competitive pricing of energy commodities.

The regulatory environment for energy trading considers both energy and financial markets

Energy commodities such as (renewable) power, gas, oil and prospectively (green) hydrogen form the basis for economic activity in the EU. This requires an appropriate regulatory framework that ensures an affordable, secure and sustainable energy supply to the benefit of the European economy and population. The recent energy crisis and related policy interventions provided a stress test for the current regulatory framework for energy markets in the EU.

In addition to energy markets, policy makers have also identified the need for regulatory oversight and intervention in the financial markets where energy derivatives are traded. As energy and financial markets are closely interlinked, policymakers and regulators should keep in mind that actions taken in one market will have an impact on the other, and vice versa.

In this part of the report, we:

- set out **background and purpose** of this study;
- highlight that **energy trading is a necessary ancillary business activity** for market participants to conduct their main business;
- provide a short **overview of the regulatory environment** for energy trading; and
- derive **key principles** for regulatory actions.

[35] We use **energy market participants** largely as synonym for **non-financial entity**, which may e.g., be an energy producer or supplier or an energy intensive industrial user. Legally defined these are persons, which are none of the following:
- an investment firm authorised in accordance with Directive 2014/65/EU;
- a credit institution authorised in accordance with Directive 2013/36/EU;
- an insurance or reinsurance undertaking authorised in accordance with Directive 2009/138/EC;
- a UCITS and, where relevant, its management company, authorised in accordance with Directive 2009/65/EC, unless that UCITS is set up exclusively for the purpose of serving one or more employee share purchase plans;
- an institution for occupational retirement provision (IORP), as in point (1) of Article 6 of Directive (EU) 2016/2341;
- an alternative investment fund (AIF), as defined in point (a) of Article 4(1) of Directive 2011/61/EU; or
- a central securities depository authorised in accordance with Regulation (EU) No 909/2014.

Background and purpose of the study

Energy Traders Europe has instructed Frontier Economics ("Frontier"), supported by Luther Lawfirm ("Luther"), to assess the envisaged regulatory review of the Ancillary Activity Exemption ("AAE") under the Markets in Financial Instruments Directive II[36] ("MiFID II").

This instruction is prompted by the mandate under Art. 90 (5) MiFID II given to the European Commission ("EC") in consultation with ESMA[37], EBA[38] and ACER[39], which explicitly asks to be based on a **comprehensive assessment of the markets** for commodity derivatives, emission allowances and derivatives thereof.

The EC's regulatory review is closely linked to the developments during the **energy crisis**, which led to unprecedentedly high market prices for gas and power in the EU.[40] Rising wholesale prices further led to a sharp rise in collateral requirements ("margin calls") for EMPs at energy exchanges.

Against this background, Energy Traders Europe decided to commission an **own report to contribute to the overall discussion and decision-making process**.

The following Frontier/Luther report considers various strategic legal and economic dimensions and focusses on the:

- liquidity and proper functioning of markets for energy commodity derivatives and physical power and gas;
- ability of the markets to withstand external shocks;
- prevention of market abuse and support for orderly pricing and settlement conditions;
- need to manage the risks arising from energy business activities;
- need to maintain competitive liquid markets for energy and energy derivatives; that ensure the open strategic autonomy of the European Union;
- facilitation of the energy transition and the delivery of the EU's priorities on sustainable energy;

36 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065

37 European Securities and Markets Authority

38 European Banking Authority

39 European Union Agency for the Cooperation of Energy Regulators

40 Stakeholders widely acknowledge that a physical shortage of energy triggered by a cut in Russian gas supplies was the primary driver for the energy crisis. See section 3 of this report for a detailed description of the energy crisis, and. For example, ACER (2023), "European gas market trends and price drivers -2023 Market Monitoring Report", https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

altogether outlined as **key considerations** and **learnings** from the energy crisis in recital (14) MiFID II.

We further take into account the explicit review criteria of Art. 90 (5) MiFID II which are

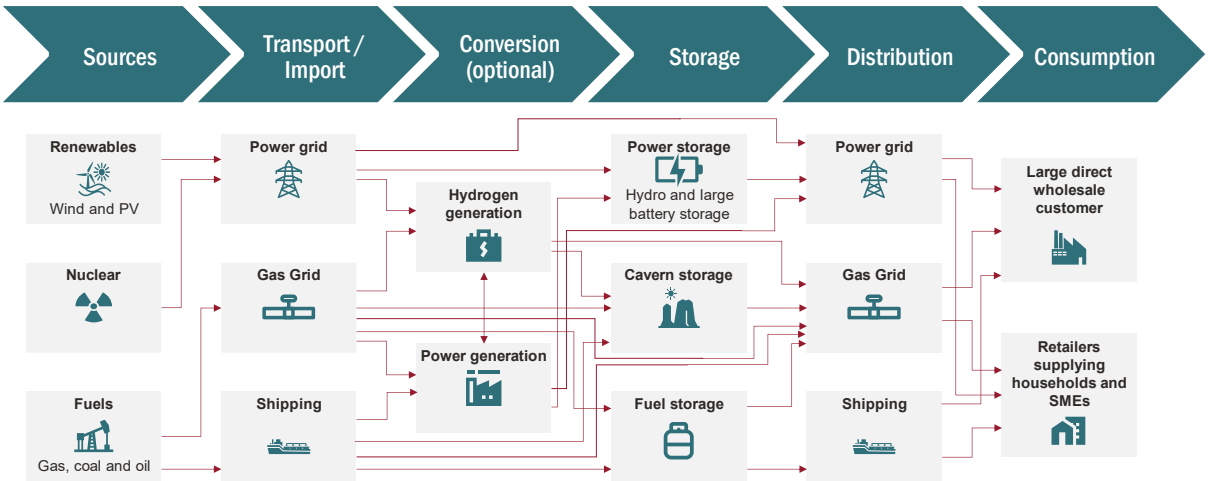
- the ability of affected firms to effectively reducing risks directly relating to its commercial or treasury activity;
- the application of requirements for investment firms set out in Regulation (EU) 2019/2033; and
- the requirements for financial counterparties laid down in Regulation (EU) 648/2012.

Energy trading is a necessary ancillary activity for market participants to conduct their main business

Energy trading is a **necessary ancillary activity for EMPs** to conduct their main business of physical generation and supply.[41]

In liberalised energy markets, such as the EU, EMPs are active throughout a complex energy supply chain (see Figure 2). This ranges from sourcing of energy to transportation, conversion of energy carriers, storage, distribution and ultimately consumption that is spread across Europe by geography and time[42]. Various commodities are imported into the EU such as oil, gas (including LNG), coal, and biomass.

Figure 2 Energy market participants operate in a complex value chain



Source: *Frontier Economics*
Note: *Simplified schematic illustration (e.g., excluding biomass and emission certificates)*

41 EMPs are also consumers, e.g., when procuring fuel or emission certificates for fossil power plants.

42 With limited storability (in particular for power), energy markets need to balance physical supply and demand at all times (e.g., only very limited capacity to store power generation from renewable production during the night such as offshore wind in pump-hydro-storage for consumption over the day), see Annex B.

In addition, EMPs, which hold physical assets with a lifetime of 20 years and more (e.g., offshore wind parks or gas-fired power plants) are exposed to long-term market risks. It requires EMPs (inter alia) to enter into derivatives contracts on liquid and competitive wholesale markets, with low barriers to entry and orderly price formation, to secure and hedge prices and volumes for the energy they intend to produce or the fuels they will have to procure for future periods. Similar considerations apply for retailers procuring energy on a wholesale level and who provide their customers with fixed price contracts for future delivery periods.[43] This derivative trading, conducted both over-the-counter ("OTC") and at trading venues (e.g., regulated exchanges), constitutes a **financial market activity**.

The regulatory environment for energy trading considers both energy and financial markets

The economy of the European Union is based on the existence of free markets, competition and the effective use of the **basic freedoms** guaranteed under the European Treaties.[44]

As a general principle, this also holds true for **energy markets,** including energy trading. There is no legal obligation for EMPs to invest into physical assets (e.g., offshore wind park) and to generate or trade energy. The main incentive for EMPs to do so, is to create a return on capital for its shareholders, or to meet existing contractual commitments towards their counterparties or customers. In the absence of an adequate return for investors, EMPs would therefore exit the market, or engage in other business activities.

The energy sector, however, plays a central role for the European economy. Energy commodities such as (renewable) power, gas, oil and prospectively (green) hydrogen form the basis for economic activity in the European Union across all areas while meeting sustainability targets – from agriculture, manufacturing, services, transportation to the residential sector. Affordable and secure energy is a basic need of Europe's population.

Historically, the EU has been widely regarded as providing a high level of energy security and as a frontrunner to a more sustainable energy sector.[45] At the same time, however, the EU is under increasing pressure regarding the competitiveness and affordability of its energy supply on a global level. At least partially, these increasing challenges result from a limited endowment with natural resources within Europe and the costs from regulatory interventions, most prominently the pursuit of EU's sustainability targets[46].

---

43 This is also reflected in the EU's Electricity Market Reform, see European Council (2023), "Electricity Market Reform", https://www.consilium.europa.eu/en/policies/electricity-market-reform/

44 As, *inter alia*, expressed in Art. 3 para. 3 and Art. 6 of the Treaty on European Union (TEU); Art. 4 para. 2 lit. a) and 26 of the Treaty on the Functioning of the European Union (TFEU).

45 European Commission (2023), "Fit for 55: Delivering on the proposals", https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal/fit-55-delivering-proposals_en

46 See for example IEA (2023), "Electricity Market Report 2023", https://iea.blob.core.windows.net/assets/255e9cba-da84-4681-8c1f-458ca1a3d9ca/ElectricityMarketReport2023.pdf

As a consequence, an appropriate regulatory framework ensuring an affordable, secure and sustainable energy supply to the benefit of the European economy and population is required. In this context, the recent energy crisis and related policy interventions provided a real-world stress test for the current regulatory framework for energy markets in the EU.[47]

In addition to energy markets, policymakers have also identified **financial markets**, on which energy derivatives are traded, for regulatory oversight and intervention. The main driver for such intervention is to protect investors and society (as a whole) from harm caused by unlimited and non-supervised provision of investment services to clients. As a result, unless a specific exemption such as the AAE under MiFID II applies, the provision of financial services is only permitted with prior proper authorisation as an investment firm ("IF"). Prerequisite for such authorisation as a licensed investment firm are minimum regulatory capital requirements, liquidity requirements, and a number of business conduct obligations including investor information, transparency, and reporting requirements.

Another concern with respect to financial markets is the fear that unlimited and non-transparent speculation would affect prices and endanger the **stability** of the **financial system**, in particular, if major financial counterparties ("FC") would fail and require a governmental bailout to avoid insolvency and spill-over effects on other economic sectors. The latter concerns were primarily fed by the experiences of the financial crisis of 2007-2009, also referred to as the Great Financial Crisis ("GFC")[48]. The GFC led to various legislative action points, based on the common understanding achieved at the G20 Pittsburgh Summit.[49] These resulted in new regulatory instruments, which (inter alia) relate to mandatory clearing of OTC derivatives and increased transparency obligations[50].

47 See section 3 for more details.

48 IOSCO (2024), "Consultative Report: Transparency and responsiveness of initial margin in centrally cleared markets – review and policy proposals", p. 7, https://www.bis.org/bcbs/publ/d568.pdf

49 OECD (2009),"Leader's Statement of the G20 Pittsburgh Summit", https://www.oecd.org/g20/summits/pittsburgh/G20-Pittsburgh-Leaders-Declaration.pdf

50 Within the EU, the mandatory clearing obligation under Commission Delegated Regulation (EU) 2015/2205 applies to the products referred to in this Regulation and ESMA (2024), "Public register for the clearing obligation under EMIR", ESMA70-151-2218 Public Register for the Clearing Obligation under EMIR (europa.eu). Currently, none of the OTC commodity derivative contracts are subject to mandatory clearing. According to Section 1.1. and 1.2. of the register, only OTC interest rate derivatives and OTC credit derivatives are subject to the clearing obligation.

Key principles for regulatory actions

For our study, we set out **three key principles** for regulatory actions (see Figure 3 below).

Figure 3 Three guiding principles for regulatory actions

Source: Frontier Economics

As a first key principle, it is important to understand that energy and financial markets are closely interlinked, and actions taken in one market affect the other and vice versa.

In the absence of price regulation, protected supply regions or captive customers, EMPs operating in liberalised and increasingly interconnected energy markets need to earn the return for their investments in a competitive environment on a daily basis. At the same time, EMPs are exposed to long-term market risks:

- **volume risk** – uncertainty on the level of future energy supply required due to volatile demand reflecting economic growth or recession (e.g., as seen in Covid-19 crisis)
- **price risk** – uncertainty on the level of future market prices for energy that determine the economic viability of investments (e.g., selling power from and buying fuel/CO2 allowances for a gas-fired power plant with a lifetime of 20 years and more)
- **currency risk** – foreign currency risk when procuring or selling energy on global markets (e.g., buying LNG in USD for a gas-fired power plant and selling the production in EUR).

To manage these risks, EMPs enter into derivatives contracts to secure and hedge prices and volumes for the energy they intend to produce or the fuels they will have to procure for future periods. Similar considerations apply for retailers procuring energy on a wholesale level and who provide their customers with fixed price contracts for future delivery periods.[51]

[51] This is also reflected in the EU's Electricity Market Reform, see European Council (2023), "Electricity Market Reform", https://www.consilium.europa.eu/en/policies/electricity-market-reform/

Consequently, EMPs are exposed to the fluctuating value of such derivative contracts. Depending on the prevailing concept of financial regulation, such contracts may, in certain jurisdictions, be categorised as **financial instruments,** which opens the door for financial regulation. This also holds true for the EU regime, where, according to MiFID II[52], certain energy contracts are classified as financial instruments.

It is important to note, however, that the activities of EMPs are necessary to mitigate their commercial risks resulting from the main business activity by accessing liquid and competitive wholesale markets with low barriers to entry and orderly price formation. Also, EMPs are indispensable to mitigate and trade away commercial risk of other market participants such as renewable sponsoring investors and lending banks.

Unlike firms from the financial sector, EMPs hold physical assets (e.g., offshore wind parks or gas-fired power plants) and cannot abstain from participating on the energy wholesale market for buying and selling energy commodities. They trade exclusively among professional counterparties and invest their own money.

In particular, EMPs continuously require buying and sell:

- on the physical spot market to balance physical supply and demand (across commodities, location, and time); and
- on the financial market to manage their own market risk over a longer period by trading derivatives up to multiple years in advance before (physical) settlement.

For this very purpose, EMPs not only created and supported the development of energy trading venues[53], but also developed their own standard trading terms for bilateral OTC trading, such as the General Agreements Electricity[54] and Natural Gas[55] provided by Energy Traders Europe.

52 Annex I, Section C of Directive 2014/65/EU of the European Parliament and of the Council on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU of 15 May 2014, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065

53 The European Energy Exchange (EEX) stock corporation (Aktiengesellschaft – AG) is a central trading platform for wholesale energy as well as environmental products, freight and agriculturals based in Leipzig, Germany. The EEX is the result of a merger between LPX Leipzig Power Exchange and the Frankfurt-based EEX in 2002. It was set up by the energy industry itself as a vehicle for utilities to venture into organised trading, as evidenced by the list of shareholders, which can be clustered into market segments such as grid operators, traders, domestic and international utilities. See EEX (2024), "Shareholders", https://www.eex.com/en/eex-ag/shareholders

54 Energy Traders Europe (2007), "EFET General Agreement Concerning Delivery and Acceptance of Electricity", Version 2.1 (a), https://efet.org/home/documents?id=36

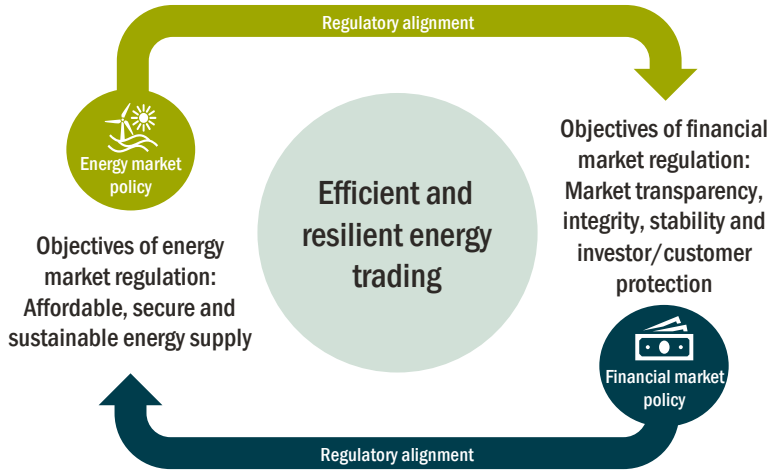
55 Energy Traders Europe (2007), "EFET General Agreement Concerning Delivery and Acceptance of National Gas", Version 2.0 (a), https://efet.org/home/documents?id=34

With energy and financial markets closely intertwined, any change in financial market regulation affecting energy derivatives, therefore needs to be aligned with the objectives of energy market regulation (and vice versa) to avoid unintended consequences for energy markets, and the European economy as a whole.

Moreover, the regulatory regimes, which preside over each activity, must closely assess the interactions between both markets, and acknowledge the specific requirements by EMPs for efficient energy trading (see Figure 4).

From an energy market perspective, core regulatory objectives are **affordable, secure and sustainable energy supply**. Additionally, any policy intervention in financial markets must also be aligned with the core objectives of financial markets: **market transparency, stability, integrity, and investor/ customer protection.**[56]

Figure 4 Policy interventions in financial and energy markets need to be aligned



Source: *Frontier Economics*
Note: *Schematic illustration*

56 For completeness, the wider regulatory objectives for both energy and financial market regulation are as follows:

1. Energy market - safe, secure, sustainable, competitive and affordable energy. See Fourth Energy Package ("Clean Energy for all Europeans"), Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, Recital (2).

2. Financial markets - increase transparency of transactions, better protect investors, reinforce confidence, address unregulated areas, ensure that supervisors are granted adequate powers to fulfil their tasks, avoid potential regulatory arbitrage, create more legal certainty and less regulatory complexity. See Directive (EU) 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (MiFID II), Recital (4) and Regulation (EU) 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) 648/2012 (MiFIR), Recital (3).

As a second key principle, we note Energy Traders Europe's member firms cannot abstain from trading on energy derivative markets without an adverse effect on the physical energy market and therefore need constant financial market access at foreseeable costs.

In particular, if EMPs were forced to exit energy derivatives trading on financial markets (e.g., as a consequence of disproportionate regulation), this would:

- **severely impact their main business of physical energy generation and supply** (e.g., by making new investments more risky and financially unattractive);
- **result in less efficient risk management and the need for alternative hedging approaches** (e.g., through governmental support[57]); and
- **reduce overall market liquidity and thereby impacting orderly price formation** (which in turn adversely impact the main business and associated risk management set out above).

As we set out later in the study in more detail, such withdrawal would therefore neither benefit the financial, nor the energy market (see section 3.2).

As a third key principle, we note that resilient energy trading requires well-informed decision-making bodies which are in a position to take immediate decisions to prevent market distortion before it occurs.

In a crisis scenario, **quick detection** of market distorting behaviour is key, be it of *cross-border*, *cross-commodity*, or *cross-market* impact.

As a learning from the energy crisis of 2022, uncommon trading strategies in the physical gas market, such as unhedged purchase of gas volumes to fill gas storages, might have a significant impact on prices and price expectations in both shorter- and longer-term markets if these volumes are not resold in the forward market.[58]

The energy crisis has therefore shown that co-operation and collaboration between the various stakeholders, both at EU and national level, is essential for early detection and mitigation of such market distortions. This has been enhanced by recent legislative improvements.[59]

---

57 Such governmental support could be provided in different ways, including measures such as continuous margining support for EMPs through public funding.

58 In the energy crisis, storage filling obligations were an effective measure to enhance security of supply but adversely impacted market price formation, see case study in section 3.1.1 or ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p. 47, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

59 See section 4.1 for examples.

Going forward, a harmonised single data set of reportable transactions across all financial and physical market reporting systems would further support early detection of market distorting behaviour[60]. This would enable regulators to take targeted corrective action before the effects materialise and avoid the application of severe market-wide measures such as circuit breakers[61].

60 See policy recommendation 5 (“Maintain market integrity”) upfront.

61 See section 3.3.3 for more information on circuit breakers.

2 Regulation should promote energy trading, which is a key factor for affordable, secure and sustainable energy supply

KEY TAKEAWAYS

Policy recommendation

The regulatory framework for energy trading should promote stable and liquid market conditions, orderly and transparent price formation, low barriers to entry, and an adequate level of investments under fair and open competition in interconnected markets.

Such targeted and comprehensive regulation would allow EMPs to support efficient and resilient energy markets by adequately managing the various risks throughout the energy supply chain, and optimising their risk management for hedging activities. However, it is further of particular importance for non-hedging trading activities, as they provide competitive pricing of energy commodities, and allow diversification of business activities, ultimately enabling the wider European economy to take full advantage of the benefits of energy trading.

Trading is a key prerequisite for liquid, competitive and efficient energy markets (section 2.1)

- **European end-consumers benefit from energy trading through affordable, secure and sustainable energy supply (section 2.1.1):** energy trading is essential for liquid and competitive energy markets, with energy resources efficiently allocated through accurate and orderly formed price signals. Trading incentivises long-term investments in the energy sector, including those in renewable assets to facilitate the energy transition, and reduces wholesale transaction costs to the ultimate benefit of end-consumers downstream.

- **Hedging and non-hedging trading activities by market participants plays a crucial role in achieving liquid, competitive and efficient energy markets (section 2.1.2):** EMPs engage in trading to hedge prices from energy generation and consumption over location and time. However, motives for energy trading go beyond hedging, and play a crucial role in creating liquid energy derivatives markets. These motives include risk transformation, price discovery and business diversification, as well as own account trading.

- **Energy commodity markets are closely linked at various levels (section 2.1.3):** efficient and resilient energy trading requires liquid markets for different commodities (e.g., power or gas) traded across contract types (e.g., spot and derivatives), channels

(e.g., exchanges and "over-the-counter") and geographies that are closely linked amongst each other. The variety of energy commodities (and markets thereof) reflect the complexity of the supply chain EMPs are operating in, and highlights the importance for a targeted and consistent regulatory framework.

Sound risk management strategies are of particular importance for professional energy trading (section 2.2)

- **Market participants apply centralised and consistent risk management frameworks for their trading activities (section 2.2.1):** as industry standard, risk management is a central company function for EMPs, which is typically guided by existing regulatory and legal frameworks (e.g., MaRisk[62]). Within their risk management frameworks, EMPs trade under strict and pre-defined risk mandates, and apply comprehensive methods to manage three main risk types (market, credit, and cash liquidity risk). Liquid markets allow EMPs to manage these risks more efficiently, ultimately resulting in lower transaction costs to the benefit of end-consumers downstream.

- **Managing cash liquidity risk is an integral part of daily risk mitigation procedures (section 2.2.2):** for managing the cash liquidity risk, which has been of particular importance in the energy crisis, EMPs rely on a range of methods in their daily operations. This includes a continuous assessment of cash reserves, stress testing and scenario analysis, the diversification of funding and comprehensive reporting and monitoring.

In this part of the report, we illustrate the importance of trading and adequate risk management strategies for an efficient transfer of risks throughout the energy value chain.

- In section 2.1 we highlight that **trading is a key prerequisite for liquid, competitive and efficient energy markets**. We explain benefits for European end-consumers, and highlight that trading allows market participants to manage risks from their core business of energy supply and offer competitive prices on a wholesale level. We close the chapter by explaining how commodity markets are closely linked at various levels (e.g., contract types, trading channel, across commodities and geographies).

- In section 2.2 we then provide an **overview on risk management strategies that are of particular importance for professional energy trading** and how these are applied in practice, with a particular focus on managing cash liquidity risk.

62 Bundesbank (2022), "Annotated text of the Minimum Requirements for Risk Management (MaRisk) in the version of 16.08.2021", https://www.bafin.de/SharedDocs/Downloads/EN/Rundschreiben/rs_1021_marisk_ba_en.html and Regierungskommission (2022), "German Corporate Governance Code as amended on 28 April 2022", https://www.dcgk.de//files/dcgk/usercontent/en/download/code/220627_German_Corporate_Governance_Code_2022.pdf

2.1 Trading is a key prerequisite for liquid, competitive and efficient energy markets

In liberalised energy markets, trading is a key prerequisite for liquid, competitive and efficient energy markets.

From an economic perspective, the liquidity of a market[63], which coincides with the level of trading, impacts the overall market efficiency, ensuring a competitive environment and level-playing field with orderly formed prices are available to EMPs in a transparent and non-discriminatory manner.

Regulatory measures for energy commodities trading need to be aligned with these objectives, safeguard market participants and ensure they contribute to liquid, competitive and efficient energy markets.

In the remainder of this sub-section, we highlight that:

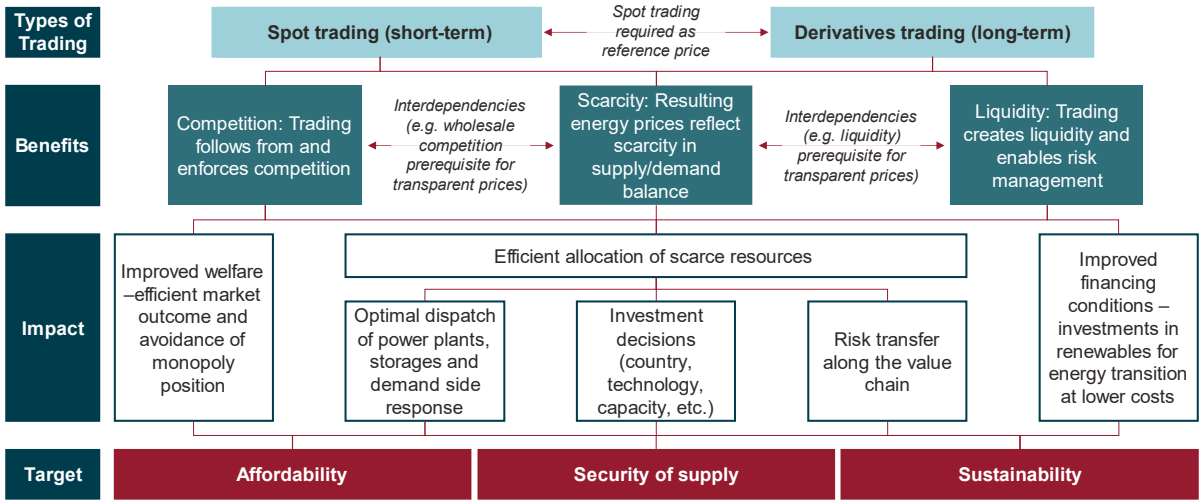
- **European end-consumers benefit from energy trading through an affordable, secure and sustainable energy supply**;
- **Energy trading allows market participants to manage risks from their core business of energy supply and offer competitive prices on a wholesale level**; and
- **Energy commodity markets are closely linked at various levels.**

2.1.1 European end-consumers benefit from energy trading through affordable, secure and sustainable energy supply

The main **benefits** of energy trading on a wholesale level relate to competitive and liquid markets with energy prices reflecting scarcity. This ultimately contributes to an affordable, secure and sustainable energy supply for European end-consumers (see Figure 5 on the next page).

63 Liquid energy markets allow market participants to buy or sell energy commodities without causing a material change to the price of the product and without incurring material transaction costs. An important feature of a liquid market is the presence of a large number of buyers and sellers willing to transact at all times. Objectives for liquidity include the availability of long-term products for risk hedging, robust reference prices based on real market values and an effective short-term market. See for more details for example Ofgem (2024), "Electricity wholesale market liquidity", https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/electricity-wholesale-market-liquidity

Figure 5 Energy trading contributes to an affordable, secure and sustainable energy supply for European consumers



Source: Frontier Economics

In particular, energy trading on a wholesale level brings the following benefits:

- **Enabling competition**: since the beginning of market liberalisation in the late 1990s/early 2000s,[64] the energy sector has developed into a competitive landscape though remaining market fragmentation yet limits EMPs from hedging their price exposure even more efficiently. Irrespective of this, wholesale energy trading as distinct stage of the energy value chain generates material benefits through increased competition.
  - By market participants: on a wholesale level trading allows EMPs without own generation assets to enter the retail segment by competing for end-consumers further down the supply chain, providing end-consumers with a greater choice of suppliers and more competitive prices. Conversely independent energy commodity suppliers (e.g., renewable power producers without dedicated retail portfolio) can get into the market on a wholesale level and sell their output without the need to contract with end-consumers.
  - By product types: additionally trading stimulates competition in terms of product variety and new product developments on a wholesale level. Against the background of the energy transition and the increased uptake of renewables with volatile generation patterns new product types emerge allowing EMPs to individually match their preferences and needs accordingly. For instance, the uptake of power PPA volumes traded led to an enhanced product offering by EEX, a major European power

64 European Parliament (2023), "Internal energy market", https://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market

exchange, with additional PPA hedging possibilities of up to ten years (compared to a conventional period of six years for standard futures).[65]

- **Managing scarcity**: accurate and reliable price signals are key drivers contributing to an efficient allocation of resources in the markets for energy commodities reflecting scarcity (see also section 5.1). The ability to freely trade spot and derivative products between EMPs on both sides via energy trading therefore highlights short- and long-term imbalances between supply and demand. This incentivises operational or structural adjustments in the market. We illustrate the effects of price fluctuations with the wholesale market for power below:
  - Intraday: scarcity signals provided through intraday prices for power determine how EMPs dispatch their supply flexibility, activate demand-side-reductions, or adjust storage in- and outflows (e.g., pumped hydro assets) on the same day.
  - Short-term: prices signalling scarcity further determine in the short-term which generation assets are ramped up or down and whether power plants with higher short-run marginal costs (e.g., gas turbines) are required to cover the peak market demand expected.
  - Long-term: long-term prices such as those for derivative contracts (e.g., forwards and futures) reaching well beyond the current calendar year additionally signal structural over- and undersupply of power generation assets. Fort instance in case of high prices they provide investment incentives for new generation assets or energy efficiency measures to reduce energy demand (e.g., through new machinery and better production processes for industrial consumers) by EMPs.
- **Enhancing liquidity**: energy trading further improves overall wholesale market liquidity. For example, EMPs are more likely to find products that fit their specific needs, can buy and sell power at more accurate and reliable market prices (if traders believe a product is under- or overvalued, they would buy or sell and drive the price up or down correspondingly) and at lower transaction costs (reflected by the bid-ask spread[66]). More liquid markets therefore reduce energy costs, facilitate better risk management (since more products are available) and ultimately enable the entry of new EMPs, such as investors in renewables which are needed for the European energy transition.

65 See EEX (2023), "PPA Hedging", https://www.eex.com/de/maerkte/strom-terminmarkt/power-purchase-agreements-hedging

66 The bid-ask spread is defined as the difference between the highest buy offer (bid) and the lowest sell offer (ask) across the trading period of a given product.

European end-consumers benefit from enhanced wholesale market liquidity

Historical wholesale power price data for Germany and Italy between January 2019 and December 2022 shows that **higher market liquidity results in more efficient and resilient power markets and higher consumers welfare.**

Germany is Europe's most liquid wholesale power market with a financial trading volume around 8[67] times the physical power consumption (i.e., a "churn factor" of 8)[68]. Italy's wholesale market liquidity is more modest, with a churn factor of only 2. Higher trading volumes coincide with lower transaction costs per trade in Germany, as measured by the bid-ask spread (see upper part of Figure 6).[69] A high level of market liquidity ultimately benefits end-consumers, as, for example, retailers typically pass-on their wholesale level transaction costs to final customers as an integer part of their price setting strategy.

- **The more liquid German wholesale market allows for more efficient energy trading to the benefit of consumers.** More potential buyers and sellers on the German market contribute to higher trading volumes and market liquidity. More trading parties further imply that buy and sell quotes (at which products are traded in the market) are closer together. In other words: The bid-ask spread is lower, and it is ultimately cheaper to trade power. A good example is the low bid-ask spread pre-crisis in Germany. Over the period 2019-2021 the average German spread (c. 0.23 €/MWh) has been around half of its Italian counterpart (c. 0.50 €/MWh)[70].

- **The more liquid German wholesale market also provided greater resilience in the energy crisis**. In 2022, both Germany and Italy lost liquidity (measured as average daily trading volumes) in similar proportion, i.e. trading volumes were about 40% to 50% lower than the average pre-crisis liquidity (2019-2021).[71] Despite similar relative losses, the impact on transaction costs was more pronounced: While the average German spread increased from 0.23 €/MWh to 2.77 €/MWh (factor 12), the Italian spread went up from 0.50 €/MWh to 7.54 €/MWh (factor 15)[72]. Therefore, the remaining absolute level of market

67 Data on churn rates is observed over the time period from 2017 to 2021 and taken from ACER (2021), "Wholesale Electricity Market Monitoring", https://www.acer.europa.eu/Publications/Progress_report_European_wholesale_electricity_21.pdf

68 The 'churn factor' provides an indication of the relative 'size' of the market compared to its physical size and is relevant to all market timeframes. See also reference in previous fn.

69 'Bid-ask spreads' are defined as the average difference between the highest buy offer (bid) and the lowest sell offer (ask) across the trading period of a given product. These spreads relate to the costs that market participants may incur when making a transaction. See also reference in fn. 67.

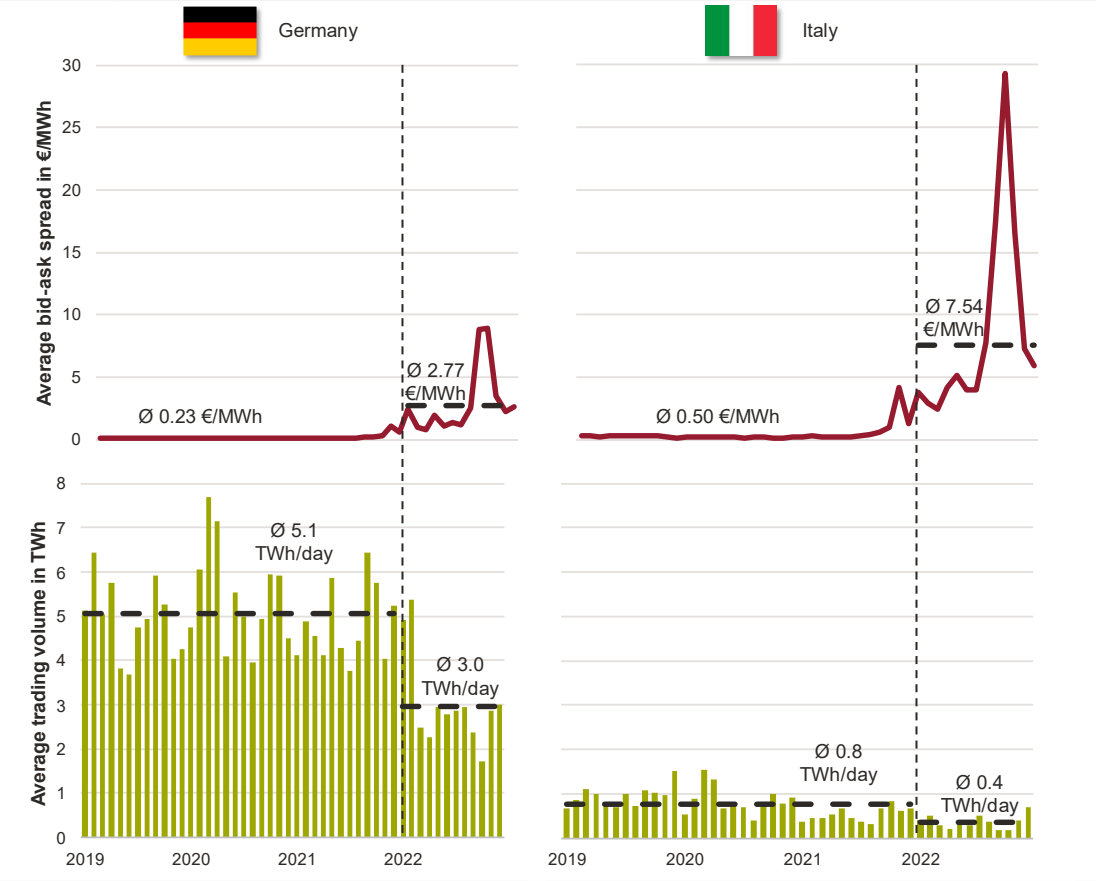
70 Spreads based on analysis of core trading hours (between 9 am and 5 pm).

71 Within our analysis, this corresponds to an average daily trading volume in Germany of c. 5 TWh between 2019 and 2021 and of c. 4 TWh in 2022. Respective values for Italy are c. 770 GWh between 2019 and 2021 and c. 360 GWh in 2022.

72 Consistent with the absolute values depicted above, a similar pattern holds for relative spreads (spreads as percentage of the commodity price). For Germany, relative spreads have increased from 0.3% pre-crisis to 0.9% in 2022 (delta of 0.6 percentage points). The update in Italy is materially higher, with 0.6% pre-crisis to 2.9% in 2022 (delta of 2.3 percentage points) reflecting the lower market liquidity compared to Germany.

liquidity, which has been higher in Germany compared to Italy, materially limited the increase in transaction costs to the benefit of consumers.

Figure 6 Lower transaction costs through higher market liquidity, German and Italian Y+1 power contracts in comparison between 2019 and 2022



Source: *Frontier Economics based on data provided by a member of Energy Traders Europe*

Note: *Y+1 power contract underlying; trading volumes calculated as average daily trading volume for the respective front year power contract in a given month (i.e., power contract traded in Jan. 2019 is CAL20). Values to the left of the dotted line represent averages from 2019 to 2021; values to the right of the dotted line represent averages for the year 2022. Bid-ask spread calculated as average monthly difference between bid and ask price, bid-ask spread averages over time (i.e., 2019-2021) weighted by relevant trading volumes. Spreads are calculated based on core trading hours between 9 am and 5 pm.*

The benefits of liquid, competitive and efficient wholesale energy markets, in which orderly formed prices highlight supply and demand conditions in a transparent manner, further support overall policy goals for the energy market. This includes the following:

- **Improved welfare** – as set out above, energy trading on a wholesale level increases competition, reduces market concentration and market power and thus contributes to a more efficient (welfare-maximising) market outcome that benefit end-consumers (see previous case study).

- **Efficient allocation of resources** – energy trading further strengthens an efficient allocation of resources through scarcity signals on a wholesale level. For instance, generation assets with the lowest costs are dispatched and demand-side responses can be triggered (e.g., as seen in the energy crisis when consumers reduced their demand in light of high prices). In the long-term an efficient level of investment contributes to overall security of supply. It also enables investors to efficiently hedge their financial positions against price and market risks (efficient risk allocation) reducing overall costs for final consumers.

- **Improved financing conditions** – trading further reduces transaction costs for EMPs and therefore contributes to cost-efficient and affordable energy. This holds in particular for the substantial new investments needed in renewables (which are increasingly relying on market revenues and products like PPAs to ensure financial viability). This in turn reduces the dependency on additional public financing through taxpayer money.

The benefits of energy trading are further acknowledged by key regulatory stakeholders in Europe. In a recent consultation on the future electricity market design, the EC emphasised the need for sufficient hedging opportunities with increased levels of renewable generation[73]:

> *"**Both consumers and suppliers need effective and efficient forward markets** to hedge their price exposure and decrease the dependence on short-term prices. (…)"*
>
> *"The **rapid deployment of renewable generation over the coming years will increase the need for hedging opportunities** due to the expected growing price volatility in the years ahead." (emphasis added in bold)*

Additionally, the European regulator for physical energy markets, Agency for the Cooperation of Energy Regulators ("**ACER**"), has quantified the benefits of **cross-border trading** in Europe (which is only feasible due to the existence of liquid, competitive and efficient power markets) which illustrates that already direct effects from power trading on spot markets alone can reach **two-digit billion amounts**. Indirect benefits of cross-border trading, such as lower power prices for the economy (e.g., at the benefit of aluminium or steel producers that can produce higher outputs under lower power prices) or the benefits of trading other energy commodities such as gas, are yet not taken into account.

In detail, **ACER quantified the benefits of cross-border power trading on the spot (day-ahead) markets alone with EUR 34bn for the year 2021**.[74] In addition to these financial savings at the benefit of European (end) consumers ACER's analysis further highlights that market integration and higher market liquidity materially reduced price volatility: *"Price volatility*

---

73 EC (2023), Commission Staff Working Document: Reform of Electricity Market Design, page 36, https://energy.ec.europa.eu/system/files/2023-03/SWD_2023_58_1_EN_autre_document_travail_service_part1_v6.pdf

74 The ACER analysis compared actual 2021 market results ('historical' scenario) with a scenario where all cross-border capacities were set to zero (the 'zero scenario', implying no electricity trade across Member State borders).

would have been considerably higher (around seven times as high) if national markets were isolated."[75]

We further provide a comprehensive summary on recent statements by key European stakeholders, including EC, ACER, the European Central Bank ("ECB") and the European Securities and Markets Authority ("ESMA") on the benefits of energy trading in Annex A.

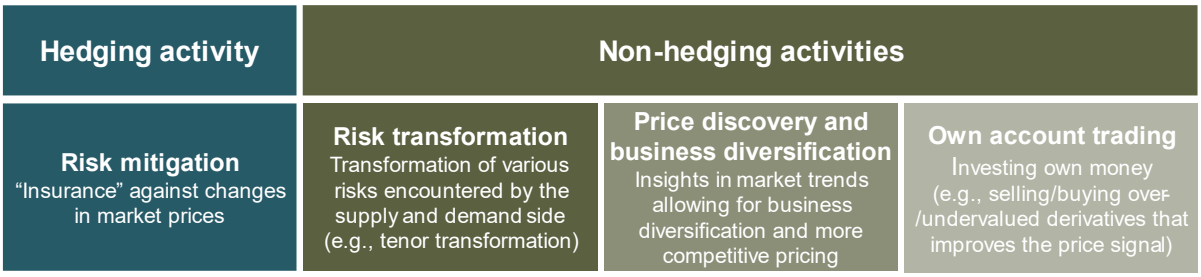
2.1.2 Hedging and non-hedging trading activities by market participants play a crucial role in achieving liquid, competitive and efficient energy markets

EMPs create and benefit from market liquidity through trading energy across a variety of commodities, contracts, products, geographies and time. This ultimately contributes to competitive and efficient energy markets to the advantage of European end-consumers (see before).

The motives for energy trading are divers and subject to the individual needs and business models pursued by EMPs. Broadly speaking, the trading motives fall into two main categories (see Figure 7 below). For EMPs, both categories playing a crucial role in achieving liquid, competitive and efficient energy derivatives markets:

- **Hedging activity** – EMPs mitigate risks by insuring ("hedging") themselves against fluctuating market prices; and
- **Non-hedging activity** – EMPs further conduct non-hedging activities, such as risk transformation, price discovery and business diversification, as well as own account trading.

Figure 7 Key motives for energy trading



Source: Frontier Economics

In the following, we provide more details on the different trading activities (hedging vs. non-hedging) and underlying trading motives by EMPs.

75 ACER (2022), "Final Assessment of the EU Wholesale Electricity Market Design, p. 22, https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf

Hedging activity: risk mitigation – EMPs insure ("hedge") themselves against fluctuating market prices

By trading on energy wholesale markets, EMPs insure themselves against fluctuating market prices.[76] For this purpose, they enter physical or financial contracts that are traded up to several years in advance (see 2.1.3 for more details). Hedging hereby allows both sides of the market more stable and predictable prices for a given period of time.

- **Sellers of energy commodities:** hedging allows energy suppliers to fix their margins and costs in situations of decreasing market prices closer to the physical delivery. A good example of this is a (renewable) power plant operator requiring continuous cashflows to cover capital and operational costs of its investment asset with a lifetime of multiple decades. Additionally, for renewable assets with power generation from wind and solar photovoltaic ("PV"), which depends on weather conditions and is intermittent[77], predictable cashflows at the time of the investment decision are important for access to external finance. Amongst other financing instruments, "bankability"[78] can be achieved through long-term sales contracts.[79]

- **Buyers of energy commodities:** hedging allows energy buyers to reduce their financial exposure in situations of volatile and increasing market prices near physical delivery. In practice, this can relate to industrial consumers such as those from the energy-intense aluminium or steel production that require a high degree of cost certainty for their commodity inputs (e.g., power or gas).[80] Additionally, energy trading supports the buy side in securing the adequate level of supply volumes required ahead of the time the physical delivery. This provides energy buyers, such as companies from the chemical, aluminium or steel industry, with a long-term planning perspective for their own business activities (which in turn is beneficial to the wider economy by receiving goods ordered in time and at reasonable prices[81]).

76 This also includes activities by EMPs in closely related commodities. For example, an EMP with a gas-fired power plant that trades gas and emission allowances as an input for its electricity generation.

77 The volatile generation pattern by wind and solar PV is typically referred to as 'intermittent'.

78 See for example European Investment Bank (2023), "Developing potential financial instruments and advisory solutions to stimulate more investments in renewable energy generation by means of commercial power purchase agreements", https://advisory.eib.org/publications/attachments/developing-potential-financial-instruments-and-advisory-solutions-to-stimulate-more-investment-in-renewable-energy-generation-by-means-of-commercial-power-purchase-agreements.pdf

79 As we set out in section 6 in more detail, these investments are key to deliver the green energy transition.

80 Another example would be power and gas retailers offering their own customers downstream contracts with largely fixed tariffs per energy unit consumed limiting the possibility to pass-on changes in procurement costs.

81 Especially when compared to a situation in which adverse price and volatility movements require the unhedged industrial consumer of energy to either pause its production or materially increase its prices towards the final consumer of the good.

Energy market participants are in a prime position to facilitate hedging

EMPs are in a **prime position to facilitate the hedging requirements of other EMPs or industrial end users of energy**, due their experience with technical and physical specifics of energy commodities.

In contrast to financial assets (such as stocks of currency), energy commodities are ultimately linked to physical delivery and consumption at a specific location and date. This creates the need for physical scheduling, transport, and storage. EMPs often operate physical generation assets and therefore possess specialised personnel with know-how on the physical, financial and risk management side of the energy commodities.

Most financial companies including banks and hedge funds have exited the energy commodity market in recent years.[82] There are two main reasons:

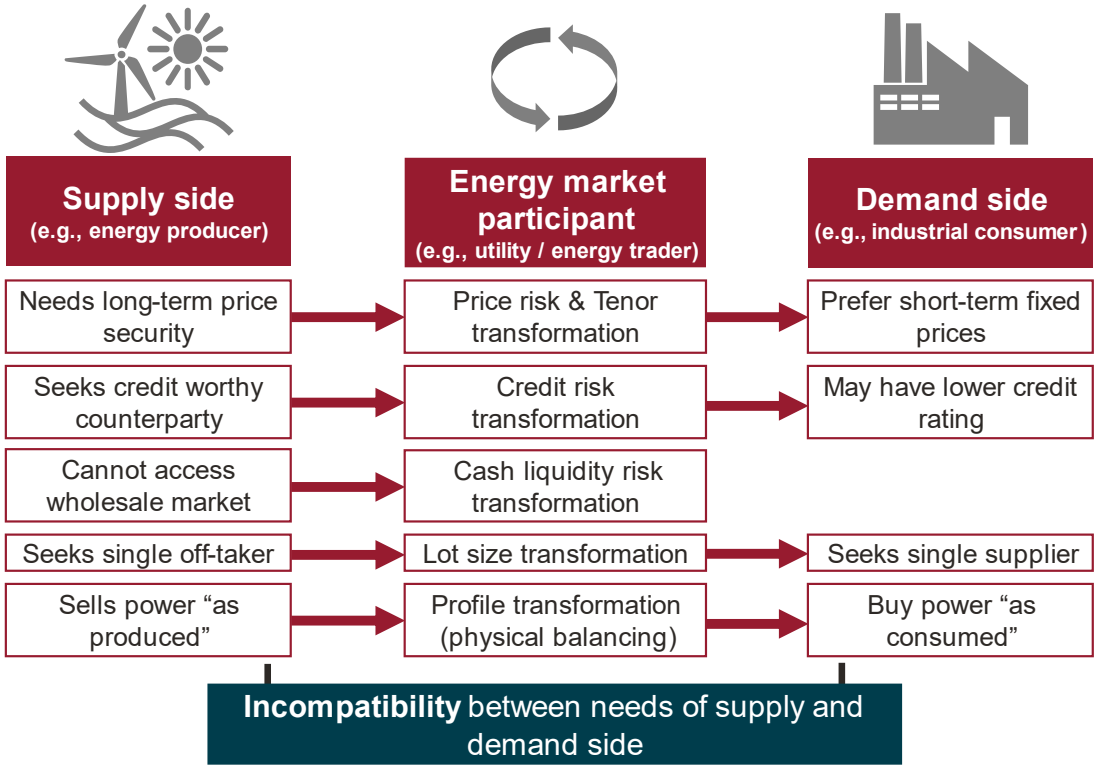
- **Industry knowledge:** as set out above many energy commodity markets require specific knowledge of the physics of the underlying products and market regulations related to them to assess and manage (physically and financially settled) energy commodity derivatives. For example, banks often lack the know-how and resources to organise scheduling and balancing for physical PPAs for power generating assets; and
- **Portfolio structure:** amongst other factors energy traders such as utilities are also better placed to manage volatility in energy supply such as intermittency of renewable power. They often have a generation portfolio they can use to balance the required power profile and therefore can treat physical trading positions in a similar way to their own generation from physical assets.

Non-hedging activity: risk transformation – EMPs transform various risks encountered by the supply and demand side of energy markets through trading

The wholesale market activity by EMPs is essential for transforming various risks the supply and demand side of energy markets are facing (see Figure 8 on the next page).

82 BQ Prime (2020), "Why banks are exiting trade and commodity finance", https://www.bqprime.com/opinion/why-banks-are-exiting-trade-and-commodity-finance

Figure 8 Energy trading allows for risk transformations that are essential to the supply and demand side of energy markets



Source: Frontier Economics

- **Transforming price and tenor risks**: the supply and demand side for energy commodities can have different risk preferences. For example, energy suppliers might favour long-term fixed prices in line with the economic lifetime of their production asset (which can reach 20 years or more), whereas the demand side, such as industrial consumers or retailers, tend to prefer fix price periods for the short- or mid-term in proportion to their specific exposure or business planning cycle (e.g., several months or few years). EMPs, such as energy traders, can balance the different risk levels on the supply and demand side by taking the residual price risk in their portfolio ("warehousing of risks"), perform a netting of positions across transactions, and trade off remaining risks in the wholesale market (e.g., directly or through proxies).[83]

- **Transforming credit risks:** energy suppliers such as investors in renewable generation assets seeking external finance might require off-takers with high credit ratings in order to be eligible for external finance. Energy traders with a high credit rating can offer such a "bankability" and sell on the available volumes to counterparties with a lower rating (e.g.,

[83] Similarly, the supply and demand side might have different preferences regarding the duration and volume of a PPA/long-term supply agreement. These agreements have gained particular importance under the EU's Green Deal and the energy transition. Renewable investors typically ask for tenors of 10 years or more. Consumers on the other side of the market may have preferences for shorter term contracts. EMPs can balance the individual needs of both market sides through so-called tenor transformations.

using different types of credit support in that context such as letters of credit or bank guarantees). As a specialised operator, they generally tend to have a better capability of evaluating the credit risk related to individual downstream customers, thus enabling the supplier further upstream on the procurement or production of energy.

- **Transforming cash liquidity risks:** exchange trading of energy commodities further requires cash margins (or other eligible assets) as collateral for futures and option trades. The collateral requirements change on a daily basis, reflecting changes in the market environment (see section 2.2 for more details). The risk of needing to post larger sums of cash in a very short time period to meet collateral requirements poses cash liquidity risk. This is particularly important for smaller energy suppliers who tend to be liquidity constrained but gain further importance in the context of the energy transition with new market players and a more decentralised approach for generation assets.

- **Lot-size transformation:** By trading EMPs can balance differences in lot size between those offered by energy suppliers and required by the demand side in two ways: (i) contracting large energy suppliers to provide energy to multiple smaller parties on the demand side, and (ii) contracting multiple smaller suppliers[84] and supplying large individual consumers (e.g., industrials/utilities) or large retail portfolios on the demand side.

- **Profile transformation:** energy suppliers, in particular those focussing on renewable generation assets with limited storability, may have a preference to sell power "as produced", while consumers on the demand side prefer "as consumed". By trading, EMPs can balance timely and geographic differences between the two by creating a diversified (renewable) portfolio and trading any remaining differences short-term, including imbalance settlements in advance or even in real time.

Non-hedging activity: price discovery and business diversification – trading provides valuable insights into market developments and allows for more competitive pricing

Energy trading provides EMPs with valuable insights into recent developments and expected trends on the different energy commodity markets through market prices observed. Open and unrestricted access to wholesale markets with orderly formed prices therefore enables EMPs to conduct comprehensive market analysis. This in turn allows them to efficiently manage their day-to-day operations, steer the long-term business strategy and offer more competitive pricing:

[84] In doing so, EMPs further allow smaller players to benefit from increased liquidity, competitive dynamics, and scarcity signals from the wholesale market. These smaller players typically lack adequate access to marketplaces (e.g., exchanges), consider the costs of operating 24/7 trading desks too high or refrain from the comprehensive scheduling and balancing requirements of energy commodities on their own. With increasingly decentralised power supply in the context of the energy transition the need for such wholesale market access and lower barriers to entry for smaller players is likely to further increase going forward.

- **Price discovery:** For example, energy trading allows utility companies with plans for asset investments or for expansion into new markets to first understand the local market functioning through financial trading of energy commodities on day-to-day basis ahead of investing in own production assets in the respective market upstream (see case study below).

- **Business diversification:** Financial trading, as well as investments outside a company's core market that can follow from a successful period of price discovery, further allow for a diversification of the company's risks and revenues, which (in turn) could provide greater resilience in case of market distress (e.g., by a reduction of concentration risk[85]).

- **Competitive pricing:** Energy trading also allows EMPs to offer more competitive pricing. For instance, EMPs expanding their business activities towards less liquid energy wholesale markets would provide additional trading opportunities to those EMPs already in the market (and vice versa). This in turn improves local market liquidity and the quality of the price signal. It further supports European market integration and would likely reduce transaction costs to the benefit of final consumers, with retailers typically passing-on their wholesale level costs downstream (see case study in 2.1.1).

Lowering barriers to entry: Market discovery and integration by energy trading

Energy trading allows EMP to gain **insights into new markets**. It ultimately contributes to **lower barriers to entry, overall market integration and more competitive pricing**.

Before investing in (physical) assets in new markets, EMPs need to understand local regulation, market dynamics (e.g., price formation mechanisms) and the nature and set-up of relevant counterparties to reduce their investment risk. Financial energy trading is a way to gain market experience and to take final investment decisions.

For example, an EMP aiming to diversify its asset portfolio and income streams through investments in renewable generation assets outside its core markets, such as a Nordic utility company expanding its business towards Western or Central Eastern Europe (CEE). Similarly, EMPs located in currently less liquid markets (e.g., CEE region) benefit from trading in more liquid and sophisticated energy markets. This can relate to better price discovery opportunities and more competitive pricing by accessing higher market liquidity, or a transfer of knowledge.

For instance, a transfer of knowledge can relate to the understanding of the flow-based market coupling currently operated in the core capacity calculation region (CCR)[86] which may expand

85 See for example section 3.1.1 and the Uniper case study for the adverse market effects under materialised concentration risks during the energy crisis.

86 The CCR includes Austria, Belgium, Croatia, Czechia, France, the Netherlands, Germany, Hungary, Luxembourg, Poland, Romania, Slovakia and Slovenia. See ERRA (2023), "ERRA Member News: EU day-ahead flow-based market coupling (FBMC)",https://erranet.org/member-news-eu-day-ahead-flow-based-market-coupling/#:~:text=The%20key%20objective%20of%20the,%2C%20Luxembourg%2C%20Poland%2C%20Romania%2C

in future to yet separated and therefore less liquid markets in Europe (e.g., Spain, Portugal, Italy, Bulgaria, and Greece).

The benefits of market discovery further stretch beyond the positive effects for EMP trading commodities. In fact, increased trading activities by EMPs in and outside their core markets **enhance overall market liquidity and market integration at the benefit of European consumers**. In particular, this improves the quality of the available local price signal, which (in turn) supports more efficient and resilient market outcomes.

Non-hedging activity: own account trading – EMPs invest own money

EMPs may also invest their own money and trade to achieve a financial return, e.g., by capturing the intrinsic value of energy commodity contracts by selling derivatives which they believe are overvalued and buying derivatives which are undervalued. EMPs achieve a financial return if their market view and the trading position taken materialises.

Own account trading is essential for well-functioning and efficient markets:

- It creates additional market liquidity, in particular as other market participants who trade for hedging purposes need counterparties that are willing take on the risk and internalise it or trade it on.
- It improves the quality of the wholesale price signals since own account traders would increase the price for undervalued derivatives as additional buyers and vice versa decrease the price for overvalued derivatives. A higher quality of the price signal in turn fosters more competitive pricing (see before).

As for all wholesale trading activities, it is important to note that EMPs employ rigid risk management frameworks and tools (see also section 2.2), which are accompanied by additional safeguards when trading on own account in particular (e.g., separate trading books and/or, dedicated sublimit for speculative positions in the portfolio).

2.1.3 Energy commodity markets are closely linked at various levels

EMPs trade energy commodities as different contracts and products via different marketplaces and channels across geographies. While the specific energy commodity products are typically traded on a standalone basis, their markets are closely linked at various levels, which creates the need for a targeted and comprehensive regulatory framework.

In the following paragraphs, we particularly highlight that:

- different types of contracts are required for trading energy commodities;
- market liquidity across trading channels is key for efficient energy markets; and
- energy commodity markets are closely interlinked at various levels.

Different types of contracts are required for trading energy commodities

Energy commodities traded on the relevant marketplaces of regulated exchange and OTC markets, broadly fall in two categories (Figure 9):

- **Spot products** – physical contracts for immediate settlement between the buyer and seller (payment and delivery). In energy markets, spot products can be traded very close to physical delivery, e.g., day-ahead (for delivery on the next day) and intraday (for same-day delivery). Day-ahead markets are typically the most liquid type of spot markets. They are always linked to a physical flow of the underlying commodity, e.g., gas or hydrogen molecules and electric currents.[87] Intraday and day-ahead markets ensure that the gas and power markets remain balanced (e.g., the volume actually needed of gas and power is available in any specific hour/day). These markets are also key, for example, to allow market participants to optimise assets with a flexible production, and act as a marketing channel for intermittent renewables (wind and solar PV), the output of which cannot reliably be forecasted long-term and will be depending on the wind/solar strength on a specific day.

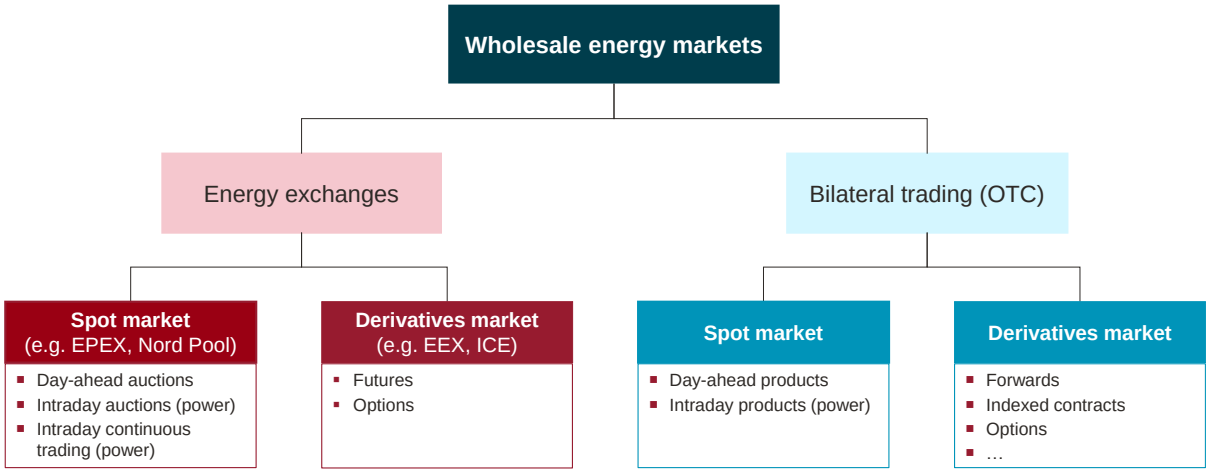
- **Derivatives** – contracts (both physically[88] or financially settled) where the time period between execution and settlement exceeds the spot delivery period and can reach up to several years ahead of settlement. The value of these contracts is dependent on an underlying fixed or reference price of the commodity. The most relevant products are forwards, futures, swaps, and options. Large purchasers (retail companies, large industrial customers) may acquire derivatives such as forwards/futures[89] to hedge against the risk of increasing power and gas prices in the future. Generators and import companies, conversely, sell derivatives to hedge against falling energy prices. These markets also serve a key role to signal expected future scarcities and can influence investment and divestment decisions.

87 Other energy spot markets, including those for coal and emission certificates, allow for longer periods between settlement and physical delivery.

88 We note that physically settled bilateral OTC forwards are not considered derivatives as they do not fall under the scope of financial instruments under MiFID II, Annex 1, Section C.

89 Futures/ and forwards are traded between several days and months and – for annual products – up to several years before the actual delivery. Settlement can take place either physically or financially. Futures and forwards are both contracts on the future transaction of an underlying asset at a price agreed today. The difference is that futures are standardised contracts traded on central energy exchanges („regulated markets“) while forwards are customised contracts traded “over-the-counter” (OTC), see next sub-section.

Figure 9 Wholesale energy trading takes place with different products through different channels



Source: Frontier Economics

Market liquidity across trading channels is key for efficient energy markets

Commodity contracts are traded via two main trading channels which have different features and characteristics.

- **Regulated markets (so called "exchanges")** where standardised contracts are traded and cleared and the parties to a trade can remain anonymous to their counterparty, as both face their clearing broker.
- **Over-The-Counter ("OTC")** between two counterparties directly facing each other. This includes more standardised physical products which are usually traded on broker operated venues such as Organised Trading Facilities ("OTFs"); and more bespoke physical or financial contracts which are usually negotiated bilaterally between counterparties and tailored to the buyer's needs.

For EMPs trading on energy exchanges or OTC typically serves different purposes.

- **Different trading channels serve different needs:** Having the choice between trading channels is important to guarantee EMPs the required flexibility to address different counterparties, geographies, time horizons and use of different products. For instance, EMPs are required to trade OTC in case their desired product is different from the standard specification available on exchanges, not available at all or because their counterparty is not an exchange member. Alternatively, EMPs will prefer trading standardised products through exchanges, allowing them to trade anonymously (and therefore avoids disclosing their specific trading need to the counterparty).
- **Choice between liquid trading venues improves effective risk management:** in their day-to-day risk management, EMPs need to trade-off market, cash liquidity and credit

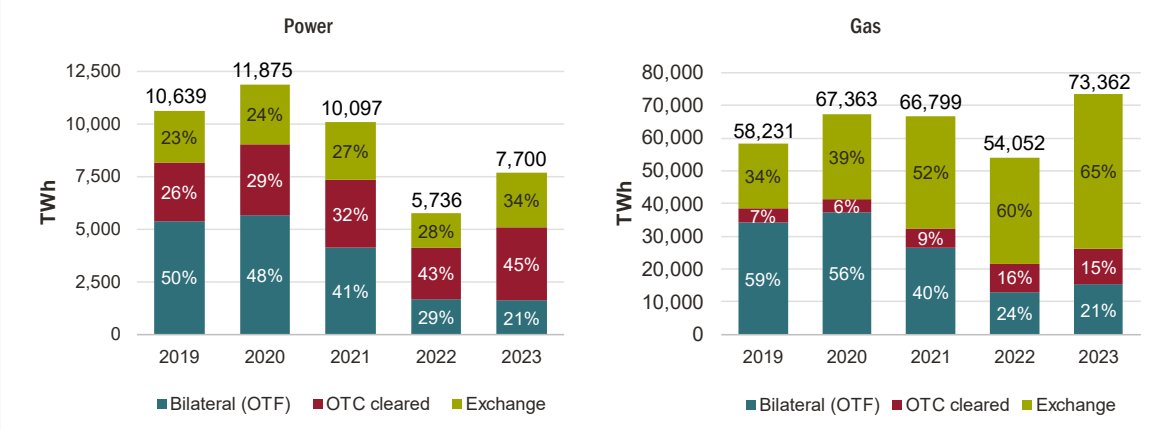
risks (the "risk triangle", see section 2.2.1). For instance, EMPs may decide to move trades from bilateral OTC (e.g., executed on OTFs under the MiFID II C.6 carve-out[90]) to exchanges to reduce credit risk at the expense of increased cash liquidity risk (or vice versa). As we show later in the report, having this flexibility is of particular importance for efficient and resilient energy markets, and has been a core mitigating measure in the recent energy crisis (section 3.1.2)

Liquidity across trading channels is key for efficient energy markets

Historical European power and gas wholesale trading volumes between 2019 and 2023 (Figure 10) show that EMPs are active on different channels.

In particular, **data for recent years shows a trend towards trading with central clearing, but bilateral trading through OTFs remains an important addition.** Despite a drop in bilateral OTF trading volumes in 2022, trade agreements with counterparty credit lines (instead of central clearing) for collateralisation remained of importance for EMPs. [91] This category accounted for 29% (power) and 24% (gas) of the overall volumes traded in 2022. It therefore remained an important venue for energy trading by EMPs throughout the energy crisis. Compared to 2022, absolute trading volumes for bilateral OTF have increased in 2023 for gas and remained more or less stable for power (even though relative shares have further decreased).

Figure 10 EMPs trade power and gas through a combination of channels



Source: Frontier Economics based on data provided by London Energy Brokers' Association (LEBA)
Note: "Bilateral (OTF)" consists of OTC trades executed on OTFs under MiFID II C.6 carve-out

90 The MiFID II C.6 carve-out avoids double-regulation under REMIT for physically settled derivatives contracts on so called OTFs. Removing the C.6 carve-out would have a negative impact on overall market liquidity. This would hinder EMPs in adequately managing their risk portfolio, in particular in periods of market distress such as the energy crisis (see also 3.1.2, 3.2 and 3.3.6).

91 See Sections 3.1.2 and 3.2 for more details.

Energy commodity markets are closely interlinked at various levels

The different markets for energy commodities are closely linked at various levels, including contract types, trading channel, across commodities and geographies. Our detailed quantitative analysis in Annex B provides details on the following examples based on European market data for power and gas in the trading period between 2021 and 2023.[92]

- **Contract types (spot and derivatives)** – our analysis confirms the below.
  - **Spot and futures prices followed similar price trends** in gas and power, driven by common price drivers (e.g., loss of Russian gas suppliers, long-term unavailability of power generation capacity).
  - **Spot prices are with few exceptions significantly more volatile** due to their reaction to short-term changes in the supply-demand balance which, especially when weather driven, do not affect the expectation of future prices (to a similar extent).
  - **Gas day-ahead (spot) and month-ahead (derivative) prices move closely** together due to the better storability of gas while prices day- and month-ahead products can be materially different in power.[93]
- **Trading channels (exchange and OTC)** – our analysis further compares derivative contracts traded on exchanges (futures) and those traded OTC (forwards) for the TTF year-ahead gas product and German power month-ahead. The analysis shows that there is essentially a "no-arbitrage" condition between futures and forwards for the same underlying. Price differences between future and forward contracts are very small and only temporary for the same contract (location, quality, delivery period) and can be attributed to difference in price reporting and market volatility.
- **Commodities (gas and power)** – gas and power markets are interlinked with gas as an important input into power generation (see Annex B for details). The analysis shows power-to-gas price ratios of 2-3 for month-ahead and year-ahead products, which are consistent with the typical efficiency of gas-fired power plants (33%-50%).[94]
- **Geographies (across Europe) –** gas and power are traded on regional European markets that are connected through power transmission lines and gas pipelines which facilitate cross-border trading. The availability of transmission capacity determines the relationship of prices on neighbouring markets. During the peak of the energy crisis in

92 In addition, Annex B provides further details on the price formation on gas and power wholesale markets. This also includes a detailed explanation of the so-called "merit-order-principle.

93 The price level on a per MWh basis power costs around 2-3 times as much as gas, partly reflecting the efficiency losses when converting gas to electricity, see also Annex B.

94 The ratios between the day-ahead products are on average also in the range of 2-3, but the ratio is very volatile, reaching values of close to zero, due to different short-term price drivers and degrees of storability between gas and power.

2022, power and gas wholesale prices diverged significantly due to congestion in transport infrastructure (see Annex B and section 3 for more details).

2.2 Sound risk management strategies are of particular importance for professional energy trading

The need to balance generation and supply over geographic location and time periods is fundamental to the design of the multi-stage value chain of energy commodities. It requires EMPs to conduct comprehensive risk management strategies on both their physical and financial activities associated with their business model. On the physical side, EMPs typically need to secure the availability of their assets (e.g., operational and delivery risk). On the financial side, EMPs have to manage the commercial impact associated with their energy trading motives (e.g., market price, credit and cash liquidity risks).

In the remainder of this sub-section, we particularly focus on the financial side of EMPs' risk management strategies and show that they:

- apply **centralised and consistent risk management frameworks** for their trading positions held; and
- **manage cash liquidity risk** as an integral part of their daily risk mitigation procedures.

2.2.1 Market participants apply centralised and consistent risk management frameworks for their trading activities

To adequately manage the financial aspects of their business model, it is industry-standard for large EMPs to perform risk management in a central company function and apply centralised and consistent risk management frameworks. This secures an efficient transfer of risk from the commercial activities by EMPs along the industry supply chain.

Principles of risk management for trading positions

It is **industry standard that EMPs trade under strict and pre-defined risk mandates[95], and employ centralised and consistent risk management policies** for their trading positions held. The risk management policies closely follow the existing regulatory and legal framework, e.g., based on Minimum Requirements for Risk Management (MaRisk) or Corporate Governance Code in Germany[96] and the EU-wide risk mitigation requirements under the

95 EMPs typically operate under pre-defined and controlled trading frameworks set by the business which, for example, include limits on the trading positions taken such as stop-loss.

96 Bundesbank (2022), "Annotated text of the Minimum Requirements for Risk Management (MaRisk) in the version of 16.08.2021", https://www.bafin.de/SharedDocs/Downloads/EN/Rundschreiben/rs_1021_marisk_ba_en.html and Regierungskommission (2022), "German Corporate Governance Code as amended on 28 April 2022", https://www.dcgk.de//files/dcgk/usercontent/en/download/code/220627_German_Corporate_Governance_Code_2022.pdf

European Market Infrastructure Regulation ("EMIR")[97].[98] As Figure 11 sets out, the risk management policies applied follow **four fundamental principles**.

Figure 11 Four fundamental principles of risk management

Ownership	Independent governance	Performance review	Transparency
clear designation of responsibilities to risk owners with defined mandate	independent risk controlling, separated from risk owners	risk realisation reflected in performance assessment by risk owner	risks are consistently monitored, measured and reported

Source: Frontier Economics, based on Joint Energy Associations Group (2023), "The Ancillary Activity Exemption of MiFID II is key to ensure security of supply", Annex 1

Key drivers affecting financial risk management by EMPs

In their financial risk management strategy EMPs need to balance three main types of risks: market, cash liquidity and credit risk (see Figure 12 on the next page).

- **Market risk:** risk of financial losses from unhedged positions following price and volatility movements on the market. Market risk can be reduced through entering hedges with products offered on exchanges or OTC markets.
- **Cash liquidity risk:** risk of availability of disposable cash in a very short time period, e.g., to meet collateral requirements for cleared markets from the central counterparty ("**CCP**") such as clearing banks. Collateral requirements on centrally cleared markets such as exchanges typically relate to daily (and sometimes intraday) margin posting for existing transactions subject to market price and volatility trends.[99]
- **Credit risk:** risk of counterparty default related to a market transaction. On centrally cleared markets (e.g., exchanges), credit risks for EMP relate to the default of their clearing bank[100] rather than their individual counterparty of the respective transaction. OTC bilateral credit risks by EMP are more widespread and subject to the respective credit risk profile assigned by the EMP to each individual counterparty.

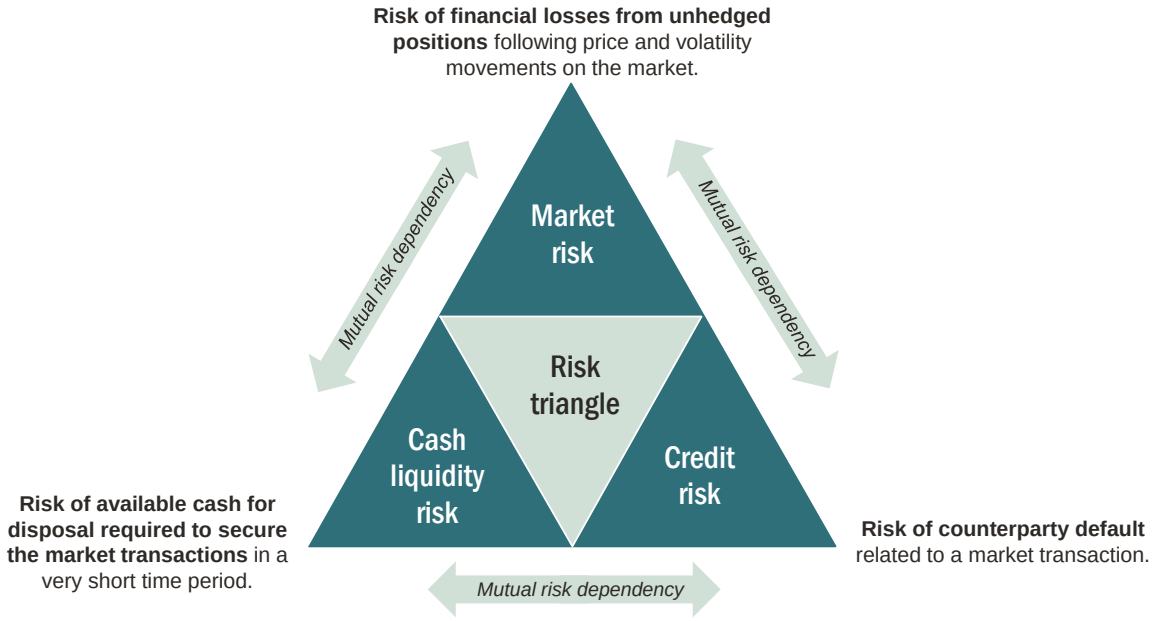
97 See Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties, and trade repositories.

98 ESMA (20023), "Clearing obligation and risk mitigation techniques under EMIR", https://www.esma.europa.eu/post-trading/clearing-obligation-and-risk-mitigation-techniques-under-emir

99 Margin posting for bilateral OTC agreements are typically due only once when the Parties enter the relevant transaction. Bilateral OTC trades can also be cleared centrally, e.g., through voluntary OTC margining by the counterparties. The impact of EMPs' risk management by OTC trades with voluntary margining follows a similar logic to those of trades on exchanges (though in voluntary OTC margining no initial margin is typically called).

100 EMPs typically fulfil clearing obligations (IM and VM requirements) with CCPs through their clearing banks. The clearing banks act as an intermediary rather than EMPs interacting with CCPs directly.

Figure 12 Risk triangle: EMPs balance market, liquidity, and credit risk



Source: Frontier Economics

The three different types of risk are not independent of each other. In fact, they are strongly interlinked and can vary subject to the trading venue (e.g., cleared vs. OTC markets). Thus, the risk triangle is representing a constant dilemma in which EMPs manage and balance their risks (see also Figure 13).

- **Hedging through a centrally cleared market**, EMPs need to post initial margin ("IM") and deposit or receive variation margin ("VM") with the clearing bank over the course of the transaction. Both IM and VM are covered by cash or highly liquid non-cash assets (e.g., sovereign bonds).[101]
  - IM is a form of collateral that covers potential future portfolio losses originating from the default of the counterparty. The IM is posted when entering a contract.[102] IM remains subject to further adaptations driven by market volatility (margin parameters). The size of the IM is typically proportional to the transaction volume and the underlying's price volatility[103]. VM is a payment to settle the mark-to-market moves on open positions. As such VM reflects the price moves of the market and the commercial situation of the counterparties. VM is updated daily responding to so

101 Collateral requirements towards CCPs are defined under EMIR, Article 46. See Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties, and trade repositories. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0648

102 And only after the counterparty threshold of EUR 50m is exceeded.

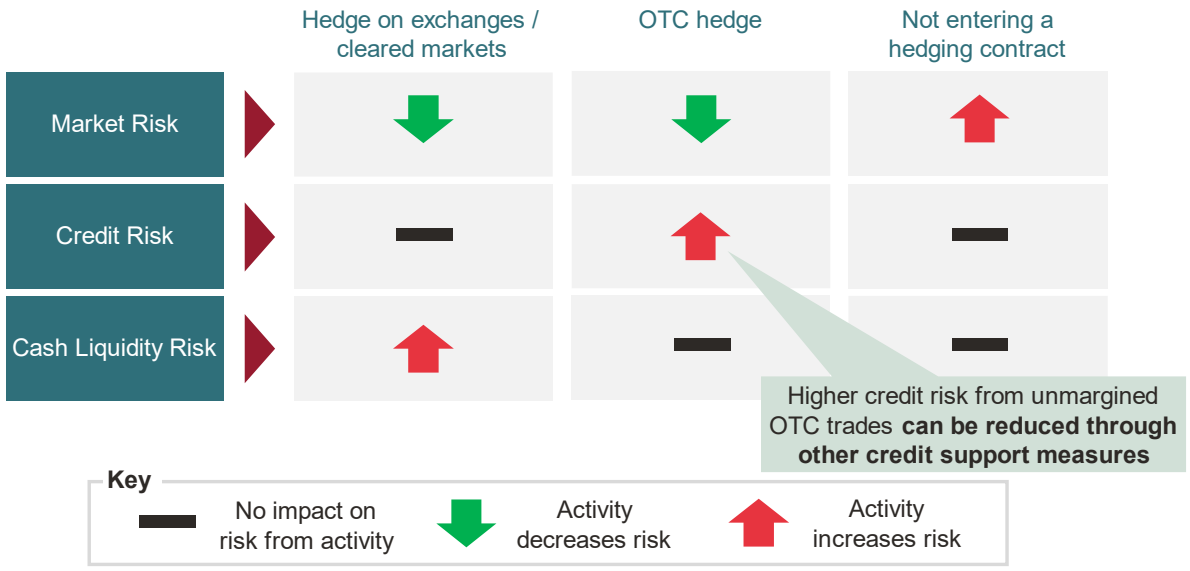
103 Taking into account both factors, IM materially increases in periods of market distress, such as the recent energy crisis (see next section), in which market prices and volatilities materially increased in a short time period.

called 'margin calls'. Margin calls can result in both an increase and a decrease of the posted margin. The materiality of margin calls varies.[104]

Hedging via a regulated exchange reduces the EMPs' market risk while increasing its cash liquidity risk from margin calls. Credit risk from trading on centrally cleared markets (such as energy exchanges) is very low since default of clearing banks is extremely rare.[105]

- In contrast, **hedging through bilateral OTC trades** requires EMPs to manage their exposure individually. For this, EMPs therefore assess their counterparties' creditworthiness (default risk) before they individually set their credit limit towards the counterparty based on their own risk preference and credit risk policy. Hedging through a bilateral OTC trade therefore reduces the EMPs' market risk increasing its credit risk. OTC without margining would not increase the cash liquidity risk.

Figure 13 Balancing different types of risk



Source: *Frontier Economics*

Note: *Examples for other credit support measures are safeguards against ownership change of the asset ("change of control clauses"), or bilateral netting agreements. In addition, companies on the commodity market have sophisticated credit management processes accompanying OTC transactions.*

It is common industry standard that EMPs typically undertake a combination of the options outlined above following their individual risk management policies and company preferences.

104 The volume of cash collateral required for the respective transaction is continuously calculated by the CCPs in complex margining models. The result represents the collateral amounts required by the CCP to protect themselves against potential future exposure in the event of a default by the respective counterparty.

105 Bank for International Settlements (2018), "CCP failures: a rare but present danger", https://www.bis.org/publ/qtrpdf/r_qt1812z.htm

Moreover, they may change their approach subject to market conditions (e.g., price and volatility movements). Amongst others, this can relate to:

- **Long-term strategic approach –** for example, EMPs may hedge only 80% of the market risk of an investment, the first liquidly traded years via an exchange and the remainder on the OTC market.
- **Short-term strategy adjustment –** EMPs may further decide to reduce their remaining market risk exposure through new hedges, dissolve existing hedges or move their existing position between CCP and OTC bilateral clearing (e.g., through swaps) subject to market conditions allowing them to trade-off and adjust the risk type they face (e.g., adaption of positions in response to seasonal supply and demand patterns[106], or the availability of liquidly traded derivatives with a shorter tenor, including those with higher granularity such as day, week or weekend products[107]).

EMPs apply a comprehensive set of financial risk management techniques

EMPs rely on centralised and consistent risk management policies. These policies are typically guided by existing regulatory and legal frameworks, such as the EU-wide risk mitigating requirements under EMIR[108] and MaRisk in Germany.[109]

To manage their commercial position in energy trading on a day-to-day basis, EMPs draw on a comprehensive set of risk management techniques (see Figure 14 on the next page). These **differ accordingly to the three risk types:**[110]

- **Market risk –** daily mark-to-market and wider monitoring and limitation, e.g., through Value-at-Risk ("VaR") and Earnings-at-Risk ("EaR") method, position and delta limits, management of market risk typically includes daily profit-loss reporting and stress-testing to identify vulnerabilities in the portfolio. Some EMPs further monitor specific 'tail-risk-limits' aiming to limit the impact on profit-loss under extreme market scenarios.
- **Credit risk –** credit management frameworks include internal credit policies, guidelines, and procedures. It typically includes daily monitoring of credit risk limit utilisations and

106 For instance, power generation from renewable assets is typically subject to seasonal patterns (e.g., power generation from solar primarily in summer months). Similarly, demand is subject to seasonality, e.g., household heating with gas in winter months.

107 See for example EEX (2024), „Power Futures", https://www.eex.com/en/markets/power/power-futures

108 EMIR stands for "European Market Infrastructure Regulation", see Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0648

109 See for example Bundesbank (2022), "Annotated text of the Minimum Requirements for Risk Management (MaRisk) in the version of 16.08.2021", https://www.bundesbank.de/resource/blob/890186/db5d133bd43cdef6827b8fbae7f0078b/mL/2021-08-16-erlaeuterungen-data.pdf and ESMA (20023), "Clearing obligation and risk mitigation techniques under EMIR", https://www.esma.europa.eu/post-trading/clearing-obligation-and-risk-mitigation-techniques-under-emir.

110 See previous fn.

continuous counterparty assessment (e.g., based on external rating agencies and internal credit rating standards). Daily OTC collateral management is based on credit support arrangements and risk transfer through credit insurance, bank guarantees, letters of credit and parental guarantees.

- **Liquidity risk –** dedicated management and optimisation of liquidity position safeguarding financial solvency. For instance, liquidity risk from margin calls is typically steered through liquidity buffer analysis based on VaR (see next sub-section).

Figure 14 Risk management techniques differ by risk type

Market risk	Credit risk	Liquidity risk
daily mark-to-market and wider monitoring and limitation, e.g. through Earnings-at-Risk (EaR) and Value-at-Risk (VaR) method, position limits or delta limits	internal credit policies, guidelines and procedures which typically include daily monitoring of risk limit utilisations and continuous counterparty assessment	dedicated management and optimisation of liquidity position safeguarding financial solvency

Source: Frontier Economics and Joint Energy Associations Group (2023), "The Ancillary Activity Exemption of MiFID II is key to ensure security of supply", Annex 1

European consumers benefit from risk management on liquid markets

Liquid energy markets facilitate risk management by EMPs, with an appropriate level of trading partners willing to warehouse and trade on (products that provide hedges to) the commercial risks associated with the physical supply and generation of energy.

European consumers benefit from this through lower prices as market participants require less risk capital to manage their risks. As we show in the following case study, consumers materially benefit from high market liquidity as in the case of Germany. In contrast, a **reduction in market liquidity leads to additional costs for consumers of several hundred million Euro**, particularly in countries with currently modest liquidity such as Italy, Spain, and Hungary.

Consumers benefit from high market liquidity through lower prices as market participants require less risk capital to manage their risks

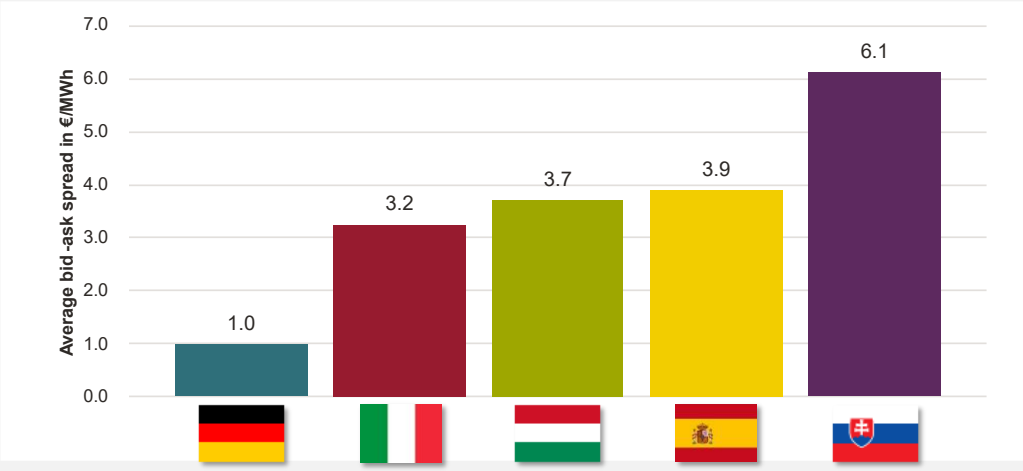
We illustrate the relationship between market liquidity and energy prices under different liquidity scenarios for Germany, Italy, Spain, Hungary, and Slovakia.

- EMPs continuously **evaluate market liquidity**, e.g., in which time period and at which costs they can close their positions on the different wholesale markets to meet their contractual obligations.

- **Less liquid markets require a so-called *illiquid risk capital surcharge*** ("IRC surcharge") to cover the higher risk that they cannot close a position in time or only at unfavourable prices. The IRC surcharge is ultimately **factored into the prices** offered towards their wholesale counterparties (which typically pass-on these costs to their consumers, i.e., on a retail level).[111]

As set out earlier, market liquidity can be measured by the bid-ask spread, with more liquid markets exhibiting lower spreads. As shown in Figure 15, market liquidity varies substantially across European energy markets, with Germany as the most liquid power market and power markets in Eastern Europe (such as Hungary and Slovakia) general less liquid.

Figure 15 Bid-ask spread in countries with different market liquidity



Source: *Frontier Economics based on data provided by a member of Energy Traders Europe*

Note: *Values rounded; average spread across power contracts with different tenors; this includes calendar products for 2024 to 2027, quarter products for Q4 2023 to Q3 2024 as well as month products for October 2023 to January 2023 if there is trading data on a given product for a given country.*

Based on an interview held with the risk management team of a member firm of Energy Traders Europe, we show that a **reduction in market liquidity by 30%** would translate in **annual extra costs of around EUR 468m in Italy, EUR 99m in Spain and EUR 27m in Hungary**.[112]

For our analysis, we take into account current market liquidity as reference point and compare it with scenarios of -15% and -30% market liquidity for a given portfolio.

111 The IRC surcharge is the additional risk capital that is necessary to cover losses of illiquid positions, i.e., positions that cannot be closed in a given market within 10 business days. It typically increases with lower market liquidity (subject to historical price scenarios underlying).

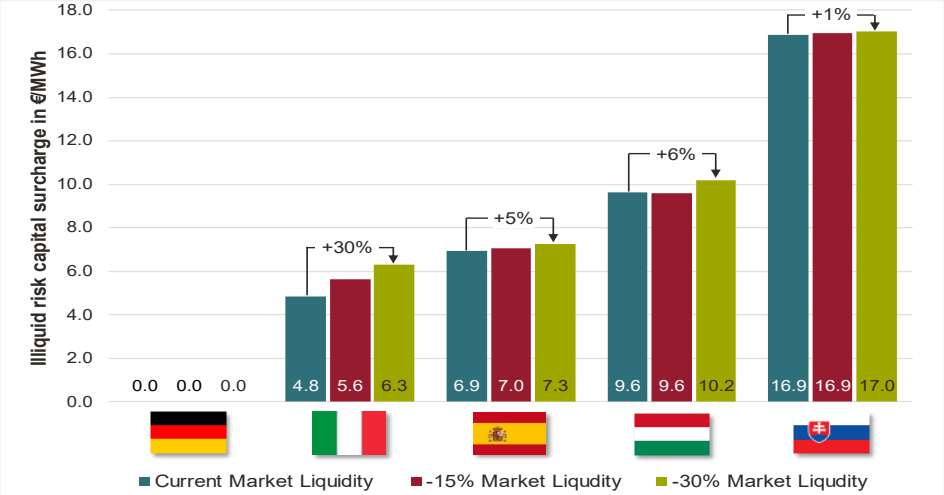
112 Calculated as annual electricity consumption across sectors by country multiplied by the IRC delta between current market liquidity and the scenario with 30% reduction: Italy (312.8 TWh/a * 1.5 EUR/MWh), Spain (248.4 TWh/a * 0.4 EUR/MWh) and Hungary (45.8 TWh/a * 0.6 EUR/MWh). See IEA (2023) for annual electricity consumption, https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser?country=SPAIN&fuel=Energy%20consumption&indicator=TotElecCons (reference year 2021).

In markets characterised by modest (but not minimal) market liquidity such as Italy, Spain and Hungary, the IRC surcharges could increase by up 5 to 30% (see Figure 16 below).

Markets with very high liquidity (Germany) or minimal liquidity (Slovakia) would be less strongly affected (no material change expected).[113]

Across the countries, the impact of lower liquidity does not grow proportionally with the current bid-ask spreads. A longer closing path does not automatically imply higher closing costs but is dependent on the historical price scenario underlying.

Figure 16 IRC surcharge under different market volatility scenarios



Source: *Frontier Economics based on data provided by a member of Energy Traders Europe*

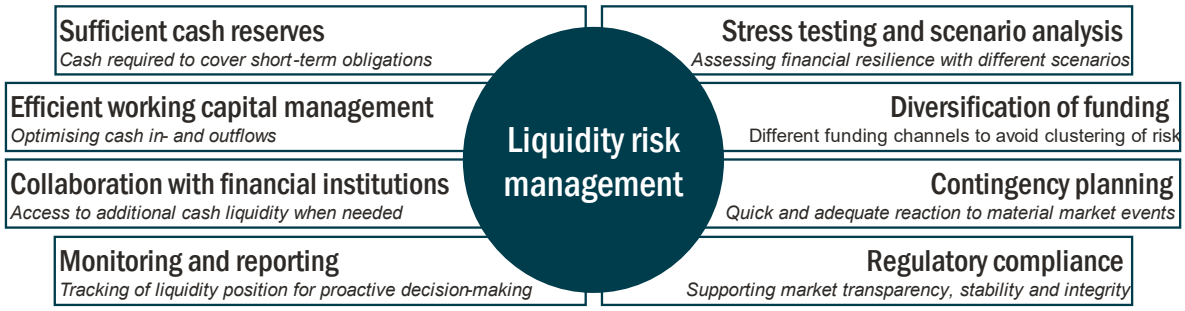
Note: *Stylised calculation; values rounded; IRC surcharge by country/scenario hypothetically calculated as "Illiquid value-at-risk (VaR) by country/scenario" multiplied by risk capital factor (factor 15) and cost rate (20% p.a.) assuming a weekly close-out path based on the 99% Quantile of historical price scenarios (2nd worst-close out scenario). Illiquid VaR calculated for a hypothetical 1 TWh portfolio with 5-year historical price data for each country. Underlying hypothetical limit liquidity baseline assumes access to one-third of the average trading volume in the respective market (sum of daily exchanges and OTC traded products over the past 12 months) and fixed liquidation horizon of 10 business days.*

2.2.2 Managing cash liquidity risk is an integral part of daily risk mitigation procedures

It is common 'industry-standard' for EMPs to manage and optimise their individual cash liquidity position safeguarding the company's financial solvency. As such, managing the cash liquidity risk is an integer part of the daily risk mitigating procedures by EMPs. For their cash liquidity risk management, EMPs rely on a combination of tools (Figure 17).

113 For Germany remaining market liquidity in the -30% scenario would still allow for closing all positions within the assumed 10-day business period, therefore no IRC surcharge is required. For Slovakia, the current market liquidity is already very low, implying that a further reduction in market liquidity would not materially prolong the expected closing path. As a consequence, the impact on the IRC in our example is de-minimis (but could increase in case Slovakian market liquidity would improve to similar levels as in Italy, Spain or Hungary in the future).

Figure 17 EMPs rely on a combination of tools to manage cash liquidity risk



Source: Frontier Economics

The optimal mix of liquidity management tools depends on a company's individual risk profile and business activity on the wholesale market. As we show below, these include the following.

- **Sufficient cash reserves:** maintaining sufficient cash reserves is a primary method to mitigate cash liquidity risk. In particular, EMPs set aside cash funds to cover short-term obligations (e.g., for collaterals), ensuring they can meet their financial commitments towards counterparties.

- **Stress testing and scenario analysis:** conducting stress-tests helps EMPs to assess their financial resilience under adverse scenarios. By simulating potential liquidity challenges that may arise under increased market price and volatility levels going forward, they can identify vulnerabilities, set aside cash liquidity buffers (e.g., based on VaR analysis) and develop contingency plans to address them.

- **Efficient working capital management:** optimising working capital by efficiently managing receivables, payables, and inventory is crucial for EMPs. This includes streamlining internal processes to adequately manage cash in- and outflows (e.g., receiving/paying collaterals).

- **Diversification of funding:** EMPs typically diversify their sources of funding to avoid a clustering of risks through a single channel. This includes obtaining credit lines from multiple financial institutions including banks, as well as issuing company bonds.

- **Collaboration with financial institutions:** building strong relationships with financial institutions facilitates access to additional cash liquidity when needed. In the energy crisis in particular, regular interactions with lenders such as banks helped EMPs to navigate through the challenging market environment and secure additional liquidity.

- **Contingency planning:** developing comprehensive contingency plans for cash liquidity is essential for EMPs to respond swiftly to material market events such as the recent energy crisis (see section 3.1.2). This includes having access to emergency funding or

negotiating standby credit lines with financial institutions, as well as establishing clear protocols for the internal management.

- **Monitoring and reporting:** implementing robust monitoring and reporting systems helps EMP to track their liquidity position in (close to) real-time. This enables proactive decision-making and timely adjustments to respond to changing market conditions.
- **Regulatory compliance:** adhering to regulatory requirements, such as the EU-wide risk mitigating requirements under EMIR or MaRisk in Germany[114], further ensures that EMPs maintain a sound financial position. Compliance with financial regulations and reporting standards secures confidence among stakeholders on the company's individual performance and proper market functioning in general.

[114] See fn. 109.

3 Appropriate regulation should support resilient energy markets in periods of high price volatility

KEY TAKEAWAYS

Policy recommendation

- **Keep the current scope of the AAE under MiFID II:** liquid, competitive and efficient EU energy markets are key to ensuring an affordable, secure and sustainable energy supply. The AAE[115] under MiFID II[116] is an important regulatory instrument to deliver these outcomes. The current scope of the AAE is appropriately calibrated to ensure such proper market functioning and efficient risk management by market participants, and should therefore be kept in place. To submit energy market participants to an investment firm status through narrowing or abandoning the AAE would not address any root causes of the energy crisis, or perceived regulatory shortfalls during the energy crisis, but rather negatively impact the liquidity and reliability of both physical and financial energy markets.[117]

- **Monitor and support flexible surveillance and control measures of exchanges:** the currently available instruments to oversee actual trading behaviour at trading venues are sufficient, and have been sharpened and recalibrated where appropriate. For example, volatility safeguards, such as circuit breakers, have been tightened as part of the exchanges' regular review process, as well as in reaction to the obligation to establish an intra-day volatility management mechanism as laid down in the Regulation (EU) 2022/2576 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders. In its assessment of the mechanism, ESMA writes that the implemented intra-day volatility mechanisms ("IVMs") generally seem adequately calibrated, with the caveat of the assessment being done in a period with no evidence of protracted volatility episodes affecting energy commodity

115 The AAE exempts energy companies for which trading is only ancillary to their main business from an authorisation requirement and hence inter alia prudential capital requirements for investment firms. See Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065

116 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065.

117 In order to tackle the root cause of the energy crisis and avoid similar situations in future, regulators must focus on the physical side of energy markets (e.g., improving the physical availability of energy supplies, increase investments in physical transmission infrastructure to reduce bottlenecks, reduce market entry barriers, avoid undue supply concentration and foster diversification, including storage and transportation options, improving storage filling regimes and demand-side reduction of energy consumption).

derivatives trading. We suggest that policymakers monitor how these partly reconfigured instruments work and unfold in practice and, hence, do not pursue any action before the review of the Position Limit Regime, foreseen for 2025. With regard to the EC's 'market correction mechanism', we suggest letting this instrument expire.

- **Facilitate clearing and liquidity management:** the central clearing system and associated processes for the calculation and provision of margins to collateralise the exposure of exchange trading towards the central clearing counterparty, proved to be resilient during the crisis. Nevertheless, in order to improve liquidity management of firms in such situations, the EU legislator has already responded by improved rules under EMIR 3.0, which will increase the transparency and predictability of margin calls and broaden the scope of eligible collateral. These instruments will be accompanied by initiatives of the private sector, such as first actions of clearing houses to optimise their models, and the current development of a standard liquidity manual by Energy Traders Europe in order to set industry standards.[118] We suggest that policymakers follow and support this industry initiative, and monitor the practical implementation of the improved clearing and margining processes, but do not pursue any immediate additional action after EMIR 3.0.

The recent energy crisis and related policy interventions provided a stress test for the resilience of energy markets (section 3.1)

- **Supply shocks for gas and power, in combination with a high concentration of gas supply, were the root cause for price spikes during the energy crisis in Europe (section 3.1.1):** in August 2022, market prices for power and gas reached unprecedented levels, creating a "perfect storm": a massive drop in Russian pipeline gas supplies to Europe that coincided with a significant reduction in available power generation capacity (e.g. low availability of French nuclear power generation). Market interventions, such as the *"safety ceiling on gas prices"* under the EC's *"Market Correction Mechanism"*[119] ("MCM"), and gas storage filling obligations in some Member States (e.g., Germany and Italy)[120] prevented energy markets from operating efficiently, which resulted in additional challenges for EMPs in an already stressed market environment.

118 Energy Traders Europe are currently preparing a liquidity risk manual for their member firms (similar to existing manuals, e.g., on credit risks). The liquidity risk manual will provide guidance on achieving transparency for liquidity management, contingency planning, funding sources, proactive management of the risk triangle, stress-testing and the organisational setup / governance.

119 See European Council/Council of the European Union (2022), "Council agrees on temporary mechanism to limit excessive gas prices", https://www.consilium.europa.eu/en/press/press-releases/2022/12/19/council-agrees-on-temporary-mechanism-to-limit-excessive-gas-prices/

120 See for example ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p. 45-47 and 80ff., and VIS (2023) at the request of ACER and the Council of European Energy Regulators (CEER), Study on the impact of the measures included in the EU and National Gas Storage Regulations for the European Union Agency for the Cooperation of Energy Regulators", p. 38ff.

- **Market participants quickly identified and undertook adequate remedial actions to manage the increased cash liquidity risk (section 3.1.2):** rising wholesale prices further led to a sharp increase in collateral requirements ("margin calls") for EMPs at energy exchanges. Market participants responded by deploying short-term emergency measures and improving their pre-existing risk management capabilities.

The regulatory framework should aim for an adequate liquidity regime and avoid artificially limiting market resilience under the investment firm regulation (section 3.2)

- **The EC's review mandate primarily focuses on liquidity and market functioning, proper risk management and the facilitation of the energy transition (section 3.2.1):** the review mandate of commodity derivatives regime by the EC explicitly relates to market liquidity and proper market functioning, risk management by EMPs, the strategic autonomy of the EU, the ability to withstand external shocks and the facilitation of the energy transition.

- **Investment firm status is disproportionate to the business model of market participants (section 3.2.2)**

  - **Material prudential capital requirements under investment firm status**: in order to comply with an investment firm status, EMPs would either require additional capital resources to continue business activities as usual, or those activities would need to be curtailed. A six-month survey led by Energy Traders Europe[121], held among the largest European energy market participants, shows that the investment firm status would result in mean capital requirements of more than EUR 3 billion for survey participants, and a mean capital deficit of EUR 910 million.[122]

    The investment firm regulation would adversely impact overall market liquidity and efficiency, with the capital required to comply with financial regulation "trapped" and therefore unavailable for investments such as those required for the energy transition (see for details section 6). Additionally, liquidity requirements under the investment firm regulation do further not assess the cash needs for each EMP in the ordinary course of business (e.g., for margining of cleared transactions), but what cash would be needed for a potential orderly wind-down scenario.[123]

121 For confidentiality reasons, the survey was conducted by an independent advisor. Frontier has been provided with key results and a description of methodology (see Annex C).

122 As we set out in the report, capital requirements estimated by survey participants vary considerably, e.g., driven by the strategy and operating model of each firm (see section 3.2.2).

123 Consistent with the capital requirements, liquidity requirements have been calculated under investment firm regulation (Regulation (EU) 2019/2033 of the European Parliament and of the Council of 27 November 2019 on the prudential requirements of investment firms, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R2033). Performing the survey calculations has been a complex undertaking for the survey participants, requiring a combination of skills and calculation capability. Uncertainty remained on the correct treatment for certain common physical energy market transaction types and risks, highlighting that the investment firm regulations is not designed for the business conducted by

- **Organisational restructuring:** business models of EMPs are fundamentally different to those targeted under investment firm regulation such as banks. An investment firm status would require EMPs to reconsider their whole group structure for their ancillary trading activity, with the sole purpose of complying with investment firm regulation. In particular, there are several areas where current systems of EMPs would need to be significantly changed to perform ongoing capital and liquidity calculations under investment firm regulation (e.g., IT systems, operational organisation, etc.), which would further require specialist resources.

- **Knock-on effect under EMIR for EMPs:** investment firm status under MiFID would imply that EMPs gain status as "Financial Counterparty" under EMIR resulting in additional cash burden under mandatory OTC collateralisation for derivatives with an initial margin of around EUR 180 million per survey participant on average, up to EUR 1 billion for one firm.[124]

- **Investment firm status would limit market resilience, in particular in crisis situations (section 3.2.3)**

  - **No impact on physical energy shortage:** extending the scope of prudential capital requirements to energy traders, by revoking the AAE, would neither address the root cause of the energy crisis (physical scarcity of gas and power), nor improve the cash liquidity crunch from surging collateral requirements (“margin calls”) for cleared transactions at energy exchanges. Prudential capital requirements are designed to cover potential losses at adverse market developments but do not result in additional generation capacity or LNG supply.

  - **Adverse impact on risk management and market liquidity:** on the contrary, larger energy traders would have either faced an even more severe liquidity burden (from mandatory collateralisation of OTC derivatives trading) or would have exited the market, further reducing liquidity in the energy wholesale market which was already low during the energy crisis (for exactly this reason). This could have further deteriorated the quality of the price signal and made it more difficult to find counterparties for risk management (e.g., hedging assets or retail customer contracts). In particular, it would imply that EMPs would no longer be in a position to

EMPs. Calculating specific liquidity requirements set out in Article 42 of Directive (EU) 2019/2034 of the European Parliament and of the Council of 27 November 2019 on the prudential supervision of investment firms and amending Directives 2002/87/EC, 2009/65/EC, 2011/61/EU, 2013/36/EU, 2014/59/EU and 2014/65/EU is even more complex, with competent authorities, such as national regulators, having discretionary choices how to apply their supervisory power and design the calculation approach for specific liquidity requirements. Given this uncertainty, and in an effort to provide meaningful results across EMPs located across the EU, the survey refrained from calculating specific liquidity requirements in the context of this study. Based on conversations held with members of Energy Traders Europe, the specific liquidity requirements would likely be higher than those calculated in the survey. However, this does not alter the overall conclusions of this study. In particular, the specific liquidity requirements would not have alleviated the energy crisis. Specific liquidity requirements have no impact on the physical availability of energy commodities, but rather increased the cash liquidity crunch for EMPs through mandatory margining for OTC trading under EMIR (see also section 3.2.3).

124 Survey results on the EMIR knock-on effect based on a second survey led by Energy Traders Europe, see section 3.2.2 and Annex D.

trade-off their market, cash liquidity and credits risks according to their individual needs and preference, which was a key mitigating measure during the energy crisis.

- **Investment firm status stands in contrast to the regulatory objectives for energy commodity derivatives set out in the EC's review mandate (section 3.2.4):** when compared to the EC's review mandate for the commodity derivatives regulation, the investment firm status would result in less liquid and less efficient energy markets, with reduced hedging opportunities for energy market participants and contradict EU policy goals with a detrimental impact on the energy transition and a lower ability to withstand external shocks.

Existing instruments for crisis prevention and management are well suited to address regulatory concerns articulated in the energy crisis (section 3.3)

- **Position limits prevent market cornering and may address excessive commodity price volatility (section 3.3.1):** position limits and position management controls are existing instruments meant to support orderly price formation and prevent market distortion. In a rapidly changing market environment, position management instruments calibrated by exchanges are more flexible and allow for quicker responses as opposed to controls requiring a full regulatory procedure for endorsement. Position limits in particular can unfold negative side effects by hindering the development of new and nascent trading products. Consequently, they should continue to apply to critical commodity benchmarks only.

- **Accountability limits and position management controls applied by exchanges limit the clustering of risks by individual market participants (section 3.3.2):** under accountability limits, a market participant exceeding an accountability level may be asked by the exchange to provide additional information relating to the position. We conclude that the system of accountability limits and position management controls appears to be efficient. If it comes to the interaction between short-term physical and longer-term derivatives markets, such as in the case of storage filling obligations, scrutinising the position of (state-endorsed) market participants and evaluating their commercial objectives could be applied at an earlier stage.

- **Circuit breakers and price limits prevent sharp price movements (section 3.3.3):** circuit breakers are an existing emergency instrument to temporarily prevent fundamentally unjustified sharp price moves and to limit price volatility. There are currently no legal restrictions on the design and adaptation of circuit breakers for use in crisis situations. Important to note, circuit breakers are an exceptional instrument and are associated with negative effects as they impair hedging options and may shift liquidity to less transparent trading channels. After the recalibration of circuit breakers by

exchanges[125] in light of the energy crisis, we see no need for further legal action and suggest letting these instruments develop and prove their effectiveness.

Another instrument to prevent market distortions in extreme price scenarios is the introduction of maximum prices above which transactions at exchanges are not matched and exceeding orders are neglected (e.g., the MCM introduced by the EC in the energy crisis). The introduction of hard price caps works against the principle to ensure a continuous price discovery function, to have open and accessible markets and to enable the market participants to comply with their contractual obligations and to de-risk their positions. Such instruments should therefore be deprioritised and discontinued.

- **Central clearing as risk mitigating tool to protect against counterparty default and preserve market stability (section 3.3.4):** the central clearing system proved to be resilient during the crisis and the credit risk of the energy industry was mitigated effectively, however, at the cost of severe challenges to the cash liquidity management of some market participants. Therefore, going forward, transparency on the calculation of margins and the predictability of margin calls is key for stable and resilient liquidity planning[126] by EMPs.

  In that regard, the EC has, in the course of the revised EMIR, already put forward some helpful proposals to improve the predictability of margin calls for the benefit of market participants. EMPs shall be better informed about:

  - the calculation methodology of the margin requirements;
  - situations and conditions that may trigger margin calls; and
  - the procedures used to establish the margin amounts to be posted and to receive a simulation of such margin requirements.

- **Supervision of algorithmic trading (section 3.3.5):** the use of trading technology has evolved significantly over the last decade and algorithmic trading is increasingly used not only in the financial markets, but also the wholesale energy markets. Already today, there is sufficient oversight to avoid from amplifying the price effects of the energy crisis in the energy derivatives market, and will in future be accompanied by the notification of the use of algorithmic trading in the energy wholesale market to the National (Energy) Regulatory Authorities (“NRAs”) and ACER and the requirement to implement effective and suitable risk controls.

125 ESMA (2023), “Supervisory briefing on the calibration of circuit breakers”, https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf.

126 The continuous accessibility of clearing facilities beyond the clearing mandate is essential to allow for market access without unwanted counterparty credit risk on a voluntary basis or to replace it by voluntary clearing.

- **The C.6 carve-out under MiFID II is an appropriate key differentiator between physical and financial market regulation (section 3.3.6):** the C.6 carve-out ensures the applicability of the tailor-made market integrity regime under the Regulation on Wholesale Energy Market Integrity and Transparency ("REMIT")[127] to prevail, which is the targeted integrity regime for energy markets. In addition, the C.6 carve-out is an instrument to prevent double regulation and aligns the scope of financial regulation in the EU with the understanding in other key jurisdictions.

- **New EU developments regarding market efficiency and stability (section 3.3.7):** the experiences of the energy supply crisis and related market events have triggered a number of regulatory actions to address market resilience in stress situations. This concerns physical as well as the financial markets and are anchored in energy and financial market legislation. While policymakers and regulators need to address the root causes of the energy crisis in physical markets, and while most of the measures in recent energy and financial market regulation contribute to better and more resilient markets, it is important to understand that interventions in the financial energy markets will also affect the physical markets and vice versa. The introduction of mandatory gas filling levels in gas storage facilities is a relevant example for such interaction which should be further addressed in more comprehensive legislation.

In this part of the report, we highlight that appropriate regulation should support resilient energy markets in periods of high price volatility.

- In section 3.1 we explain that the **recent energy crisis and related policy interventions provided a stress test** for the resilience of energy markets.
- In section 3.2, we highlight that the **regulatory framework should aim for an adequate liquidity regime** and avoid limiting market resilience under investment firm regulation.
- In section 3.3, we then explain that **alternative instruments for crisis prevention and management are well suited to address regulatory concerns** articulated in the crisis.

3.1 The recent energy crisis and related policy interventions provided a stress test for the resilience of energy markets

The recent energy crisis and related policy interventions provided a stress test for the resilience of energy markets. The dramatic reduction in Russian gas supplies in 2022, coinciding with a reduction in French nuclear capacity, lower hydro availability across Europe and a coal/nuclear phaseout in Germany, led to unprecedented price and volatility levels on European wholesale markets for power and gas. This in turn affected both the supply and

[127] Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1227

demand side of the energy markets and triggered short-term emergency measures by policymakers.

It further raised the question by policymakers how energy markets could become more resilient and how energy and financial market regulation could contribute to such development. In this context, the EC is currently conducting a review of the commodity derivatives regime for financial markets.[128]

In the remainder of this section, we highlight that:

- **supply shocks for gas and power** in combination with a high concentration of gas supply were the **root cause for price spikes during the energy crisis** in Europe;
- **market participants quickly identified and undertook adequate remedial actions** to manage the increased cash liquidity risk; and
- the **regulatory framework should aim for an adequate liquidity regime and avoid artificially limiting market resilience** under investment firm regulation.

3.1.1 Supply shocks for gas and power, in combination with a high concentration of gas supply, were the root cause for price spikes during the energy crisis in Europe

The energy crisis in 2022 ("energy crisis") led to unprecedented levels and volatility of gas and power wholesale prices in European.[129]

The underlying root cause for these developments has been a fundamental **physical shortage** of gas and power supply, primarily caused by the **geopolitical situation** in combination with high **concentration** of gas supply: In 2021 the EU received around half its gas supply from Russia, which decreased to just above 10% by the end of 2022.[130] This has also been acknowledged by key stakeholders in Europe, including the EC and ESMA.[131]

---

128 Proposal for a Directive of the European Parliament and of The Council amending Directive 2014/65/EU on markets in financial instruments, Recital 10(a), document 2021/0384 (COD).

129 See EC (2023), "Quarterly reports on European gas and electricity markets", https://energy.ec.europa.eu/system/files/2023-05/Quarterly%20Report%20on%20European%20Gas%20Markets%20report%20Q4%202022.pdf, and https://energy.ec.europa.eu/system/files/2023-05/Quarterly%20Report%20on%20European%20Electricity%20Markets%20Q4%202022%20v2C_0.pdf

130 Consilium (2024), "Infographic – Where does the EU's gas come from?", https://www.consilium.europa.eu/en/infographics/eu-gas-supply/

131 For example, the EC states that *"Russia's weaponisation of its gas exports had a clear impact on pushing up gas prices (…) which then passed on to the whole EU energy sector"*. ESMA further notes that *"financial market developments appear to us to have been driven largely by the geopolitical situation and the associated spot market movements"*.

See EC (2022), "New reports highlight 2nd quarter impact of gas supply cuts", https://commission.europa.eu/news/new-reports-highlight-2nd-quarter-impact-gas-supply-cuts-2022-10-17_en and ESMA (2022), "Ref: Response regarding the current level of margins and of excessive volatility in energy derivatives markets", page 1, https://www.esma.europa.eu/sites/default/files/library/esma24-436-1414_-_response_to_ec_commodity_markets.pdf

Physical shortages increased gas and power prices since 2021 and reached record heights after the Russian invasion in Ukraine in 2022

For the **European gas market** prices and volatility picked-up in summer 2021 (see Figure 18 following) due to a combination of factors affecting the demand-supply balance.

- On the supply side, a dramatic concentration risk of gas supply materialised, with a single source (Russia) serving half of gas demand in the EU.
  - A steady decline in gas output in the EU and the UK due to diminishing resources has been accelerated by the premature phase-out of the important Groningen gas field in the Netherlands because of security concerns related to earthquakes connected to gas production in the region. Production is also on a falling trend in Norway, the leading European supplier, while temporary production and transport outages in the North Sea, Russia and Australia have further reduced supplies.
  - Disputes between Morocco and Algeria concerning the Maghreb-Europe pipeline led to temporary supply disruptions.[132]
  - With the beginning of the Russian invasion in Ukraine in February 2022, the European gas supply situation further escalated with the interruption of Russian supplies, requiring the European Union to replace around 50% of its overall gas imports with supply from other countries (including LNG from the Middle East, as well as additional pipeline gas from Algeria and Norway).
  - While LNG imports and infrastructure capacity played a crucial role in safeguarding EU gas supply in 2022, costly LNG imports further drove up trading hub prices.
  - Another key challenge for physical gas delivery consisted of the highly congested access to pipelines LNG terminals in North-West Europe throughout 2022, which has been a consequence of the EU supply shift away from Russian pipeline gas. [133]
- On the demand side, strong demand from EU and the rest of the world increased prices.
  - The post-Covid recovery increased global gas demand – particularly in China, which has imported LNG record volumes. Competing with China and other Asian economies means that globally traded LNG is only available at higher prices.

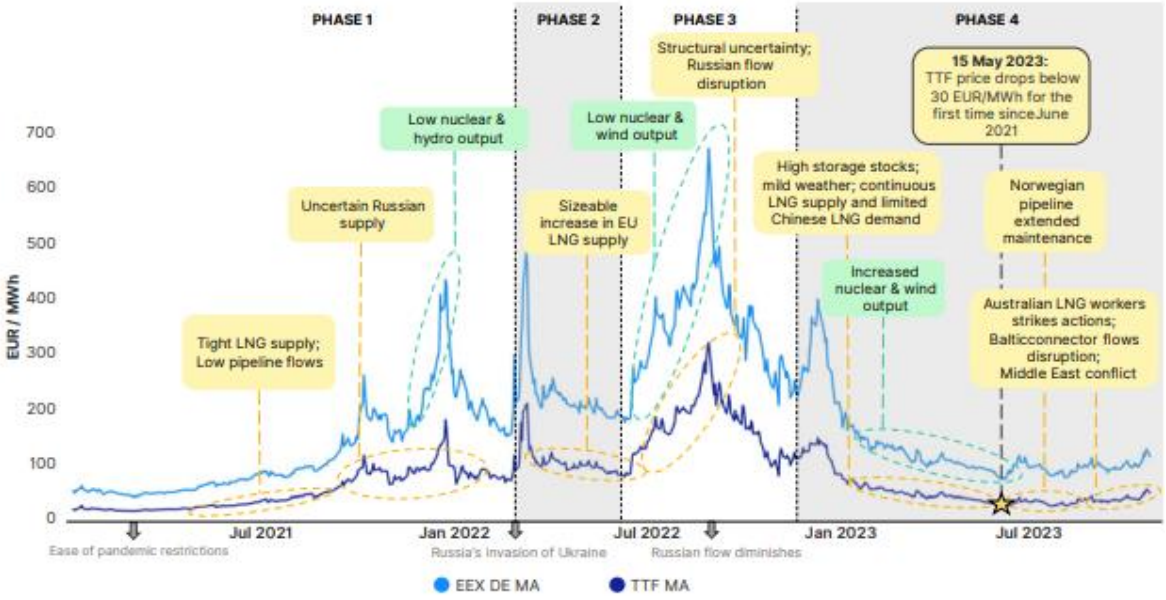
---

132 See CIDOB (2021), "Escalating rivalry between Algeria and Morocco closes the Maghreb-Europe pipeline", https://www.cidob.org/es/publicaciones/serie_de_publicacion/notes_internacionals_cidob/260/escalating_rivalry_between_algeria_and_morocco_closes_the_maghreb_europe_pipeline

133 For LNG in particular, import capacities in North-West Europe were highly limited in 2022, and still are. For instance, in Germany, where no LNG terminals were available before the Russian invasion, three floating LNG terminals are currently in operation (Wilhelmshaven, Lubmin and Brunsbüttel), with additional LNG terminals (floating and permanent installations) planned for commissioning in future months / years. See Bundesregierung (2023), „Flüssiggas-Anbindungen schneller bauen", https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/sichere-gasversorgung-2037912

- The uncertainty in the gas market caused by the Russian invasion led to additional European demand in the summer of 2022, primarily driven by large storage injections at (in some instances) high injection costs (see also the case study on storage filling obligations later in this section).[134]

Figure 18 Material increase of European gas and power prices since 2021



Source: *ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", Figure 1, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf*

Note: *Dutch Title Transfer Facility gas hub (TTF) and the German European Energy Exchange (EEX) month-ahead (MA) contract prices are used as benchmarks for gas and power pricing respectively.*

Similarly, the **European power market** experienced material increases in prices and volatility starting in summer 2021 (see Figure 18 above) – again based on a combination of physical supply shortage and increasing demand.

- On the **supply side, a combination of several factors** led to a sharp reduction in available generation capacity and higher input costs for conventional generation.
  - The (politically mandated) phase-outs of nuclear and coal power plants in several member states (such as Germany and the Netherlands) reduced availability of generation assets with low variable costs. These capacities had to be replaced by other plants with higher variable costs, driving up overall price levels. This has been further amplified by low availability of hydro plants due to droughts, the temporary

134 See ACER (2023), "European gas market trends and price drivers - 2023 Market Monitoring Report", https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

forced shutdown of French nuclear power plants for unexpected maintenance and curtailments of thermal generation resulting from reduced cooling water availability.

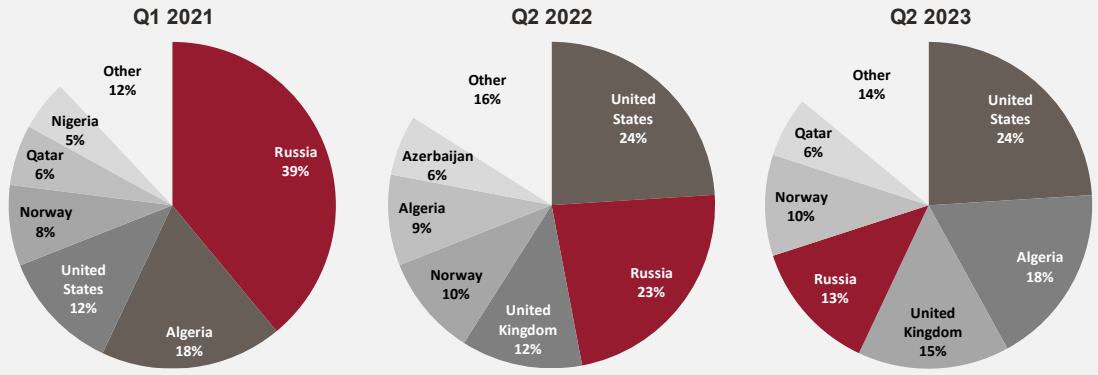
- Price and volatility movements on the power market have also been extensively affected by the aforementioned gas market developments, in particular in the context of the Russian invasion in Ukraine since February 2022. In periods with high power demand and low availability of renewables, the price is often set by gas-fired power plants (so called "peaking power plants"). Variable generation costs for gas-fired power plants skyrocketed as a consequence of souring gas and CO2 prices.[135] This effect was most pronounced in countries with high shares of power generation from gas-fired power plants such as Italy and Spain.

- On the **demand side, industrial power output recovered post-Covid**, thus leading to higher power demand. The combination of increasing generation costs for gas-fired power plants and a recovery of power demand to pre-pandemic levels[136] has also led to a strong increase in power prices.

Not financial trading, but high concentration risk in physical gas import portfolios amplified the energy crisis and triggered governmental support

A combination of demand and supply shocks led to a sharp increase in gas prices in the second half of 2021. Russia's invasion of Ukraine and the drop in Russian gas imports (Figure 19), the **biggest supplier of natural gas to Europe**, further amplified the gas shortage.

Figure 19 Shares of gas imports from outside the EU



Source: Frontier Economics based on Eurostat (2023), https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Main_partners_for_extra-EU_imports_of_natural_gas_upd_Aug_2023.png

135 Albeit to a lesser extent than for coal plants which emit more CO2 per MWh that gas-fired power plants.

136 For example, in Germany, see BDEW (2024), "Monatlicher Stromverbrauch in Deutschland", https://www.bdew.de/service/daten-und-grafiken/monatlicher-stromverbrauch-deutschland/

Most Russian imports are facilitated through long-term import contracts with European gas suppliers. The default of Russian supplies in combination with a sharp increase in replacement costs (which could not be passed on to customers under existing contracts) brought some importers with particularly high shares of Russian gas at the brink of collapse and triggered government intervention. One of the most notable examples is the nationalisation and recapitalisation of **Uniper SE** ("Uniper") by the German government.[137]

Uniper is the **largest physical gas provider in Germany** and one of the main gas traders in Europe. It provides power or gas to nearly every second local municipal utility in Germany (420 out of 900 entities). Moreover, Uniper is Europe's fourth-largest gas storage company, with its gas storage volume representing about 25% of Germany's total gas storage.[138]

In the past, Uniper's business model has been essentially built around the **import and resale of gas** based on **bilateral long-term physical supply contracts with foreign producers, in particular from Russia**. According to Uniper's annual report 2022, the company procured over 70% of its gas midstream portfolio volumes from the Russian supplier Gazprom (resulting in a high concentration and replacement risk in case of delivery failure). Gazprom stopped its gas delivery towards Uniper completely by the end of August 2022. [139]

As a direct consequence, Uniper had to procure material replacement volumes on the gas spot markets at significantly higher prices than in contracts with its customers (which were based on lower prices from long-term physical supply contracts with Gazprom). Uniper's **replacement costs reached EUR 13.2bn**[140] and according to the German government, Uniper would have to file insolvency and stop supply to its customers without state support.[141] Due to political concerns of subsequent insolvencies of multiple municipal energy suppliers[142],

137 Uniper's losses from skyrocketing replacement costs caused a depletion of the book equity, which turned negative and reached EUR -32bn at the end of September 2022, see EC (2022), "State Aid decision C(2022) 9985 final", para. 8, https://ec.europa.eu/competition/state_aid/cases1/202311/SA_103791_409DDA86-0000-C2F1-B4C3-CDCD235669D1_200_1.pdf

138 EC (2022), "Commission approves up to EUR 34.5 bn German measure to recapitalise energy company Uniper SE in context of Russia's war against Ukraine", https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7830

139 Uniper (2023), "Annual Report 2022", p. 34, https://www.uniper.energy/system/files/2023-03/2023-03-17_GJ_2022_Uniper_Gesch%C3%A4ftsbericht_.pdf

140 Uniper (2023), "FY 2022 Presentation", p. 5, https://www.uniper.energy/system/files/2023-02/2023-02-17_FY_2022_Uniper_Investor_Presentation.pdf

141 EC (2022), "EC State Aid decision C(2022) 9985 final", para. 36., https://ec.europa.eu/competition/state_aid/cases1/202311/SA_103791_409DDA86-0000-C2F1-B4C3-CDCD235669D1_200_1.pdf

142 We note that – from an economic point of view – it is unclear if the feared 'follow-up' insolvencies by municipal energy suppliers would have indeed happened in case of no governmental intervention towards Uniper. In a hypothetical scenario of an orderly insolvency procedure at Uniper, municipality suppliers would remain with the option to source from alternative suppliers on the wholesale market.

the German government decided to **nationalise and recapitalise** Uniper by acquiring 99% of the company shares.[143]

From a market-wide point of view, the **concentration risks** in gas import portfolios, such as Uniper, which had been politically supported over long periods prior to the war in Ukraine, materially **contributed to the high and volatile price movements** on European gas and power wholesale markets.

In this context, it is of particular importance to note that the **recent energy crisis was not caused or amplified by financial wholesale trading** (which would fall under MiFID or EMIR) but by a physical shortage which led to the **near- collapse a physical gas business** of EMPs like Uniper which was deemed low-risk prior to the war in Ukraine.

The August 2022 price spike has been primarily driven by the loss of nearly all Russian gas supply

In August 2022, market prices for power and gas reached unprecedented levels, caused a **"perfect storm":** a massive drop in Russian pipeline gas supplies to Europe that coincided with a significant reduction in available power generation capacity (outage of French nuclear reactors, depleted hydro resources, coal phase-out).

Stakeholders, including market participants and regulators, widely agree that the massive drop in Russian pipeline gas supplies to Europe has been the primary driver of the August 2022 development.[144]

In particular, the cut in Russian gas supplies triggered intense price competition amongst buyers to secure required volumes through spot LNG deliveries in a global market. Rising gas demand, resulting from the increase in storage inventories ahead of the winter and the uptake in gas-fired power generation further contributed to upward pressure on gas and power prices. In addition, the geographic shift in gas supplies away from Russia led to physical congestion in the gas network and LNG landing points in North-West Europe. All factors combined led to significant constraints for EMPs which culminated in a challenging environment for energy trading.

As Figure 20 shows below, the disruption of Russian supplies is closely linked to the August 2022 price spikes on gas and power markets. [145]

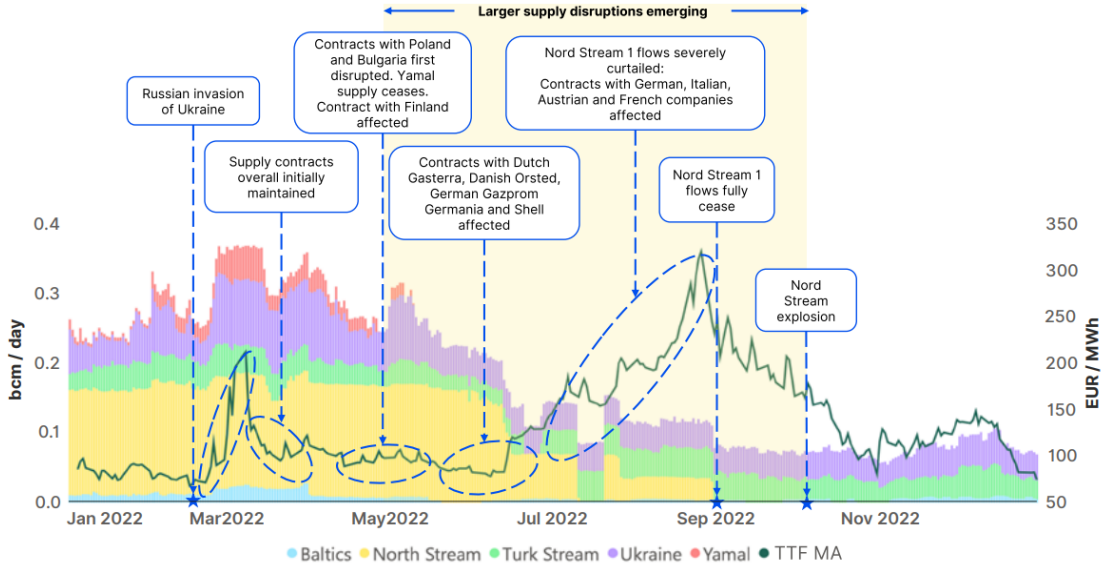
143 German Government (2022), „Übernahme von Energieunternehmen Uniper mit klaren Bedingungen", https://www.bundesregierung.de/breg-de/aktuelles/uniper-uebernahme-2127800

144 See for example ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.8ff., https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

145 Bundesnetzagentur (2024), „Rückblick: Gasversorgung im Jahr 2022", https://www.bundesnetzagentur.de/DE/Gasversorgung/a_Gasversorgung_2022/start.html#:~:text=Gassfl%C3%BCsse%2

- On 16th June, Gazprom curtailed Nord Stream 1's gas supply to Germany to 40% of the pipeline capacity. As an immediate consequence, TTF gas prices (month-ahead, "MA") materially increased.
- On 11th July, Nord Stream 1 was taken off for annual maintenance with limited impact on TTF MA prices since this unavailability was scheduled ahead. However, after the maintenance, Gazprom continued to deliver only 40% of the pipeline's capacity in late July, further reducing supply to only 20% of the capacity in August. TTF MA prices reacted with a sharp increase, reaching price levels up to 300 EUR/MWh by the end of August.
- In early September 2022, Gazprom eventually stopped delivering gas through Nord Stream 1. While the TTF spot gas price increased for a short period, the market reaction was less severe than previously. Continuous LNG supplies, high storage levels and mild weather conditions further contributed to a downward-trending TTF gas spot price.

Figure 20 Disruption in Russian supply closely linked to price spikes in August 2022, example TTF month ahead ("MA") gas prices



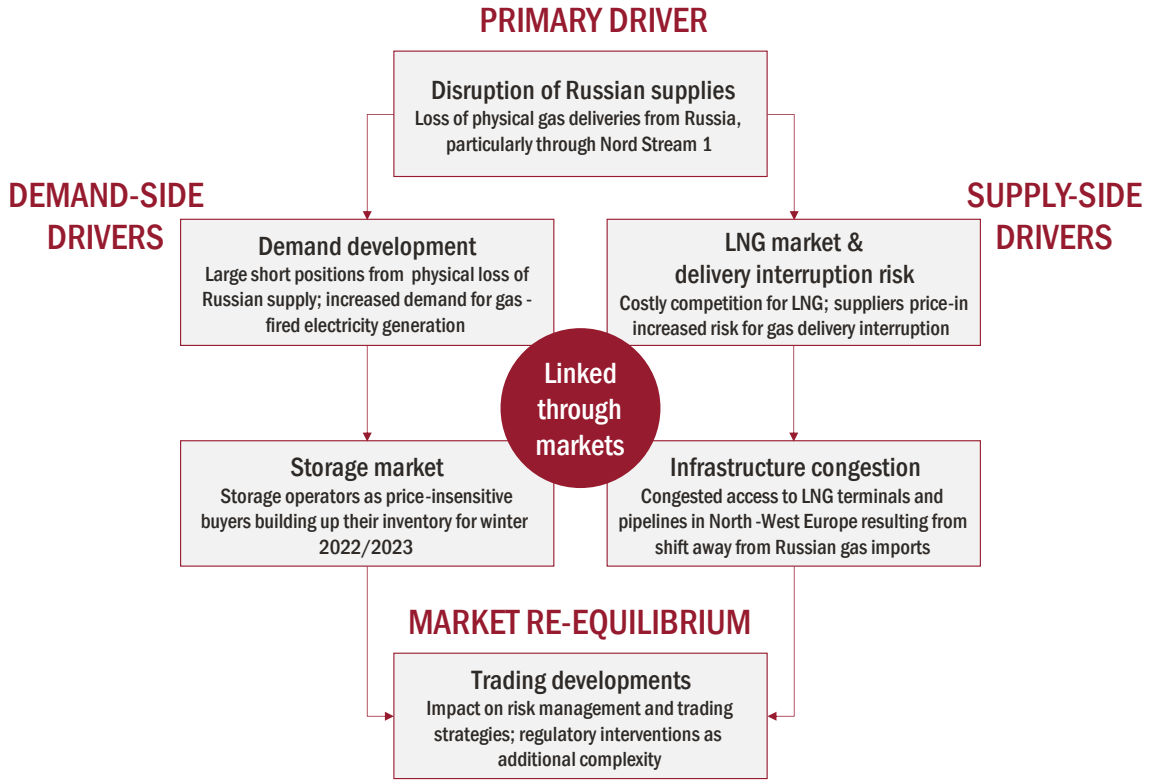
Source: *ACER (2023) based on Platts and ENTSOG TP, "European gas market trends and price drivers – 2023 Market Monitoring Report", Figure 22, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf*

Note: *Russian supply into the EU in bcm/day; evolution of TTF month-ahead prices in EUR/ MWh*

The cut in Russian gas supplies then affected both the supply and buy side of the energy market, and further triggered reactions by policymakers (see Figure 21 on the next page).

0%C3%BCber%20Nord%20Stream%201%20nach%20Deutschland%2C%20in%20GWh&text=Die%20Liefermenge%20wurde%20Ende%20Juni,Gas%20mehr%20aus%20Russland%20importiert.

Figure 21 Disruption of Russian supplies as primary driver for gas and power price peaks in August 2022



Source: Frontier Economics

- **Demand-side drivers:** lost physical supply from Russian pipeline flows caused large short positions for gas wholesalers in the short- and medium term. Additionally, gas demand remained relatively price-insensitive in August 2022, in particular demand from storage operators filling up their inventories ahead of the winter 2022/2023 with spot and derivative purchases without selling volumes forward (see following case study).[146] Additionally, the short-term need for gas-fired power generation in response to a reduced availability of power generation capacity contributed to increased spot market prices (shut- down of 10 French nuclear reactors for repairs, depleted hydroelectric reserves across Europe and reduced availability of coal plants and renewable energies).[147]

146 In the short-term, gas demand is relatively inelastic (e.g., industrial users or households cannot easily switch between fuels). Demand reduction has therefore played a more prominent role in the medium- to long-term, including the winter 2022/2023. See ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.36, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

147 ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.37, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

- **Supply-side drivers:** in a short period of time, the loss in Russian gas materially increased Europe's reliance on the global LNG market in which suppliers deliver to the region of the world offering the highest return. Intense global competition on LNG deliveries further increased European price levels in August 2022 on both spot and derivatives markets. Given the tight supply situation in August 2022, gas-fired power generator and gas retailers further faced a risk of gas-supply interruptions. This required them to either price-in the risk of such supply interruption towards their counterparties (e.g., reflecting that an operator of a gas-fired power plant would be short in a systematically short market) or stop offering their supply to the market. In parallel, the restructuring of gas supply routes away from Russia and congestion on physical gas (import) infrastructure in North-Western Europe reinforced the upward price pressure in the market, as the underlying physical flows remained strongly limited by the transport capacity available, at least in the short-term.[148]

The different price drivers previously described further led to **re-calibration of the wholesale market equilibrium for gas and power in Europe**. Regulatory interventions, such as storage filling obligations and the EC's Market Correction Mechanism ("MCM") provided additional complexities, as they inhibit the role of price signals in matching supply and demand (see below for storage filling obligations and next sub-section for the MCM).[149]

In the energy crisis, storage filling obligations were an effective measure to enhance security of supply but adversely impacted market price formation

European Regulation[150] required Member States to fill gas storages on their territory to at least 80% of their capacity before the winter of 2022/2023 and to 90% before the following winter periods. This measure aimed at strengthening the security of the EU's gas supply after cuts of Russian imports. Member States have to take all necessary measures to ensure that the filling targets are met, aiming to use market-based measures (e.g., tender processes to inject gas[151]) as a first recourse, where possible, so as to avoid unnecessary market disruption.[152]

148 In the medium-term, derivatives markets benefitted from the expansion of physical import capacities, such as the additional LNG terminals installed across Europe.

149 See for more details Frontier Economics (2022), "Assessing EU proposals to cap wholesale gas prices", https://www.frontier-economics.com/uk/en/news-and-insights/news/news-article/?nodeId=9854 and EC (2022), "Commission proposes a new EU instrument to limit excessive gas price spikes", https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7065

150 Regulation of the European Parliament and of the European Council amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

151 ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", Fig. 33, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

152 See fn. 150, Recital 16.

The focus of this measure was clearly on filling storages, and less so under which conditions to release the gas again.

As ACER notes, in view of risking insufficient gas storage levels by solely relying on market-based measures, various Member States applied more interventionistic measures, such as filling obligations.[153] Following this, 'last resort entities' such as Trading Hub Europe ("THE") in Germany and Società Nazionale Metanodotti ("SNAM") / Gestore Servizi Energetici ("GSE") in Italy, and similarly the Austrian Strategic Gas Storage Management ("ASGM"), began to acquire material volumes of gas at short-term hub prices with public support between July and September 2022.[154]

According to an ACER commissioned study[155]:

- **THE in Germany** bought circa 50 TWh as 'last resort entity' at circa EUR 8.7bn (average price of 174 EUR/MWh);
- **SNAM / GSE in Italy** bought circa 35 TWh as 'last resort entity' at circa EUR 6.5bn (average price of 187 EUR/MWh); and
- **ASGM in Austria** bought circa 20 TWh as strategic gas reserve at circa EUR 4bn (average price of 200 EUR/MWh).

According to different studies for and by ACER, the price-insensitive buying behaviour by the publicly supported entities[156] left many market participants outcompeted and increased upward price pressure on gas hub prices.[157, 158] This has been further confirmed by members of Energy Traders Europe in bilateral discussions in the context of this report.

153 In Germany, storage filling obligations have been introduced by the German legislator in late March/early April 2022 through amending the German Energy Industry Act (*Energiewirtschaftsgesetz*), Article 35a-h. According to ACER, similar measures have been introduced in Italy, Czech Republic, Croatia and Poland. Denmark had such measure in place already prior to the energy crisis. Austria (and other countries) opted for a strategic storage reserve. See ACER (2023) as in fn. 151, p.45 and p.80ff.

154 See ACER (2023) as in fn. 151, p.47

155 VIS (2023) at the request of ACER and the Council of European Energy Regulators (CEER), Study on the impact of the measures included in the EU and National Gas Storage Regulations for the European Union Agency for the Cooperation of Energy Regulators", p. 38ff., https://www.acer.europa.eu/sites/default/files/documents/Publications/VIS-Study_Gas_Storage_Report.pdf

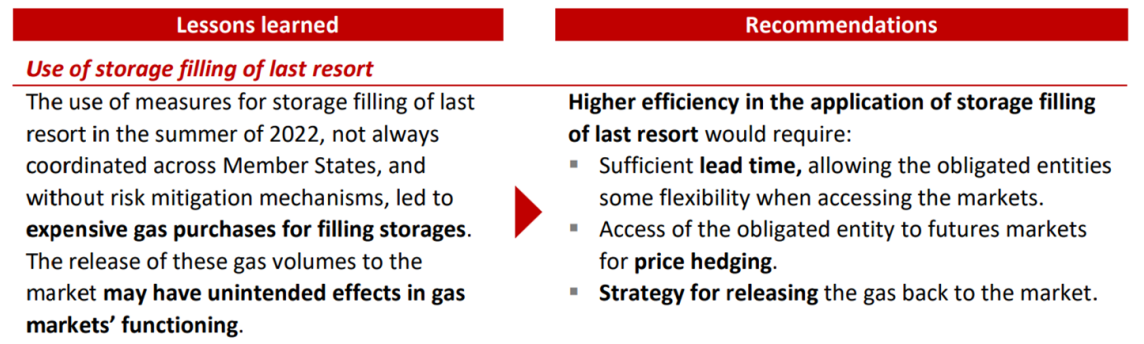
156 According to a study for ACER all three aforementioned cases, the entities bought gas above the average TTF market price of 150-160 EUR/MWh in Q3/2022. See VIS (2023) as in fn. 155.

157 ACER (2023) as in fn. 151, p.47.

158 Following the reduction in gas supply from Russia, a range of factors on the demand and supply side impacted gas market prices and volatilities in parallel, including (but not exclusively) the behaviour of storage fillers with public support. See also section 3.1.1 of this report, ACER (2023) as in fn. 151, p.9ff., and BET/DCE (2023), "Strategien für die Bewirtschaftung von Gasspeichern durch Trading Hub Europe – Gutachten im Auftrag der Bundesnetzagentur", p.53ff., https://www.bundesnetzagentur.de/DE/Gasversorgung/Krisenvorbereitung/Download/Gutachten_Speicherstrategie.pdf?__blob=publicationFile&v=1

In retrospect, the different studies for and by ACER further consider that storage filling of last resort led to *"expensive gas purchases"*[159] and "*the imperative to inject gas into storage facilities played an important role in driving the price increases during summer 2022"*[160]. If applied again in similar situations in future, a study for ACER concludes that policymakers should make sure to improve the efficiency of the instrument, e.g. by ensuring the buying entity has sufficient lead time to secure purchasing volumes, has access to derivatives markets for hedging and a clear strategy for releasing gas back to the market (see Figure 22 below).

Figure 22 Policy recommendations for storage filling of last resort



Source: VIS (2024) at the request of ACER and the Council of European Energy Regulators (CEER), "Study on the impact of the measures included in the EU and National Gas Storage Regulations – Vol. 2", p. 6, https://www.ceer.eu/documents/104400/-/-/c072fd8d-cd2c-e403-b5a4-fa750e73f598

The case of THE as 'storage filler of last resort' in Germany during the recent energy crisis further illustrates implications associated with such policy intervention.

The German government obliged THE to take over gas procurement for storage injection in 2022 in case storage capacity holders were at risk of missing storage levels set by policymakers.[161] Following the legal obligation, THE bought the aforementioned circa 50 TWh, corresponding to around 20% of the countries' storage capacity, without selling forward. THE released parts of its stored gas back to the market in late 2022 (at lower market price levels), with 37 TWh remaining in storage by early 2023. In November 2023, THE ultimately sold remaining gas volumes to the market.[162]

159 VIS (2024) at the request of ACER and the Council of European Energy Regulators (CEER), "Study on the impact of the measures included in the EU and National Gas Storage Regulations – Vol. 2", p. 6, https://www.ceer.eu/documents/104400/-/-/c072fd8d-cd2c-e403-b5a4-fa750e73f598

160 See ACER (2023) as in fn.151, p.43

161 See Article 35c, German Energy Industry Act (*Energiewirtschaftsgesetz*)

162 Again, this is likely to have impacted supply-demand and price balances of neighbouring hubs. See ACER (2023) as in fn. 151, p.46f., and VIS (2024) in fn. 159, p. 56f.

According to studies commissioned by ACER[163] and the German network regulator Bundesnetzagentur ("BNetzA")[164], three key factors determined THE's trading behaviour during the energy crisis:

- **Short lead time:** THE had to procure gas for storage injection at very short notice and close to the deadline of storage filling obligations, limiting its flexibility in accessing the market in a period of high prices and volatilities.

- **"Desperate buyer" for Rehden facility:** Germany's largest gas storage facility in Rehden accounts for circa 20% of the countries gas storage capacity.[165] Until Spring 2022, it has been operated by a subsidiary of Gazprom Germania (which itself formed part of the Russian gas company Gazprom), and – in contrast to other storage facilities – kept empty by its capacity holders[166], before the German government placed Gazprom Germania under trust management.[167] With limited time remaining to meet filling targets before the winter period, THE was required to buy and store gas on a nearly daily basis.[168]

- **Late access to future markets**: At the beginning of its storage filling activities, THE could only access the spot market but not the futures market (e.g., due missing technical, financial and legal preconditions, as well as insufficient liquidity for exchange trading). [169] Even at the peak of the energy crisis in August 2022, THE did not have access to exchange trading, restricting THE's ability to sell on future volumes. This was further exacerbated by THE's strategic decision (in coordination with the Federal Ministry for Economic Affairs and Climate Action and the physical regulator Bundesnetzagentur) not to enter uncollateralised OTC transactions.[170] THE eventually gained access to futures trading through EEX in October 2022 and started (to a certain extent) selling volumes back to the market.[171]

163 VIS (2024) as in fn. 159, p. 56ff.

164 BET/DCE (2023) as in fn.158, p. 8ff. and section 5.

165 Astora (2024), "Speicherstandort Rehden", https://www.astora.de/unternehmen/speicherstandorte/speicherstandort-rehden

166 For comparison, average gas storage filling rate across Germany was c. 45% at the same time. See Wirtschaftswoche (2022), "Jetzt kommt es zum Showdown um den Gasspeicher Rehden", https://www.wiwo.de/unternehmen/energie/energie-jetzt-kommt-es-zum-showdown-um-den-gasspeicher-rehden/28375462.html and data from Gas Infrastructure Europe (2024), „Aggregated Gas Storage Inventory", https://agsi.gie.eu/

167 Bundesnetzagentur (2024), "Treuhandverwaltung SEFE Securing Energy for Europe GmbH", https://www.bundesnetzagentur.de/DE/Fachthemen/ElektrizitaetundGas/Treuhand/Gazprom/start.html

168 However, the analysis by BET/DCE (2023) further shows that, even at the peak of the energy crisis in late August 2022, THE accounted for a maximum of circa 25% of the spot gas trading volumes at the exchange platform EEX. BTE/DCE further note that other storage operators (without THE involvement) also continued injecting gas in their facilities despite the high price level. See BET/DCE (2023) as in fn. 161, p. 10ff., p. 52ff. and Fig. 21 / 22.

169 See BET/DCE (2023) as in fn.158, p.50.

170 See previous fn.

171 See BET/DCE (2023) as in fn.158, p.52.

The August 2022 price spike resulted in material challenges for trading strategies and effective risk management by market participants

For EMPs trading gas and power on a wholesale level, the developments in August 2022 further resulted in material challenges for trading strategies and effective risk management.[172] In the context of this study, members of Energy Trading Europe highlighted that in August 2022 they particularly faced buying pressure to cover short positions, which coincided with selling constraints.

- **Large short positions** – gas wholesalers such as Uniper in Germany lost their key source of supply requiring them to close large short positions through LNG spot and derivative purchases with governmental support (see previous case study on Uniper)
- **Small short positions** – even smaller natural (or speculative) short positions became extremely risky and required high margin calls from CCPs (which increased in price and volatility levels)
- **Hedging activity** – as before, EMPs faced severe liquidity constraints and virtually stopped hedging due to extremely high margin calls, either by taking the market risk or not offering to the market at all (which reinforces price volatility and upward price pressure)
- **Replacement risk –** replacement risk for EMPs operating power generating assets and selling to the market (e.g., unexpected plant outage or interruption of supply such as gas deliveries for gas-fired plant would leave EMPs short in power against a systematically short market)
- **Price-inelastic demand** – storage operators filling inventories for winter 2022/2023 (at least) partly in response to the EU's 80% capacity target ahead of the winter 2022/2023 (see previous case study).[173] Additionally, demand from households and industry remained more or less stable in the short-term.

High gas and power prices provided important scarcity signals to EMPs on the buy and sell side

As set out above, the changes in market dynamics have affected both traded volumes and prices of the power and gas to a material extent. In particular, physical shortage led to increased wholesale prices and volatility movements, signalling scarcity to EMPs.

---

172 See also Section 3.1.2 for a detailed overview on mitigating risk management actions conducted by EMPs in response.

173 European Council (2022), "Council adopts regulation on gas storage", https://www.consilium.europa.eu/en/press/press-releases/2022/06/27/council-adopts-regulation-gas-storage/#:~:text=The%20regulation%20provides%20that%20underground,before%20the%20following%20winter%20periods

Scarcity prices are particularly relevant for efficient market functioning (see section 2.1.1). They incentivise both sides of the market to adjust their behaviour to current and expected market trends, ultimately mitigating the impact of such adverse price and volatility movements.

- **On the buy side**, higher price and volatility levels set incentives for consumption reduction. This has become apparent during the energy crisis: EU countries collectively reduced their gas consumption by 19% between August 2022 and January 2023.[174] This significant demand reduction contradicted the previous perception that energy demand was relatively inelastic and would not react to price movements in the medium-term. The revision of the EU Energy Efficiency Directive in March 2023 further enhances long-term energy efficiency measures in Europe, together with the obligation for Member State to provide adequate financing for such schemes.[175]

- **On the sell side**, scarcity prices further provide incentives for an expansion of supply, either from established sources (e.g., increased imports) or through investments in import infrastructure (e.g., LNG terminals) and additional (renewable) generation assets. For example:

  - EMPs currently plan more than ten additional LNG terminals[176] across Europe.

  - Major European utility companies have announced several large-scale investments in renewable energy assets. For example, RWE together with Equinor have announced a large-scale project on production, transportation and combustion of green hydrogen in Norway and Germany.[177] Orsted has started the construction of Germany's largest offshore wind park with over 900 MW capacity installed.[178] Similarly EDF has decided to build and operate a large-scale offshore wind park in France with an installed capacity of around 1,000 MW.[179]

174 European Council (2023), "Infographic – Gas demand reduction in the EU", https://www.consilium.europa.eu/en/infographics/gas-demand-reduction-in-the-eu/

175 EC (2023), "European Green Deal: EU agrees stronger rules to boost energy efficiency", https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1581

176 European Council (2023), "Infographic – Liquefied natural gas infrastructure in the EU", https://www.consilium.europa.eu/en/infographics/lng-infrastructure-in-the-eu/

177 RWE (2023), "Hydrogen pipeline in the North Sea", https://www.rwe.com/en/research-and-development/project-plans/hydrogen-pipeline-in-the-north-sea/

178 Orsted (2023), "Borkum Riffgrund 3", https://orsted.de/gruene-energie/offshore-windenergie/unsere-offshore-windparks-nordsee/offshore-windpark-borkum-riffgrund-3

179 EDF Renewables (2023), "EDF Renewables and Maple Power awarded the fourth offshore wind tender launched by the French State, securing a one-gigawatt project off the coast of Normandy, France", https://www.edf-renouvelables.com/en/edf-renewables-and-maple-power-awarded-the-fourth-offshore-wind-tender-launched-by-the-french-state-securing-a-one-gigawatt-project-off-the-coast-of-normandy-france/

By contrast, **policy interventions** that restrict the free-market price formation – such as the EC's "*safety ceiling on gas prices"* under the MCM[180] (which until today has never been activated) – threaten to **eliminate or at least materially weaken the steering effect** of scarcity prices.[181] This has been also acknowledged by policymakers when introducing the MCM[182]:

> *"Unless set at a sufficiently high level,* ***the safety ceiling could prevent market participants from effectively hedging their risks, as the formation of reliable prices for products with a delivery date in the future and the functioning of derivatives markets could be harmed****. If the MCM were to be triggered to bring prices artificially down instead of correcting market malfunctioning, it would have a* ***serious negative impact on market participants, including energy firms, who could face difficulties in meeting margin calls and liquidity constraints, potentially resulting in defaults****. Some market actors, in particular smaller ones, may be prevented from hedging their positions****, further exacerbating volatility in spot markets, and resulting in possibly higher price spikes****."* (emphasis added in bold)

It is important to understand that, from an economic point of view, finding a "correct" safety ceiling price is nearly impossible. For example, it is difficult to distinguish between a price that is determined by the opportunity cost of demand reduction management (which can be very high) and possible speculative bids or bids inflated by companies exerting market power.

Therefore, a scenario in which the EC's MCM would come into force likely results in a security of supply risk and is associated with a material welfare loss the European economy (see Figure 23 on the next page).[183]

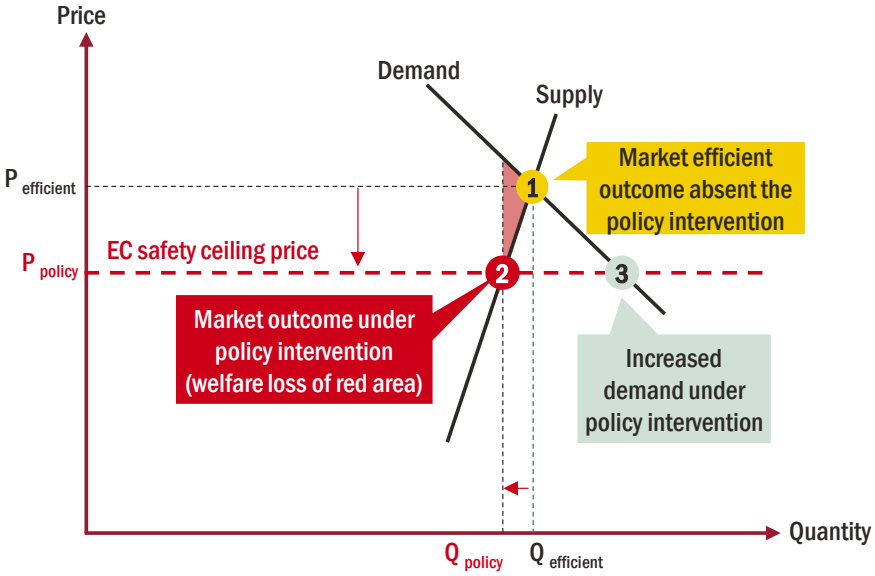
180 The MCM applies to virtual gas trading platforms in the EU, e.g., the Dutch Title Transfer Facility (TTF) gas hub which is the major gas trading hub in Europe, and month-ahead, three-month ahead and year-ahead gas derivative contracts traded. The MCM is triggered in case month-ahead TTF prices exceeds 180 €/MWh for three business working days and are 35 €/MWh higher than the LNG reference price on global markets in the same period. See Council Regulation (EU) 2022/2578 of 22 December 2022 and Council of the EU (2023), "Energy prices and security of supply: Council agrees to extend emergency measures", https://www.consilium.europa.eu/en/press/press-releases/2023/12/19/energy-prices-and-security-of-supply-council-agrees-to-extend-emergency-measures/

181 This holds for both short-term spot and long-term derivative energy markets even if the initial policy intervention primarily targets derivatives markets. As we set out in Annex B in more detail, spot and derivatives market are closely linked and were driven by common price drivers during the energy crisis (e.g., loss of Russian gas suppliers, long-term unavailability of power generation capacity in the recent energy crisis).

182 Council Regulation (EU) 2022/2578 of 22 December 2022, para. 26.

183 See also Frontier Economics (2023), "Assessing EU proposals to cap wholesale gas prices", for an in-depth economic analysis, https://www.frontier-economics.com/uk/en/news-and-articles/news/news-article-i9854-assessing-eu-proposals-to-cap-wholesale-gas-prices/#

Figure 23 Adverse impact of safety ceiling price under the EC's MCM on market outcomes, schematic illustration



Source: *Frontier Economics*

Note: *Schematic illustration, Efficient market outcome for prices and quantity under "efficient", outcome with policy intervention under "policy"*

- On the buy side, the policy intervention would allow EMPs (e.g., retailers that procure gas or large industrial consumers) to pay a lower price than the market efficient scarcity price (points 1 and 2 in the illustration). Incentives to reduce energy demand for the buy side would therefore materially diminish. In fact, the buy side of the energy commodity has even the incentive to increase its demand in light of the externally fixed price at a lower than market efficient level increasing security of supply risks (point 3).

- On the sell side, incentives for EMPs (e.g., investors in new LNG terminals) to expand supply would be reduced as the safety ceiling price limits the return on potential investments in a competitive market. For example, supply with high costs (such as peaking plants that only run a few hours a year) which would not be economically viable under "normal" market prices may act as supply of last resort in times of crisis. As a result, the policy intervention does not contribute to an increased level of supply but has the opposite effect. The quantity of energy supplied is lower than before (point 2).

In practice, such **policy intervention could trigger material negative effects** on the energy market to the detriment of European consumers. Amongst others, this may include:

- **physical security of supply issues** – risk of rationing of energy commodities and allocation of resources through regulators[184] in case supply and demand imbalance on derivatives markets result in physical demand exceeding supply at time of delivery.
- **development of grey markets** – risk of grey markets trading energy in-/outside the EU further reducing available supply.
- **high degree of uncertainty and spill-over effects** – materially increased uncertainty amongst EMPs adversely affecting remaining market liquidity and competition in energy in the EU that may, as 'second-round' effects, further impact other economic sectors (e.g., production in energy-intense industry).

Taking into account the above, promoting a high level of market liquidity through an appropriate regulatory framework is a more efficient way to resolve periods of scarcity compared to *"safety ceiling prices"* set through an emergency policy intervention.[185]

3.1.2 Market participants quickly identified and undertook adequate remedial actions to manage the increased cash liquidity risk

As a direct consequence of the increased price and volatility movements during the energy crisis, CCPs called higher (cash) margins for positions held by EMP on regulated exchanges.

In response to this materially increased cash liquidity risk, EMPs quickly identified and undertook adequate remedial actions. By leveraging on their existing comprehensive and sophisticated risk management capabilities, EMPs limited the negative effects associated with the energy crisis.

EMPs quickly deployed emergency measures in response to the energy crisis

In the short-term, EMPs have deployed emergency measures to mitigate the materially higher cash liquidity risk in day-to-day operations, in particular during the peak of the energy crisis.

- **Higher netting effects through consolidation at fewer CCPs** – EMPs consolidated their positions traded on exchanges towards fewer CCPs. This allowed realising netting effects within the portfolio of a EMP held at a single CCP at thus reduced margin requirements. Take a simple example: if an EMP sells 10 MW as 2024-future and buys back 5 MW at a later stage (e.g. due to lower expected availability of a power plant that

184 In the context of the energy crisis national regulators in the EU have developed allocation plans for in case of supply bottlenecks, see for example German Bundesnetzagentur (2022), "Gas: Krisenmanagement und -vorsorge", https://www.bundesnetzagentur.de/DE/Fachthemen/ElektrizitaetundGas/Versorgungssicherheit/Krisenmanagement_Krisenvorsorge/start.html

185 See previous section 2.1.1 for an in-depth description of market benefits from scarcity signals.

is hedged with this transaction), the two positions would be netted if cleared with the same CCP to a net position of 5 MW (whereas using two different CCPs for both trades would result in a gross position of 15 MW that would be taken into account for the initial margin).[186] As a result, EMPs reduced their cash liquidity risk (at the expense of a less diversified set of CCPs used by each EMP).

- **Reduced or closed positions on exchanges** – EMPs have reduced trading activity on exchanges. This included less (or shorter) hedging of open positions, such as future generation volumes[187], and in some cases the closing of existing hedging positions (according to members of Energy Traders Europe). Effectively, EMPs re-optimised their position in the risk triangle (see previous Figure 12), trading off more market risk against lower cash liquidity risk. However, reduced hedging activities can have a market-wide effect, as it further drains market liquidity and leads to a deterioration of wholesale price signals.

- **Move positions to OTC markets –** some EMPs have further moved positions from exchanges to OTC markets (subject to the availability of counterparties which can be difficult in volatile periods).[188] This reduced the margining requirements and therefore cash liquidity risk at the expense of higher credit risk (which in turn can be alleviated by adequate credit support[189]). However, this way of re-optimising the risk triangle is limited in periods of high prices and volatilities, as bilaterally cleared energy derivatives that do not fall under the hedging exemption count towards the EMIR clearing threshold of EUR 4bn. If this threshold is exceeded, EMPs would gains "NFC+" status and would be, among other things, subject to mandatory collateralisation (see Annex D for details). [190]

Expansion of (cash liquidity) risk management

In addition to emergency measures, EMPs have further expanded their (cash liquidity) risk management strategies and tools beyond previous industry standards, subject to their

---

186 Some CCPs also allow for netting with different delivery periods (if overlapping) and across different commodities, for example ECC, see ECC (2023), "ECC Derivative Market Margining", p. 16 onwards, https://www.ecc.de/fileadmin/ECC/Downloads/Risk_Management/Margining/ECC_Derivative_Market_Margining_V1.8.pdf

187 See ACER (2023), "European gas market trends and price drivers -2023 Market Monitoring Report", para 175ff., https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

188 See previous fn., page 75: *"A potential explanation for the continuous high level of activity would be that exchange trading provide for a more liquid exit point and higher price transparency during a market crisis than OTC trading. That being said, there is strong evidence of reduced ETD positions and increased OTC share in the following months that could potentially be linked to increased margin requirements on TTF contracts"*

189 OTC contracts facilitate bespoke credit support arrangements – such as material adverse change clauses, netting agreements, bilateral margining agreements (in particular regarding VM), credit insurance and guarantees – which all aim at lowering credit risk.

190 See ESMA (2023), "Clearing thresholds", https://www.esma.europa.eu/post-trading/clearing-thresholds. The EUR 4 bn clearing threshold also explains (at least partially) the reduced number of absolute OTC bilateral clearing volumes set out in Figure 10 before: Price and volatility increases imply lower trading volumes are achieved below the clearing threshold.

individual business model and trading needs. We provide an overview in the following Figure 24, based on interviews and information provided by members of Energy Traders Europe.

Figure 24 In response to the energy crisis, market participants have expanded risk management strategies and tools

Expanded risk management strategies and tools	**Liquidity forecasting**	Frequent cash liquidity assessment and planning cycles
	Liquidity pricing	Pricing system for expected costs for liquidity management
	Increased lead times for medium-term cash liquidity	"Early warning system" for treasury department
	Real time reporting	Live or near-live forecasting of expected collateral
	Stress-test scenarios	Better understanding of impact of price shocks on cash liquidity
	Cash secured through bank loans and capital market bonds	Bilateral or syndicated loans and issuance of bonds
	Central steering	Nominated desk to streamline liquidity management
	Optimisation of IM payments	Optimised netting between CCPs
	Increased headcount	Additional highly skilled staff

Source: Frontier Economics based on information provided in interviews with members of Energy Traders Europe
Note: Initial margin is abbreviated as IM, Central counterparty is abbreviated as CCP

Amongst other measures, this includes the following.

- **Liquidity forecasting**: more frequent cash liquidity assessment and planning cycles taking into account cashflow projections subject to energy market development.
- **Liquidity pricing**: Introduction of a pricing system allowing EMP to calculate expected costs for liquidity management in addition to the price of commodity before entering a transaction.
- **Increased lead-times for medium-term cash liquidity:** "early warning system" provides treasury departments of EMPs with a better predictability of medium-term liquidity needs. Some EMPs further added a liquidity buffer with a risk premium to their overall liquidity planning.
- **Real-time reporting:** live or near-live forecast of expected collateral requirements.
- **Stress-test scenarios:** better understanding of the impact from material price shocks on cash liquidity.
- **Cash secured through bank loans and capital market bonds:** EMPs additionally secured cash to cover increased liquidity requirements by negotiating bilateral and syndicated loans with banks, and by issuing bonds to the financial markets. Some EMPs further held proactive discussions with rating agencies to provide confidence and reassurance to the market.

- **Central steering:** nomination of a desk to streamline and optimise liquidity risk positions, e.g., through financing transactions with banks and other institutional investors, as well as entering into triangulation arrangements in order to reduce credit exposure.
- **Optimisation of IM payments:** optimisation of exchange-traded positions through transfer between clearing members and exchanges generating offsetting benefits. Additionally, EMPs have developed frameworks to calculate and assess the impact of IM payments and netting of positions.
- **Increased headcount:** additional highly skilled staff with finance and risk background to ensure adequate application and further development of risk management.

As of today, the existing and additional risk management tools deployed in the energy crisis ensured that each and every EMP in Europe has been able to meet the materially increased margin and collateral requirements.

Even at the peak of the energy crisis **stakeholders including EBA did not observe a single missed margin or collateral call by EMPs**.[191, 192]

Going forward, the comprehensive set of tools deployed by EMPs in the energy crisis continuously contributes to the professional (cash liquidity) risk management by EMPs. This holds in particular for dealing with market distress in future periods, which may be caused by new drivers influencing physical energy market fundamentals.

3.2 The regulatory framework should aim for an adequate liquidity regime and avoid artificially limiting market resilience under the investment firm regulation

An appropriate regulatory framework should support efficient and resilient energy markets. During periods of high and volatile prices, as in the energy crisis, this can be addressed by an **adequate liquidity regime**. Amongst other benefits, such liquidity regime would provide higher market liquidity, which in turn would smoothen out price volatilities. This would further contribute to an efficient risk transfer throughout the industry value chain.

191 See European Banking Authority (2022), "EBA response to the European Commission on the current level of margins and of excessive volatility in energy derivatives markets", para. 19, https://www.eba.europa.eu/sites/default/documents/files/document_library/About%20Us/Missions%20and%20tasks/Correspondence%20with%20EU%20institutions/2022/1039915/EBA%20response%20to%20EC%20request%20on%20energy%20markets.pdf.

192 The undertakings by energy market participants were selectively supported by national governments, providing last resort liquidity support. The public support bridge the gap left by private lenders, which, for example, recognised the value booster from unhedged power generation at skyrocketing prices, but remained mindful of the potential devastating implications of generation outages for hedged timescales (e.g., risk of extreme replacement costs at physical markets in the short-term) and subsequently reduced their willingness to act as counterparties for utilities with physical assets. For the peculiarities of the situation for Uniper, see the corresponding case study earlier in this section.

In the remainder of this section, we:

- describe the **EC's review mandate** on commodity derivatives;
- explain that an **investment firm status is disproportionate to the business model of EMPs**; and
- show that the **investment firm status would limit market resilience**, in particular in crisis situations, and ultimately contradict EU policy goals.

3.2.1 The EC's review mandate primarily focuses on liquidity and market functioning, proper risk management and the facilitation of the energy transition

The EC's review mandate for the commodity derivatives regime under MiFID II primarily focuses on liquidity and market functioning, proper risk management and the delivery of the Green Deal. In particular, the Trilogue Parties mandated the EC to review the current AAE with a focus on the following points[193]:

> *"Following the energy crisis of 2022 and the resulting higher and more frequent margin calls and extreme volatility, a comprehensive revision of the appropriateness of the overall framework for commodity derivatives markets and derivatives on emission allowances markets is warranted. Such a review should have a strategic focus and* ***consider the liquidity and proper functioning*** *of commodity derivative markets and derivatives on emission allowances markets in the Union to ensure that the framework governing those markets are* ***fit for purpose to facilitate the energy transition****, food security and the markets' ability to* ***withstand external shocks****.*
>
> *In carrying out its analysis, the Commission should also consider that commodity derivatives markets play an important role in* ***ensuring that market participants can properly risk manage*** *the necessary investments, and that setting the right parameters is very important to ensure that the Union* ***has competitive liquid commodity derivatives markets that ensure the open strategic autonomy of the Union and the delivery of the European Green Deal****."* (emphasis added in bold)

3.2.2 Investment firm status is disproportionate to the business model of market participants

In the context of this study, Energy Traders Europe has – with the support of an external advisor – undertaken a survey ("the survey") of its members considering the financial impact of an investment firm status under MiFID II investment firm regulation on EMPs individually. The full results are available in Annex C to this report.

193 Proposal for a Directive of the European Parliament and of The Council amending Directive 2014/65/EU on markets in financial instruments, Recital 10(a), document 2021/0384 (COD).

We summarise main takeaways and key quantitative insights below.[194]

First, applying **investment firm regulation would require EMPs to meet minimum prudential capital and liquidity requirements**.

- The **prudential capital requirements** imply that EMPs must have sufficient *"Capital Resources"* to meet their *"Capital Requirement"* at all times.
- The **liquidity requirements** address the minimum levels of cash or near-cash instruments an authorised firm must hold to meet regulatory requirements from a potential wind-down scenario. It does not capture the true cash liquidity risk faced by EMPs which arises from the need to post margins on their cleared commodity futures positions (and is linked to market price levels and volatilities)[195].

Second, the survey highlights that an **investment firm status would result in material capital requirements for EMPs** (see following case study).

- The **mean prudential capital deficit of EUR 910m per firm** implies that under investment firm status either *additional Capital Resources* would be required to continue business activities as usual, or those activities would need to be curtailed. This, in turn, would adversely impact overall market liquidity and efficiency, with the capital required to comply with financial regulation "trapped" and therefore unavailable for long-term investments such as those required for the energy transition (see section 6 for details).
- The **mean liquidity surplus of EUR 1.88bn per firm** implies that firms hold sufficient cash reserves under investment firm regulation. Liquidity requirements under regulation do further not assess the cash needs for each energy market participant in the ordinary course of business (e.g., for margining of cleared transactions), but what cash would be needed for a potential orderly wind-down scenario.

Quantitative results: Survey highlights mean capital deficit and liquidity surplus under investment firm regulation, with wide variance in results by survey participant

EMPs participating in the survey commissioned by Energy Traders Europe reported a **mean EUR 910m deficit per firm of capital resources** over the capital requirement under investment firm regulation ("IFR"), suggesting they would be on average inadequately

194 The external advisor preserved confidentiality to the individual submissions by member firms of Energy Traders Europe. As we set out in Annex C in more detail, the calculations led by Energy Traders Europe have not been audited or verified independently. Moreover, time and resource constraints meant that it was not possible to perform a fully accurate investment firm regulation calculation. Nonetheless, the survey results provide a useful insight in the practical implication of an investment firm status for EMPs.

195 See fn. 123.

capitalised under the IFR rules. In contrast, the same set of survey participants reported a **mean liquidity surplus of EUR 1.88bn**, which implies that these firms would hold sufficient cash reserves under IFR today.

On the following pages, we summarise main quantitative insights. The full results are available in Annex C.

Survey participation

All ten survey participants are wholesale market facing entities belonging to (and sometimes heading) groups of firms that are amongst the largest wholesale energy-generation, trading, and retail supply groups active in the EU.

Table 1 Survey participation

Business activities / Entity's role in the group	Category of survey participant			
	#1 Top-cos	#2 Physical traders	#3 Financial traders	#4 Other firms*
Group Holding Company	✓			
Holds physical generation assets in same entity	✓ (some)	✓ (some)		
Trading in wholesale physical energy is the major focus of the business model		✓		✓
Trading in MiFID Financial Instruments is a main focus of the business model			✓	
Intercompany exposures arising from 'route to market' or 'hedging services' provision to group affiliates.	✓	✓	✓	✓
Number of participants	2	5	1	2

Source: *Energy Traders Europe*

Note: ** Category 4 – Other firms: Two firms did not submit a consistent combination of Capital Resources and Capital Requirement. Their quantitative results have been excluded from aggregate (mean, max, min) results in this report, however their qualitative insight is represented in the survey result.*

Prudential capital requirements

The key principle of the IFR is that firms must have sufficient *"Capital Resources"* to meet their *"Capital Requirement"* at all times.

- Survey participants reported a **mean EUR 910m deficit per firm of IFR capital resources over the IFR capital requirement**, suggesting they are on average inadequately capitalised under the IFR rules. However, the mean result hides a wide variance in capital resources, capital requirement, and net surplus/deficit overall.
- The **category "Top-cos" reported a mean surplus of EUR 1.69bn**. These firms hold a high level of capital resources compared with other participants, which is driven by their need to fund the energy industry activities of their wider groups.

- The category **physical traders showed the greatest variance in the overall surplus/deficit**. This variance is driven by the wide range of both capital resources (EUR 0.29bn to EUR 2.57bn) and capital requirements (EUR 1.15bn to 8.55bn) reported.

Table 2 Summary of quantitative results – capital

Consolidated view of capital			
Data point	**Capital resources (€bn)**	**Capital requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	2.57	3.48	-0.91
Median	2.14	2.33	0.71
Max	6.20	8.55	2.39
Min	0.29	1.15	-7.46
Category #1: Top -cos			
Data point	**Capital resources (€bn)**	**Capital requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	5.01	3.32	1.69
Median	5.01	3.32	1.69
Max	6.20	4.30	1.90
Min	3.83	2.35	1.48
Category #2: Physical traders			
Data point	**Capital resources (€bn)**	**Capital requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	1.31	3.92	-2.61
Median	1.09	2.31	-1.43
Max	2.57	8.55	0.84
Min	0.29	1.15	-7.46

Source: *Energy Traders Europe*

Note: *Category #3: Financial trader reported a surplus of capital resources over capital requirement, consistent with the compliant IFR status expected of an authorised firm; calculation of Maximum and Minimum Surplus/Deficit is performed at the firm level, so cannot be compared with the Maximum and Minimum Capital Resources and Capital Requirement in this table*

Liquidity requirements

The liquidity requirement is designed to ensure that **firms have a minimum amount of liquid assets to ensure that a firm can wind-down in an orderly manner** in the event of failure.

- Survey participants reported a **mean liquidity surplus of EUR 1.88bn**, and no material deficit. This implies that firms hold sufficient cash reserves under IFR rules.
- All **Top-cos held substantially higher liquid assets than liquidity requirements** under IFR rules. **Physical traders mostly held substantially more liquid assets than required** under IFR rules.

Table 3 Summary of quantitative results – liquidity

Consolidated view of liquidity			
Data point	**Liquid assets (€bn)**	**Liquidity requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	1.95	0.07	1.88
Median	1.20	0.05	1.12
Max	5.81	0.22	5.73
Min	0.00	0.00	-0.01
Category #1: Top -cos			
Data point	**Liquid assets (€bn)**	**Liquidity requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	2.42	0.18	2.24
Median	2.42	0.18	2.24
Max	3.12	0.22	2.90
Min	1.71	0.14	1.57
Category #2: Physical traders			
Data point	**Liquid assets (€bn)**	**Liquidity requirements (€bn)**	**Surplus/Deficit (€bn)**
Mean	0.98	0.03	0.95
Median	0.66	0.03	0.63
Max	3.33	0.07	3.29
Min	0.00	0.00	-0.01

Source: *Energy Traders Europe*

Note: *Category #3: Financial trader reported a surplus of liquid assets over liquidity requirement, consistent with the compliant IFR status expected of an authorised firm; calculation of Maximum and Minimum Surplus/Deficit is performed at the firm level, so cannot be compared with the Maximum and Minimum Capital Resources and Capital Requirement in this table*

Third, beyond the quantitative results, the survey provides valuable insights on the **appropriateness of investment firm regulation for EMPs.** Broadly speaking, these fall in two categories.

- **IFR liquidity requirements would not have secured additional cash liquidity for EMPs in the energy crisis:** It is worth re-iterating that the regulatory liquidity requirements under investment firm status do not assess the commercial operating cash needs for each EMPs, but what cash would be needed for a potential wind-down scenario in an orderly manner.

- **The business models by EMPs are fundamentally different to those investment firm regulation is designed for:** The survey further highlights that capital resources and liquid assets by survey participant strongly depend on their groups funding models and ownership structure, which follow from the complex environment of physical and financial markets EMPs are operating in.

- It reflects the need of EMPs to tailor their legal structure to their individual business activities, in which financial trading is a necessary and "ancillary" service. Trading under the AAE allows them to manage an efficient risk transfer in a complex supply chain with physical assets, which is materially different to the business model of financial institutions.

- An investment firm status would therefore require EMPs to materially restructure, and there are several areas where current systems would need to be significantly changed to perform ongoing capital and liquidity calculations on an IFR basis (e.g., IT systems, operational organisation, etc.), which would further require specialist resources.[196]

- For Top-Cos in particular, it is unlikely that an energy group would not consider opportunities to restructure its trading activities rather than apply for investment firm authorisation for the whole group, not least to avoid obligations of MiFID authorisation other than IFR prudential capital. This means that the commercial efficiency and agility of a current centralised Top-Co capital structure would through restructuring be diluted to the extent that capital could be ringfenced in an authorised investment firm subsidiary, e.g., similar to the survey category of physical traders. This category showed a material deficit of EUR -2.61bn (mean) in the survey.

- Additionally, EMPs active on the wholesale energy markets trade among professional counterparties who invest own capital and are secure against default through sound risk management (collaterals/margins, counterparty limits, etc.), removing the need for customer and investor protection which is a core objective of investment firm regulation (see next case study).

- We set out further details on organisational and legal consequences of an investment firm status under MiFID in **Annex D**. This includes comprehensive licensing and recurrent requirements, and additional regulatory consequences under other financial regulation such as EMIR and Markets in Financial Instruments Regulation ("MiFIR")[197].

However, it should be particularly emphasised that an investment firm status under MiFID would have a **knock-on effect on the treatment of EMPs under EMIR** with regards to the collateralisation requirements (see also Annex D for details).

196 An implementation programme would likely require the building of a bespoke calculation engine or implementation of an external vendor solution, development of underlying data and documentation of extensive regulatory interpretations. It is likely this would require a significant regulatory change programme that survey participants estimated would take more than a year to deliver, and thereafter would require constant maintenance to reflect business change over time.

197 See Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0600

- The **investment firm status under MiFID would imply that EMPs gain status as FC under EMIR**, unless they withdraw from markets. This triggers mandatory margin requirements (subject to certain conditions[198]) for OTC trades when trading with other FC or NFC+ (which would be the predominant case with investment firm regulation with MiFID).

- In a separate survey[199] Energy Traders Europe have therefore **quantified knock-on effects of an investment firm status** under EMIR.

  - The investment firm status under MiFID would result in additional collateralisation requirements for individual market participants of mean EUR 181m for IM and EUR -155m for VM (net margin inflow for VM)[200] for OTC trading under EMIR.

  - However, the survey amongst eight participating firms shows that additional margining requirements widely differ. In the case of one survey participant, **IM requirements reach up to EUR 1bn**.[201]

  - IM requirements under EMIR are of particular importance for EMPs. Financial regulation requires that IM positions *"may not be rehypothecated, repledged nor otherwise reused"* [202]. The **cash required for IM is therefore "trapped"** and can neither be used for other business purposes, nor netted against an inflow of IM.

198 For instance, (N)FC(+) belonging to different groups may deduct their IM collected by an amount up to EUR 50m. (Art. 29 CDR 2016/2251, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R2251).

199 As we set out in Annex D in more detail, the survey on knock-on effects under EMIR ("EMIR survey") is separate from the previously described survey on the prudential capital requirements under investment firm status with MiFID ("MiFID survey"). The EMIR survey consists of submissions by eight members of Energy Traders Europe, which in some cases overlap with those participating in the MiFID survey. The participants of the EMIR survey are all wholesale market facing entities belonging to (and sometimes heading) groups of firms that are amongst the largest wholesale energy-generation, trading, and retail supply groups active in the EU.

200 The survey indicates that the subsample of eight survey participants in the market would receive a net inflow of EUR 155m for VM, given their current trading portfolio underlying the calculations. It is worth noting that this cash would have to be raised by their respective trading partners. For the market as a whole, additional cash requirement could therefore follow from the EMIR knock-on effect.

201 Margin requirements can vary significantly between EMPs, driven by differences in individual portfolios sizes and the type of business activities. For instance, a utility with multiple assets for power generation would face high IM and VM requirements for hedging (i.e., selling) its portfolio production volumes (and therefore accumulating an open short position) by trading with central clearing (e.g., when both trading partners involved count as NFC+ or FC under EMIR). IM requirements are linked to the open position and VM requirements in particular are closely linked to the daily market prices observed and can therefore materially increase in periods of high prices in a short timeframe (as in the recent energy crisis, see also section 3.1.2).

202 BaFin (2022), "Collateralisation of OTC derivatives", https://www.bafin.de/EN/Aufsicht/BoersenMaerkte/Derivate/EMIR/Besicherung/besicherung_otc_node_en.html

Financial regulation designed for the banking sector is disproportionate for energy market participants

There is a public debate on the comparison between the energy crisis 2022 and the financial crisis 2007/2008. In particular, policymakers have been concerned that energy derivatives trading **may pose a systemic risk**.

Trading activities of EMPs are materially different to those of banks and other credit institutions and a **full-fledged financial market regulation as under investment firm status is therefore disproportionate** for the energy market.

- **Different objectives:** the primary purpose of trading for EMPs is to mitigate their own commercial risks from energy generation and consumption. This holds in particular for managing risks associated with physical assets through hedging and own-account trading (see also 2.1.2). In contrast to companies from the financial sector, EMPs do not use end-customer money (savings, pension funds, etc.) for all their trading purposes which would require investor and customer protection (and is a main goal MiFID II).
- **No systemic risk:** the default of a (major) EMP trading on energy derivatives would neither pose a security of energy supply nor a systemic risk to the wider economy.
  - Physical assets: in the event of a default by an EMP, its physical generation assets would remain available and would be operated under new ownership, ensuring that energy demand continues to be served.
  - Trading positions: trading positions held by the defaulting EMP on energy exchanges are collateralised and would be auctioned off by relevant CCPs and therefore made available to the market. On the OTC side, the replacement risk for the counterparty of the defaulting EMP in the energy market is limited by credit risk management (which can include collateral, bank guarantees, netting agreements, and position limit agreements with the defaulting EMP).
  - Impact on Parties outside the energy sector: the exposure of companies outside the energy sector is further limited. This holds in particular for the financial sector.
    - The market for commodity derivatives is small compared to other asset classes. According to the ESMA Annual Statistical Report 2021, commodity derivatives accounted for only 1% of the outstanding notional value of derivatives in 2020.[203] Asset classes such as interest rate derivatives have a much larger weight.

[203] ESMA (2021), "EU Derivatives Markets: Annual Statistical Report 2021", Figure ASRD.4, Page 9, https://www.esma.europa.eu/sites/default/files/library/esma50-165-2001_emir_asr_derivatives_2021.pdf

Therefore, the stability of the financial sector is mainly dependent on asset classes other than (energy) commodities.

– A failure of an EMP would not lead to a "broader contagion" of the financial sector, e.g., triggering the failure of a systemically important financial institution. This view is supported by numerous independent analyses.[204]

3.2.3 Investment firm status would limit market resilience, in particular in crisis situations

Investment firm regulation would also not have helped during the energy crisis from a market-wide perspective. There are two main reasons for this.

- **Investment firm regulation has no impact on physical availability of energy commodities** – the physical availability of power and gas would not be increased through a revised MiFID regulation. In order to tackle the root cause of the recent energy crisis (see section 3.1.1) and avoid similar situations in the future, regulatory measures must focus on the physical side of energy markets. An adequate regulatory response to the energy crisis should therefore focus on improving the physical availability of energy supplies, including physical storage and transportation options, and demand-side reduction of energy consumption.

- **Adverse impact on risk management for EMPs** – investment firm regulation requires EMPs to perform mandatory margining when trading energy derivatives. Compared to today, this would hinder EMPs in efficiently managing the risk triangle they are facing (see section 2.2.1). In particular, the investment firm regulation would imply that EMPs would no longer be in a position to trade-off their market, cash liquidity and credits risks subject to their individual needs and preference, which has been a core mitigating measure in the energy crisis (see section 3.1.2). This is further re-enforced by mandatory margining under EMIR, which would follow from the investment firm status under MiFID.

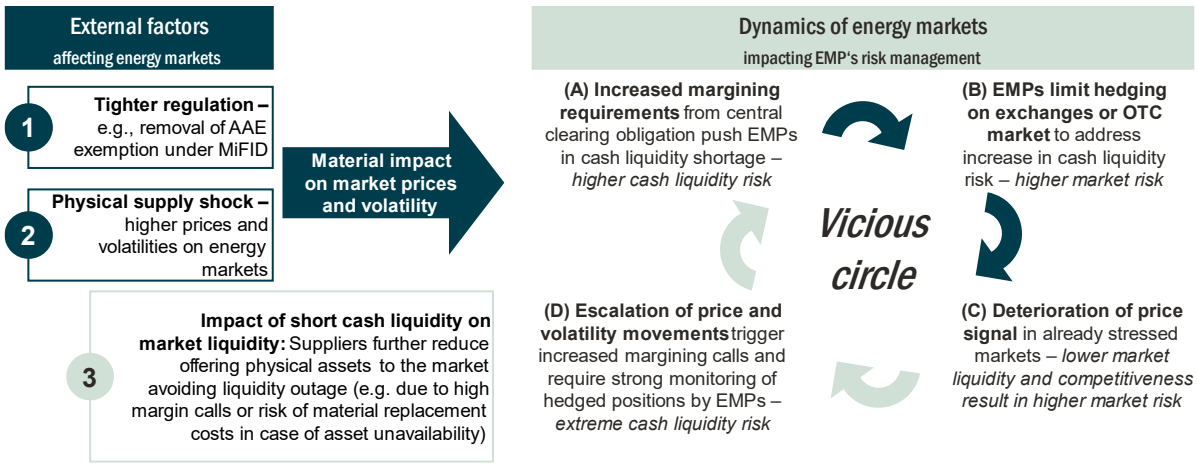
204 See for example Committee of European Banking Supervisors (2007), "Assessment of the prudential risks that arise from the conduct of commodities business and the activities of firms carrying out commodities business", https://www.eba.europa.eu/sites/default/documents/files/documents/10180/16106/e21e46c3-8e01-4ed8-8344-8584a43a9eac/Commoditiesriskassessment10102007.pdf?retry=1, Kerste et. Al (2015), "Systemic risk in the energy sector – Is there need for financial regulation?", Energy Policy, Volume 78, https://www.sciencedirect.com/science/article/abs/pii/S0301421514006831?via%3Dihub, and ESMA (2021), „Review of the clearing threshold under EMIR – discussion paper", https://www.esma.europa.eu/sites/default/files/library/esma_70-156-5010_review_of_the_clearing_thresholds_under_emir.pdf

We further illustrate the impact of the investment firm status on the energy market with a stylised example below. In particular, we assume a scenario with two main external factors:

- a **regulatory environment that requires investment firm status for EMPs**; and
- a **stress test situation as observed in the energy crisis** with a physical supply shock.

Figure 25 sets out below how both external factors (investment firm regulation and the physical supply shock) could impact EMPs and created a **vicious circle** for the energy market in general, and the risk management by EMPs in particular.

Figure 25 In the energy crisis, applying investment firm status could have led to a vicious circle for energy market participants



Source: *Frontier Economics*
Note: *Schematic illustration*

In a first step, the physical supply shock would lead a substantially higher cash liquidity risk (point A). This results from **higher margining requirements for EMPs** in light of the increased commodity prices and volatilities, which would be re-enforced by the obligation for central clearing under investment firm status for both exchange and OTC-traded products.[205]

This in turn requires EMPs to re-evaluate their overall risk management strategy (point B). In an effort to avoid cash liquidity shortage, EMPs could have an incentive to **limit their overall hedging volume** (and therefore cash liquidity risk) **by taking more market risk** through unhedged positions. It is important to note that under investment firm status a trade-off between cash liquidity against credit risk would no longer be possible. In fact, EMPs with investment firm status would count as FC under EMIR (see Annex D). This implies additional margining requirements through **posting cash liquidity for OTC trading** (rather than accessing bilateral credit lines as absent the investment firm status)**.** An investment firm status

[205] As set out in in the next paragraph and Annex D in more detail, a potential investment firm status under MiFID would further trigger the status as Financial Counterparty (FC) under EMIR. This in turn would require EMPs to additionally conduct central clearing for OTC.

therefore curtails the benefits of moving trades to OTC markets to ease cash liquidity stress under central clearing by taking higher credit risks. However, this has been a core mitigating measure in the recent energy crisis (see section 2.2.2 and the case study following).

From a market-wide perspective, these incentives for EMPs imply that fewer participants would trade less volumes on exchanges than before (point C). The reduced activity by EMPs would therefore further result in a **deteriorated price signal** as central steering supply and demand. In a stress test situation as observed during the energy crisis, this materially **restricts the benefits of market liquidity, competition and the signalling of scarcity** that have been realised before.[206]

At this point, however, the deteriorated market price signal sets a **vicious circle** in motion: Increased price and volatility movements on energy markets result in even higher margin calls by CCPs. This further squeezes the cash positions of the remaining EMPs in the markets, leads to further market withdrawals, with lower liquidity resulting in even more volatile energy prices (points D and A).

The situation is likely to be exacerbated by EMPs that – in light of the extreme cash liquidity risk – refrain from offering expected future energy supplies to the market (e.g., future power generation). This drains market liquidity on future or forwards markets even further, ultimately **re-enforcing the vicious circle** through (again) higher and more volatile prices. Two main considerations could trigger this behaviour by EMPs:

- **cash liquidity risk** – some EMPs, such as power generators, would conclude that the cash liquidity risk from future margin calls is too high and therefore reduce or abandon their long-term hedging activities during a physical supply shortage (re-enforcing the scarcity signal).

- **replacement costs** – other EMPs would be concerned about high replacement costs for supplies sold forward in case of an unexpected future outage of their generation asset (e.g., the subsequent need to replace their delivery at materially higher prices).

In summary **investment firm regulation could therefore lead to a vicious circle for EMPs**, in particular in case of market distress. It would specifically result in **less liquid and less efficient energy market outcomes with a reduced ability to withstand external shocks**. For individual EMPs such scenario could result in insolvency[207], potentially triggering the use of taxpayer money (if policymakers decide to avoid a default).

206 In practice, such deterioration of the price signal quality on a wholesale level could also impact retail customers. In competitive markets, retailers buying energy commodities on a wholesale level are likely to pass-on additional costs they are facing from less efficient hedging opportunities on a wholesale level (as a consequence of the deteriorated price signal), which could then result in more volatile prices for their retail customers downstream.

207 Subject to their access to short-term cash liquidity within the group or through capital markets.

In our following case study, real-world evidence further **confirms that a vicious circle is a real risk.** It highlights that the investment firm status under MiFID adversely impacted risk management capabilities during the recent energy crisis (which would further exacerbate investment firm more firms would require investment firm status).

In the recent energy crisis, the investment firm status under MiFID II adversely impacted risk management capabilities and overall market functioning

As set out above, investment firm regulation for EMPs could result in a **vicious circle**, adversely impacting overall market functioning during events such as the recent energy crisis**.**

Based on an interview held with a member of Energy Traders Europe under investment firm status today, we have identified three categories of **detrimental effects** for entities with investment firm license and their parental companies ("group") which emerged during the recent energy crisis.

- **Prudential capital requirements** – capital requirements restrict the group's financial headroom (which has been of particular importance during the energy crisis as high market price levels and volatilities triggered increased capital requirements for the subsidiary with investment firm status);
- **Cash liquidity needs** – high price volatility triggered substantial cash liquidity needs as a consequence of the mandatory margining of OTC trading under EMIR (when trading with NFC+ or FC entities); and
- **Increased risk concentration** – obligation for margin posting ultimately prevents trading off market risk vs. cash liquidity risk vs. credit risks (which has been a core mitigation action available to EMPs without investment firm status during the energy crisis).

Below we show the mechanisms that contributed to these detrimental effects.

First, the **investment firm status requires the relevant entity to meet prudential capital requirements**. As we set out earlier in more detail, these capital requirements can reach an order of more than EUR 3bn for a single market participant.[208] Prudential capital requirements, which are reported on a quarterly basis, further increased during the energy crisis since higher and more volatile market prices increased the market risk exposure requiring coverage.

Capital has therefore become even more scarce for groups since prudential capital is allocated to the respective legal entity under investment firm status. The **prudential capital cannot be used for other long-term business activities on a group level, including investments in**

[208] For the firm interviewed, we note that the investment firm status is applied to the specific market facing trading entity within the wider group. Other groups that currently use the AAE do not hold a separate trading entity. This in turn would result in materially higher prudential capital requirements or significant legal restructuring efforts (see Section 3.2.2).

new assets supporting the energy transition with a lifetime of 20 years or more (see section 6).

During the energy crisis, entities with investment firm status sought to limit the materially increased prudential capital requirements (which are – amongst other factors – linked to the firm's exposure to credit risk).[209] However, within the current regulatory framework, an entity under investment firm status is only able to limit its credit risk exposure (and accordingly its own funds requirements for credit risk) by increasing the proportion of transactions on centrally cleared exchange markets or by applying (voluntary) OTC margining. This in turn increases liquidity requirements resulting in a so-called "liquidity trap". Given the short-term nature of cash liquidity needs and daily margining requirements for existing positions, this approach significantly heightens the entity's default risks in periods of volatile price movements.

Second, even without taking the strategic decision of limiting prudential capital requirements at the expense of a higher cash liquidity risk, **entities under investment firm status have been particularly exposed to substantially higher cash liquidity risks** during the energy crisis. Entities with investment firm status automatically acquire FC status under EMIR (see Annex D). FCs are under a mandatory IM and VM regime on their OTC positions held with NFC+ or FC counterparties (in addition to mandatory clearing of the exchange positions, irrespective of the MiFID status). These additional collateralisation requirements are based on industry margin models that are strongly sensitive to absolute market price and volatility levels, and particularly resulted in a substantial increase in cash liquidity need during the energy crisis for entities with investment firm status under MiFID.

In the recent energy crisis, entities with investment firm status benefitted from the fact that many of their counterparties on the OTC market counted as NFC- under EMIR, alleviating the mandatory margining requirements (if not done on a voluntary basis to limit prudential capital requirements). Therefore, applying investment firm status to all EMPs would mean that more counterparties gain FC status (unless they withdraw from markets) which would trigger the mandatory margin requirements (subject to certain conditions[210]). This in turn leads to massive cash liquidity needs for entities under investment firm status and, as a consequence, reduce overall market liquidity. It ultimately triggers EMPs to either face increasing market risk or reduce their activity.[211]

Third, the **investment firm status substantially increased the risk concentration**. As set out in section 2.2.1 firms balance market, liquidity, and credit risk, mandatory margining

209 Amongst other factors, prudential capital requirements are linked to the counterparty credit risk from uncollateralised OTC via the so-called K-TCD requirement (see Annex C for more details). Therefore, moving trades to centrally cleared exchange markets or (voluntary) margining of OTC trades help to reduce the counterparty credit risk and alleviates prudential capital requirements at the expense of an increased liquidity risk.

210 For instance, (N)FC(+) belonging to different groups may deduct their IM collected by an amount up to EUR 50m. (Art. 29 CDR 2016/2251, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R2251).

211 The adverse impacts on EMPs, and the market as a whole, would likely be exacerbated in case trading counterparties would gain FC status unexpected or at short notice, limiting the ability for EMPs to steer their risk portfolio adequately in order to manage the increased cash liquidity risk under mandatory margining.

severely limits the trade-off of the different risk types for EMPs with investment firm status, irrespective of their individual risk management preference. In particular, the investment firm license prevented EMPs from trading off cash liquidity vs. credit risks, which has been a key mitigating measure observed during the recent energy crisis (e.g., as seen with EMPs without investment firm license). As a consequence, the cash liquidity needs of EMPs with investment firm status would further amplify in a period in which cash has been particularly scarce.

3.2.4 Investment firm status stands in contrast to the regulatory objectives for energy commodity derivatives set out by the EC's review mandate

An adequate regulatory framework is essential for European consumers to benefit from an affordable, secure and sustainable energy supply. Such regulatory framework for EMPs secures efficient market outcomes and prevents market abuse by individual players.

In order to be beneficial to society, regulation should therefore be:

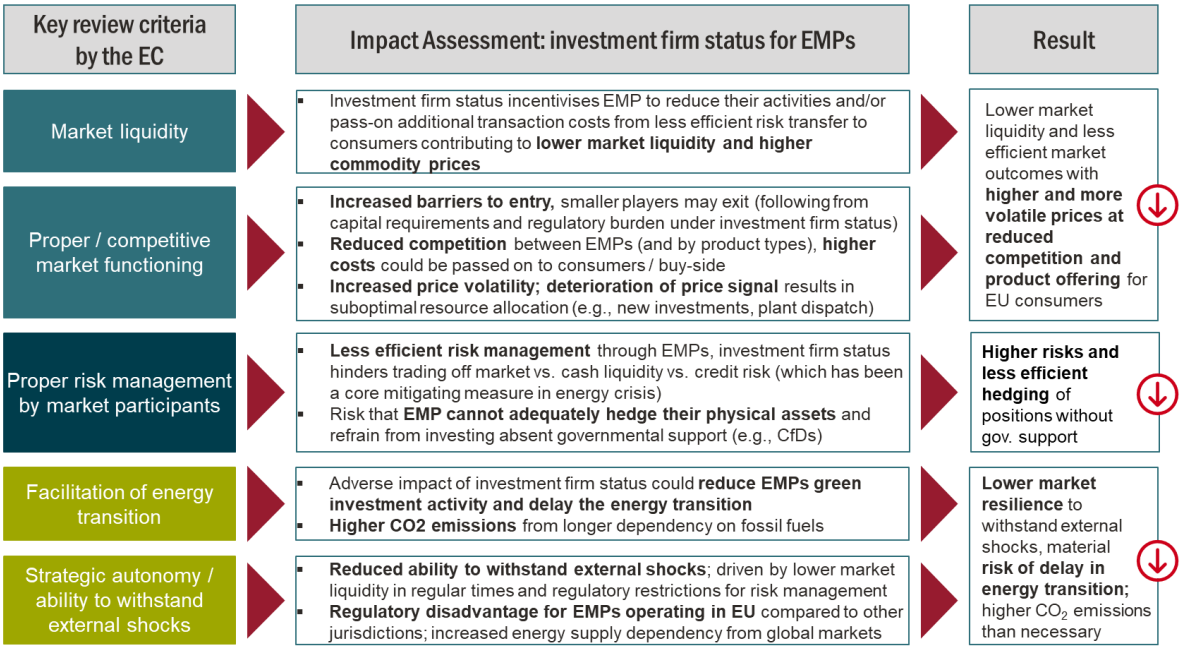
- **effective** – the regulation should induce the behaviours intended by the policy objective (and not be neutral or even detrimental);
- **proportionate** – e.g., limited to the minimum necessary to achieve policy objectives. Overregulation in energy markets leads to material market distortions and hinders EMP from proper risk management to the detriment of European consumers; and
- **specific** – the energy market requires tailored regulatory concepts reflecting the specific nature of the market and the characteristics of energy commodities underlying.

In the following (see Figure 26), we assess the investment firm status against the EC's review mandate set out earlier. We particular show that **the investment firm status would**:

- **reduce market liquidity and restricts proper market functioning;**
- **limit hedging opportunities for proper risk management by EMPs;** and
- **contradict EU policy goals.**

We therefore conclude that the investment firm status is neither effective, nor proportionate or specific to meet the objectives set out in the EC's review mandate for commodity derivatives that are traded by EMPs.

Figure 26 Investment firm regulation stands in contrast to the regulatory objectives for energy and financial markets set out by the EC



Source: Frontier Economics

Investment firm status would reduce market liquidity and restricts proper market functioning

A removal of the AAE and subsequent investment firm status would have a material impact on the energy derivatives market and its participants. In particular, a recent analysis by ESMA highlights that roughly 75% of the gross positions traded on European gas future exchanges are held by EMPs that are non-financial firms.[212]

Introducing investment firm regulation to EMPs would leave essentially **two strategic options** for them:

- become an **authorised investment firm under MiFID II, with prudential capital and obligatory margining requirements**, which increases their financing and administrative costs and could limit their ability to invest (see section 6); or
- **abandon energy trading activities in Europe** and focus on non-EU jurisdictions with more lenient regulatory frameworks (see section 7).

212 ESMA (2023), "TRV Risk Analysis – EU natural gas derivatives markets: risks and trends", Chart 5, https://www.esma.europa.eu/sites/default/files/2023-05/ESMA50-165-2483_TRV-EU_natural_gas_derivatives_markets.pdf

In both cases the increased regulatory requirements and associated costs would result in a less effective risk transfer between EMPs:

- on an **individual firm level**, this incentivises EMPs to reduce (or even cease) their market activities in the EU and pass on additional transaction costs to final consumers.
- on an **aggregated market-wide level**, the investment firm status would:
  - **increase barriers to entry** with small players potentially exiting the market as a consequence of capital requirements and the regulatory burden;
  - **reduce market liquidity** through lower trading volumes at higher costs;
  - **limit competition** between remaining EMPs (and by product type); and
  - **increase price volatility** through a deteriorated price signal (which ultimately results in an inefficient resource allocation, including new investments and plant dispatch)

As a consequence, a removal of the AAE would therefore materially restrict the existing benefits of energy markets. It would result in a **less efficient market outcome with higher and more volatile prices at reduced competition and product offering for European consumers**.

Investment firm status would limit hedging opportunities for proper risk management by EMPs

The lower market liquidity and reduced product availability under investment firm status would further adversely impact EMPs' ability for proper risk management. The less liquid the market becomes under the investment firm status, the higher the risk that **EMPs cannot adequately hedge their positions** (or can only do so at prohibitively high costs). In light of this, EMPs may further refrain from required investments such as renewable generation assets to deliver the Green Deal without governmental support (e.g., requiring contract-for-differences).

Investment Firm status would contradict EU policy goals

Introducing investment firm regulation to EMPs further contradicts EU policy goals. In particular, reduced market liquidity would adversely impact the markets' ability to withstand external shocks and delay the delivery of the Green Deal.

Ability to withstand external shocks

The markets' ability to withstand external shocks has been particularly important during the energy crisis. In this period market liquidity had already declined in response to higher margining calls for EMPs and increased market insecurity.

However, introducing investment firm regulation would not have improved the situation. As set out earlier in this section, the investment firm status would not address the root cause of the recent energy crisis namely supply shocks for gas and power in combination with a high concentration of gas supply, following in particular from the curtailment of physical gas

deliveries from Russia. .[213] Introducing investment firm status would have neither avoided the energy crisis, nor contributed to a faster recovery of energy markets.

If at all, the investment firm status could have even worsened the situation on energy derivative markets:

- increased margin requirements under mandatory collateralisation obligations for EMPs under investment firm status would have further **amplified the cash liquidity crunch**; and
- increased regulatory capital requirements would have made it **even more costly for EMPs to offer hedging services** and de-risk their counterparties.

Both factors set the incentive for EMP to severely restrict their risk management activities under the investment firm status which would be counterproductive in an already distressed market.[214]

However, the impact of the AAE removal would extend beyond the period of market distress. The increased regulatory obligations and associated costs disincentivise (new) market players to enter or expand their business. This would again adversely impact market liquidity and put the EU in a competitive disadvantage compared to other jurisdictions (see section 7).

Energy transition

In addition, the prudential capital requirements under investment firm status would require EMPs to further trade-off their risk management and investment activities (see section 6):

- **focus on risk management** – some EMPs may curtail their investments in renewables to secure a sufficient level of capital availability and cash liquidity required for their risk management in the entity under investment firm status. This in turn could result in a longer-than-necessary dependency on fossil fuels and higher CO_2 emissions.
- **focus on renewables investment** – others may prefer to curtail their energy trading activities (e.g., asset-hedging only) to focus on renewable investments. This in turn would

213 See also section 3.1.1 for more details.

214 In fact, not more but less regulation would have helped EMPs in the energy crisis for proper risk management. Amongst other measures this includes the broadening of eligible collateral at CCPs, improvements of the collateral transformation system, better transparency and predictability of margin calls and an increased clearing threshold under EMIR.

be detrimental for the overall market liquidity and make risk management for all EMPs more costly. [215, 216]

3.3 Existing instruments for crisis prevention and management are well suited to address regulatory concerns articulated in the energy crisis

As discussed above, extending investment firm regulation to EMPs would have significant **negative impact** on the energy markets under the regulatory objectives set out in the EC's review mandate for the commodity derivatives regime. On the other hand, it would only to a very limited extent contribute to the goals of financial market regulation, because it would not address the **root causes** of the price spikes, which were driven by physical scarcity of gas and power supply accompanied by unpredictable and unusual market behaviour of state instructed market participants such as THE in the physical market.

In the following, we assess how traditional instruments of **market surveillance** and **control mechanisms** at regulated markets, such as exchanges, have been applied during the energy crisis and how they have been developed taken into account the learnings of it. In a further step we shed some light on the practice of **clearing and margining** as instruments to protect the stability of the markets against default on the level of individual market participants.

We will find that the existing regulatory framework already offers all the necessary tools to support resilient energy markets in a crisis situation, to protect its stability and prevent harm to the customers.

Market participants' expectations

As a starting point, we want to summarise, according to the regulatory objectives **of liquid and properly functioning markets**, which could **withstand external shocks** and ensure **orderly price formation**, the practical deliverables of a regulatory framework in crisis situations.

In light of these regulatory objectives, market participants would expect, and the regulatory framework should deliver a trading environment, in which – at any time but in particular in crisis situations:

- Trading venues and/or regulators are at all times informed about positions of market participants;

---

215 Even in this case, smaller market participants with a focus on renewable investments may curtail their activities or exit the market. In absence of appropriate risk management tools at reasonable costs under investment firm regulation, smaller market players may be required to take more market risk, which (in turn) limits their ability to secure adequate financing support through banks and other credit institutes. As a consequence, renewable projects by smaller market participants may no longer be commercially viable.

216 Additionally, companies may not be able to offer virtual PPAs (a special from of financial derivative) anymore as they might be considered as a prop trade for the off taker (e.g., securing a physical PPA through long-term financial trading may be difficult and ultimately hinder the financing of renewables and the energy transition).

- They have the ability to question trading strategies and to prevent positions from getting too large to avoid market cornering and limiting risk;
- They can temporarily stop unprecedented und fundamentally unjustified volatility movements;
- Market participants continue to have access to trading venues in order to hedge positions and manage and de-risk their preexisting contractual obligations;
- Price formation continues to reflect fundamental supply and demand, including scarcity signals;
- Market participants can predict and prepare for margin requirements in order to prevent liquidity constraints.

In the following, we therefore assess the currently available instruments under both energy market and financial market regulation, their use and effect in order to determine whether the current regime is suitable to deliver appropriate results in a crisis scenario and whether they meet the objectives of resilience and sustainable price discovery in such circumstances.

In our assessment we already include agreed legal and regulatory developments and differentiate between **market surveillance procedures and control mechanisms at exchanges** and **competencies and accountabilities of regulators** for market stability.

Market surveillance and control mechanisms by and at exchanges

We look at the following instruments:

- **position limits set by regulators,** which address potential market abuse, prevent cornering and may limit commodity price volatility;
- **accountability limits** and **position management controls** that limit the clustering of risks by individual market participants and allow to question the motivation of positions;
- **circuit breakers and price limits,** which prevent sharp price movements and ensure the integrity of market price formation;
- **the market correction mechanism** at TTF, an instrument aimed to stop market distortions in extreme price scenarios by introducing maximum prices above which transactions at exchanges are not matched and exceeding orders are neglected.

Regulatory instruments to support stable and resilient markets, including clearing and margining

In that regard, we will include the following items in our assessment:

- Transaction **clearing by Central Counterparties** (“CCP”)**,** a risk mitigating tool for trading where counterparty credit risk is replaced by the collateralisation of the mark-to-market exposure of the transaction by the provision of initial and variation margin;
- supervision of **algorithmic trading** without human intervention to prevent automated upwards- and downwards price trends in crisis scenarios;

- **we touch upon the C.6 Carve-Out under MiFID II** which avoids double-regulation; and
- assess **new regulatory developments and private initiatives** designated to support market efficiency and stability, including
  - most recent amendments to EMIR regarding margin calculation and acceptable collateral,
  - REMIT 2.0 covering algo-trading of physical instruments, and
  - the initiative by Energy Traders Europe on industry liquidity standards.

3.3.1 Position limits prevent market cornering and may address excessive commodity price volatility

Overview – position limits

Position limits and **position management controls** are an existing instrument meant to support orderly price formation and prevent from market distortion. Under the MiFID II quick fix[217], its scope of application was reduced from capturing every single commodity derivatives contract to a more targeted approach focusing on agricultural commodity derivatives as well as critical or significant commodity derivatives only.[218] Internationally, position limits are commonly used.[219]

Position limits apply independently from the status of the market participant to financial instruments traded at a regulated market.

Background

Position limits are a widely used instrument[220] to limit the size of a position a person may hold in financial instruments at any given time. Usually, such position limit relates to positions in one or more exchanges, and it may or may not include look alike OTC contracts to prevent circumvention. Main regulatory objective is to avoid **dominant positions** of a single market participant in a particular instrument and to prevent cornering. Sometimes, regulators associate a volatility dampening effect[221] with the introduction of position limits.

---

217 MiFID II quick fix is a set of amending legislative acts in order to mitigate the effects of the COVID-19 crisis on financial markets, see Directive of the European Parliament and of the Council amending Directive 2014/65/EU as regards information requirements, product governance and position limits, and Directives 2013/36/EU and (EU) 2019/878 as regards their application to investment firms, to help the recovery from the COVID-19 crisis, https://data.consilium.europa.eu/doc/document/PE-71-2020-INIT/en/pdf

218 Existing position limits in the EU can be found here: position_limits_publication.xlsx (live.com)

219 See section 7.3.

220 See FCA (2023), "Commodity derivatives: position limits, reporting regime and commitment of trader reports", https://www.fca.org.uk/markets/regulation-markets-financial-instruments/commodity-derivatives and for the EU under ESMA (2017), "Position reporting, position management and current ESMA work on commodity derivatives", https://ec.europa.eu/assets/agri/market-sectors/cereals/commodity-expert-group/2017-03-15/pres-esma.pdf

221 ESMA (2020) "MiFID II Report on position limits and position management", esma70-156-2311_mifid_ii_review_report_position_limits.pdf (europa.eu).

Position limits are set or approved by the **regulator** directly. Whilst position limits are globally known, they are a relatively new feature to EU financial regulation, in particular regarding commodities.[222]

The position management regime for commodities was on a general level just introduced to EU financial market supervision throughout the course of the implementation of the G20 summit Pittsburgh agreements.[223] Main reason being to **prevent market abuse** including cornering the market, and to **support orderly pricing** and **settlement** conditions including the prevention of market distorting positions.[224] Hedging positions of non-financial market participants are excluded from the position limit regime. The commodity derivative position limits provisions are one of the **key changes** in MiFID II compared to MiFID I.

MiFID II provides for an extensive regulatory framework for position limits

The legal background in the EU is anchored in MiFID II and works as follows:

Pursuant to Art. 57 para. 1 MiFID II, position limits in the EU apply to agricultural commodity derivatives and **critical or significant commodity derivatives** that are traded on trading venues, and in **economically equivalent** OTC (**EEOTC**)[225] contracts.

Commodity derivatives shall be considered **critica**l or **significan**t where the sum of all net positions of end position holders constitutes the size of their **open interest** and has a minimum of **300,000** lots[226] on average over a one-year period.

---

222 Commission Delegated Regulation (EU) 2022/1299 of 24 March 2022 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the content of position management controls by trading venues , https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1299; Commission Delegated Regulation (EU) 2022/1302 of 20 April 2022 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards for the application of position limits to commodity derivatives and procedures for applying for exemption from position limits, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1302. For details on position limits and position management specified by ESMA see ESMA (2020), " MiFID II Review report on position limits and position management", https://www.esma.europa.eu/sites/default/files/library/esma70-156-2311_mifid_ii_review_report_position_limits.pdf and ESMA (2022), "Questions and Answers on MiFID II and MiFIR commodity derivatives topics", https://www.esma.europa.eu/sites/default/files/library/esma70-872942901-36_qas_commodity_derivatives.pdf.

223 MiFID II, Recital (125). See for more details ESMA (2020), "MiFID II Review report on position limits and position management", https://www.esma.europa.eu/sites/default/files/library/esma70-156-2311_mifid_ii_review_report_position_limits.pdf

224 MiFID II, Recital (127).

225 An economically equivalent over-the-counter contract is a type of financial contract that has the same economic value and risk exposure as another contract but is structured differently. According to Art. 6 of Commission Delegated Regulation (EU) 2022/1302, an EEOTC is a commodity derivative where it has, compared to the venue traded instrument, identical contractual specifications, terms and conditions, excluding different lot size of specifications, delivery dates diverging by less than one calendar day and different post trade risk management arrangements.

226 Minimum threshold introduced by the MiFID II quick fix; other Position Limits were discontinued. The scope of the commodity derivatives position limits regime was reduced, such that it will only apply to critical or significant commodity derivatives that are traded on trading venues, and to their economically equivalent OTC contracts. Critical or significant derivatives are commodity derivatives with an open interest of at least 300,000 lots on average over a one-year period,

If the threshold is passed, the NRA calculates the exact position limit it wants to apply according to CDR 2022/1302[227], which is subject to a subsequent opinion by ESMA.[228] Currently, with the Dutch TTF contract, only one single commodity contract satisfies the threshold[229]. This is due to the fact that after Brexit most European commodity derivative contracts have moved outside of the EU regulatory perimeter.

It appears that in the past, when still applicable to all commodity derivative contracts, hard position limits have hindered the development of **new and nascent** trading products[230] and, as it finds its ultimate justification in the objective to prevent from abusive exploitation of dominant positions and to avoid excessive speculation, it appears sensible to have restricted its applicability to critical commodity derivative contracts[231]. Below a certain impact threshold, there is no room for the exploitation of market dominance and exercising impact on the orderly price formation, in particular not of the price of the underlying physical commodity.[232]

Finally, the position limit regime comes on top of the established market oversight regimes for financial instruments under **MAR** and energy wholesale products under **REMIT**. With that, the focus of the position limit regime on critical commodity contracts is consistent with the overall regulatory architecture.

---

see The Capital Markets Recovery Package adopted by the co-legislators in December 2020 and published in the Official Journal on 26 February 2021.

227 Commission Delegated Regulation (EU) 2022/1302 of 20 April 2022 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards for the application of position limits to commodity derivatives and procedures for applying for exemption from position limits (CDR 2022/1302), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1302.

228 ESMA (2022), "Opinion of position limits on ICE Endex Dutch TTF Gas contracts", https://www.esma.europa.eu/sites/default/files/library/esma70-55-12400_opinion_on_position_limits_on_ice_endex_dutch_ttf_gas_contracts_significant_contracts.pdf. For TTF Gas contracts, the spot month position limit is currently set 17,110,110 MWh, which represents 10% of the deliverable supply. ESMA (2020), "Opinion on position limits on EEX Phelix DE7AT Base Power contracts", https://www.esma.europa.eu/sites/default/files/library/opinion_on_position_limit_notification_for_phelix_base_de_at_future.pdf**.** For Phelix DE Base Power contracts, the spot month position limit is set at 41,991,030 MWh, which represents 25% of the deliverable supply. For more information on position limits, see ESMA (2023), Excel Sheet displaying MiFID II/MiFIR position limits for commodity derivatives, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.esma.europa.eu%2Fsites%2Fdefault%2Ffiles%2Fposition_limits_publication.xlsx&wdOrigin=BROWSELINK.

229 ESMA (2024), Excel Sheet displaying MiFID II/MiFIR position limits for commodity derivatives, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.esma.europa.eu%2Fsites%2Fdefault%2Ffiles%2Fposition_limits_publication.xlsx&wdOrigin=BROWSELINK.

230 See response of EEX (2019) to the ESMA consultation paper MiFID II review report on position limits and position management Draft Technical Advice on weekly position reports, https://www.eex.com/fileadmin/Global/News/EEX/EEX_Press_Release/20200110-views-on-mifid-ii-position-limits-regime-data.pdf .

231 See response of Europex (2020) to the ESMA consultation paper MiFID II review report on position limits and position management Draft Technical Advice on weekly position reports, https://www.europex.org/wp-content/uploads/2020/01/20200106_Europex-response-to-ESMA-consultation-paper-on-MiFID-II-review-report-on-position-limits-and-position-management-1.pdf

232 Europex (2019) reply to the call for evidence position limits and position management in commodity derivatives, page 4, 20190705_Europex-response-to-ESMA-CfE-on-position-limits-in-commodity-derivatives.pdf.

A priori: position limits apply to financial instruments traded on regulated markets

It is important to note that position limits apply to **all market participants**. Forcing EMPs to become investment firms would not change the regime and thereby not support the overall regulatory target achievement.[233] That is further supported by international comparison: In the US, a commercial end user can trade futures at exchanges without license requirement and unrestricted in volume until a position limit applies[234].

As a feature of financial market regulation, position limits apply to **financial instruments** traded on regulated markets only, including EEOTC.

Same as all OTC derivatives, energy market products which are **not financial instruments** such as spot products and bilateral energy supply agreements are therefore not subject to position limits. On the other hand, given the purpose of position limits to avoid **market distortion** by a single market participant**,** it would not add value to expand its scope to spot trading and physical supply agreements.

An application of position limits to spot or OTC energy derivatives does not help the cause

Spot markets deal with the balance of physical supply and demand and should be as **liquid as possible** to ensure security of supply. In a tense market situation, it would not benefit the market if there was a limit imposed on how much energy could be sold or procured.

Bilateral physical supply agreements often use public exchange prices to determine the contract price, but not vice-versa. In other words, contract prices reference exchange prices, but exchange prices do not reference such contract prices. Therefore, position limits for purely bilaterally traded contracts do not support the orderly price formation at trading venues and consequently do not meet the regulatory target.

On the other hand, the existence of large bilateral supply agreements and any sudden non-performance represents **concentration risk** and might impact traded market prices for the same commodity, as became apparent during 2022 after the cutting off of Russian gas supplies. However, this could not be cured by position limits because, other than at liquid traded markets, there would be no other market participant who could take over or replace such large supply position and as a result, there would just be less supply.

Therefore, leaving away the sheer legal fact that the above mentioned contracts undisputedly do not represent financial instruments and could not be made subject to financial regulation easily, in any event the more appropriate instruments to limit the impact of a single large supplier of commodities on the EU market are others:

---

233 Save that the exemption for positions, which are hedging and mitigating commercial risk only applies to non-financial market participants.

234 See section 7.2.

- **unbundling of infrastructure** in order to encourage use by multiple users and suppliers;
- **prohibition** of abusive exploitation of **market dominance** under antitrust law;
- fundamental data transparency on commodity flows and the usage of pipelines, interconnectors, and storage;
- application of **market abuse provisions** against manipulative behaviour including artificially withholding supply.

3.3.2 Accountability limits and position management controls applied by exchanges limit the clustering of risks by individual market participants

Overview – accountability limits

Under accountability limits, a market participant exceeding an accountability level may be asked by the exchange to provide information relating to the position (e.g., including nature and size of the position, trading strategy and hedging information if applicable).

The EU regulatory regime mandates accountability levels since the implementation of CDR 2022/1299[235]. A major difference to position limits is the fact that accountability limits are set and applied by the exchange itself which allows them to assess the breach and its legitimacy as opposed to position limits set within a regulatory procedure.

Background

Accountability limits or levels are to some extent comparable to position limits and describe a position in financial instruments, which a market participant may exceed while not yet being in violation of an exchange rule. A market participant who exceeds an accountability (also called *reportable*) level may, however, be asked by the exchange to provide information relating to the position including, but not limited to, the nature and size of the position, the trading strategy employed with respect to the position, and hedging information if applicable. Any market participant who has a position in excess of an accountability level is deemed to have consented, when so ordered by the exchange to:

- not further increase the positions;
- comply with any limit on the size of the position; and/or
- reduce any open position which exceeds a position accountability level.

Accountability limits are therefore meant to be complemented and accompanied by **position management controls**, by which the exchange can direct the person to reduce its position or, if they refuse this, to close it itself.

235 See Commission Delegated Regulation (EU) 2022/1299 of 24 March 2022 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the content of position management controls by trading venues (Text with EEA relevance), https://eur-lex.europa.eu/eli/reg_del/2022/1299/oj

In the UK, the FCA has proposed **new rules** requiring trading venues to **establish and monitor positions against new accountability thresholds, all of which relate to active position limits.** In addition, the FCA is proposing that position limits should be set by trading venues themselves, rather than by national competent authorities.[236] We elaborate on these new proposals under section 7.3, but for the purposes of this chapter, we can conclude that these developments would increase the flexibility of their application.

As a preliminary result, we conclude that the system of accountability limits and position management controls appears to be efficient. If it comes to the interaction between short term physical and longer term derivatives market, such as in the case of storage filling obligations[237], scrutinising the position of state-endorsed market participants and evaluating their commercial objectives could be applied at an earlier stage.

3.3.3 Circuit breakers and price limits prevent sharp price movements

Overview – circuit breakers, price and volatility limits

With circuit breakers as well as price and volatility limits, there are a number of instruments available, which are specifically designed to prevent short term market distortion and stability threads.

Background

Unexpected and drastic price swings in energy derivative prices can set market participants under severe pressure, whether that be because of increased margin requirements, getting cornered as a captive buyer or because of making hedging extremely costly. Often, but not always, such price swings are fundamentally justified and do not require regulatory action. On the other hand, trends are sometimes not related to economic fundamentals and fast and automated order placement may lead to vicious circles in market sentiment and consequently price developments. In such situations, a limited intervention may give the necessary time for the market to reassure itself about the market fundamentals. As a result, in any traded market there are mechanisms available to temporarily halt or limit trading.

These instruments are, however, not suited to be applied easily but rather by exception[238], because any **trading halt**, even if for a very limited period of time, prevents the market participant from trading in the affected products and have their position left open.

---

236 FCA (2023), "Consultation Paper CP23/27: Reforming the commodity derivatives regulatory framework", https://www.fca.org.uk/publication/consultation/cp23-27.pdf

237 See section 3.1.1 for a case study on the impact of storage filling obligations in different EU Member States for energy markets, and an analysis of the situation in Germany with THE acting as 'last resort entity' in particular.

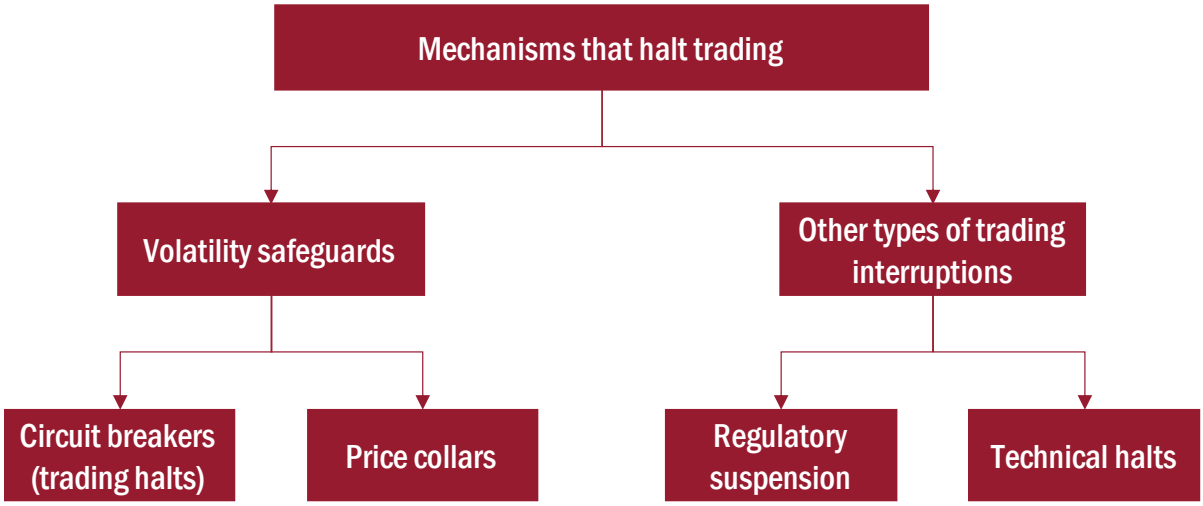
238 See Europex (2022), Position Paper "Europex FAQ on circuit breakers", page 3, https://www.europex.org/wp-content/uploads/2022/10/20221013_Europex-FAQ-on-circuit-breakers.pdf.

Any such halt or constraint must also be short in duration in order to minimise the disruption to the market.[239] If the time window is too long, traders would make use of alternative less transparent and less liquid markets including just trading OTC without clear reference price. To restart exchange trading for the particular product might become more and more difficult.[240]

Against this background, circuit breakers are also a difficult instrument to be applied in the shorter term markets.[241]

Any emergency intervention into the physical spot market would *nolens volens* interfere with the physical balance of supply and demand and require the market to ramp-down production or consumption facilities. This is all the more a problem as storage facilities for gas are limited, but for power even non-existent. It therefore has to be duly noted that, even if such emergency instruments for market intervention are already available under market surveillance provisions as well as energy emergency legislation[242], these instruments are not suited to be applied just to ease the market price and volatility developments, but only in extreme scarcity and emergency scenarios. The impact on balance of supply and demand is simply different and of much higher gravity as, by way of example, only preventing an investor from buying and selling stocks in listed big data firms for a limited period of time.

Figure 27 Financial regulation offers different mechanisms to temporarily halt trading



Source: Frontier Economics and Luther based on ESMA (2020), "Market impacts of circuit breakers – Evidence from EU trading venues", Figure 1, https://www.esma.europa.eu/sites/default/files/library/esmawp-2020-1_market_impacts_of_circuit_breakers.pdf

239 See previous fn., page 2.

240 Bloomberg (2022), "The 18 Minutes of Trading Chaos That Broke the Nickel Market", https://www.bloomberg.com/news/articles/2022-03-14/inside-nickel-s-short-squeeze-how-price-surges-halted-lme-trading

241 For a similar discussion on the metal market see LME (2023), "Working Paper – LME Daily Price Limits", p. 4, https://www.lme.com/-/media/Files/Trading/New-initiatives/Strengthen/Working-Paper---LME-Daily-Price-Limits.pdf

242 See the German *Energy Security Act*, EnSiG.

Focus: Circuit breakers

Circuit breakers are regulatory emergency instruments, which entitle exchanges to order a temporary halt or to constrain continuous trading if and when excessive volatility disrupts the price discovery function of exchanges.[243]

Thereby, circuit breakers serve as a mechanism to provide traders with additional time to pause and evaluate the information that is causing price changes, to reconsider their positions, or to remove any erroneous orders. In principle, when trading resumes after a cool-off period, market participants should be able to make better-informed trades and reduce order book imbalances, so that the risk of adverse feedback loops is mitigated. It is often the case that circuit breakers are also invoked as a way to reduce volatility or to ease the downward pressure on falling prices. However, circuit breakers do not have the purpose to have any significant impact on prices (they may delay but should not stop developments in prices, in particular, if there was fundamental over- or undersupply).

They are explicitly designed and meant to prevent sharp price movements that could affect fair and orderly trading and the integrity of the markets. Circuit breakers are a common feature widely known and practiced at organised trading venues across the globe.[244]

Within the EU, circuit breakers are mandatory

According to Art. 48 para. 1 MiFID II, Member States shall require a regulated market to have in place effective systems, procedures and arrangements to ensure its trading systems are resilient, have sufficient capacity to deal with peak order and message volumes, are able to ensure orderly trading under conditions of severe market stress, are fully tested to ensure such conditions are met and are subject to effective business continuity arrangements to ensure continuity of its services if there is any failure of its trading systems.

In general, circuit breakers can be applied and calibrated in different ways. They can take the form of trading halts, when they temporarily halt trading, or price collars, when the mechanism allows orders exceeding pre-determined volume and price thresholds entering the book, but it constrains the execution of such orders.

Most energy exchanges have dynamic and configurable systems and controls in place. There are two reasons for this:

- A certain degree of volatility is inherent to power and gas markets. This is because power and gas cannot easily be stored, and demand and supply need to be balanced at all times. In addition, demand is highly weather dependent and does not easily react to prices, at

243 ESMA (2023), "Supervisory briefing on the calibration of circuit breakers", p. 6 et seq., https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf.

244 See for an in-depth analysis World Federation of Exchanges, "Circuit Breakers – A Survey among International Trading Venues", https://www.world-exchanges.org/storage/app/media/research/Studies_Reports/WFE%20Survey%20on%20Circuit%20Breakers.pdf

least not in the short term. The energy transition is set to increase the volatility of the market, with intermittent renewable generation becoming a larger part of the energy mix. This means that also supply will become increasingly more volatile and even more weather dependent.

- Energy derivatives are generally less liquid than cash equity instruments. There are fewer market makers and a smaller number of active market participants, which make these markets generally more volatile. Because of these reasons static, circuit breakers are less suitable to distinguish disorderly market conditions from volatility induced by market fundamentals.

The legal basis in the EU is as follows:

- Art. 48 para. 4 MiFID II requires trading venues "to have in place effective systems, procedures and arrangements to reject orders that exceed predetermined volume and price thresholds or are clearly erroneous"[245].

- Art. 48 para. 5 MiFID II requires trading venues to have the ability to "temporarily halt or constrain trading if there is a significant price movement in a financial instrument on that market or a related market during a short period".[246]

The EC expects such circuit breakers to dampen or prevent unexpected price moves, in particular in market stress situations[247] and ESMA, after evaluation of their market impact, has drawn supportive conclusions.[248]

The implementation of circuit breakers is a matter of national law and often further delegated to the exchanges to be reflected in their exchange rules.[249] Interestingly enough, the overarching exchange acts often foresee circuit breakers even beyond the trading of financial instruments and formally apply to commodity trading in addition to trading commodity derivatives trading.[250]

---

245 ESMA (2023), Supervisory briefing on the calibration of circuit breakers, Price collar of type II, https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf

246 Price collars of type I, see previous fn.

247 MiFID II, Recital (64).

248 ESMA (2020), Working Paper No. 1, 2020, "Market impacts of circuit breakers – Evidence from EU trading venues", https://www.esma.europa.eu/sites/default/files/library/esmawp-2020-1_market_impacts_of_circuit_breakers.pdf. The effectiveness of circuit breakers as a tool to safeguard against market volatility has been confirmed in the light of the Covid-crisis, the Russian invasion of Ukraine and the May 2022 flash crash in the equity market, see: ESMA (2023), "Supervisory briefing on the calibration of circuit breakers", https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf.

249 See EEX (2015), German Exchange Act (Börsengesetz – **BörsG**), Section 24 para.2a) and 2b), Section 25 and EEX Exchange Rules, Ref. 0056a, dated 1 January 2024, Section 45 para. 2, https://www.eex.com/de/maerkte/handel/verordnungen-und-regelwerke#3338 (link to download file).

250 See BörsG, Section 25.

In particular during the energy crisis 2022, circuit breakers were triggered several times[251] as a method of bringing temporary relief to the traded energy derivatives markets in stress situations.

According to MiFID II, circuit breakers are mandatory with regard to the trading of financial instruments but not regarding other venue traded instruments, such as **spot products**. As the spot market represents the exchange of physical supply and demand, the application of circuit breakers might for obvious reasons work **against** the objective of secure and safe energy supply. As the energy grids have to be in balance between supply and demand at all times, a trading halt for physical products may cause severe technical problems and imbalances as to ramp up and shut down physical production and consumption requires time and will cause severe impact in the real economy.

Circuit breakers applying to financial products are also sometimes seen as **ambiguous** because they may generate a "**magnet effect**", where trading and volatility increase as traders anticipate a circuit breaker being triggered.[252] Further, there may be **spillover effects**. For example, a circuit breaker may move volatility across markets when traders move their trades to another market in anticipation of a circuit breaker being triggered. Finally, it has to be acknowledged that during trading halts caused by circuit breakers, the possibility to hedge open positions at the exchange is put on hold as well, and market participants may be forced to leave positions open or avail themselves to the bilateral OTC market under the acceptance of related counterparty credit risk.

On balance and as a preliminary conclusion, circuit breakers are part of exchange controls that aim to temporarily prevent fundamentally unjustified sharp price moves and to limit price volatility. There is currently no legal limitation to design and adjust circuit breakers to work in crisis situations. After such **recalibration** by exchanges[253] in light of the crisis, we do not see need for further legal action and suggest to let these instruments developing and proving effectiveness. However, it should be understood that circuit breakers do not play a role in addressing high energy prices in Europe caused by physical scarcity of supply.

Market price caps

Another instrument to prevent market distortions in extreme price scenarios is the introduction of **maximum prices** above which transactions at exchanges are not matched and exceeding orders are neglected. As a result, the reference price established by the exchange might either

---

251 EEX (2022), "EEX Press Release – Exchange Council generally welcomes Europewide approach to manage the current energy price crisis" press release, https://www.eex.com/en/newsroom/detail?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=6063&cHash=64e3d596f254c99ddaa2e4a2d97e879a.

252 IOSCO (2002), "Report of the Technical Committee, Report on Trading Halts and Market Closures", p. 21, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD138.pdf.

253 ESMA (2023), "Supervisory briefing on the calibration of circuit breakers", https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-2134169708-6975_Supervisory_Briefing_Circuit_Breakers.pdf

be limited or at least dampened by the price cap. In the EU energy commodity sector, price caps have no tradition and were only considered after lengthy political discussions[254] as extraordinary response to the extreme price scenario summer 2022 in the natural gas market.

In that respect, the Market Correction Mechanism ("MCM") was introduced as a case-by-case regulation in the wake of the energy crisis.[255] The MCM is triggered when the TTF month ahead price exceeds 180 Euro/MWh for three consecutive days. A dynamic bidding limit will then be set and bids above this limit will not be accepted. The instrument, which has not yet been applied in practice, has been extended until 1 January 2025.[256] As the date of the political agreement on 19 December 2022 demonstrates, the enactment came way too late to cure price spikes which occurred months before.

We have set out the economic implications of the MCM earlier in the report (see section 3.1.1).

It is important to note, the introduction of hard price caps works against the principle to ensure a continuous price discovery function, to have open and accessible markets and to enable the market participants to comply with their contractual obligations and to de-risk their positions. As the MCM has not had any real beneficial effect so far and represents a paradigm shift away from open markets, **we suggest letting this instrument expire**.

3.3.4 Central clearing as risk mitigating tool to protect against counterparty default and preserve market stability

Overview

Clearing is a proven risk mitigating tool to mitigate counterparty credit risk[257] by replacing the individual counterparty with the Central Counterparty ("CCP") and the continuous collateralisation of the exposure of the CCP with initial and variation margin. The preferred eligible collateral to deliver margin is cash, and the frequency to exchange margins is daily. The margin secures the mark to market of the contract or trading portfolio against default of one of the original counterparties.[258] Clearing or margining is not restricted to financial

254 https://www.consilium.europa.eu/en/press/press-releases/2022/12/19/council-agrees-on-temporary-mechanism-to-limit-excessive-gas-prices/

255 Council Regulation (EU) 2022/2578 of 22 December 2022 establishing a market correction mechanism to protect Union citizens and the economy against excessively high prices, Art. 4, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2578. See for more information on the ACER (2023), "Market Correction Mechanism, Effects Assessment Report", https://acer.europa.eu/sites/default/files/documents/Publications/ACER_FinalReport_MCM.pdf and ESMA (2023), "Effects Assessment of the impact of the market correction mechanism on financial markets", https://www.esma.europa.eu/sites/default/files/library/ESMA70-446-794_MCM_Effects_Assessement_Report.pdf.

256 Council Regulation (EU) 2023/2920 of 21 December 2023 amending Regulation (EU) 2022/2578 as regards the prolongation of its period of application, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302920.

257 See also section 2.2.1 on the role of credit risk in the "risk triangle".

258 As we set out earlier in section 3.2, access to central clearing facilities is of particular importance for EMPs. However, with mandatory clearing under investment firm status EMPs would have either faced even more severe liquidity strain (from

instruments or exchange trading. Clearing by a CCP applies mandatorily at exchanges, but also OTC transactions can be made subject to voluntary clearing or bilateral margining between the counterparties with a similar effect.

Under EMIR, OTC clearing has, under certain preconditions, become mandatory for financial counterparty (FC) and non-financial counterparty (NFC), the latter when exceeding a specified clearing threshold.[259] Currently, most of the energy market participants are below the clearing threshold and it has been explained by the Frontier and Luther Lawfirm in an expert study[260] that sufficient headroom to transact below the clearing threshold based on the assessment of the creditworthiness of the counterparty is beneficial to the market because it allows to distribute risk between counterparty credit risk and liquidity risk.

Clearing and margining during the energy crisis

As a learning from the energy crisis, sharp price moves within very short time frames can produce significant stress for market participants to mobilise sufficient liquidity to honour the daily margin calls. In the end, the central clearing system proved to be resilient and robust during the crisis and the credit risk of the energy industry was mitigated effectively, however, at the cost of severe challenges to the liquidity management of market participants.

Therefore, going forward, transparency on the calculation of margins and the predictability of margin calls is key for stable and resilient liquidity planning. In this context, the correct and transparent calculation of the initial and variation margins to be posted, as well as the acceptable collateral are of particular importance as they ultimately determine the cost of clearing.

The continuous accessibility of clearing facilities beyond the clearing mandate is essential to allow for market access without unwanted counterparty credit risk on a voluntary basis or to replace it by voluntary clearing.

In that regard, the EC has, in the course of the revised EMIR, already put forward some helpful proposals to improve the predictability of margin calls for the benefit of market participants (see below).

3.3.5 Supervision of algorithmic trading

The use of trading technology has evolved significantly over the last decade and algorithmic trading is increasingly used not only in the financial markets, but also the wholesale energy markets. Many market participants use algorithmic trading techniques with minimal or no

mandatory collateralisation of OTC trading) or exited the market, further draining liquidity from an energy wholesale market which was already low during the energy crisis.

259 As stipulated in Art,10 EMIR

260 Frontier/Luther (2022), “Review of the EMIR Clearing Threshold for Commodities (CCT)”, available to Energy Traders Europe

human intervention. The risks arising from these practices have already been addressed under MiFID II and will also be subject to the revised REMIT 2.0 (see below).

The to be addressed concerns are that algorithmic trading may amplify fundamentally unfounded market trends and create upward or downward price spirals.

In particular, there is a risk that algorithmic trading systems may overreact to events in the physical market and exacerbate volatility in cases of market distress. Such concerns are addressed through a combination of measures and risk controls aimed at firms engaged in algorithmic trading, accompanied by measures directed at operators of trading venues. For the financial sector, these are set out in Art. 17 and Art. 18 of MiFID II. With the introduction of REMIT 2.0, algorithmic trading will also become subject to regulatory oversight if used in energy wholesale markets, including the requirement to notify its use to the NRA and ACER and the implementation of effective and suitable risk controls.

Therefore, we conclude that there are sufficient instruments available or under immediate preparation to avoid from amplifying the price effects of the energy crisis by algorithmic trading and reiterate the previous finding that the root cause of the crisis has not been the traded derivatives market but rather the physical scarcity of supply.

3.3.6 The C.6 carve-out under MiFID II is an appropriate key differentiator between physical and financial market regulation

Overview – C.6 carve-out

In discussing the effects of the energy crisis, the issue was raised whether or not the so-called REMIT-carve out contributed to a lack of regulatory oversight and formed part of a regulatory issue to solve[261]. As we will see in the following, this is not the case, and all the above discussed instruments apply to exactly the scope of trading transactions they are designed for.

The C.6. carve-out is an instrument to prevent double regulation by otherwise applying financial market regulation to a physically settled energy wholesale product, in addition to the applicable regime under REMIT. It provides a necessary **correction mechanism** against an interpretation of financial instruments in the EU, which is, through including physically settled OTC-instruments, **already wider** as in many other jurisdictions (see also section 7.2).

In addition, it would not support the integrity of price formation at trading venues, as futures trading at exchanges is not subject to the carve out in the first place. Finally, the market integrity regime applicable to non-financial energy wholesale products under REMIT delivers the more targeted results as it specifically addresses market behaviour in the energy

[261] See Question 2 of the Consultation Paper MiFID II review report on position limits and position management Draft Technical Advice on weekly position reports.

markets[262]. Their inclusion in the complex and far-reaching matrix of the requirements under MiFID II/MiFIR, predominantly designed for investment firms and banks, could undermine their actual economic functions[263]

A removal of the C.6 carve-out would further adversely affect energy markets.[264] It would shift liquidity away from broker platforms and have a negative impact on overall market liquidity with either reduced overall trading volumes or a shift from broker platforms to other venues at higher transaction costs or to purely bilateral trading. This in turn would hinder energy market participants in adequately managing their risk portfolio, in particular in periods of market distress such as the energy crisis. In this context, it is important to note that these actors play an important role in the liberalisation and further development of the EU's internal gas and electricity market. Moreover, EMPs and their product portfolio are indispensable for the energy transition as well as for the broader shift to a green and carbon-neutral economy in Europe.

Background

MiFID II and the regime of financial services authorisation applies to financial services provided in relation to a financial instrument.

Using an appropriate definition for the in-scope transactions is therefore important as being classified as a financial instrument is decisive whether financial market regulation applies or not. Important to note, being or not being subjected to financial regulation does not lead to lack of supervision, rather, the entire set of energy regulation including REMIT 2.0 applies anyway to any energy wholesale product.

The catalogue of in-scope instruments is listed in Annex I C MiFID II and according to Annex I C.6, even **physically settled products** count as financial instruments, if and when they are executed at Regulated Markets, MTFs or OTFs. Important to note, as opposed to the Regulated Markets, MTFs and OTFs refer to brokered contracts and belong to the **OTC-market.**

In international comparison, the notion of financial instrument under EU legislation is therefore broader than in other jurisdictions[265], because **physically settled OTC contracts**, which

262 See chapter 5 for details, see further EEX reply to the Consultation Paper MiFID II review report on position limits and position management Draft Technical Advice on weekly position reports, https://www.eex.com/fileadmin/Global/News/EEX/EEX_Press_Release/20200110-views-on-mifid-ii-position-limits-regime-data.pdf.

263 See response of Europex to the ESMA Consultation Paper on MiFID II review report on position limits and position management, Q2 https://www.europex.org/wp-content/uploads/2020/01/20200106_Europex-response-to-ESMA-consultation-paper-on-MiFID-II-review-report-on-position-limits-and-position-management-1.pdf

264 As we set out in section 2.1.3, EMPs use a combination of exchange and OTC trading, including physically settled OTC instruments that fall under the C.6 Carve-Out through broker platforms (OTF), reflecting the need for different venues (and products traded on those) to match the individual trading objectives by EMPs.

265 See section 7.

represent the “bread and butter” business of energy market participants would usually, due to the physical delivery of the underlying, not be seen as financial instruments.

Against this background, the C.6. carve-out for certain energy wholesale products needs to be put in perspective. It re-exempts a set of physical products which were not in scope of financial regulation under MiFID I in the first place and have never been and are still not in other key jurisdictions as of today.

The C.6 carve-out re-exempts physically settled energy wholesale products traded at an OTF

The C.6 carve-out under REMIT[266] re-exempts energy wholesale products, which are executed at an OTF and must be physically settled. All other venue traded commodity derivates, including energy wholesale products, are still classified as financial instrument, in particular if traded at **regulated markets, e.g., exchanges**.

Sometimes, concerns haven been raised whether this carve-out comes at the expense of a resilient supervisory regime in the financial sector. At least for the relevant features discussed in this report, this concern is **unfounded**:

The C.6 carve-out only applies to OTF traded contracts. All surveillance measures and controls protecting price formation and market integrity at exchanges are unaffected. This holds true for:

- position limits;
- circuit breakers;
- prohibition of market abuse in form of market manipulation and insider trading under MAR; and
- transaction reporting.

All these instruments are fully available and applicable to the trading of REMIT energy wholesale products at exchanges by any market participant. The applicability of these instruments is further unrelated to their regulatory status.

Also, the exempted and carved-out OTF-traded energy wholesale products are fully subject to market integrity rules. They:

- may be counted against position limits as EEOTC contracts;
- are subject to the REMIT prohibition of insider trading and market manipulation; and
- are fully reportable under REMIT.

266 REMIT stands for “Regulation on Energy Market Integrity and Transparency”, see Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1227

The C.6 carve-out does therefore not diminish the transparency and integrity targets of both financial and energy market regulation. It does, however, have implications for the regulatory status of market participants because it determines the scope of the AAE as set out in Art. 2 para. 1 lit. j) ii MiFID II by the differentiation between ancillary financial business seeking exemption and non-financial main business. Nevertheless, this status does not determine the applicability of above rules and therefore its change towards investment firm status would not contribute to more efficient and resilient markets.

3.3.7 New EU developments regarding market efficiency and stability

The experiences of the energy crisis and related market events have triggered a number of regulatory actions to address market resilience in stress situations. This concerns both the physical as well as the financial markets and are consequently anchored in energy and in financial market legislation. While we acknowledge the need of legislators to address the crisis' root causes and most of the actions do contribute to better and more resilient markets, we want to highlight that invention in financial energy markets will affect physical markets too and vice versa. Legislators and regulators must be aware of such interdependencies.

For the purpose of this study, we focus on the following legislative actions but take into account industrial initiatives to formalise the learnings during the crisis.

Energy market actions

ACER counted for not less than 439 national legislative actions to fight the energy crisis. These were accompanied by a number of initiatives on EU-level.

We concentrate on the following, which will either bring improvements or should be further revised in order to prevent future market distortions.

- Review REMIT ("REMIT 2.0"[267])
- Electricity Market Design revision[268]
- Mandatory Gas fill levels in gas storage[269]

267 Regulation of the European Parliament and of the Council amending Regulations (EU) 1227/2011 and (EU) 2019/942 as regards improving the Union's protection against market manipulation on the wholesale energy market (REMIT 2.0.) was adopted on 11 April 2024. Pursuant to Art. 3 of the amending Regulation, it will enter into force on the twentieth day following its publication in the Official Journal of the European Union, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:PE_103_2023_REV_1

268 Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) 2019/943 and (EU) 2019/942 as well as Directives (EU) 2018/2001 and (EU) 2019/944 to improve the Union's electricity market design, COM(2023) 148 final.

269 Regulation (EU) 2022/1032

New development under REMIT

The revised REMIT will bring a number of improvements regarding data transfer between ACER and ESMA, enlarged data reporting obligations and sharpened market abuse provisions. One important change is the abandoning of the former delineation between the market integrity regimes under REMIT and MAR, now leading to double oversight regarding trading instruments which constitute energy wholesale products and financial instruments at the same time. This holds particularly true for exchange traded energy wholesale products. We deal with these amendments in chapters 4 and 5.

The explicit coverage of algorithmic trading comparable to the Market Abuse Regulation is of particular interest for the resilience of traded markets.

The use of algorithmic trading and high frequency algorithmic techniques with minimal or no human intervention can result in trading patterns that tend to create vicious circles and downward price spirals. Market participants engaging in algorithmic trading are therefore obliged to have in place a comprehensive and sound system of risk controls to guarantee the orderly functioning of the market, including appropriate trading thresholds and limits and mechanisms to detect erroneous orders According to Art. 5a REMIT 2.0.[270], algorithmic trading shall become subject to:

- notification to both the NRAs and ACER and
- effective systems and risk controls that ensure trading resilience and prevent disorderly functioning markets.

With that, we note an additional measure to keep markets resilient and stable in crisis situations.

Revised Electricity Market Design ("EMD")

With the proposed Regulation to the EMD, the EU responses to the energy crisis. Main objectives are to shield consumers from volatile prices, to enhance cost predictability for EU competitiveness, to boost investments in renewables and to strengthen cross-border cooperation and security.

Apart from that and of particular interest for traded market stability and resilience is the proposal to introduce mandatory supplier risk management.

[270] Council of the European Union (2023), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 1227/2011 and (EU) 2019/942 to improve the Union's protection against market manipulation in the wholesale energy market, General Approach, 2023/0076(COD), 10872/23, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:ST_10872_2023_INIT.

The relevant Art. 18a of the proposed Regulation[271] reads:

> *"1. Regulatory authorities, or where a Member State has designated an alternative independent competent authority for that purpose, such designated competent authority, taking into account the size of the supplier or the market structure and including, if relevant, by carrying out stress tests shall ensure that electricity suppliers:*
>
> *(a) have in place and implement appropriate hedging strategies, to limit the risk of changes in wholesale electricity supply to the economic viability of their contracts with customers, while maintaining liquidity on and price signals from short-term markets;*
>
> *(b) take all reasonable steps to limit their risk of supply failure"*

It remains to be seen how these proposals will be further detailed and transformed into national law. It is, however, relevant to note that the risk taking capacity of EMPs is not only addressed in financial market regulation but also on the energy regulatory side.

Proposed amendments to gas storage regulation

As already explained in this study, the actions taken on the traded gas market to achieve the mandatory gas storage fill levels as prescribed in national and EU legislation at certain due dates has given rise to concerns about the price impact of related buying behaviour.

Factual reason is that the procurement of large gas volumes at the physical market with unlimited funds by state actors without reselling those volumes on a forward basis have signalled a huge additional physical demand of gas which, in fact, was not there because the gas was not designated for own consumption but to be outfeed from the storage facilities at a later stage.

Contrary to such "naked" buying strategy, a typical market behaviour would have been to purchase and resell (for delivery at a later point) the volumes at the same time and to lock in the spread. With such common strategy, the volumes would not vanish but instantly become visible on the forward market.

In response thereto, proposals have been brought forward to ensure a more predictable approach. A core element to provide for more controlled buying could for example read as follows:

> *"Market participants pursuing gas storage filing target should meet principles by which they are utilising a proportionate and diversified trading strategy using different gas market segment, including spot and derivatives,* ***reselling gas on a forward basis to reduce the upward pressure on the price curve****, providing sufficient lead time for market participants to fulfil storage targets and the gradual release of gas from storages to avoid providing non-market based signals."* (emphasis added)

[271] Regulation of the European Parliament and of the Council amending Regulations (EU) 2019/943 and (EU) 2019/942 as well as Directives (EU) 2018/2001 and (EU) 2019/944 to improve the Union's electricity market design - Analysis of the final compromise text with a view to agreement, 2023/0077(COD), https://data.consilium.europa.eu/doc/document/ST-16964-2023-INIT/en/pdf

We view this as a sensible suggestion in order to avoid market distortion in an already tight supply situation.

Following the above, we conclude that a number of sensible initiatives are already on their way and will likely contribute to more stable and resilient trading markets under energy market regulation.

Financial market actions

In parallel, the energy crisis also prompted various actions on the side of the financial regulators:

- Art. 90 para. 5 MiFID II review clause concerning the AAE and position limits;
- Review of the European Market Infrastructure Regulation ("EMIR 3.0"); and
- Review of the Market Abuse Regulation ("MAR 3.0").

We elaborate on those in more detail below. These initiatives do partly address the shortfalls we have already identified, and we suggest monitoring the development closely and that time be given to take full effect.

We also include in our assessment industry initiatives which on a private level and in the interest of both the market and the market participants try to establish industry standards which promote more stable and resilient energy markets.

Review: Position limits

According to the Draft Revised MiFID II Art. 90 para. 5, the EC has obtained a mandate to review and opine on the current position limit system **until 2025**.

In our view firm position limits have an ambiguous effect. They may prevent from market cornering, but they may also block the development of traded markets and are sometimes not flexible enough as they are set by regulators and cannot be adapted quickly. With that, they could tend to work against liquid, open and interconnected markets.

We therefore suggest focussing rather on **more flexible instruments** such as accountability limits on which the exchange acts as deemed appropriate and keep the limitation to critical commodity contracts.

EMIR assumes a major role in stabilising traded markets and the recent update to EMIR 3.0 will benefit the market significantly. In the following, we shade some light and assess those amendments which are directly affecting the clearing and margining process and address the shortfalls mentioned in the beginning of this chapter.

New: Acceptable collateral for clearing *(Draft Art. 46 EMIR 3.0.)*

As explained above, clearing and margining is an indispensable key but also ambiguous feature to mitigate counterparty credit risk. As it has undisputed benefits when applied on a voluntary basis and in a **transparent and predictable manner**, it unfolds downsides when actual margin calls raise to unpredictable volumes and challenge the liquidity management of firms.

In liquidity stress situations, energy market participants would therefore benefit from a broader variety of options to match margin calls when due. This does not only extend to the transparency and predictability of margin calls, but also on the available instruments, apart from cash, to meet those calls.

Therefore, the new developments foreseen under EMIR to broaden the set of acceptable collateral is highly welcomed, even though legislators could have gone beyond that: According to Art. 46 EMIR 3.0[272], commercial bank guarantees provided by NFCs can be accepted as collateral. The CCPs shall set out in its operating rules whether it accepts fully uncollateralised bank guarantees, subject to concentration limits and adequate haircuts.

ESMA shall set out the conditions under which commercial bank guarantees may be accepted.

We view this as sensible development, but the EU could have gone a step beyond and also further broaden the scope of eligible collateral, for example by including EUAs.

New: transparency and predictability of margin calls *(Draft Art. 38 para 8 EMIR 3.0.)*

The new Art, 38 para 8 shall improve the predictability of margin calls by mandating the CMs to inform their clients about:

- the calculation methodology of the margin requirements;
- situations and conditions that may trigger margin calls;
- the procedures used to establish the margin amounts to be posted; and
- to provide them with a simulation of such margin requirements.

With these instruments, EMPs, which are usually the clients of CMs, which are investment firms, shall be put in a position to foresee and be prepared to match margin call when such are posted.

Further, CCPs shall – under certain conditions – accept EMPs as clearing members and facilitate direct clearing.

272 Council of the European Union (2024), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 648/2012, (EU) No 575/2013 and (EU) 2017/1131 as regards measures to mitigate excessive exposures to third-country central counterparties and improve the efficiency of Union clearing markets, Confirmation of the final compromise text with a view of agreement, 2022/0403 (COD), 6344/24, https://data.consilium.europa.eu/doc/document/ST-6344-2024-INIT/en/pdf.

Revised clearing threshold calculation for NFCs according to Art. 10 para (3) EMIR 3.0.

A relevant feature is the introduction in Article 10 (3) of a substantially improved **clearing threshold calculation for NFCs** (includes only uncleared trades, foresees the threshold calculation on entity level and renders the hedging exemption available on group level to promote a centralised risk management).

This new methodology will apply once the amended ESMA Regulatory Technical Standard ("RTSs") defining the criteria for establishing risk reduction and the values of the clearing thresholds is adopted (expected until 12 months after entry into force of EMIR 3.0). This means that NFCs can apply the new EMIR Clearing Threshold calculation potentially after the calculation period of 2025/26.

This significant relief is, however, accompanied by a review clause according to which ESMA shall present a report to the European Parliament, the Council and the Commission on the activities of Union non-financial counterparties in OTC derivatives, identifying areas where there is a lack of convergence and coherence in the application of this Regulation as well as potential risks to the financial stability of the Union. This report is due every two years.

New: Active account requirement *(Draft Art. 7a EMIR 3.0.)*

In order to facilitate the clearing process, FCs and NFCs subject to the clearing obligation will be required to hold at least one active account at a CCP established in the EU and regularly clear through it at least five trades in each of the most relevant subcategories per class of derivative contract.[273] ESMA will identify the derivative contracts which are of substantial systemic importance. Derivatives contracts cleared through an active account shall be representative of the different sub-categories.

Albeit not affecting the vast majority of Energy Traders Europe member firms, this change may support resilient and stable markets by facilitating clearing.

New: Energy Traders Europe liquidity risk management manual

These regulatory and legislative actions are accompanied by private initiatives, most notably the project of Energy Traders Europe to set up and endorse a standard industry liquidity manual.

This initiative is based on and draws from the findings in the JEAG position paper of February 2023: "*The Ancillary Activity Exemption of MiFID II is key to ensure security of supply*"[274] and the *ECB Guide to the internal liquidity adequacy assessment process* ("ILAAP")[275]. It shall

273 EMIR 3.0., Recitals (10a), (10b) and (10ba), Art. 7a and 7aa.

274 JEAG (2023), "The Ancillary Activity Exemption of MiFID II is key to ensure security of supply", available to Energy Traders Europe

275 https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.ilaap_guide_201811.en.pdf

further take into account the IFR (Regulation (EU) 2019/2033 on the prudential requirements of investment firms) and the IFD (Directive (EU) 2019/2034 on the prudential supervision of investment firms).

It shall address, inter alia, liquidity risk management practices of EMPs and the resulting manual shall include instruments that have been proven reasonable during the energy crisis, such as liquidity forecasting (frequent cash liquidity assessment), liquidity pricing (calculation of liquidity management costs before entering into transactions) and optimisation of initial margin payments through transfer between clearing members and exchanges.

In further developing this initiative, the policy recommendations of the Financial Stability Board ("FSB") on liquidity preparedness for collateral and margin calls[276] could be considered. These recommendations entail, inter alia, the incorporation of liquidity risk frameworks, contingency funding plans, liquidity stress testing, resilient and effective processes and collateral management practices by market participants.

We consider the initiative by Energy Traders Europe a sensible and quick attempt to create widely accepted industry standards to manage liquidity stress in future crisis situations.

[276] FSB (2024), Consultation report, "Liquidity Preparedness for Margin and Collateral Calls", https://www.fsb.org/wp-content/uploads/P170424.pdf

4 The current regulation provides for comprehensive market transparency and supervision

KEY TAKEAWAYS

Policy recommendation

Ensure efficient reporting: we suggest harmonising the reporting standards between physical energy and energy derivatives markets reporting (to the extent possible) and create a comprehensive single data set which is sent out in a similar process and timeline to all regulatory stakeholders.

Reporting requirements under EMIR and REMIT support key objectives of financial market regulation for energy trading but could be more efficient (section 4.1)

Reporting is an essential tool for achieving market-wide transparency by enabling regulators to detect, stop and prevent market abuse. This requires timely information about transactions in the physical energy and energy derivatives market and would benefit from corresponding access to fundamental data, showing the supply and demand balance for the underlying physical gas and power flows. In order to take informed decisions in complex crisis situations and detect market distortions early, regulators should be able to form a view not only on either the derivative or physical energy market but include both sides into their assessment.

EMPs are currently subject to a dual regulatory reporting system:

- for financial market transactions including energy derivatives according to EMIR, and
- for physical energy wholesale products according to REMIT.

Under both regimes, EMPs need to timely submit a detailed set of information on transaction data, including price, volume, counterparty, and tenure. REMIT also extends to the reporting of market fundamental data regarding the underlying physical energy flows, the publication of inside information and the reporting of orders to trade.

Each set of reporting has to be completed and sent out separately via the defined reporting channel to the ultimate recipients from the side of the financial authorities on the one hand, and the side of the energy authorities on the other. Consequently, there is no single regulatory authority instantly receiving a comprehensive data set covering both the physical energy and energy derivatives market at the same time.

Better coordination between regulators will improve market transparency and supervision (section 4.2)

There have always been mandatory communication channels between financial market and energy market regulators on EU and national level. New rules under EMIR 3.0, the reviewed MAR and REMIT 2.0 will further strengthen the coordination and data exchange between the different stakeholders at EU and national level. However, the mechanisms of data exchange and coordination that are in place under the current legal framework do not yet address the duality in the existing reporting systems and its inherent shortfall: the individual reports only cover a subset of relevant market data.

This appears to be unsatisfactory from a supervisory angle: no single individual regulator has an immediate and complete overview of transactions in the financial as well as in the physical energy market at the same time and will therefore not be in a position to take informed close to real time action to prevent market distortions from the outset.

A harmonised single data set would be highly beneficial in achieving comprehensive market transparency. Consequently, EMPs should send the same harmonised single data set to all relevant entities under applicable regulation. This would have a threefold beneficial effect:

- energy and financial market regulators can focus their view on a holistic data set covering physical and financial energy markets and easier identify cross market distortions;
- EMPs' compliance is facilitated as they have to compose only once a data set instead of multiple times; and
- the reporting scheme becomes more efficient.

The harmonised single data set should satisfy the transaction reporting obligations under EMIR and REMIT. It could preferably also include reporting by Organised Market Places ("OMPs") under financial market regulation.

The submission of harmonised data sets is also proposed in a parallel discussion on better supervision of the EU Capital Markets Union. It would also contribute to smarter and better regulation by harmonising regulatory frameworks, encouraging mutual recognition, streamlining reporting data, and continuing the initiative to reduce reporting as outlined in the conclusions of the European Council of 17 and 18 April 2024.[277]

In this part of the report, we assess whether the current regulation provides for comprehensive market transparency and supervision or if the learnings during the energy crisis suggest certain improvements. To this end, we analyse the reporting obligations that EMPs are subject to under EMIR and REMIT. We do not specifically address the reporting obligations under MiFIR and MiFID II of other stakeholders such as Organised Market Places ("OMPs") in

[277] European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", p.11f., https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

connection with energy trading, unless we explicitly refer to them for the sake of a complete picture.

- In section 4.1, we show that the different but comparable **reporting requirements under EMIR and REMIT support key objectives** of energy and financial market regulation for energy trading.
- In section 4.2, we then conclude that **better coordination between regulators could further improve market transparency and supervision**.

We come to the overall conclusion that a **harmonised single data set** would be highly beneficial in achieving comprehensive market transparency. EMPs should send the same harmonised single data set to all relevant entities under applicable regulation. This would have a threefold beneficial effect:

- energy and financial market regulators can focus their view on a holistic data set covering physical and financial energy markets and easier identify cross market distortions;
- EMP's compliance is facilitated as they have to compose only once a data set instead of multiple times; and
- the reporting scheme becomes more efficient.

The harmonised single data set should satisfy the transaction reporting obligations under EMIR and REMIT and could preferably also include reporting by OMPs under financial market regulation.

Such route to a single point of truth in information sharing and publishing is already paved for in capital markets:

For example, the EU is about to create a **single point of access** to publish financial and non-financial information about EU companies and EU investment products, the European Single Access Point ("ESAP") – a platform that will make this information easier for investors to consult. Albeit not exactly comparable to mandatory transaction reporting, it illustrates the common understanding of **efficient information sharing**.[278]

In addition, the benefits of centralised and harmonised data collection have already been identified by various national stakeholders in the financial markets.[279] According to these sources, a more integrated European capital market would benefit from data centralisation, as supervisory objectives can be better achieved with an integral data set as opposed to subsets of available data. This would allow for a **more comprehensive overview** of the EU financial markets and thus improve the **supervision of market manipulation** by enabling quick detection of suspicious cross-border activities and facilitating **real time monitoring**.

278 Council of the European Union, "Council adopts regulation easing access to corporate information for investors", press release, dated 27 November 2023, https://www.consilium.europa.eu/en/press/press-releases/2023/11/27/council-adopts-regulation-easing-access-to-corporate-information-for-investors/

279 Autoriteit Financiele Markten (2024), "Next steps for the European Capital Markets Union (CMU)", https://www.afm.nl/~/profmedia/files/publicaties/2024/position-paper-cmu-afm-dnb.pdf

Furthermore, both sides – regulators and supervised entities – would benefit in terms of **efficiency**: a harmonised single data set would significantly **reduce the costs** of collecting, processing and interpreting data.

4.1 Reporting requirements under EMIR and REMIT support key objectives of financial market regulation for energy trading but could be made more efficient

The concern: Insufficient transparency in OTC derivatives trading

In the aftermath of the GFC, the lack of transparency in the OTC derivatives market was identified as a key strategic deficiency to function effectively and maintain resilience. OTC derivatives have arguably lacked transparency in the past as they were usually negotiated privately, and relevant information was only available to the contracting parties. Due to the complexity that is innate to derivative transactions and the global interconnectedness of financial markets, in times of **market stress** those types of contracts led to a high level of uncertainty.

At the Pittsburgh Summit, the enhancement of transparency, the promotion of market integrity and the strengthening of international cooperation were recognised by the G20 as key objectives for the further development of international financial regulation.[280] This applies in particular to the standardised OTC derivatives market.[281]

In response, the EU has built a strong system of transparency standards, which extends over a **broad regulatory landscape**. The reporting requirements set out in **different regulations** support transparency and supervision by providing **different regulators** for financial and energy markets with transaction data from market participants, including information on price, volume, counterparty, and tenure in a timely manner. The overall objective of these reporting obligations is to effectively detect and prevent market abuse and to early identify risks for the stability of the system.

As a result, the EU regulations EMIR and REMIT already provide for extensive reporting of energy market transactions, as we set out in Figure 28 (see next page).

280 OECD (2009), Leader' s Statement of the Pittsburgh Summit, 24-25 September 2009 (**G20 commitments**), margin no. 11, https://www.oecd.org/g20/summits/pittsburgh/G20-Pittsburgh-Leaders-Declaration.pdf.

281 G20 commitments, margin no. 13.

Figure 28 Strong system of data reporting requirements under EMIR and REMIT[282]

	EMIR	REMIT	
What?	**Transaction data** ▪ Any details of any derivative contract regarding main characteristics such as type, price, notional values and settlement date ▪ Parties and beneficiaries ▪ Modification of the contract (life cycle events)	**Transaction data** ▪ Precise identification of wholesale energy products including orders to trade (e.g., price, quantity, date, time and other relevant data) ▪ Parties and beneficiaries ▪ Modification of the contract (life cycle events)	**Fundamental data** ▪ Capacity and utilisation of facilities related to consumption or transmission of electricity and natural gas, including LNG and storage facilities ▪ Planned and unplanned unavailability of facilities
Who?	▪ FCs (incl. collateral and daily mark -to-market) ▪ NFCs ▪ CCPs	▪ EMPs, or on their behalf: ▫ Authorized third parties ▫ Trade reporting systems ▫ OMPs, trade-matching system, PPATs ▫ Registered or recognized trade repository ▫ Competent authorities or ESMA having received that information in accordance with applicable legislation	▪ EMPs, or on their behalf ▫ ENTSO-E/ENTSO-G ▫ TSOs
To whom?	▪ TRs or ESMA, if TR unavailable	▪ ACER via RRMs	▪ ACER via transparency platforms ▪ NRAs upon request
When?	▪ D+1	▪ D+1 (standard contract) ▪ D+30 (non-standard contract)	▪ D+1
Ultimate recipients of data?	▪ ESMA ▪ EBA ▪ EIOPA ▪ ESRB ▪ ESCB ▪ ACER ▪ NCAs, including those supervising CCPs and trading venues ▪ Relevant third country authorities	▪ ACER ▪ NRAs ▪ NCAs and other relevant supervising authorities ▪ ESMA	
Data publicly available?	▪ No	▪ No	▪ Yes

Source: *Luther Lawfirm*

Note: *The table shows REMIT reporting as of 19 April 2024. It does not yet include the changes envisaged under REMIT 2.0, which will contain, inter alia, a legal definition of RRMs, expand the LNG reporting obligations and will further add an exposure reporting obligation. The EC is tasked to adopt further implementing acts within 12 months.*

Market participants' expectations

The above indicates that the reporting obligations are extensive and that there are manifold recipients and addresses of data submissions.

As a result, EMPs have to devote significant IT and human resources to complying with all the requirements. In the context of EMIR reporting alone, EMPs are obliged to submit **up to 203 data fields per transaction** under EMIR Refit, up from the 129 data fields previously required. Extrapolated to thousands of transactions per day, this requires EMPs to invest significant time, human, financial and also legal resources into reporting.

However, recalling its intent to prevent **market abuse** and to avoid market distortions, the regulatory benefit appears to be limited, and corrective actions by regulators are often taken just in hindsight. By providing up-to-date d+1 transaction data (following business working day), the regulator should be able to obtain a **comprehensive overview of ongoing market**

282 We note that the reporting obligated parties under REMIT 2.0 will be expanded to include organised market places (Art. 8 para. 1 lit. a)) and LNG market participants (Art. 8 para. 1 lit. aa)). Please also note that the list of stakeholders under EMIR to whom data is made available is not exhaustive due to display limitations.

activities and detect suspicious or unprecedented developments in due time. Market participants can therefore reasonably expect that the regulator will use the reported data in such a way that market distortions are detected early and prevented from continuing.

As the events of summer 2022 and in particular the case of storage filling obligations by EU in different Member States such as Germany, Italy and Austria (see section 3.3.1 for details), demonstrate, despite extensive reporting requirements and the existence of effective market surveillance instruments, THE's buying strategy in the day-ahead market, uncovered by corresponding forward sales, was not made transparent or scrutinised and changed. A root cause appears to be that the current regime fails providing regulators with a comprehensive and holistic view covering **all markets**. The current reporting regime under EMIR and REMIT does require market participants to provide a wide range of information, such as transaction data and fundamental data (in the case of REMIT), however in different formats and to different recipients. Therefore, it offers room for further **streamlining of data collection**. In the following, we assess whether a harmonised single data set would benefit the markets.

A major weakness is that EMIR and REMIT require the transmission of **different sets of data**. Although under both EMIR and REMIT EMPs need to report transaction data and under both regimes the data fields are highly detailed, they do not allow for the same conclusions on trading behaviour and the effect on the market to be drawn. As a consequence, regulators are hindered to quickly identify whether and to what extent financial market transactions may have a negative impact on the physical energy market and vice versa. A certain degree of comparability, however, is essential due to the fact that energy and financial markets are linked.

It is conceivable that a **standardised set of data** could be required under both EMIR and REMIT, which would facilitate the exchange of information between authorities. To this end, the REMIT Implementing Regulation on the one hand, and the Delegated Regulation[283] and the Implementing Regulation[284] under EMIR Refit on the other should be **harmonised** to allow for a **single data set** in terms of format, IT interfaces and frequency to be sent out equally via the existing central reporting channels to all affected stakeholders at the same time.

Setting the course: reportable transactions in the practice of energy trading

Energy trading is an essential part of the overall business operations of EMPs, which often entails generation of power, import and shipping of fuels and supply of power and gas to

283 Commission Delegated Regulation (EU) 2022/1855 of 10 June 2022 supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council with regard to regulatory technical standards specifying the minimum details of the data to be reported to trade repositories and the type of reports to be used, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1855&from=EN.

284 Commission Implementing Regulation (EU) 2022/1860 of 10 June 2022 laying down implementing technical standards for the application of Regulation (EU) No 648/2012 of the European Parliament and of the Council with regard to the standards, formats, frequency and methods and arrangements for reporting, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1860&from=EN.

retailers or end consumers. Typically, the majority of trading transactions have the underlyings gas, power and EUAs.

These products can be traded with **physical** or **financial settlement as well as spot** or **forward** (or other derivative) contracts.

Such products can be traded via:

- exchanges (including EEX or ICE);
- brokers (often OTFs); or
- purely bilaterally OTC with other counterparties.

These counterparties or the trading venues do not have to be based in the EU, but could be established anywhere in the world.

Which reporting regime is primarily applicable depends on the classification of the above mentioned products as financial instruments. In the presence of financial instruments, reporting under EMIR prevails and discharges reporting obligations under REMIT[285].

Unlike in other jurisdictions (see section 7), there is no obvious and clear **differentiation criterion** to separate financial instruments from other contracts. **Cash settlement** could be one, but the EU went a different route and subjects also physically settled instruments under certain prerequisites to financial market regulation.

The classification as a financial or non-financial product follows the criteria laid out in **Annex I Section C MiFID II**.

This assessment depends on the maturity of the contract, the trading venue where the transaction is executed and the way of settlement.

On a first view there are clear cases in applying the C.5 and C.6 assessments under MFID II:

- An exchange-traded power forward contract is always a financial instrument because it is traded on a regulated market.
- A physically settled bilateral OTC or brokered power forward contract is always a non-financial instrument due to its settlement type.

However, even under this starting point of the assessment, contracts with very similar commercial features might count as financial instrument in one instance, but not in another, or this status may change. A prominent example is the changing of the status of third country venues from OTC to regulated market upon their recognition as equivalent to EU regulated markets.

285 Art 8 para 3 REMIT.

On top of that, it is possible and also practice to swap products traded on an exchange with products traded via a broker in order to swap liquidity risks for counterparty credit risks or vice versa (as is, for example, done in an EfP[286] or so-called futurisation).

Although the legislative objectives of EMIR and REMIT are the same – to monitor systemic risk and to prevent market abuse –, whether a transaction is primarily reported to financial regulators through EMIR or energy regulators through REMIT depends on factors, which are unrelated to those regulatory objectives and result in **two different reporting schemes**, where just one could meet the same regulatory targets.

For EMPs, this duality of reporting schemes is overly complicated and not cost-efficient. The outcome also appears to be unsatisfactory from a supervisory angle: no single regulator has an **immediate** and **complete overview** of what is happening in the financial as well as in the physical energy market at the same time.

The instruments: Extensive reporting under EMIR and REMIT

In the following, we analyse the reporting processes in more detail with a focus on addresses and recipients.

The regulatory requirements for energy trading are at the interface between the **energy market regulation** – REMIT – and the **financial market regulation** – EMIR and MiFIR.[287]

Together with MiFIR, MiFID II forms the overarching legal framework for financial market regulation and **trading in financial instruments**. The requirements are therefore primarily addressed to financial market participants, e.g., investment firms, but also impose rules on CCPs and trade repositories ("TRs**"**).

EMPs have to comply with the reporting regime of financial market regulation under MiFIR and MiFID II if they have the status of an investment firm[288], which only applies to very few EMPs. The lack of investment firm status, however, does not mean that fewer data fields are reported under EMIR, that the submitted data is less robust and that the market is therefore less transparent.

To the contrary: the financial transaction reporting regime of EMIR applies to EMPs to the full extent as defined and stipulated within EMIR itself.

EMIR: EMPs act as NFCs and report to TRs

Under **financial market regulation**, market participants are obliged to report **transaction data** of derivatives. It is important to note that EMIR not only affects reporting of OTC

286 EfP stands for Exchange of Futures for Physical.

287 It should be noted that there are EMPs that not only have to report according to EMIR and REMIT, but also have to report physical licences according to their national jurisdiction. These cases will not be discussed further in this study.

288 MiFID II, Art. 4, para. 1 (1).

contracts, but also of **all exchange-traded products**. Regardless of whether they have a status as a FC or NFC, **all market participants** must report all transactions to registered TRs.[289]

EMIR distinguishes between two types of market participants:

- financial counterparties ("FCs"), such as investment firms, and
- non-financial counterparties ("NFCs"), which include all entities that do not qualify as financial counterparty. NFCs can be further subdivided into so-called
  - NFC+ ("*NFC plus*") and
  - NFC- ("*NFC minus*"),

  where NFC+ and NFC- refer to a counterparty either being above or below the clearing threshold defined under Art. 10 EMIR.

  - The status of NFC+ and NFC+ does not affect the scope of the reporting obligation. Each counterparty, whether FC, NFC+ or NFC-, must report its leg of the transaction to TRs. For NFC-, the only simplification that can be made is that when a transaction is executed between a FC and a NFC-, the FC is responsible and legally liable for reporting on behalf of itself and the NFC-.

  - It is important to note that EMPs that are members of Energy Traders Europe overwhelmingly represent NFC**-** and are therefore at the centre of our assessment below.

Apart from the market participants, EMIR also addresses CCPs[290], clearing members ("CMs")[291] and TRs[292], which all play a vital role in the reporting system. For the sake of completeness, we will briefly outline their respective functions, as the new legislative developments under EMIR 3.0 also affect these market players.

In the process of clearing, CCPs act as intermediaries between buyers and sellers, taking on the role of the counterparty to both parties, thereby replacing counterparty credit risk. CMs are banks and act as intermediaries between the clients and the CCPs, which are both financially supervised.

---

289 That is either done via approved reporting mechanisms (ARM) under financial market regulation (MiFIR and MiFID II) or registered reporting mechanisms ("RRM") under REMIT.

290 CCPs form part of the financial market infrastructure by providing clearing and settlement services for trades on regulated trading venues. According to Art. 2 para. 1 EMIR, 'CCP' means a legal person that interposes itself between the counterparties to the contracts traded on one or more financial markets, becoming the buyer to every seller and the seller to every buyer.

291 CMs act as intermediaries between their clients and a CCP. According to Art. 2 para. 14 EMIR, 'clearing member' means an undertaking which participates in a CCP, and which is responsible for discharging the financial obligations arising from that participation.

292 Trade repositories are entities that collect, record, and publish reportable transaction data. According to Art. 2 para. 2 EMIR, 'trade repository' means a legal person that centrally collects and maintains the records of derivatives.

TRs are private service providers that centrally collect, record and publish transaction data under EMIR, but also such data regarding securities financing transactions ("SFTs").[293] TRs are supervised by ESMA, to ensure that they comply with all regulatory requirements on an ongoing basis and that regulators and supervisors have access to the information necessary to fulfil their respective mandates.

REMIT: EMPs report under REMIT to ACER via an RRM

Under **energy market regulation**, REMIT requires EMPs to report **transactions and orders** on the **wholesale energy market in wholesale energy products**.

According to Art. 8 para 3 REMIT, in cases where contracts meet both the criteria of energy wholesale products and financial instruments, in order to avoid double reporting, the reporting obligations under EMIR prevail.

The scope of the reporting obligations goes beyond the transaction data reporting regime under EMIR because under REMIT, there are also obligations to report **fundamental data** that can be used to **specifically monitor the physical market** and corresponding energy flows.

Trading in wholesale energy products is primarily supervised by the competent National (Energy) Regulatory Authority ("NRA**"**), which may also act in a cross-jurisdictional manner with the competent **financial** and **competition** authorities of the Member States ("NCA**"**).

The European Union Agency for the Cooperation of Energy Regulators coordinates the harmonised implementation of REMIT in close cooperation with NRAs. ACER plays a key role in reporting trading on the wholesale energy market. It takes on the role assigned to TRs under EMIR, acts as a data collection hub and disseminates the data submitted via registered reporting mechanisms ("RRMs") to NCAs, ESMA and other relevant EU standard setting bodies.

In detail: Transaction data reporting under EMIR and REMIT

In this section, we illustrate the processes and the content of the reporting obligations. As a result, we will find that, even though the reportable transactions are quite comparable, processes and content differ. Overall **harmonisation** would support the **efficiency** of these efforts.

293 ESMA (2023), "Guidelines for reporting under EMIR", https://www.esma.europa.eu/sites/default/files/2023-10/ESMA74-362-2281_Guidelines_EMIR_REFIT.pdf; ESMA (2024), "Guidelines on transfer data between Trade Repositories under EMIR and SFTR", https://www.esma.europa.eu/sites/default/files/2024-01/ESMA74-362-2351_Guidelines_on_data_transfer_between_trade_repositories_EMIR_SFTR.pdf.

What to report?

Under **EMIR**[294], the obligation to report applies to information regarding:

- the **parties and/or beneficiaries** of any derivative contract;
- any **details** regarding the main characteristics of the derivative contract, such as type, price, notional values and settlement date,
  - including the determination of hedge vs. non-hedge contracts;
- any **modification** of the **parties** and the **details** of the derivative contract during its lifetime; and
- **termination** of the derivative contract.[295]

Reportable data under **REMIT** is categorised as:

- **transaction data**[296], including a precise identification of the wholesale energy product bought and sold, price, quantity, date and time of execution, delivery point, parties and beneficiaries and other relevant information of **energy supply and transportation contracts** and **derivatives thereof**; this also includes **orders to trade**.

- **fundamental data**[297] on capacity, planned and unplanned unavailability, consumption or transmission of power and gas or capacity and utilisation of LNG plants.

The particularities of the quality of data are specified in an Implementing Regulation.[298]

Regarding **transaction data**, the Implementing Regulation distinguishes between transaction data that must be **reported by default** (including supply and transport contracts) and those that must only be **reported upon reasoned request** by ACER.[299] These cases include, inter

---

294 EMIR, Art. 9 para. 1, 5. We note that the reporting under financial market regulation goes well beyond the reporting of transaction data. In particular, under MiFIR and MiFID II, market participants are subject to additional reporting obligations (e.g., position reporting under Art. 58 MiFID II). We will not elaborate on reporting obligations other than transaction and fundamental data reporting.

295 The exact information on the transactions to be reported is specified in Regulatory Technical Standards (RTS) and an Implementing Regulation. As of June 2022, the Commission adapted a new reporting regime, the EMIR REFIT, which applies from 29 April 2024 onward: EMIR REFIT consisting of the following acts: Commission Delegated Regulation (EU) 2022/1855 supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council with regard to regulatory technical standards specifying the minimum details of the data to be reported to trade repositories and the type of reports to be used, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1855&from=EN; Commission Implementing Regulation (EU) 2022/1860 of 10 June 2022 laying down implementing technical standards for the application of Regulation (EU) No 648/2012 of the European Parliament and of the Council with regard to the standards, formats, frequency and methods and arrangements for reporting, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1860&from=EN. See for further details on the reporting obligations ESMA (2022), "Final Report, Guidelines for reporting under EMIR", https://www.esma.europa.eu/sites/default/files/library/esma74-362-2281_final_report_guidelines_emir_refit.pdf.

296 REMIT, Art. 8 para. 1 and para. 4.

297 REMIT, Art. 8 para. 5 and para. 6.

298 See above.

299 Impl. Reg. REMIT, Art. 4.

alia, intra-group contracts and contracts for balancing energy services in power and gas. ACER might, **upon request**, require additional information and clarifications from market participants and reporting parties in relation to their reported data.[300]

Regarding **fundamental data**, the details to be reported are also specified in the Implementing Regulation[301] and include, in particular, the data to be reported under the transparency regulations for power[302] and gas[303].

When to report?

According to the current **EMIR**, details of the conclusion of the derivative transaction or a modification or termination thereof are to be reported **no later than the following business working day**.

With regard to the current **Implementing Regulation for REMIT**, details of transactions on **standard** energy supply and transportation contracts[304] and their derivatives are to be reported **as soon as possible**, but **no later than the following business working day (d+1)** after the conclusion, modification, or termination regarding standard contracts.[305] Non-standard contracts[306], including any modification or the termination of the contract and transactions, are to reported **no later than one month (d+30)** following the conclusion, modification or termination of the contract.[307]

Who reports to whom?

Under **EMIR**, FCs, NFCs and CCPs, which, by definition, only comprise **EU entities,** are obligated to report.

300 Impl. Reg. REMIT, Art. 6 para. 8.

301 Imp. Reg. REMIT, Art. 8 to 10.

302 Impl. Reg. REMIT, Art. 8 para.1; Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0543, Art. 6 to 17: Regarding **power**, information on total load, planned or unplanned availabilities, congestions, and changes of capacities as well as transmission infrastructure, are being reported, among others.

303 Impl. Reg. REMIT, Art. 9 para.1; Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009R0715, Annex I, 3.3 (1) and 3.3 (5): For gas, data on the unloading and reloading of LNG transports as well as the capacity of gas transmission and storage facilities, their inflows and outflows for each gas business day and the corresponding storage volume at the end of the gas business day are to be reported, among others.

304 Impl. Reg. REMIT, Art. 2 para. 2: 'standard contract' means a contract concerning a wholesale energy product admitted to trading at an organised market place, irrespective of whether or not the transaction actually takes place on that market place.

305 Impl. Reg. REMIT, Art. 7 para. 1.

306 Impl. Reg. REMIT, Art. 2 para. 3: 'non-standard contract' means a contract concerning any wholesale energy product that is not a standard contract.

307 Impl. Reg REMIT, Art. 7 para. 4.

The data is to be submitted to TRs.[308] These are private service providers that need to be registered with ESMA according to the provisions set out in Title VI of EMIR.[309] TRs are supervised by ESMA and can be subject to **requests for information, general investigations, on-site inspections, imposition of fines and periodic penalty payments**. Hence, the existing reporting channels are **centralised and adequately supervised**.

Regarding **REMIT**, the reporting obligations go beyond pure **transaction reporting**. It extents to **orders to trade,** but also includes **fundamental data** transparency and the publication of inside information through so called inside information and transparency platforms (**IIP**s).[310] The latter we touch upon in section 5.2.

For transactions that are executed at organised market places[311], market participants or third parties on their behalf **must submit transaction data** via service providers that satisfy certain technical and organisational requirements (so called third party registered reporting mechanisms ("RRMs**"**).[312] **ACER** will, in turn and upon request, revert the data back to the NRAs, NCAs and other relevant supervising authorities on EU level, **including ESMA**.[313]

As under EMIR, the reporting of transaction data therefore takes place through centralised and supervised **reporting channels.** This means that under both EMIR and REMIT, there is a **clear** and **secure data reporting infrastructure** that enables the transmission of a harmonised single data set, which can then be forwarded to the various supervisory authorities of the financial and energy markets.

Fundamental data is mostly **reported and published** – on behalf of the market participants – by the European Network of Transmission System Operators for Electricity ("ENTSO-E**"**)[314], the European Network of Transmission System Operators for Gas ("ENTSO-G")[315] and the transmission system operators ("TSO**"**). As far as gas storage facilities or LNG plants are

---

308 Note that the reporting under MiFIR and MiFID II is done via approved reporting mechanisms (ARMs), which are entities providing the service of reporting details of transactions to competent authorities or to ESMA on behalf of investment firms.

309 In the EU, TRs are currently registered in four Member States, see: ESMA, List of registered trade repositories, https://www.esma.europa.eu/document/list-registered-trade-repositories: currently in Poland (KDPW), Luxembourg (Regis-TR), the Netherlands (LSEG Regulatory Reporting B.V.) and Ireland (DTCC Plc.).

310 ACER, List of Inside Information and Transparency Platforms, https://www.acer-remit.eu/portal/list-inside-platforms#.

311 Impl. Reg. REMIT, Art. 6 para. 3: contracts concluded outside regulated trading venues **can** be reported either by the **market participant itself** or by a third party on its behalf. This is particularly the case for contracts that do not fall within the scope of the reporting requirements of EMIR. For further details see ACER (2021), "REMIT Requirements for the registration of Registered Reporting Mechanisms (RRM Requirements)", https://www.acer.europa.eu/sites/default/files/REMIT/REMIT%20Reporting%20Guidance/RRM%20Registration/ACER_REMIT_RRM_Requirements.pdf.

312 Impl. Reg. REMIT, Art. 11. Impl. Reg. REMIT, Art. 6 para 1, subpara. 2.Organised market places shall offer a data reporting agreement (see for example: EEX offers a RRM for the automated reporting of EEX trading data, see EEX, REMIT Transaction Reporting, https://www.eex.com/en/services/reporting-services/remit-transaction-reporting)

313 REMIT, Art. 10.

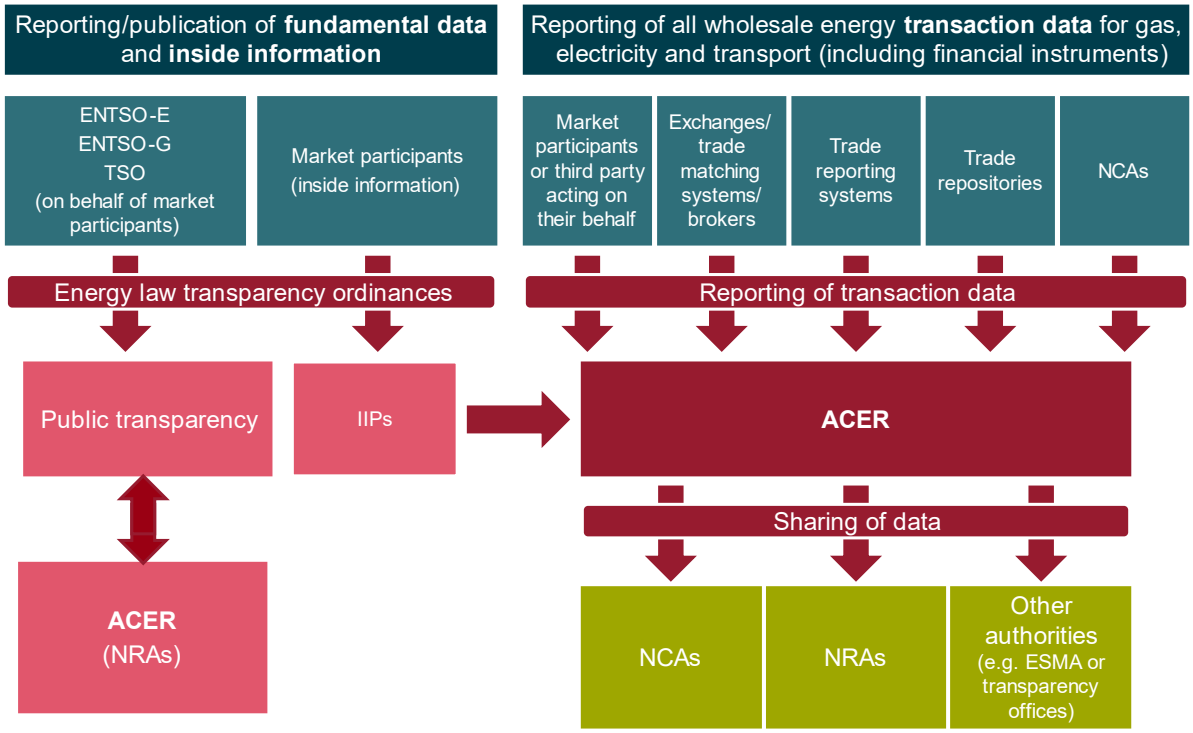
314 See for general information on ENTSO-E: https://www.entsoe.eu/. For the German electricity market, netztransparenz.de provides an additional transparency platform, https://www.netztransparenz.de/en/.

315 See for general information on ENTSO-G: https://www.entsog.eu/about-entsog

operated or used, both the system operators and the users are obliged to report the specific data assigned to them directly to ACER. In practice, the system operator reports both its own data and the user data, either directly to ACER or to the TSO, who reports the data to ACER directly or via ENTSO-G.[316] It is important to note, not only is the data reported to ACER, but it is also **published** and **made accessible to the general public**.

We summarise the reporting channels under **REMIT** for fundamental and transaction data in Figure 29 below.

Figure 29 Different reporting channels for fundamental and transaction data under REMIT



Source: *Luther Lawfirm*

Note: *The table shows REMIT reporting as of 19 April 2024. It does not yet include the changes envisaged under REMIT 2.0, which will contain, inter alia, a legal definition of RRMs, expand the LNG reporting obligations and will further add an exposure reporting obligation. The EC is tasked to adopt further implementing acts within 12 months.*

316 N.B.: According to REMIT Art. 7 para. 2 subpara. 2, Member States are entitled to establish a market monitoring body to carry out market monitoring together with the NRA. In Germany, this is the *Markttransparenzstelle für den Großhandel mit Strom und Gas (*"MTS Strom/Gas"). The national market monitoring body receives data from ACER and also collects data.

The effect: fundamental data transparency under REMIT allows for sufficient supervision of the physical markets

Fundamental data transparency is a **key element** of energy market regulation and goes significantly beyond what is practiced at financial markets. In financial market regulation, active publication requirements are limited to specific information available to the issuer of a security, such as a corporation regarding its listed stock. Publicly available information on the energy markets exceeds that by far. Transparency platforms of network operators and their associations provide EMPs as well as regulators access to all relevant developments to identify and determine "what is going on in the market".

In other words, while a stock listed beverage producer would provide information about its management dealings in its own stocks, but not how thirsty the public is or how much beer is in the tanks, EMPs provide market participants as well as regulators with a holistic picture of supply and demand, enabling them to make more informed decisions when entering into longer-term forward contracts or monitoring the market.

4.2 Better coordination between regulators will improve market transparency and supervision

In the remainder of this section, we explore regulatory concerns raised regarding pan-European energy markets, available instruments to deal with such concerns, and the effect of such measures, before discussing new regulatory developments.

The concern: Pan-European energy markets make cooperation and coordination across regulators a particular challenge

European energy and financial markets are linked in many ways: interdependencies exist both in regulatory terms, across instruments, across energy commodities and across borders. The open and unfettered flow of information is critical to achieving transparency across markets. However, given the large volumes of data to be reported under EMIR and REMIT and the large number of actors involved, **cooperation** and **coordination** of information sharing is a challenge. This is even more so as the supervisory responsibilities lie with the **NCAs**. There is no ultimate supervisory authority at EU level. Nevertheless, both EMIR and REMIT provide for ways to ensure that all stakeholders have access to the information they need to fulfil their respective supervisory responsibilities. The current regulatory landscape already encourages coordination and cooperation on the EU level, as will be shown below.

Communication channels between NCAs, ESMA and ACER

EMIR: ESMA shares information with ACER

Pursuant to **EMIR**, counterparties and CCPs report to TRs. TRs, in turn, shall **ensure that all relevant EU and national stakeholders have direct and immediate access to the details of derivative contracts** that they need in order to fulfil their respective responsibilities and

mandates (see above).[317] Additionally, **ESMA** is to share information with other relevant EU authorities for the exercise of their duties.[318] In practice, this means:

- **ACER** obtains information **from TRs** under Art. 81 para. 3 lit. (l); and
- **ESMA** shares the information necessary for the exercise of their duties with other relevant EU authorities, including **ACER**.

REMIT: ACER shares information with ESMA

Under **REMIT**, information is reported directly to ACER. As a result, ACER has direct access to a large amount of market-relevant data. According to REMIT,

- **ACER** shall establish mechanisms to share reported data with NRAs, NCAs such as financial and competition authorities as well as **ESMA**;[319] and
- **ESMA** shall transmit **ACER** reports of transactions according to Art. 9 EMIR.[320]

For the sake of completeness, it should be mentioned that the coordination obligation under REMIT is not limited to the exchange of information on reportable data. ACER also informs ESMA if ACER suspects that market manipulation is taking place on the wholesale energy market.[321] This is discussed further under section 5.

From a regulatory perspective, there is no fundamental gap, as data can be accessed from all the relevant stakeholders to fulfil their supervisory responsibilities. However, there is a **timing issue** associated with it, as data is not shared **real time** in a harmonised format, but may have to be reconciled afterwards.

The shortfall: Data is currently not harmonised

As a result, actual cooperation between authorities could be facilitated by sharing a harmonised data set from the outset to ensure holistic information in the first place.[322] Otherwise, close to real time market assessment and taking informed decisions rapidly will continue to be challenging.

317 EMIR, Art. 81 para. 2 and para. 3. We would like to point out that this is a simplified picture of data availability and information exchange between the relevant actors at European and national level.

318 EMIR, Art. 81 para. 4 and Art. 84.

319 REMIT, Art. 10 para. 1.

320 REMIT, Art. 10 para. 3, subpara. 2.

321 REMIT, Art. 16 para. 3 lit. (b).

322 The Open Letters on data reporting published annually by ACER (until 2020), which criticise numerous data quality issues, are instructive in this respect, see for example: ACER (2017), Head of the Market Integrity and Transparency Department, Open letter on REMIT transaction reporting data quality, https://www.acer.europa.eu/sites/default/files/REMIT/REMIT%20Reporting%20Guidance/Open%20Letters%20on%20Data%20Quality/20170216-Open_Letter_on_data_quality.pdf.

New developments

Some of the shortfalls we mentioned above have been recently addressed by the EU legislator. The amendments will already improve the regulatory landscape and strengthen the cooperation between regulators on EU and national level.

EMIR 3.0

Beyond the above-mentioned changes mentioned in Chapter 3, **EMIR 3.0**[323] has brought **helpful changes to the reporting regime**, which will significantly **enhance the transparency** of the markets. The changes mainly relate to the level of **CCPs,** including **third country CCPs**, **CMs** and **NFC+**.

We elaborate on the details in the following:

New: Reporting obligation for CMs and their clients (*Draft Art. 7ba EMIR 3.0.*):

Reporting obligations will be introduced for CMs or their clients that clear through a third country CCP recognised under Art. 25 EMIR 3.0.(like LME and ICE CCPs). Accordingly, CMs and their clients shall report information about their clearing activity. ESMA should provide details on the content and format of the information to be reported, and in doing so should ensure that the obligation does not create additional reporting requirements, unless necessary, so that the administrative burden for CMs and clients is minimised.[324]

New: Reporting obligation for CCPs (*Draft Art. 7c EMIR 3.0*):

Reporting obligations for CCPs will be introduced to a to be established central database[325], granting access to NCAs, ESMA and the college. CCPs will have to report on a monthly basis information including values and volumes cleared per currency, including positions held by clearing participants, CCP's investments, capital and dedicated own resources; CMs' margin requirements, default fund contributions and contractually committed resources etc.[326]

New: Intragroup reporting *(Draft Art. 9 para. 1 subpara. 1 EMIR 3.0.)*:

Art. 9 para. 1 EMIR 3.0 foresees a new provision with regard to reporting to give authorities a more comprehensive picture of the derivatives activities and exposures of (also) NFCs. Most notably, NFCs+ (whose intragroup trades are exempt from reporting) should report derivatives

323 Council of the European Union (2024), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 648/2012, (EU) No 575/2013 and (EU) 2017/1131 as regards measures to mitigate excessive exposures to third-country central counterparties and improve the efficiency of Union clearing markets, Confirmation of the final compromise text with a view of agreement, 2022/0403 (COD), 6344/24 https://data.consilium.europa.eu/doc/document/ST-6344-2024-INIT/en/pdf. In the following, the draft articles as proposed by the Council in its final version will be referred to as EMIR 3.0.

324 EMIR 3.0., Recital (13) and Art. 7ba.

325 EMIR 3.0., Art. 17 c para. 1.

326 EMIR 3.0., Art. 7c.

positions on a net aggregated basis by class of derivatives through their EU parent undertaking.[327] The reporting should be done on a weekly basis at entity-level and broken down by type of derivatives. Such information should be provided to ESMA and the relevant competent authority of the individual entities in the group.[328]

New: Reported data quality (*Draft Art. 9 para. 1e EMIR 3.0.*):

The provision addresses the concerns raised about the data quality of the reporting made by FCs and NFCs: Therefore, entities subject to the reporting obligation (such as NFCs) shall ensure that their reports are correct and without duplication. They are now required to establish appropriate procedures and arrangements to ensure data quality when reporting. While entities like NFCs still have the possibility to delegate their reporting obligation, it is clarified that they remain responsible in this case for compliance with the reporting obligations under EMIR. Competent authorities shall impose administrative penalties of up to 1% of the average daily turnover in case of systematic manifest reporting errors (term to be defined by ESMA, new *Art. 12 EMIR 3.0*.).

New: Additional transparency obligations for CCPs (*Draft Art. 38 EMIR 3.0.):*

As already highlighted in more detail in Chapter 3, CCPs will have to publicly disclose information on models and margins to CMs and their clients. This includes disclosure on prices and fees, risk, price information used to calculate end of day exposures, communicate protocols and breaches by CMs. CCPs shall provide to its CMs a simulation tool and transparency on the initial margin model. Additionally, CCPs shall publicly disclose the volumes of the cleared transactions for each class of instruments cleared by the CCP on an aggregate basis.[329]

327 A non-financial counterparty is defined as an undertaking established in the Union other than the entities referred to in Art. 1 para. 8 lit. a)-g) EMIR, being mainly banks, investment firms, funds and insurances and registered under ESMA. An NFC that does not exceed the clearing threshold is referred to as an NFC+.

328 Council of the European Union (2024), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 648/2012, (EU) No 575/2013 and (EU) 2017/1131 as regards measures to mitigate excessive exposures to third-country central counterparties and improve the efficiency of Union clearing markets, Confirmation of the final compromise text with a view of agreement, 2022/0403 (COD), 6344/24, Recital (14) and Art. 9 para. 1, https://data.consilium.europa.eu/doc/document/ST-6344-2024-INIT/en/pdf.

329 EMIR 3.0., Art. 38.

With a view to improving a system of **cooperation and coordination** that will strengthen the EU wide **supervision** of financial markets, EMIR 3.0. also provides for the following changes:

New: Co-chairing of NCAs in colleges:

The college[330] will be co-chaired by NCAs and any of the independent members of the CCP Supervisory Committee to ensure consistent functioning of all colleges and further enhance supervisory convergence.[331]

New: Extended competences for ESMA:

ESMA shall obtain a coordination role in emergency situations at CCPs that have or a likely to have destabilising effects on cross-border markets, while the ultimate decision-making powers are the responsibility of the supervising NCAs.[332]

REMIT 2.0

The already extensive reporting obligations of **transaction and fundamental data** reporting will be further extended under **REMIT 2.0**.[333]

According to ACER's own assessment, the current regime for market monitoring and data collection needs improvement.[334] For this purpose, the catalogue of wholesale energy products will be expanded, and the transaction data reporting will be extended to include the new contracts listed in this catalogue. Secondly, exposure reporting will be introduced for EMPs, adding another significant component to the REMIT reporting scheme. In addition, the fact that EMPs cannot easily identify the data of organised market places to be reported under REMIT is taken into account.[335] Under REMIT 2.0, OMPs are therefore subject to so-called order book reporting. Another important element is the inclusion of LNG market participants in the reporting system, as they will play a more eminent role in European energy security in the future.

330 EMIR provides for the establishment of colleges, which are essentially an association of national authorities that supervise CCPs and CMs, and to this end must fulfil certain obligations under EMIR. Among other things, the colleges are required to prepare risk assessment reports on CCPs and are responsible for exchanging information and coordinating the exercise of supervisory functions. See, *inter alia*, EMIR, Art. 18.

331 EMIR 3.0., Recital (23), Art. 18.

332 EMIR 3.0., Recital (31), Art. 24.

333 European Commission (2023), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 1227/2011 and (EU) 2019/942 to improve the Union's protection against market manipulation in the wholesale energy market, Explanatory Memorandum, COM(2023) 147 final, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023PC0147; Council of the European Union (2023), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) No 1227/2011 and (EU) 2019/942 to improve the Union's protection against market manipulation in the wholesale energy market, General Approach, 2023/0076(COD), 10872/23, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:ST_10872_2023_INIT.

334 REMIT 2.0., Recital (10).

335 REMIT 2.0., Recital (10a).

New: Expansion of the definition of wholesale energy products (*Draft Art. 2 para. 4 REMIT 2.0.*)

In addition to the existing scope, contracts for the supply of power with delivery point in the EU due to market coupling and storage contracts for power and natural gas and derivatives thereof are added to the definition of wholesale energy products and will therefore become subject to the entire set of REMIT obligations.

New: Extension of reporting obligation for EMPs (*Draft Art. 8 para. 1 REMIT 2.0.*):

Exposure reporting, detailed by product, including transactions that occur OTC will form an additional set of data that is to be submitted to ACER.[336] This may address a major concern regarding market stability, however, a common understanding of "exposure" still needs to be determined.

To meet their reporting requirements, market participants will further make available or, upon ACER's request, give access to the order book.[337]

New: Extension of reporting obligation for OMPs *(Draft Art. 8 para. 1a REMIT 2.0)*:

OMPs will be required to make available to ACER data relating to the order book or, upon request, give ACER access without delay to the order book. Order book providers should also be designated as persons professionally arranging transactions subject to the obligation to monitor and report suspected breaches under the upcoming REMIT Suspicious Transactions and Order Reports ("STOR") as envisaged under Art. 15 REMIT 2.0.

New: Extension of reporting obligations for LNG market participants *(Draft Art. 8 para. 1aa REMIT 2.0)*:

LNG market participants[338] will be obliged to report all of their LNG market data to ACER as close to real time as technologically possible, either after the conclusion of a transaction or the posting of a respective bid or offer. ACER's price assessment should comprise the most complete dataset including transaction prices, bids and offer prices for LNG deliveries to the EU.

336 REMIT 2.0., Art. 8 para. 1.

337 REMIT 2.0., Art. 8 para. 1a.

338 REMIT 2.0, Art. 2 para. 23 defines 'LNG market participant' as any natural or legal person, irrespective of that person's place of incorporation or domicile, who engages in LNG trading.

In respect of improving coordination and cooperation between different EU and national stakeholders, REMIT 2.0 also provides for the following amendments:

New: Sharing of information between ACER and other authorities on EU and national level (*Draft Art. 10 para. 1 and para. 1a REMIT 2.0*):

The circle of relevant EU actors involved in information exchange mechanisms will be widened, including EUROFISC. In addition, the exchange of data and information between national stakeholders will be further strengthened.

5 Adequate market integrity regulation promotes orderly price formation for efficient energy markets

KEY TAKEAWAYS

Policy recommendation

Maintain market integrity: we suggest giving the authorities the competency and encouraging them to stop (government-induced) market distortions in both the physical energy and energy derivatives markets immediately - at least temporarily - instead of acting retroactively.

Energy market participants require accurate and reliable price signals (section 5.1)

Orderly formed prices convey important information for EMPs. Accurate and reliable price signals are necessary for an efficient allocation of resources (e.g., where to invest in new generation capacity and which technology), effective decision-making and adequate risk management by EMPs individually, which would further contribute to an efficient energy market organisation as a whole for the benefit of society. The regulatory environment for energy trading should therefore ensure orderly price formation through adequate rules on market integrity.

Existing market integrity obligations under REMIT and MAR safeguard efficient energy trading (section 5.2)

Market integrity obligations under REMIT and MAR ensure orderly price formation by addressing market manipulation and insider trading in the physical energy as well as the energy derivatives market.

Instruments include preventive and repressive measures. In practice, EMPs must comply with the obligations set out in REMIT and MAR at the same time.

On the preventive side, EMPs in particular are obliged to

- register in order to disclose their identity;
- publish inside information in a timely manner under REMIT – inside information (data which is likely to have a significant effect on prices if it were to be made public) is to be published immediately at a registered Inside Information Platform (IIP) and kept up to date;
- report transactional and fundamental data.

On the repressive side, Member States enforce the prohibitions through their respective national sanction mechanism, addressing violations of insider trading and market manipulation via administrative and/or criminal sanctions.

Both regimes follow similar objectives and are currently complimentary to each other:

- MAR applies to financial instruments including energy derivatives;
- REMIT applies specifically to wholesale energy products.

Going forward, the REMIT market integrity regime will extent to such energy wholesale products, which at the same time meet the definition of financial instruments[339]. This will in particular affect the integrity regime for exchange traded energy products.

Coordination and enforcement in each of the two separate integrity regimes is currently done in two separate streams supervised by financial regulators on the one side, and energy regulators on the other.

Therefore, in the presence of such dual market integrity regimes with complementary, but also overlapping authority of different regulators for the physical energy and the energy derivatives markets, such approach requires close cooperation and information exchange to achieve its regulatory purpose in the best possible way and to manage and overcome any demarcation issues arising from the overlapping regulation with a similar purpose.

The early detection and suppression of market abuse or other market distorting behaviour on interlinked markets is a complex undertaking and requires close to real time holistic information on all traded energy markets and the legal authority to take immediate action in relation to these markets.

Albeit recent improvements in material integrity provisions in REMIT and strengthened collaboration between financial and energy market regulators under MAR, a gap regarding pre-emptive correction measures still persists. In particular, in cases where timely corresponding trading actions in both physical energy and energy derivatives markets create market distortions, these should be made transparent and put – at least temporarily – on halt to avoid misleading market participants and to allow for rapid corrective action.

Such shortfall materialised during the energy crisis of 2022 when, as a consequence of mandatory gas filling obligations, state-endorsed entities entered into unhedged gas purchases in an unprecedented and unexpected way. This has sent potentially misleading information about the real balance of supply and demand to EMPs.

339 See the deletion of former Art.1 para 2 s. 1 under REMIT 2.0 which abandons the former delineation between the two regimes.

In section 2.1.1 we have highlighted the importance of price signals for energy trading, demonstrating that accurate and reliable price signals are effective means to manage energy supply and demand across location and time (e.g., efficient allocation of resources).

In this part of the report, we:

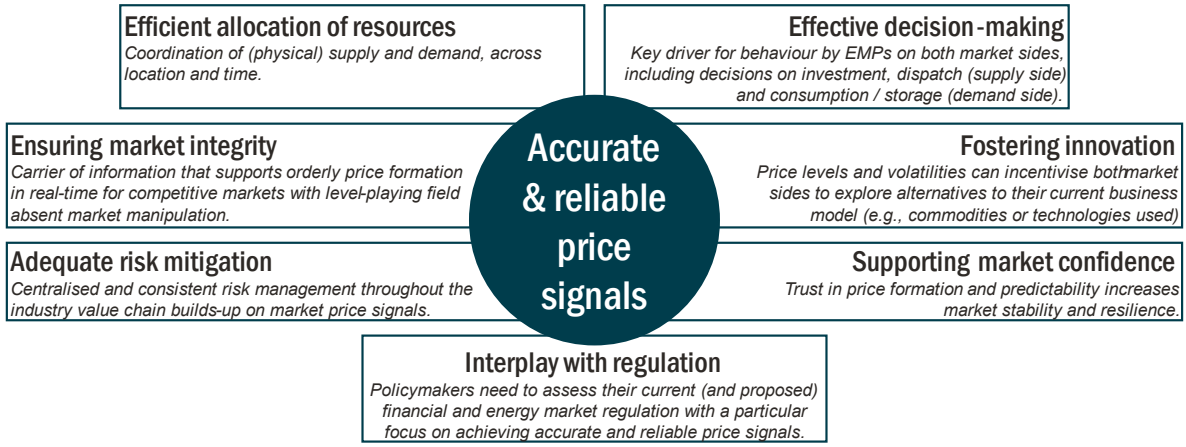
- expand on the **role of accurate and reliable price signals for EMPs and the market as a whole** (section 5.1); and
- particularly **assess how financial market regulation can promote orderly price formation** (section 5.2).

5.1 Energy market participants require accurate and reliable price signals

Accurate and reliable price signals are a key requirement for efficient energy markets. EMPs are strongly dependent on orderly formed prices on the financial markets which convey critical information on current or expected (physical) supply and demand conditions across location and time.

As such, price signals are a key mechanism for steering operative behaviour and strategic decision-making by EMPs in competitive and integer markets for energy derivatives. We provide an overview in Figure 30 below.

Figure 30 Accurate and reliable price signals are key for efficient energy markets



Source: Frontier Economics

This particularly relates to the following.

- **Efficient allocation of resources** – accurate and reliable price signals contribute to an efficient coordination of (physical) supply and demand, across location and time. For instance, with demand exceeding supply prices tend to rise, signalling market scarcity that could either be resolved through increased supply offers (e.g., additional dispatch of

power plants, import of energy commodities or release of gas volumes stored), as well as demand-side-responses (e.g., reduction in consumption or increase in energy efficiency).

- **Effective decision-making** – amongst other factors, accurate and reliable price signals steer the behaviour of EMPs. This holds for both, the short- and the long-term. In addition to the short-term-decisions (see previous bullet), long-term decisions can relate to investment opportunities on the supply side such as additional capacities for energy generation, storage, or transportation. Energy consumers take similar long-term decisions, including industrial users deciding on their production technology and volumes (see also section 2.1.1).

- **Ensuring market integrity** – accurate and reliable price signals act as efficient carriers of information, rapidly transmitting changes in market conditions to EMPs. This real-time information contributes to orderly price formation and helps EMPs to stay informed about evolving dynamics, enabling them to adjust strategies, manage risks, and capitalise on emerging opportunities. It therefore enables competitive markets in which transaction occur in a fair, transparent, and orderly manner absent market manipulation (see next sub-section).

- **Fostering innovation** – accurate and reliable price signals can incentivise EMPs to explore alternatives to their current business model and the commodities used. For instance, energy consumers may be willing to switch to alternative commodities or production technologies and improve energy efficiency to avoid high price or volatility levels observed for commodities currently in use (e.g., a steel producer exploring the possibility of green hydrogen instead of coking coal).

- **Adequate risk mitigation** – as set out in section 2.2, EMPs conduct comprehensive risk management strategies to deal with the commercial risk associated with their business activities. For this, producers and consumers require accurate and reliable price information to assess and hedge against potential market price fluctuations. This ensures stability for their (physical) operations and contributes to an affordable, secure and sustainable energy supply for European consumers.

- **Supporting market confidence** – accurate and reliable price signals contribute to market confidence. The trust of EMPs in the orderly price formation and its predictability are of particular importance to achieve market stability and resilience, e.g., by means of increased trading activity and therefore higher market liquidity.

- **Interplay with regulation** – given the particular importance for the energy market, the regulatory environment must enable accurate and reliable price signals. As such, policymakers need to assess their current (and proposed) financial and energy market regulation with a particular focus on achieving accurate and reliable price signals. These

price signals allow for a level-playing field amongst market participants absent market abuse by individual players.[340]

5.2 Existing market integrity obligations under REMIT and MAR safeguard efficient energy trading

In this sub-section we highlight and assess the current market integrity regime. In accordance with our findings in section 4.2, we see, however, in crisis situations and beyond the need to make better use of market information and take regulatory action in a faster and more targeted manner. The overall aim should be to prevent market distortions in crisis situations before they happen rather than to cure the impact afterwards.

In the following, we explore regulatory concerns on market integrity regulation made in the course of the energy crisis of 2022, assess the available instruments under **REMIT** and **MAR** to address those concerns, and the effect of available policy measures before we end with discussing new regulatory developments.

Market integrity obligations under REMIT and MAR ensure **orderly price formation** by addressing market manipulation and insider trading. Instruments include preventive and repressive measures. Collaboration and coordination among national authorities, EU agencies like ACER and ESMA, and other public bodies are essential to effectively enforce these regulations across energy commodities and EU Member States. Ongoing developments such as REMIT 2.0 and MAR 2.0 aim to strengthen regulatory oversight and enhance cooperation mechanisms to safeguard market integrity, but will also lead to overlapping competencies.

Knowing how prices are determined and potentially influenced, is key to achieving the objective of fostering confidence in the energy markets.[341] The existing regulatory landscape is depicted to ensure that price discovery is robust and reliable.

Currently, under the applicability of REMIT (prior to REMIT 2.0), the market abuse provisions of REMIT and MAR are clearly delineated:

- MAR applies to financial instruments including energy derivatives; and
- REMIT applies specifically to wholesale energy products.

340 This is also reflected in the recent proposal by the EC (2023) on "Electricity Market Design revision: Proposal to amend the Wholesale Energy Market Integrity and Transparency (REMIT) Regulation": *"(…) prices reflect a fair and competitive interplay between supply and demand and no profits can be drawn from market abuse",* p. 10f., https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023PC0147

341 See also Annex B

Going forward, the REMIT market integrity regime will extent to such energy wholesale products, which at the same time meet the definition of financial instruments[342]. In particular, this will affect the integrity regime for exchange traded energy wholesale products and increase the need for collaboration and coordination between authorities enforcing the then overlapping provisions.

The concern: trust in and reliability of price discovery on the wholesale energy market

A regulatory concern articulated is that pricing in the wholesale energy markets is not always reliably reflecting fundamental price signals.[343] If that was the case, the goal of competitive pricing would not be achieved, because prices would, in particular in crisis situations, not reflect the true actual balance of physical supply and demand and may mislead market participants.

With regard to the exceptional price movements observed in 2022, it had been noted that this development was more or less exclusively prompted by the behaviour of the Russian gas exporter.

However, taking a closer look at the developments of prices in 2022, and in particular the gas prices, it becomes clear that not only scarce physical gas supply and strong demand, but also unexpected actions by state-endorsed market participants to meet mandatory gas storage filling levels created irritation in the market and led to significantly rising prices.

It is further important to note, that even if market prices were indeed extremely high and volatile, the toolbox to prevent market abuse was not applied, neither on the REMIT nor the MAR side, and therefore did not cure those market developments or limited their impact.

Market participants' expectations in crisis situations

EMPs expect, and not only in extreme price scenarios, that price movements and trading strategies are closely monitored. The energy crisis has proven that price anomalies in one market directly affect the other due to the interdependence of spot and forward as well as financial and energy markets. As has been described in detail under 4.1, the regulator has, in principle[344], the necessary information to detect suspicious market behaviour and intervene in the event of an unusual or suspicious transactions close to real time.

342 See the deletion of former Art.1 para 2 s. 1 under REMIT 2.0 which abandons the former delineation between the two regimes.

343 See for example European Council/Council of the European Union (2023), "Press release: Protection against market manipulation in the wholesale energy market: Council and Parliament reach deal", https://www.consilium.europa.eu/en/press/press-releases/2023/11/16/protection-against-market-manipulation-in-the-wholesale-energy-market-council-and-parliament-reach-deal/.

344 See policy recommendation 4 ("Ensure efficient reporting") and 5 ("Maintain market integrity") upfront.

At the same time, however, the regulator lacks the appropriate tools to deal with unprecedented and unexpected behaviour by state-endorsed market participants in an immediate response. In particular, it does not have the ability to issue immediate injunctions to make transparent and, if needed, to temporarily stop state-endorsed trading behaviour that causes market distortion. To date, the market abuse regimes under REMIT and MAR have been able to address manipulative behaviour because they provide for both preventive and repressive measures. Based on holistic market information, the ability to immediately make transparent to other market participants or to temporarily halt trading in both physical and financial markets in the event of unexpected behaviour, such as that demonstrated by buying physical gas to meet storage filling levels in 2022, is needed.[345]

In the following, we assess whether the currently available instruments are suitable to meet such regulatory objectives, or if the system needs improvement. Apart from the availability of information, we focus on possibilities and competencies of regulators to interact and take developments on both financial and physical markets into account at the same time.

The instruments (1): market oversight under REMIT is a sector specific and tailor-made regulatory framework that addresses market manipulation and insider trading in the energy wholesale market

The process of orderly price formation is crucial for the proper functioning and the reliability of the energy markets. As insider trading and market manipulation prevent orderly pricing and thus undermine the confidence of market participants and consumers, both activities are **prohibited** and **sanctioned**.

Orderly price formation is ensured in two ways. Under REMIT, Member States have both preventive and repressive mechanisms at their disposal.

These mechanisms have been generally developed in the financial market and then adapted to the specificities of the wholesale energy market: consequently, they are tailor-made to

345 VIS (2024), "Study on the impact of the measures included in the EU and National Gas Storage Regulations",https://www.ceer.eu/documents/104400/-/-/c072fd8d-cd2c-e403-b5a4-fa750e73f598 , "*Storage filling of last resort could cause adverse effects to the market:*

Without proper mechanisms in place, storage filling of last resort can lead to inefficient and costly gas purchases, which can negatively impact prices when released to the market. In 2022 in Germany, due to the risk of market participants not meeting the required storages levels, THE had to take over the filling of the gas storages on a very short notice before the filling targets deadline and had to purchasing gas on the market. The gas volumes that THE was called to buy amounted to 50 TWh, corresponding to 20% of the country's storage capacity. Gas was purchased at a high cost, averaging around 175 €/MWh, due to a number of reasons: 1) THE had to procure gas on short notice, limiting its flexibility in accessing the market during a period of extraordinarily high prices. 2) Due to the small injection rate and large capacity of the Rehden storage facility, THE had to buy and store gas on almost a daily basis in order to reach its filling target. 3) THE accessed the futures market very late in the injection period (October 2022) and not to a full extent, due to insufficient liquidity to perform secured trading. 4) There was uncertainty on the legal admissibility and commercial and tax treatment of buy-backs of gas by THE in the futures market." See also the case study in section 3.1.1.

supervise energy trading and designed to effectively detect market abuse in the energy market.

Insider trading and market manipulation: preventive measures under REMIT

Under REMIT, insider trading and market manipulation are subject to several preventive measures, which the Member States are obliged to impose.

In particular, EMPs are obligated to the following:

- **register in order to disclose their identity –** every EMP is to be registered with the NRA. Every trade that is conducted is identifiable and can be traced back to a specific participant.
- **publish inside information in a timely manner –** inside information (data which is likely to have a significant effect on prices if it were to be made public) is to be published immediately at a registered Inside Information Platform ("IIP") and kept up to date. This allows the market to respond immediately to developments that affect pricing patterns, in particular changes in supply and demand of energy.
- **report transaction and fundamental data** – transaction and fundamental data form the basis of a continuous reporting system. EMPs are required to report the price, quantity, date and time, contracting parties and beneficiaries of the traded wholesale energy products within hours of the conclusion of the trades. Capacity, planned and unplanned unavailability, consumption, and transmission of power and gas are also made available, giving national regulators a comprehensive view of who is trading what (see chapter 4 for details).

Focus: handling of the gas storage filling obligations in different EU Member States

As set out in section 3.1.1, EU Member States obliged individual EMPs to perform storage filling of last resort, such as THE as gas market operator in Germany. In the presence of the above mentioned obligations, the unusual behaviour of such storage fillers to purchase large amounts of gas on the day-ahead market at short notice, without access to derivatives markets for hedging and a clear strategy for releasing gas back to the market at the point of purchase, created potentially misleading information about gas supply and demand.[346]

Based on conversations held with member firms of Energy Traders Europe, the buying behaviour of 'storage fillers of last resort', such as THE in Germany, has neither been transparent to market participants at the time of the event, nor did it prompt any particular

[346] See case study in section 3.1.1 and, for example, VIS (2024) at the request of ACER and the Council of European Energy Regulators (CEER), "Study on the impact of the measures included in the EU and National Gas Storage Regulations – Vol. 2", p. 6, https://www.ceer.eu/documents/104400/-/-/c072fd8d-cd2c-e403-b5a4-fa750e73f598

regulatory scrutiny regarding the *naked long position*[347]. As a result, the overall objective to create market transparency was not achieved in the energy crisis of 2022.

Insider trading and market manipulation: repressive measures under REMIT

Under REMIT, insider trading and market manipulation are also subject to repressive measures. Member States enforce the prohibitions through their respective national sanction mechanism, addressing violations under administrative or criminal law.[348] Insider trading and market manipulation are addressed via administrative and/or criminal sanctions.

Tying REMIT together: Union-wide coordination and cooperation between the regulatory authorities and ACER

The two-pronged approach to tackle insider trading and market manipulation under REMIT is embedded in a tight net of coordination und cooperation between the Member States under the aegis of ACER. While ACER is not equipped with its own enforcement competences, its main objective and function lies in extensive market monitoring. For this purpose, ACER receives the reported data and when it suspects a violation of insider trading or market manipulation rules, can subsequently:

- **request information** from the NRAs;
- **request permission to carry out an investigation** and take appropriate action to remedy any breach; or
- **request the establishment and coordination of an investigatory group** in cases of cross border effects.

Likewise, NCAs are to inform ACER when they suspect a violation of insider trading or market manipulation. A constant exchange of information between ACER and the NRAs, including the competent national **financial** and **competition** authorities, is provided for.

REMIT therefore addresses insider trading and market manipulation at the national, regional and European levels of supervision, with all relevant parties acting in a cooperative manner. The following table (Table 4) shows that the enforcement practice of the NRAs between the years 2018-2022 has increased.

347 In securities trading in general, a naked position refers to a securities position, long or short, that is **not hedged from market risk**. Both the potential gain and the potential risk are greater when a position is naked instead of covered or hedged in some way, see https://www.investopedia.com/terms/n/nakedposition.asp.

348 Under German law, market manipulation is sanctioned under civil, administrative and criminal law (the latter two pursuant to Sections 95 and 95a of the Energy Industry Act (**EnWG**)). Article 18 REMIT establishes that the rules on penalties for breaches of Article 3 and 5 of REMIT are established by the Member States. The implementation regime is therefore different across Member States and some breaches of REMIT may be sanctioned under national provisions.

Table 4 Investigations under REMIT have increased between 2018 and 2022

Decision year	Number of investigations (end of year)	Final decisions taken	Type of REMIT breach (actual and attempted)
2018	189	4	Article 5
2019	218	8	Article 5
2020	282	5	Article 5
2021	298	14	Article 5
2022	350	1 / 12	Article 3 / Article 5

Source: *Luther Lawfirm based on ACER (2024); https://www.acer.europa.eu/remit/coordination-on-cases/enforcement-decisions*

Note: *The decisions for the years 2023 and 2024 are still under appeal. Final decisions have not been taken yet. For 2022, one decision under Article 3, and 12 decisions under Article 5.*

The number of investigations has significantly increased year by year, indicating that the reporting of suspicious transactions and the subsequent investigation mechanisms are working and producing results.

It is important to note, however, that the price spikes in 2022 were apparently not enough to prompt regulatory action.

Finally, the figures also demonstrate that the number of investigations outweigh actual infringements significantly, and an increase in investigations does not necessarily lead to more final decisions. REMIT 2.0 will address this by introducing a suspicious transaction and order reporting regime ("REMIT STOR") that is comparable to the one under MAR.[349]

The instruments (2): dual market integrity mechanisms under MAR

With spot and derivatives markets for energy commodities closely connected[350], market abuse can occur across markets and across borders, potentially resulting in systemic risks, since inside information from a spot market can benefit a person trading in a financial market. In order to mitigate the abovementioned risks, energy companies conducting transactions in derivatives need to adhere to financial regulations, in particular to MAR, which sets out an extensive list of preventive and sanction measures, designed to prevent market manipulation and any form of insider trading.

This understanding is of particular importance to detect the effect of the day-ahead purchases in the physical gas market on the price formation on the gas forward market.

349 See below.

350 See Annex B

Currently, as explained above, the application of MAR prevails against REMIT for financial instruments which constitute energy wholesale products at the same time, but this delineation will be abandoned in favour of double regulation. In future, in particular the trading of exchange traded power and gas derivatives will have to follow both the MAR, as before, and in addition the REMIT regime.

Insider trading and market manipulation: preventive measures under MAR

Under MAR, the Member States are obliged to impose several preventive measures. Market participants, e.g., investment firms, market operators and individuals professionally arranging and executing orders are obliged to

- **establish** and **maintain** effective arrangements, systems and procedures aimed at preventing and detecting actual or attempted insider dealing and market manipulations;[351]
- **report** orders and transactions to the competent authority that could constitute actual or attempted insider dealing or market manipulation (so called **STOR obligations** – suspicious trade and order reporting),
- **notify** the competent authority of the Member State in case of actual or attempted insider dealing and market manipulation.

The preventive measures are designed to reveal the crucial elements of the transactions conducted by market participants, thereby facilitating the detection of irregularities and malpractice.

Insider trading and market manipulation: repressive measures under MAR

Under MAR, **insider trading** and **market manipulation** are further subject to repressive measures. Member States are obliged to impose administrative sanctions (including temporary or permanent bans for persons exercising management functions as well as administrative pecuniary sanctions) and administrative measures. Member States are free to impose sanctions which exceed those proposed under MAR, especially the imposition of **criminal sanctions**. The sanction mechanisms are strengthened by the fact that the Member States are required to publish any infringements committed.

351 Market operators, investment firms and persons professionally arranging or executing transactions are obliged to electronically submit a suspicious transaction and order report (STOR) according to Art. 16 MAR in conjunction with Commission Delegated Regulation (EU) 2016/957 supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council with regard to regulatory technical standards for the appropriate arrangements, systems and procedures as well as notification templates to be used for preventing, detecting and reporting abusive practices or suspicious orders or transactions of 9 March 2016, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0957.

Benchmark regulation further backs price discovery under MAR

In addition to the above, price discovery on financial markets is flanked by the so-called Benchmark Regulation ("BMR").[352] Pursuant to Art. 12 para. 1 lit. d) MAR, market manipulation also includes the transmission of false or misleading information or inputs in relation to benchmarks. The integrity of benchmarks is therefore further ensured by BMR, as it provides a regulatory framework for the pricing of financial instruments listed or traded on exchanges. BMR itself complements the market integrity regime by imposing specific reporting obligations on the providers of a benchmark (e.g., the administrators). On the enforcement side, BMR, like MAR, provides for administrative measures and sanctions to be implemented by the Member States. As REMIT does not yet contain a specific prohibition on the manipulation of benchmarks,[353] the interplay between MAR and BMR is required for orderly price formation, which in turn ensures market integrity.

The effect: EMPs are supervised under both REMIT and MAR

REMIT for the energy wholesale market and MAR for the financial market have the same regulatory objectives: to ensure market integrity by prohibiting insider trading and market manipulation. Both regulations provide mechanisms to prevent these activities and sanction violations. In practice, this means that EMPs must comply with the obligations set out in REMIT and MAR **at the same time**. The EU legislator has recognised that the specificities of this regulatory burden on two fronts should be considered. [354]

However, the learnings from the energy crisis of 2022 and from the storage filling obligations illustrate that this interaction between the two market segments has not translated into aligned regulatory action. In particular, the state-endorsed behaviour was not made transparent to market participants, nor was it temporarily stopped and investigated.

Two facts are of importance in this regard:

- Market abuse prevention is entirely independent from the regulatory status of the market participant.
- The applicable regime did in fact depend upon the nature of the contract and followed different regimes under REMIT and MAR. Therefore, instant information exchange

352 Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (BMR), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R1011.

353 It is envisaged that ACER will produce and publish a daily LNG price assessment and a daily LNG benchmark under REMIT 2.0.

354 MAR, Recital (20): "(…) *However, it is not appropriate or practicable to extend the scope of this Regulation to behaviour that does not involve financial instruments, for example, to trading in spot commodity contracts that only affects the spot market. In the specific case of wholesale energy products, the competent authorities should take into account the specific characteristics of the definitions of Regulation (EU) No 1227/2011 when they apply the definitions of inside information, insider dealing and market manipulation under this Regulation to financial instruments related to wholesale energy products."*

between or, even better, **equal information** of energy regulators and financial regulators from the outset, would have allowed for better informed decisions.

The abandoned delineation between REMIT and MAR with the resulting overlapping consequences will make the use of uniform and harmonised market data even more important in order to avoid different evaluations of the same trading behaviour by different regulators.

Key Learning: Cooperation and coordination in a multi-level system

The detection of insider trading and market manipulation is a complex exercise and may require access to information on a **cross market, cross commodity** and **cross border** basis. As the implementation of the market integrity rules, e.g., the prohibitions on insider trading and market manipulation under both REMIT and MAR is **decentralised** and carried out by the **national authorities**, concerns have been raised whether **two separate integrity regimes** might negatively affect the *effet utile* of the regulations.

In that regard, for the enforcement of REMIT, which is carried out by NRAs already, information exchange and collaboration with financial and competition authorities is explicitly foreseen in Art. 10 and Art. 16 REMIT.[355] As an insider trading or market manipulation offence under REMIT may also impact financial markets and thereby at the same time constitute an offence under MAR, information exchange between the EU agencies ACER and ESMA is mandatory.

However, in the perception of the legislator, this cooperation has not yet been unfolded to its full extent. Regarding MAR, such improved cooperation is explicitly foreseen for the future by introducing a collaboration platform with ACER. Background to this initiative is the observation that collaboration platforms in other areas[356] have proven useful as a supervisory tool to strengthen the exchange of information and enhance collaboration among authorities. With regard to the strong relations between spot and derivatives markets, a joint platform between ACER and ESMA and other public bodies can address concerns about market integrity and the effective functioning of both financial and energy markets.[357]

355 REMIT 2.0., Art. 13a to 13d: ACER will be given investigatory powers, such as on-site inspections and requests for information, as well as the right to impose periodic payments to enforce the aforementioned rights.

356 Reference is made to collaboration platforms established by the EIOPA.

357 Proposal for a Regulation of the European Parliament and of the Council Amending Regulations (EU) 2017/1129, (EU) No 596/2014 and (EU) No 600/2014 to make public capital markets in the Union more attractive for companies and to facilitate access to capital for small and medium-sized enterprises, Recital 68 of the current MAR Review, latest status: European Parliament (2023), Report of the European Parliament, https://www.europarl.europa.eu/doceo/document/A-9-2023-0302_EN.pdf.

New developments

As the integrity of trading and price formation at traded markets has been the key objective of EU legislation in the past, the experiences during the energy crisis of 2022 have already brought about some improvements. This relates to the revised REMIT which includes the provisions on algorithmic trading, introduces a STOR obligation and determines a wider set of competences for ACER.

REMIT 2.0

NEW: abandoning of former delineation between REMIT and MAR *(Art. 1 para 2 REMIT 2.0)*

Under REMIT (prior to REMIT 2.0), the insider trading and market manipulation provisions did not apply to energy wholesale products, which at the same time also qualified as financial instruments. Going forward, this separation will be abandoned and both the integrity regimes of MAR and REMIT will apply to such instruments, most notably exchange traded derivatives on power and gas. This dual regime will require the management of any potential demarcation issues arising from different regulators assessing the same market behaviour under different regimes.

New: Algorithmic trading *(Art. 5a REMIT 2.0)*

As elaborated in section 3.3.5, algorithmic trading is associated with the risk of creating vicious circles and supporting fundamentally unjustified downwards price trends. Therefore, market participants engaging in algorithmic trading are obliged to have in place a comprehensive and sound system of risk controls to guarantee the orderly functioning of the market, including appropriate trading thresholds and limits and mechanisms to detect erroneous orders.[358] Market participants have to notify the engagement in algorithmic trading to the NRA and ACER.

New: Wider set of competences for ACER *(Art. 13 a to Art. 13 d REMIT 2.0)*

ACER shall obtain own regulatory competences regarding investigatory powers, such as on-site inspections and requests for information, as well as the right to impose periodic payments to enforce the aforementioned rights in a cross-border context.[359]

[358] REMIT 2.0., Art. 5a. These new developments are to a lesser extent associated with ensuring market integrity than with ensuring market stability and resilience and are therefore discussed in section 4.

[359] REMIT 2.0., Art. 13a to 13d.

New: STOR obligations *(Art. 15 REMIT 2.0)*

Another necessary step to align market oversight between financial and energy markets is the introduction of REMIT STOR obligations, which under MAR already exist.

STOR obligations modelled on MAR for **persons executing transactions** in wholesale energy products will therefore be introduced.[360]

MAR 2.0

Following the proposal of the EC to put forward measures to further develop the EU's Capital Markets Union and make EU capital markets more attractive,[361] MAR is currently under revision (MAR 2.0).[362]

New: Establishing a collaboration platform *(Art. 25 b MAR 2.0)*

Cooperation between the different stakeholders will be strengthened further.[363] In particular, MAR 2.0. foresees the creation of a collaboration platform. **ESMA** shall, at the initiative of one or more NCAs, **set up** and **coordinate** such platforms in the field of securities markets when there are concerns about market integrity or the good functioning of markets. Although this change will not directly affect EMPs it is nevertheless worth mentioning as ESMA, with regard to the strong relations between financial and spot markets, should also, at the initiative of one or more NCAs, be able to set up such platforms with public bodies monitoring wholesale commodity markets, including **ACER**, when such concerns affect both financial and energy markets.

Albeit these recent improvements in material integrity provisions under REMIT and strengthened collaboration between financial and energy market regulators under MAR, a gap regarding pre-emptive correction measures still persists. In particular, in cases where timely corresponding trading actions in both physical energy and energy derivatives markets create market distortions, these should be made transparent and put – at least temporarily – on halt to avoid misleading market participants and to allow for rapid corrective action.

360 REMIT 2.0., Art. 15.

361 European Commission (2022), Proposal for a Directive of the European Parliament and of the Council amending Directive 2014/65/EU to make public capital markets in the Union more attractive for companies and to facilitate access to capital for small and medium-sized enterprises and repealing Directive 2001/34/EC, Explanatory Memorandum, COM(2022) 760 final, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022PC0760.

362 European Parliament (2023), Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1129, (EU) No 596/2014 and (EU) No 600/2014 to make public capital markets in the Union more attractive for companies and to facilitate access to capital for small and medium-sized enterprises, status: Report of the European Parliament, A9-0302/2023, https://www.europarl.europa.eu/doceo/document/A-9-2023-0302_EN.pdf.

363 MAR 2.0., Recital (68) and Art. 25b.

6 Liquid energy markets facilitate the energy transition

KEY TAKEAWAYS

Policy recommendation

Facilitate the energy transition: legislative action should be guided by maintaining open and liquid energy trading markets without undue market entry barriers for non-financial firms as risk takers, in order to ensure private financing and the delivery of the EU's priorities on sustainable energy.

The European energy transition requires several hundred billion euros of investments annually, which increases the need for managing commercial risks through energy trading (section 6.1)

EU policymakers have set out the objective of achieving a genuine energy union, by securing the supply of abundant, affordable and clean energy, that serves the dual objective of pursuing European energy sovereignty and climate neutrality.

To achieve this objective, the European energy transition requires several hundred billion euros of investments annually. As government support changes and gradually phases out (e.g., zero or negative bid tenders for offshore in Germany and the Netherlands)[364], the availability of market-based opportunities for reducing risks (such as renewable PPAs and futures contracts) in liquid wholesale markets becomes increasingly important to attract new investments and make them bankable. To facilitate such hedging deals, renewable investors need energy traders on the other market side that are willing to offer hedging products and take risk into their portfolio ("warehousing") or externalise risks by aggregating and trading them on wholesale energy markets.

Applying investment firm status would adversely impact renewable investments (section 6.2)

The capital required under investment firm status would be 'trapped' and unavailable for long-term capital-intense activities such as renewable investments with a lifetime of 20 years or more (e.g., offshore wind park). Firms would therefore either reduce their investments in renewable assets or could only deliver those at higher costs of capital[365] (which would require

364 See for example Germany, BNetzA (2023), "Results of dynamic bidding procedures in offshore wind power auctions", https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230712_OffshoreResults.html?n%20n=404530

365 Financing costs for investments such as those in renewable assets are typically measured by the weighted average cost of capital ("WACC"), which considers a company's cost of equity and cost of debt. In section 6 of the report, we show that

adequate refinancing, e.g., through public funding). Higher costs of capital could increase investment costs for the energy transition by approx. EUR 2 to 8 bn annually until 2030.[366]

In section 3.2, we have explained that the regulatory framework should aim for an adequate liquidity regime and avoid artificially limiting market resilience under investment firm regulation. In particular, regulatory measures need to support overall EU policy goals, e.g., the ability to withstand externals shocks and the contribution to delivering of the Green Deal.

In this part of the report, we go beyond and:

- explain that the **European energy transition requires several hundred billion euros of investments annually, which further increases the need for managing commercial risks through energy trading** (section 6.1); and
- highlight that **applying an investment firm regime would adversely impact renewable investments** (section 6.2).

6.1 The European energy transition requires several hundred billion euros of investments annually, which increases the need for managing commercial risks through energy trading

EU policymakers have set out the objective of achieving a genuine energy union, by securing the supply of abundant, affordable and clean energy, that serves the dual objective of pursuing European energy sovereignty and climate neutrality.[367]

To achieve this objective, the European energy system faces decades of massive transformation. With the **European "Green Deal"**[368] the EC commits to climate neutrality by 2050 and a reduction of greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. In response to the Russian invasion in Ukraine the EC has further accelerated the transition in its **"REPowerEU"** [369] plan, particularly targeting energy savings, diversification of energy supplies and a quicker roll-out of renewable energies.

the prudential capital regulations can increase both capital cost components on a group level and therefore result in a higher WACC.

366 Based on a stylised example of an offshore wind project, a change to WACC for an EMP under IFR could increase LCOE by 2% to 8%. Using 2% (or 8%) LCOE increase multiplied with EUR 103bn per year investment costs for the energy transition on the supply side. See on investment volume European Commission (2023), "Answer given by Executive Vice-President Timmermans on behalf of the European Commission (9.6.2023)".

367 European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", p.10, https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

368 EC (2023), "European Green Deal", https://climate.ec.europa.eu/eu-action/european-green-deal_en

369 EC (2023), "REPowerEU": A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition", https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3131

Achieving a climate-neutral European Union by 2050 requires massive private investments in the energy sector. Increasing renewable power supply will be at the core of this initiative.

- In its **"Impact Assessment on the 2030 Climate Target Plan"** the EC expects a substantial increase in annual energy system investments for 2021-2030 compared to the previous decade. In particular, the EC values investments necessary to achieve the objectives of the "Green Deal" with **EUR 400bn per year**, more than double compared to 2011-2020 period. [370]

- In light of this, and the even more ambitious goals set out in the **"REPowerEU"** plan, the EC provides additional total **public funds of close to EUR 300bn until 2027**, thereof around EUR 225bn through loans and EUR 72bn in grants to EMPs. [371]

With government renewable support phasing out (e.g., zero or negative bid tenders for offshore power generation assets), **private investments in renewables are increasingly exposed to price and volume risks** which can deter investors or make investments more costly. [372]

For EMPs, trading on liquid derivatives markets is therefore an essential instrument to reduce (e.g., hedge) these commercial risks, guarantee stable long-term income and make renewables investments financeable. Energy trading ensures that commercial risks do not become a stumbling block on the path towards a carbon-neutral energy system.

Hedging instruments are not only important for renewable investors but also for consumers. Take the example of an energy-intense manufacturer that wants to replace fossil power (e.g., generated by a coal-fired plant) sourced from the energy market with renewables. Generation from wind and solar PV assets depends on weather conditions and is volatile. This is precisely where benefits of energy markets come into force. EMPs can support the energy-intense manufacturer through trading and replicate the stable generation pattern previously provided by a coal-fired plant. For example, by combining different power products from renewables and flexibility sources from the energy market (so-called 'profile transformation', see section 2.1.1).

370 EC (2020), "Impact Assessment – 2030 Climate Target Plan, SWD (2020) 176 final", Table 46, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020SC0176

371 EC (2023), "REPowerEU", https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en

372 This regards in particular long-term electricity prices and volumes (intermittent production from renewables). We note that renewable investments are further exposed to volume risk, ranging from project details, technical outages to weather conditions which – for example – determine the electricity output for wind and solar PV plants. See for example in the case of Germany, Bundesnetzagentur (2023), "Results of dynamic bidding procedures in offshore wind power auctions", https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230712_OffshoreResults.html?n%20n=404530

The particular importance of managing commercial risks through liquid commodity markets in an energy system with increasing supply and demand of renewable generation is also widely acknowledged amongst policymakers and regulators (see Annex A for more details).

In particular, ACER notes that:

> *"the integration of forward markets is key"*[373] *and "**long-term markets and improved hedging instruments need more attention** to drive the massive investments needed up ahead".*[374] (emphasis added in bold)

Similarly, the EC emphasises that:

> *"**Both consumers and suppliers need effective and efficient forward markets** to hedge their price exposure and decrease the dependence on short-term prices. (…)*
>
> *"The **rapid deployment of renewable generation over the coming years will increase the need for hedging opportunities** due to the expected growing price volatility in the years ahead."* [375] (emphasis added in bold)

6.2 Applying investment firm status would adversely impact renewable investments

An appropriate regulatory framework for EMPs should support the EC's ambitions towards climate-neutrality by 2050. Any change to the physical and financial regulation of the energy sector must therefore explain how the policy intervention would contribute to delivering the energy transition.

With regards to renewable investments, the investment firm status under MiFID II would have the opposite effect, with two main consequences for EMPs:

- **prudential capital requirements under investment firm regulation would limit the available capital** for business activities such as green investments; and
- **financing costs (e.g., for renewables) likely increase**, both for equity and debt.

373 ACER (2023), "ACER Policy paper on the Further development of the EU electricity forward market", page 5, https://acer.europa.eu/Position%20Papers/Electricity_Forward_Market_PolicyPaper.pdf

374 ACER (2022), "Final Assessment of the EU Wholesale Electricity Market Design", page 4, https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf

375 EC (2023), "Commission Staff Working Document: Reform of Electricity Market Design", page 36, https://energy.ec.europa.eu/system/files/2023-03/SWD_2023_58_1_EN_autre_document_travail_service_part1_v6.pdf

Prudential capital requirements under investment firm regulation can limit the available capital for business activities such as green investments

The main financial impact of investment firm regulation is that EMPs would have to hold specified amounts of prudential capital in the entity with investment firm status. As set out in the survey in section 3.2.2 before, this could either imply that EMPs hold this prudential capital:

- **directly on a group level** (Top-Co) which would additionally result in material legal and organisational obligations for all group activities under MiFID and is therefore unlikely; or
- **indirectly in a market-facing subsidiary** such as those that qualify as physical or financial traders today (or would qualify as such after a restructuring on a group level in response to an AAE removal).

The case of a **market-facing subsidiary** is of particular importance.

- **Many EMPs that hold physical generation assets in their group today use the organisational structure of a market-facing subsidiary already today** (e.g., half of the ten entities in the survey counted as physical traders). Others indicated in the survey that they would have an incentive or need to restructure (or even cease all activities that would fall outside the MiFID exemption).
- The survey has further shown with the example of physical traders as a market-facing subsidiary, that an investment firm status would result in a **mean capital deficit of EUR -2.61bn**.

In order to comply with the prudential capital requirements under investment firm status, EMPs would therefore require to adequately capitalise their market-facing subsidiary ('regulated entity'). Such prudential capital would be 'bound' by the regulated entity and could not be made available on a group level in the long-term, including investments in renewable generation assets with a lifetime of 20 years or more.[376]

In other words: With regards to long-term investments, the prudential capital required by a regulated entity for energy trading and risk management is 'trapped cash' for the EMP on a group level and unavailable for renewable investments.

[376] In theory, the prudential capital requirements under IFR would be available to the regulated market-facing entity as working capital. However, prudential capital could only be re-purposed for short-term working capital needs within the market-facing entity or for cash pooling on a group level (e.g., on a daily basis). In contrast, prudential capital would not be available for long-term investments such as in renewable assets. This is because the market-facing entity would hold the legal requirement under IFR to have access the prudential capital if needed in the short-term, and the level of capital requirements itself being subject to the specific trading activity of the business at a given point in time (which in turn is affected by market prices and volatilities). For both reasons, prudential capital is practically unavailable for long-term investments such as renewable assets. It is also worth noting that the IFR would result in higher working capital requirements for the market-facing entity *per se*, implying that even in the short-term less than the prudential capital required under IFR could be made available for other short-term business purposes (e.g., cash pooling).

Therefore, the investment firm regulation essentially leaves EMPs with two main strategic options[377]:

- **raise additional capital from the market at potentially higher costs** to maintain all existing or planned capital-intense activities (e.g., renewable investments by the group and hedging activity in the regulated entity) while meeting the prudential capital requirements; and/or
- **reduce either existing or planned capital-intense activities to free-up capital for the prudential capital requirements** (e.g., by pulling out of renewable investments) **or energy trading and risk management activities** (e.g., leave positions unhedged and take higher market risks[378]).

Both strategic options would reduce overall market liquidity (e.g., fewer trading opportunities) and therefore result in higher hedging costs to adequately manage the commercial risk from renewable assets.

Financing costs (e.g., for renewables) likely increase, both for equity and debt

However, even if EMPs would still consider carrying out their existing or planned capital-intense activities from a group perspective, the adjusted capital availability and regulatory environment under the prudential capital requirements are very likely to increase overall financing costs through higher costs of capital. We discuss this below with the **example of a renewable investment**.

Financing costs for investments such as those in renewable assets are typically measured by the weighted average cost of capital[379] ("WACC"), which considers a company's cost of equity and cost of debt. The prudential capital regulations can increase both capital cost components on a group level and therefore result in a **higher WACC**.

- The **cost of equity** is determined by the shareholders' required rate of return of their capital employed. If, as a consequence of the investment firm regulations, the regulated entity of an EMP would need to comply with prudential capital requirements, the cost of

377 In practice, EMPs may opt for a mix of both options, subject to their access to capital markets and the specific business activity concerned.

378 Taking a higher market risk would imply that EMP are more exposed to wholesale price changes through 'unhedged' trades. This can be detrimental for EMPs and final customers such as households and industry (if passed on), e.g., by facing more volatile price patterns. It is further important to keep in mind that a trade between two parties can count as a hedge for one side, e.g., by assuring against fluctuating future market prices as part of their risk management strategy but may not count as a 'hedge' for the other side (e.g., when trading for profits as a 'risk-taker' for energy commodities), see also section 2.1.1. EMPs reducing their hedging would also imply less liquid markets for the remaining EMPs to hedge their positions as they lose potential trading counterparties.

379 WACC is the average of a firm's cost of equity and cost of capital, weighted by the equity and debt share (if reported as post-tax WACC, this would include the corporate tax rate applied to equity cost and the tax shield provided by debt).

equity for a renewable investment project could increase on a group level.[380] As set out before, capital including equity is a scarce resource for EMPs and prudential capital would need to be ring-fenced for the regulated entity trading energy commodities. In case the regulated entity would achieve a lower return on its extended equity base under the prudential requirements (e.g., because the net income achieved would remain the same irrespective of the prudential capital underlying), other business activities would need to compensate for this in order to generate the same return on equity on a group level. In other words: The remaining 'productive' equity on a group level would need to generate higher returns. This would (in our example) imply that equity used for renewable investments could be more costly.

- The **cost of debt** depends on the borrower's creditworthiness. Amongst other factors, the creditworthiness of an EMP, which typically borrows money from banks and other financial institutions to afford large-scale investments in renewable assets, can be affected by the individual credit rating.[381] The total amount borrowed from a single lender and sector limits set by banks and other financial institutions. Below, we exemplary discuss how the investment firm status for the regulated entity could adversely impact the individual credit rating of EMPs on a group level:[382]

  - If the regulated entity would **continue to hedge** market risk as before, the financial headroom of the group will shrink, which is of particular importance in periods of market distress such as the recent energy crisis.[383] In this case, rating agencies may consider EMPs to be riskier and downgrade them (which in turn could increases the cost of debt for renewable investments, and the costs for hedging over the assets' lifetime).

  - If the regulated entity would **reduce hedging** to keep their financial headroom, their credit rating could also be negatively affected due to higher market risk and less predictable cash flows (again, potentially increasing the costs of debt for renewable investments).

380 Amongst other factors, the scope of such increase would be subject to the availability of equity to the individual firm, with shareholders (inter alia) assessing the company's specific risk profile, the stock's volatility compared to the market (systemic risk), the overall market-risk premium (compared to risk-free investments) and the overall economic and regulatory conditions the firm is operating in.

381 Rating agencies such as Standard & Poor's, Moody's or Fitch regularly assess the creditworthiness of EMPs and thus can impact the conditions at which these companies can borrow money from the market.

382 In theory, prudential capital requirements could also de-risk EMPs and therefore contribute to lower cost of debt. However, this channel of effect has not been confirmed by an EMP with investment firm status currently active in the European market in our interview for this study.

383 This is due to additional bilateral clearing obligations that investment firms need to comply with under EMIR. Investment firms are recognised as FC under EMIR and thus trading with other FCs order NFC+ will require them to also clear OTC trades. This will dimmish their recognised cash positions since rating agencies do not count posted margins towards a company's financial headroom.

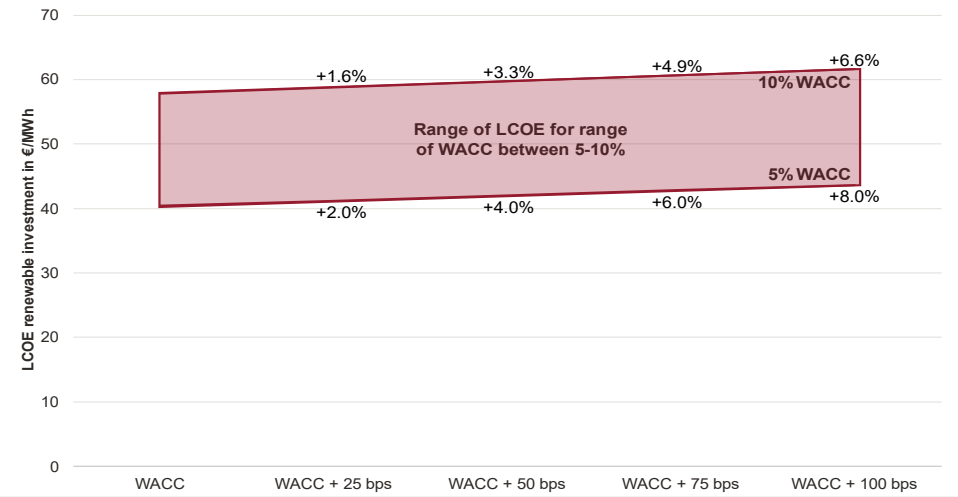
In the stylised quantitative example below, we illustrate the implications of increased financing costs for a renewable investment on a group level as a potential consequence of prudential capital requirements.

Prudential capital requirements can increase costs for renewables

Investments in renewable generation assets such as solar or wind parks are characterised by high capital intensity and low variable costs (i.e., sun and wind come for free). Renewable costs per MWh, as measured by the levelised cost of electricity ("LCOE")[384], are therefore mainly driven by investment costs (turbines, solar modules, foundations, etc.), the cost of capital (WACC) and future asset utilisation (MWh).

Economically viable investment projects need to generate revenues over its lifetime that cover at least the LCOE. Higher renewable costs therefore either drive up power prices or lead to less renewable investments. As set out above, the **prudential capital requirements** could potentially lead to an increase in financing costs ("WACC"). This in turn would lead to **higher LCOE for renewable projects**. Based on the stylised example of an offshore wind project below,[385] a change to a EMP's WACC would increase LCOEs by 2% to 8%.[386]

Figure 31 Stylised effect of increased WACC on renewable LCOE



Source: Frontier Economics
Note: Stylised example using pre-tax WACC, and assumptions explained in fn. 385

384 An important measure to decide on an investment into a renewable project is its levelised cost of electricity (LCOE). The LCOE is the net present value of its costs (both installation costs and operating and maintenance costs) divided by the net present value of its production.

385 Assumptions: Offshore wind park, renewable installation cost of 2m EUR/MW, operating and maintenance costs of 2% of CAPEX, 4500 full load hours per year, 25 years asset lifetime.

386 Assuming a nominal, pre-tax WACC between 5% and 10%, for reference, PWC calculated an increase in LCOE by 5%-10% using a WACC increase from 5.5% to 6.5% (unclear whether pre- or post-tax WACC was used), see PWC (2020), "Financing offshore wind", https://www.pwc.nl/nl/actueel-publicaties/assets/pdfs/pwc-invest-nl-financing-offshore-wind.pdf

It is worth re-iterating that investments into renewable energy generation are essential to deliver the green transition. Recent projections by the EC indicate an **annual need for energy system investments under the 'Green Deal' of EUR 103bn per year on the supply side** alone, mainly for power grid and power generation assets.[387]

Considering the potential increase in WACC between 2% and 8%, the **regulatory change towards and investment firm status could therefore result in additional energy transition investment costs for EMPs of around EUR 2.1 to 8.2 bn annually** until 2030 (assuming EMPs would not withdraw from investments under increased costs).

Ultimately, these increased costs for EMPs would require adequate refinancing, either through higher energy prices for consumers or public funding of the investments through taxpayer money.

[387] Consistent with a total investment volume of EUR 400bn per year between 2021 and 2030 (see earlier in this section), annual investments of EUR 299bn are expected on the demand side (excl. transport) under the Green Deal. Further investments under the "REPowerEU" plan yet excluded. See also European Commission (2023), "Answer given by Executive Vice-President Timmermans on behalf of the European Commission (9.6.2023)", https://www.europarl.europa.eu/doceo/document/P-9-2023-001508-ASW_EN.pdf

7 Any revision of European energy trading regulation must consider global implications

KEY TAKEAWAYS

Policy recommendation

Protect global competitiveness: we suggest keeping global competitiveness as a major legislative objective, aligning regulatory actions with IOSCO recommendations and abstaining from actions which have no precedence in competing jurisdictions and lead to an uneven international playing field.

In order to maintain its competitive position, European regulation for energy trading has to be in line principles acknowledged on a global level (section 7.1)

The current regulatory framework for energy commodity trading in the EU is based on the G20 commitments made in the wake of the financial crisis. Compared to other key jurisdictions for commodity trading (such as the US, UK and Singapore), it currently maintains a level playing field for EU EMPs.

It further reflects and implements the IOSCO principles for the regulation and supervision of commodity derivatives markets, inter alia:

- pre- and post-trade transparency requirements;
- position limits and position reporting for commodity derivatives; and
- a dedicated framework ensuring the integrity of traded energy markets and, in particular, its price formation and discovery.

Investment firm status for energy market participants in Europe has no precedence in other leading global markets (section 7.2)

Requiring investment firm status for energy market participants from the non-financial sector is not part of IOSCO principles and has no precedents in competing key jurisdictions with liquid commodity markets such as the US. It would put the competitiveness of European markets at risk and limit its ability to maintain a high level of liquidity and to attract investments in new assets.

In addition, it would impair the competitive position of EMPs in the even more global market for energy and natural resources after the energy crisis and thus have a negative impact on European security of supply.

All jurisdictions compared (the US, UK and Singapore) seek to achieve the common objectives of

- maintaining the stability of the financial system;
- fostering the integrity of price formation of traded commodity markets; and
- ensuring market transparency for the benefit of regulatory oversight and market participants.

However, none of them are discussing to mandate investment firm authorisation for EMPs for any of these purposes. To the opposite, the US jurisdiction explicitly allows for unlimited futures trading of EMPs and offers significant headroom for non-hedging OTC swap dealing.

Policymakers need to consider regulatory trends outside the EU to prevent competitive disadvantages (section 7.3)

Policymakers in other key jurisdictions focus on improving transparency and the margining practices. This includes higher market transparency through implementing or extending position limits and accountability levels (e.g., the US and UK) or establishing dynamic volatility levels (e.g., the US). International organisations (like IOSCO) also call for extended transparency requirements and further suggest the broadening of collateral for margining beyond cash instruments.

Such important regulatory trends include:

- Financial Stability Board: eight particular policy recommendations to increase liquidity preparedness of market participants.
- IOSCO: recommendations on transparency and predictability of margin calls.
- UK: position limits to be set and supervised by trading venues instead of the FCA and the wider application of accountability levels on trading venues.
- US: application of special price fluctuation limits, such as dynamic circuit breakers.

The EU should focus on these trends rather than abandoning or narrowing the current scope of AAE, which would result in a competitive disadvantage for EU markets and EU EMPs, and is misaligned with the EU's own regulatory objectives of financial and energy market regulation.

In this part of the report, we:

- explain why **European regulation for energy trading has to be aligned with principles acknowledged on a global level** and why **EU competitiveness** in affordable energy prices has come **under pressure** during and in the aftermath of the energy crisis (section 7.1);
- show that the **investment firm status for EMPs in Europe has no comparison in other leading global markets** (section 7.2); and

- emphasise that **policymakers need to consider regulatory trends outside the EU** to prevent competitive disadvantages (section 7.3).

7.1 In order to maintain its competitive position, European regulation for energy trading has to be in line with principles acknowledged on a global level

Both financial and energy markets are of **global nature**. For energy markets in particular, the membership composition of EEX as one major energy exchange in Europe illustrates this perfectly: close to 500 participants are listed, of which a considerable number are from outside the EU. Their countries of origin not only refer to Switzerland, Norway, and the UK but also to countries outside Europe such as the US and Singapore.[388]

The same holds true for markets abroad: a large number of European EMPs are active in foreign energy markets, being as investor for new renewable assets, or in order to hedge their gas price exposure at the North American Henry Hub[389]. As recent add on, this is increasingly accompanied by project development and the import of green molecules such as green hydrogen or green ammonia.

As outlined in the most recent reports of ACER, the EU currently faces fundamental **competitiveness challenges**, not only but notably compared to North America.[390] This is due to the rising LNG reliance for the substitution of reduced Russian pipeline supply. To manage the related market price exposure affects both gas and electricity end users.

To this end, policymakers have reaffirmed maintaining and strengthening European competitiveness as a fundamental objective of EU policy. This includes **energy sovereignty**, accompanied by a **better** and **smarter** regulatory framework, as set out in Enrico Letta's report[391] on the EU Single Market in Spring 2024 that was welcomed by the European Council.[392]

With the global reach of energy markets, applicable regulatory frameworks across jurisdictions should therefore ensure a **level playing field** while maintaining the integrity and stability of markets at all times, and to prevent regulatory arbitrage. Against this background, it is common

388 EEX (2024), "List of Trading Participants", https://www.eex.com/en/eex-ag/partners/list-of-trading-participants.

389 Henry Hub Natural Gas futures are for example traded at the Chicago Mercantile Exchange (CME).

390 ACER report: Key developments in EU electricity wholesale markets, page 16, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_2024_MMR_Key_developments_electricity.pdf.

391 Letta (2024), "Much more than a market", https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf

392 European Council (2024), "Conclusions on special meeting of the European Council (17 and 18 April 2024)", https://www.consilium.europa.eu/media/m5jlwe0p/euco-conclusions-20240417-18-en.pdf

understanding that market regulation across jurisdictions should be based on **acknowledged principles**.

Such principles are laid out by IOSCO with the G20 Summit in Cannes in November 2011, endorsing the final report on the IOSCO principles.[393] Those principles aim to ensure that the commodity derivatives market serves for price discovery and hedging while operating free from manipulation and abusive trading schemes and cover both organised as well as bilateral OTC markets.

The final report on the implementation of the IOSCO principles from November 2018 presents the progress various jurisdictions have made ensuring compliance with the IOSCO principles.[394] The respective initiatives concern:

- **pre- and post-trade transparency requirements**;
- **position limits and position reporting for commodity derivatives**; and
- **a dedicated framework ensuring the integrity of traded energy markets** and in particular its price formation and discovery.

7.2 Investment firm status for energy market participants in Europe has no precedence in other leading global markets

In order to support competitive strengths, the EU must focus regulatory action in line with globally accepted and applied principles and refrain from unprecedented action in those competing markets.

In the following, we provide an overview on the existing regulatory regimes in three key jurisdictions outside the EU, in which many EU companies trade commodity derivatives. These are the **US, UK, and Singapore**.

We show that EMPs from the EU would be able to engage in and trade energy derivatives in each of these three jurisdictions, if they were based there. In all compared jurisdictions, market participants from the industrial sector do have access to traded commodity markets **without the need to convert into a financial entity**.

For EMPs in the EU, the AAE under MiFID II therefore ensures a level-playing field on a global scale, and keeps European markets attractive for investments, such as those required for the Green Deal**.** Furthermore, such approach would be in line with and fully respect the

393 IOSCO (2011), "Technical Committee of the International Organization of Securities Commission: Principles for the Regulation and Supervision of Commodity Derivatives Markets", Final Report FR07/11, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD358.pdf.

394 IOSCO (2018), "Board of the International Organization of Securities Commission: Update to Survey on the Principles for the Regulation and Supervision of Commodity Derivatives Markets", FR19/2018, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD617.pdf.

global commitments applicable to the EU, such as the aforementioned IOSCO principles for energy trading.[395]

The introduction of an investment firm status in the EU would result in a persistent and significant deviation from the current international practice and would make the EU a less competitive market compared to other major commodity jurisdictions. Removal of the AAE would give unfair benefits to international companies that can choose the markets or countries most suitable for their business activities.

A comparison of the EU with the US, UK and Singapore shows that all legal systems have exemptions which – albeit in different ways – resulting in an exemption for EMPs, in particular for trading on own account (see Figure 32 below).

However, despite differences, the common denominator for the jurisdictions examined outside the EU is that they all aim to achieve the joint objectives of:

- **maintaining the stability of the financial system**;
- **fostering the integrity of functioning and price formation** of traded commodity markets; and
- **ensuring market transparency** for the benefit of regulatory oversight and market participants.

None of the compared jurisdictions mandate EMPs from the industrial sector to strict licensing requirements such as under an investment firm regulation to achieve these objectives.

395 "*With respect to derivatives markets, an orderly market may be characterised by, among other things, parameters such as a rational relationship between consecutive prices, a strong correlation between price changes and the volume of trades, accurate relationships between the price of a derivative and the underlying commodity and reasonable spreads between near and far dated contracts. Numerous conditions can negatively affect trading and the characteristics of an orderly market, […] including unmanaged imbalance between long and short positions resulting from large concentrated positions.*" Quotation from IOSCO, Board of the International Organization of Securities Commissions (2023), "Principles for the Regulation and Supervision of Commodity Derivatives Market", Final Report FR02, p. 46, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD726.pdf.

Figure 32 Neither the US, UK or Singapore require investment firm authorisation for energy derivatives trading

	EU	US	Singapore	UK
Financially settled commodity derivatives	in scope	in scope	in scope	in scope
Physically settled commodity derivatives	partly in scope	not in scope	not in scope	partly in scope
Own account trading as financial activity	in scope	partly in scope	in scope	in scope
Exemption of own account commodity trading	quantitative	qualitative & quantitative	qualitative	quantitative
Are own account commodity traders from the real economy holding a financial service provider license?	no	no	no	no
Provisions on market integrity and stability	apply	apply	apply	apply

Source: *Luther Lawfirm*

Regulatory landscape for energy traders: US

EMPs trading commodity derivatives in the US, either as futures on exchanges or bilaterally as swap, would not be subject to licensing requirements and would not be treated as, or converted into, financial entities.

For **futures trading**, regardless of hedging or for speculative purposes, there are **no** thresholds other than position limits.

For **swap trading**, they have to observe market integrity rules and may become subject to mandatory clearing unless the Commercial End-User Exemptions apply. The latter is the usual status for a non-financial entity, which are trading energy derivatives on own account for risk mitigation purposes. Under the Commercial End-User Exemption, an EMP can trade cash settled derivatives for hedging in an unlimited manner and for **speculative purpose** up to a de minimis threshold of **8 billion USD**. We shade some light on the details below:

Regulatory oversight

The US are one of the most eminent financial centres globally and its market is the world's leading marketplace for various energy commodities such as gas, oil, crude and refined contracts, as well as a variety of soft commodities.[396]

Its regulatory oversight has historically split in two ways:

396 See ESMA in MiFID II Review report on position limits and position management, margin 96.

- between **security-based** trading on the one hand and **commodity-based** trading on the other. Jurisdiction over the securities markets rests with the US Securities and Exchange Commission ("SEC") under the Securities Exchange Act of 1934 ("SEA"), whereas the commodity market is under the supervision of the Commodity Futures Trading Commission ("CFTC") applying the Commodity Exchange Act ("CEA")[397]; and

- between exchange traded **futures** and bilaterally traded **swaps**. For EMPs and their regulatory status, the activity regarding swaps is relevant.

- There is another relevant split in assessing commercial activities regarding swaps: the **trader/dealer** distinction:

- The relevant US regulation comparable to the AAE under MiFID II is applicable to **dealing activities only**. Trading (on own account) is distinct from dealing and only in scope for the Swap Dealer test under additional qualifying prerequisites. Generally, a trader trades in his own interest, while a dealer deals in the interest and/or account of a third party[398]. This third party might be the customer or the counterparty of the dealer. Therefore, important to note, the EU regime is from the outset much **more restrictive** as it applies to both exchange and bilateral trading. It fully considers own account trading without any third party relation as financial service.

Scope of the CFTC regime

For energy trading, the relevant regime is the **CFTC regime** and its oversight over commodity futures and commodity swap trading.

Under the CFTC regime, energy traders need to observe particular integrity requirements, imposed by law and the respective **exchange rules** enforced by the exchange surveillance and the CFTC. These rules do address undue market conduct such as **market manipulation** and **insider trading** and cover a similar spectrum as its European counterparts in law.

Scope of the Dodd-Frank Act

In addition to the CFTC regime, energy traders are subject to a framework for bilaterally traded swaps, as specified in **Title VII** of the Dodd-Frank Act.[399] These provisions include mandatory clearing, reporting, margin rules for non-cleared swaps, exchange trading and provisions for

---

397 U.S. Securities and Exchange Commission (SEC); see https://www.sec.gov/; Securities Exchange Act of 1934 (SEA), https://www.nyse.com/publicdocs/nyse/regulation/nyse/sea34.pdf; Commodity Futures Trading Commission (CFTC), see https://www.cftc.gov/; Commodity Exchange Act (CEA), https://www.law.cornell.edu/uscode/text/7/chapter-1.

398 For a detailed definition of the term "dealer", see CFTC (joint rulemaking with SEC), Final Rule Regarding Further Defining "Swap Dealer", "Major Swap Participant" and "Eligible Contract Participant", 77 Fed. Reg. 30595 (May 23, 2012), p. 30607 et seqq., https://www.cftc.gov/sites/default/files/idc/groups/public/@lrfederalregister/documents/file/2012-10562a.pdf.

399 The introduction of the Dodd-Frank Act was accompanied by an amendment of the CEA and the SEA.

position limits. Also, certain types of market participants, namely swap dealers[400] ("SD") and major swap participants[401] ("MSP") were introduced, defined as financial market participants, and subjected to **capital requirements**[402]. To some, however **limited extent**, these categories of market participants reflect the notion of investment firm under MiFID II.

Importantly, it has to be noted that from a **product perspective**, the definition of swap under Title VII of the Dodd-Frank Act[403] **excludes** exchange-traded commodity futures and options on such exchange-traded commodity futures and it also excludes from its scope any sale of non-financial commodities as long as the transaction is intended to be **physically settled**[404]**.**

As a consequence, the Dodd-Frank regime does not apply to physically settled bilateral commodity forwards in the first place, irrespective of whether traded via a broker screen or not. In this context, the US regime is obviously less strict than the EU regime, which includes physical forwards under Section C.6 and – under additional prerequisites – Section C.7 of Annex I of MiFID II.[405]

From an entity's or **market participant's perspective**, the law further differentiates between financial market participants such as SDs and MSPs and **Commercial End-Users** of swaps. Whereas the latter may benefit from the Commercial End-User Exemption, SD's, MSP's, and other financial market participants are largely excluded from doing so. Further, SDs and MSPs are subject to capital and margin requirements and regulatory oversight of the CFTC and the SEC, depending on the type of swap.

Commercial End-User Exemption

The Commercial End-User Exemption as defined in the Dodd-Frank Act exempts non-financial entities having the status of a commercial end-user from clearing requirements and limits the extent to which speculative trading is possible without getting classified as to be regulated

400 See CFTC (2024) for an overview of listed SDs under Swap Dealer ("SD"), https://www.cftc.gov/IndustryOversight/Intermediaries/SDs/index.htm

401 Currently there are no registered MSPs, see Major Swap Participant (MSP), see CFTC (2024), https://www.cftc.gov/IndustryOversight/Intermediaries/MajorSwapParticipantMSP/index.htm

402 See CFTC (2020), "Capital Requirements of Swap Dealers and Major Swap Participants", https://www.govinfo.gov/content/pkg/FR-2020-09-15/pdf/2020-16492.pdf

403 See Section 1a(47) of the CEA, https://www.law.cornell.edu/uscode/text/7/1a; as added by Section 721(a) of the Dodd-Frank Act, including for example interest rate swaps and currency swaps, commodity swaps and options based on interest or a currency exchange rates or commodities.

404 See Section 1a(47)(B)(ii) of the CEA, https://www.law.cornell.edu/uscode/text/7/1a, the so-called Forward Contract Exclusion under the joint final rule of CFTC and SEC 10.07.2012.

405 For the remainder of swaps in the sense of the Dodd-Frank Act, the law stipulates as a rule that for swaps such as commodity derivatives it is "*unlawful for any person to engage in a swap unless that person submits such swap for clearing to a derivatives clearing organization that is registered under [the CEA] or a derivatives clearing organization that is exempt from registration under [the CEA] if the swap is required to be cleared,* "see Section 723(a)(3) of the Dodd-Frank Act amending Section 2(h)(1)(A) of the CEA.

SDs or MSPs. The treatment is insofar to some extent comparable to those of non-financial entities under EMIR.

Although the exemption was created primarily for non-financial entities, certain financial institutions are also permitted to claim the exemption, including the affiliates of End-Users that act on behalf of, and as agents of the End-Users in entering into swaps to hedge or mitigate their commercial risk.[406]

De Minimis threshold

In addition to the Commercial End-User Exemption, the Dodd-Frank Act gives significant headroom for third party dealing activity under the De Minimis threshold.

It states that a person shall not be deemed to be a Swap Dealer unless its swaps connected with swap dealing activities exceed an aggregate gross notional amount (''AGNA**''**) threshold of **8 bn. USD**.[407] As a consequence, only a very limited number of market participants qualify as SDs.[408] With regard to the second category of regulated traders, the **MSP**, the definition is even narrower[409] and the outturn correspondingly **extremely low**.[410]

Generally, an entity must count towards its AGNA threshold all swaps it entered into for **dealing purposes** over the **preceding twelve months**. Thus, to the extent that a particular swap or security-based swap is not connected to dealing activity, it will not count against the de minimis thresholds. Conversely, if a swap is connected to the person's dealing activity, the position will count against those thresholds.[411]

In addition, only swaps that have been **entered into** in the **previous 12 months** count against the threshold. Therefore, swaps entered into for a period of more than a year will **drop out** on a rolling basis. Any double or multiple counting of existing swaps and the respective open

406 See Section 2(h)(7)(A) et seqq. of the CEA, https://legcounsel.house.gov/Comps/Commodity%20Exchange%20Act.pdf.

407 17 CFR § 1.3 (ggg)(4) (i)(A) for the rationale see CFTC Final Rule Regarding De Minimis Exception to the Swap Dealer Definition, 83 Fed. Reg. 56666 (November 13, 2018), p. 56677, https://www.cftc.gov/sites/default/files/2018-11/2018-24579a.pdf. The envisaged lowering of the threshold down to 3 billion USD was dismissed with various arguments including to prevent 1) Increased concentration in the swap dealing market; (2) reduced availability of potential swap counterparties; (3) reduced liquidity; (4) increased volatility; (5) increased systemic risk; and/or (6) higher fees or reduced competitive pricing. The CFTC was rather of the opinion that the current 8 billion serves the regulatory purpose well and leaves sufficient headroom to deal to the benefit of commercial end users.

408 In 2012 the CFTC delegated the registration of Swap Dealers to the National Futures Association ("NFA"). See CFTC Notice and Order regarding Performance of Registration Functions by National Futures Association With Respect To Swap Dealers and Major Swap Participants 77 Fed.Reg 2708 (January 19, 2012); According to the NFA's Swap Dealer Registry (available at https://www.nfa.futures.org/registration-membership/membership-and-directories.html), as of 30th April 2021, 109 entities were registered with the NFA, often listing several subsidiaries, particularly of large financial companies (e.g. Goldman Sachs, Merrill Lynch and Morgan Stanley); additionally, the CFTC provides a list with provisionally registered Swap Dealers, https://www.cftc.gov/LawRegulation/DoddFrankAct/registerswapdealer.html.

409 See 17 CFR § 1.3 and CFTC Final Rule, 77 Fed. Reg. 30595 (May 23, 2012), p.30661 et seqq. (IV.).

410 As of 6th April 2021, there were **no entities** registered as a Major Swap Participant with the NFA. https://www.nfa.futures.org/registration-membership/membership-and-directories.html.

411 CFTC Final Rule, 77 Fed. Reg. 30595 (May 23, 2012), p. 30631.

positions is avoided. In fact, the threshold under the Dodd-Frank measures the **dealing activity** of a person rather than the size of actual open positions.

Important to note is the **purpose** of the de minimis exemption and the way the threshold was calculated. When the CFTC decided to keep the 8 bn. USD threshold (earlier planned to be reduced to 3 billion USD), Commissioner Berkowitz (one of five commissioner) wrote:

> *"[..] The staff's data analysis showed that many of the smaller swap dealers for physical commodities are physical commodity producers, distributors, consumers, or merchandizers. Swap dealing is an ancillary business for them. Where the costs of registering as a swap dealer exceed anticipated benefits, it is likely that many of these entities would withdraw from providing swap dealing services to their customers. That would leave many end users looking to hedge their risks with either no dealers available, or very few dealers to provide competitive pricing. [..]*[412]*" (emphasis added)*

This statement highlights that a hedge for the customer is not necessarily a hedge for the EMP, which not only acknowledges the need to have EMPs in the market as risk takers, but also illustrates potentially **adverse effects** of removing headroom for non-hedging transactions.

In the light of the above, it is fair to say that **none** of the EMPs currently making use of the AAE under MiFID II would be captured by the definition of a SD, let alone MSP. As explained, this is due to the fact that the definition of relevant in-scope instruments as well as the notion of "*dealing*" are both narrower as their equivalents under EU legislation and, in addition, the *de minimis* thresholds are particularly broad.

Beyond the above-mentioned requirements, the CFTC regime and the Dodd-Frank Act do not provide for any further regulatory requirements regarding commodities traders comparable to the licensing requirements under MiFID II or stipulate related consequences.

Regulatory landscape for energy traders: Singapore

With respect to Singapore as a potential competing jurisdiction, the abandoning or narrowing of the AAE would present a development that would significantly weaken the competitiveness of EU markets and EU EMPs.

Regulatory oversight

Singapore plays a **key role** as a **commodity trading** hub for **Asia**, especially for oil and gas, agricultural commodities, metals and minerals. It is the number one financial and commodity trading hub in Asia, ranks first in Asia Pacific and third globally in world competitive ranking[413].

412 Federal register p. 56666-56693, https://www.federalregister.gov/documents/2018/11/13/2018-24579/de-minimis-exception-to-the-swap-dealer-definition#p-98, A Rule by the Commodity Futures Trading Commission on 11/13/2018

413 EDB (2024), Natural resources, https://www.edb.gov.sg/en/our-industries/natural-resources.html and Long Finance (2024), GFCI 34 Rank, https://www.longfinance.net/programmes/financial-centre-futures/global-financial-centres-index/gfci-34-explore-the-data/gfci-34-rank/

Due to the growing importance of the Asian market, also in connection with commodity derivatives trading, an important role of Singapore can be assumed for the future. For that reason, the commodity exchange EEX has based its Asia hub in Singapore[414]. The competitiveness and stability of its regulatory framework is seen as one major benefit in that regard[415].

Recent reforms, resulting from the commitment made by the Monetary Authority of Singapore ("MAS")[416] to the G20 and the Financial Stability Board ("FSB")[417] to reform the way that OTC derivatives are regulated, have aligned the regulatory requirements for the trading of OTC derivatives contracts more closely to the regulatory regimes in the US and the EU. The Securities and Futures (*Trading of Derivatives Contracts*) Regulations 2019[418] apply to certain OTC derivative contracts executed on or after 1 April 2020 and introduce a mandatory trading obligation. This is a further step towards the implementation of the G20 OTC derivatives reform.

Applicable regulations

The Commodity Trading Act ("CTA")[419], the Securities and Futures Act ("SFA")[420] and the Financial Advisers Act ("FAA")[421], all contain legislation relevant to commodity trading, derivatives trading or advisory services in respect of OTC commodity derivatives and/or commodity futures contracts.

As part of the reform of the regulatory framework, regulatory oversight of commodity derivatives, formerly under the CTA, was transferred to the SFA in 2008 (for commodity forward contracts) and in 2018 (for OTC commodity derivatives). The objective of the former transfer was to streamline regulation of all forward related activities under a single regulator. The latter transfer stemmed from Singapore's commitment to meeting the G20 commitments[422] and the FSB's recommendations on OTC derivatives contracts.[423]

414 See EEX Asia (2024), "About us", https://www.eexasia.com/aboutus

415 The Trade News (2023), "Is Singapore set to become the next major trading hub?", https://www.thetradenews.com/is-singapore-set-to-become-the-next-major-trading-hub/

416 See Monetary Authority of Singapore (2024), https://www.mas.gov.sg/.

417 See Financial Stability Board (FSB), https://www.fsb.org/, and FSB (2010), "Implementing OTC Derivatives Market Reforms", https://www.fsb.org/wp-content/uploads/r_101025.pdf.

418 Securities and Futures (Trading of Derivatives Contracts) Regulations 2019 (Cap 289 Reg S 134/2019), https://sso.agc.gov.sg/SL/SFA2001-S134-2019?DocDate=20190313.

419 Commodity Trading Act (Cap 48A, 2009 Rev Ed), https://sso.agc.gov.sg/Act/CTA1992.

420 Securities and Futures Act (Cap 289, 2006 Rev Ed), https://sso.agc.gov.sg/Act/SFA2001.

421 Financial Advisers Act (Cap 110, 2007 Rev Ed), https://sso.agc.gov.sg/Act/FAA2001.

422 G20 Leaders Statement: The Pittsburgh Summit, http://www.g20.utoronto.ca/2009/2009communique0925.html.

423 FSB (2010), "Implementing OTC Derivatives Market Reforms", https://www.fsb.org/wp-content/uploads/r_101025.pdf.

However, irrespective of the different competences of the MAS and the Enterprise Singapore Board ("ES")[424], market participants trading spot commodities or commodity derivatives on own account are in any event eligible for **exemptions** from **licensing obligations** under Singapore law. The usual market integrity rules apply irrespectively.[425]

Product scope

Dealing in **commodity derivatives** is currently a regulated activity under the SFA under the purview of the MAS. In the course of the above-mentioned reform, MAS took cognizance that due to the nature of the underlying products, commodity derivatives may have certain characteristics distinct from those of financial derivatives and took them into account when implementing the regulatory framework for OTC commodity derivatives.[426]

Energy products which do not meet the definition of a "derivative" are, however, **out of scope** of that regulation.

The definition of "derivative contract"[427] covers any contract or arrangement under which a party is required, or may be required, to discharge all or any of its obligations at some future time, and whose value is determined by reference to, is derived from, or varies by reference to, the value or amount of, or fluctuations in one or more underlying. In this regard, commodity forward contracts that are **physically-settled** are **excluded from the scope** of regulation under the SFA as such contracts are commercial merchandising transactions which create enforceable obligations to make or take **physical delivery**. Furthermore, the definition expressly excludes securities and **spot contracts**.

From a product perspective, the scope of the regulation towards energy trading is therefore **narrower** as the respective approach of the EU.

Regulation of spot commodity trading

Spot commodity trading activities in Singapore – which are the purchase or sale of a tangible commodity at its current market or spot price, where the commodity is to be physically delivered – are regulated under the CTA under the purview of the ES.

Persons regulated under the CTA in relation to this activity include spot commodity brokers, spot commodity pool operators or their representatives. The policy objective of the CTA is to protect the public against bucket shops in spot commodity trading, while not placing curbs on

424 Enterprise Singapore Board; see https://www.enterprisesg.gov.sg/.

425 Part V, VII CTA, Part XII SFA.

426 MAS (2012), Consultation Paper on "Proposed Regulation of OTC Derivatives", https://www.mas.gov.sg/-/media/MAS/resource/publications/consult_papers/2012/13-February-2012-Proposed-Regulation-of-OTC-Derivatives.pdf.

427 See Section 2 (1) of the SFA, interpretations, Exempt is further any contract or arrangement that is, or that belongs to a class of contracts or arrangement that is, prescribed not to be a derivatives contract; [Act 4 of 2017 wef 08/10/2018].

bona fide traders carrying out legitimate trading activity; and in this respect, a number of **licensing exemptions** were incorporated into the CTA.

Licensing exemptions under the CTA for spot commodity trading

Persons engaging in spot commodity trading would in principle trigger a licensing requirement under the CTA.[428] However, there are exemptions, in particular the following:

- persons who carry on trading on their **own account** and in doing so, do not solicit any funds from any member or section of the public; and
- persons who are **not a party to any contract for the purchase or sale** of the commodity, do not carry the customer's position, margin or account in their own books, and do not accept money or assets from the customer as settlement, margin, guarantee or security for any such purchase or sale.[429]

As a result, energy traders managing their spot position on **own account** are not subject to a licensing requirement.

Regulation of forward commodity trading (OTC and exchange traded)

The SFA applies to entities which provide financial advisory services regulated under the FAA and/or capital markets services conducted in relation to OTC commodity derivatives contracts and/or forwards contracts as, inter alia:

- dealing;
- fund management;
- operating an organised market; and
- operating a clearing facility.[430]

Entities conducting any of the above activities in Singapore may trigger a licensing requirement unless another **licensing exemption** applies. In addition, the licensing regime under the SFA and FAA has extraterritorial effect; its application is therefore not limited to activities conducted within Singapore and may also capture activities with counterparties based in Singapore or even such having a substantial and reasonably foreseeable effect in Singapore.[431]

428 See Section 13A (1) of the CTA.

429 See Section 14A (1) in conjunction with the Schedule to the CTA.

430 See SFA Part IV, Capital Markets Service Licence, Sec.82 et seqq., Regulated activities are specified in schedule Two.

431 See Section 338 of the SFA.

Licensing exemptions under the SFA for forward commodity trading

Historically, the relevant exemptions for **OTC-commodity** derivatives on the one hand and exchange traded **commodity futures** on the other were stipulated in different legislations, the CTA and the SFA.

Recently, the licensing exemptions for dealing in OTC commodity derivatives that were previously under the CTA were migrated into the SFA. In addition, with regard to dealing in commodity futures contracts, there have been licensing exemptions in the SFA all along to exempt from licensing any entity dealing in forwards contracts on their own account or for the account of a related corporation.

Under the SFA, the MAS is entitled to issue regulations, further defining such exemptions from the obligation to obtain a license.[432] According to the current regulation[433], several activities are exempt from the licensing requirement. This applies in particular to:

- dealing in OTC commodity contracts solely with persons qualifying as 'accredited investors', 'institutional investors' and/or 'expert investors' under the SFA;
- dealing in **OTC derivatives contracts** (of any type) on **own account** or for the account of related corporation and with a related corporation or another type of eligible counterparty, provided the person does not receive any spread or remuneration in connection with such dealing; and
- dealing in **futures contracts** (of any type) for any person carrying on such dealing on **own account** or for the account of a related corporation.

In light of the above, **own account dealing in futures** contracts of any type is entirely exempt. Own account trading in **OTC commodity derivatives** is possible, if conducted with an accredited investor, institutional investor and expert investor or any other type of eligible counterparty. Therefore, EMPs have **effectively access** to the whole spectrum of financial instruments traded at exchanges or OTC without undergoing a licensing procedure. The trading of physical and spot products is also license free.

To conclude, the regulatory regime in Singapore is narrower in terms of in-scope transactions and offers a sole qualitative exemption without the need to manage a regulatory threshold exposure.

432 See in particular Section 337 (1) of the SFA.

433 See Schedule Two of Securities and Futures (Licensing and Conduct of Business) Regulations, (Cap 289 Rg 10 2004 Rev Ed), https://sso.agc.gov.sg/SL/SFA2001-RG10. Exemptions from Sections 82(1) and 99B(1) of Act (Exemption from requirements to hold capital markets services license to deal in capital markets products that are OTC derivatives contracts, Section 3 A), https://sso.agc.gov.sg/SL/SFA2001-RG10?ProvIds=Sc2-#Sc2-.

Regulatory landscape for energy traders: UK

The UK regulatory landscape for energy trading is characterised by national particularities which were partly overruled or superseded by MiFID and MiFID II, and which may re-assume a more guiding role after the departure of the UK from the EU.

One of these particularities is the notion of *energy market participant* [434],which defines an entity active, *inter alia*, in the traded power and gas derivatives market. Such entity is subject to a number of rules of the Financial Conduct Authority ("FCA")[435], but not to prudential capital requirements.[436] Another element is the *with or through* exemption, which we will not examine in further detail. In the international context, it is only relevant that UK market participants have this exemption at hand to access the traded market without capital requirements if and when trading **with or through** a licensed entity.[437]

This regulatory framework for energy traders in the UK, composed of legacy onboarded EU regulation and the national regime, is still undergoing changes post-Brexit.

While most of the EU's financial and energy market regulation has been retained up until now,[438] UK legislators have incentivised establishing domestic regulations specific to the commodity trading sector, tailoring to meet the characteristics and needs of the UK market in an international environment.

In particular, as part of the Wholesale Markets Review ("WMR"),[439] the UK legislator currently conducts a consultation process concerning position limits, the exemptions from those limits, position management controls, the reporting regime and the ancillary activities test.[440]

---

434 Under UK law, an energy market participant is an entity which conducts energy market activity which is defined as any regulated activity other than bidding in emissions auctions in relation to an energy investment or to energy, or in relation to a biomass investment or biomass that is ancillary to activities related to energy investments or energy, which: (i) is the executing of own account transactions on any recognised investment exchange or designated investment exchange; or (ii) if it is not the executing of transactions on such exchanges, is performed in connection with or for persons who are not retail clients.

435 See FCA (2024), "Energy Market Participants", https://www.handbook.fca.org.uk/handbook/EMPS.pdf to guide energy market participant through the FCA-handbook.

436 Energy market participants whose main business consists of the generation, production, storage, distribution and/or transmission of energy may be granted a waiver of Chapter 3 in the FCA's discretion: see SUP 21.

437 See for the exclusions applicable to particular regulated activities FCA Handbook, PERG 2.8, https://www.handbook.fca.org.uk/handbook/PERG/2/8.html

438 See for general information on the status of onshoring European legislation post Brexit on the homepage of the FCA, https://www.fca.org.uk/brexit.

439 HM Treasury (2022), "Wholesale Markets Review: Consultation Response", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057897/Wholesale_Markets_Review_Consultation_Response.pdf.

440 For general information on the consultation process, see https://www.fca.org.uk/publications/consultation-papers/cp23-27-reforming-commodity-derivatives-regulatory-framework. The consultation process ran until 16 February 2024.

The aim is to strengthen the commodity derivatives market and UK's position in global wholesale markets. We outline the proposals brought forwards by the FCA in the next sub-section in more detail. We particularly highlight that the envisaged changes will move towards a less prescriptive and simpler regime that will significantly reduce the regulatory burden on market participants compared to EU standards. Apart therefrom, UK-REMIT will continue to apply as before.

7.3 Policymakers need to consider regulatory trends outside the EU to prevent competitive disadvantages

In contrast to the EU's focus on the AAE and position management systems, regulators in other jurisdictions focus on transparency and margining practice. This includes improving market transparency through implementing or extending position limits and accountability levels (e.g., US and UK) or establishing dynamic volatility levels (e.g., US). International organisations (like IOSCO) also call for extended transparency requirements and further suggest the broadening of collateral for margining beyond cash instruments.

Below, we summarise important regulatory trends across the globe which, in our view, will indeed contribute to more resilient energy market. We therefore suggest that policymakers follow these developments closely and adapt improvements where appropriate.

Trends and developments: UK

Current approach: position limits set and controlled by the FCA

Under the current regulatory regime, the FCA set position limits for applying to contracts traded on trading venues and their EEOTC contracts. The limits are set using the methodology in UK Regulatory Technical Standard ("RTS") 21.[441] Each commodity derivative contract has a separate limit for the spot month and other month periods. Besides determining and establishing position limits, FCA's supervisory activity also comprises receiving daily position reports, implementing position limits, and overseeing the adherence to position limits, taking supervisory or enforcement measures when necessary, and evaluating and authorising requests for position limit exemptions.

Under review: position limits to be set and supervised by trading venues

Going forward, UK trading venues shall be responsible for setting position limits. The underlying reason brought forward by the FCA is that trading venues have a better understanding of the market, its liquidity and market participants' ability to close positions in

441 FCA (2024), "List of position limits", https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.fca.org.uk%2Fpublication%2Fdata%2Fposition-limits-contract-names-vpc.xlsx&wdOrigin=BROWSELINK.

an orderly manner.[442] Especially in times of market stress, position limits adaptable by the trading venues **provide flexibility** and the **ability to apply discretion**. In this view, the position limits methodology should allow **trading venues to calibrate position limits according to the features of the market, the underlying commodity, and the prevailing market conditions.**

A **criteria-based approach** will provide for this type of outcome and UK RTS 21 already sets out various factors that are relevant for calibrating position limits. It would also provide the framework for regulatory expectations of how limits are set and form part of the supervisory approach.

Prospective accountability limits on UK trading venues

With regard to the ongoing consultation process, the FCA proposes the application of accountability levels to critical contracts and their related contracts.[443] The proposed rules set out:

- the scope and method of application of accountability thresholds;
- the methodology for setting accountability thresholds and the supporting framework; and
- the notification requirements to the FCA.

This proposal is consistent with the approach to the scope of position limits as those contracts are the ones most susceptible to the risk of disorderly pricing and settlement conditions. Accountability thresholds would support and complement the operation of position limits by ensuring the monitoring and investigation of larger positions and reducing the risk that position limits are breached.

Similar to position limits, the proposed rules on accountability thresholds **require trading venues to establish different thresholds for spot and other months**. Where a position limit is set, an accountability threshold should apply. Trading venues shall also consider whether it is necessary to establish **different thresholds** within the spot month and/or other months depending on the features and risks of the relevant market.

We view these proposals as **beneficial** as, in a crisis situation, they allow for more flexible and faster action by the exchanges themselves as opposed to a run through of a legislative or regulatory process.

442 FCA (2023), Consultation Paper CP23/27, "Reforming the commodity derivatives regulatory framework", Chapter 4.18 *et. seq*., https://www.fca.org.uk/publication/consultation/cp23-27.pdf.

443 See previous fn., Chapter 6.38 et. Seq.

Trends and developments: US

In the US, regulators and trading venues concentrate on surveillance measures at organised markets, which apply broader in scope and a more sophisticated manner than in the EU.

Position limits for energy contracts

As an amendment to the position limits provision of the CEA, the CFTC has established position limits for **25 physically settled core referenced futures contracts** and those contracts that are either directly or indirectly related to them.[444] The CFTC recognises that position limits are "*necessary to 'reduce, eliminate, or prevent' excessive speculation causing sudden or unreasonable fluctuations or unwarranted changes in the prices of such commodities*."[445] CFTC limits apply to the following energy products[446]:

- NYMEX Henry Hub Natural Gas ("NG");
- NYMEX Light Sweet Crude Oil ("CL");
- NYMEX New York Harbor ULSD Heating Oil ("HO"); and
- NYMEX New York Harbor RBOB Gasoline ("RB")

The spot month position limit for NYMEX Henry Hub NG is set at 2,000 energy contracts.[447] This position limit applies on a per-exchange basis for each exchange that lists one or more cash-settled NYMEX Henry Hub NG referenced contract(s), rather than on an aggregated basis across such exchanges and the OTC swaps market. An additional 2,000 contract limit applies across all cash-settled economically equivalent NYMEX Henry Hub NG OTC swaps.

Exemptions from the position limits can be granted, inter alia, for *bona fide* hedging transactions as defined by CFTC Regulation under paragraph 150.1.[448] These include transactions or positions that represent a substitute for transactions made or to be made, or positions taken or to be taken, at a later time in a physical marketing channel and that are

444 Commodity Futures Trading Commission (2021), "Final Rule on Position Limits for Derivatives", Federal Register, Vol. 86, No. 9, pp. 3236-3493, https://www.govinfo.gov/content/pkg/FR-2021-01-14/pdf/2020-25332.pdf.

445 Reference is made to 7 U.S. Code § 6a regarding Excessive Speculation. Legal text available at https://www.law.cornell.edu/uscode/text/7/6a.

446 With the US power market less developed than the market for Natural Gas, a similar scheme for power derivatives does not exist.

447 Commodity Futures Trading Commission (2021), Final Rule on Position Limits for Derivatives, Federal Register, Vol. 86, No. 9, p. 3242, https://www.govinfo.gov/content/pkg/FR-2021-01-14/pdf/2020-25332.pdf; NYMEX Position Limits (2024), https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.cmegroup.com%2Frulebook%2Ffiles%2Fposition-limits-nymex.xlsx&wdOrigin=BROWSELINK. CFTC provided the following explanation for this: "*Currently, the cash-settled natural gas contracts are subject to an exchange-set spot month position limit level of 1,000 equivalent-sized contracts per exchange. As of publication of the Final Rule, there are three exchanges that list cash-settled natural gas contracts: NYMEX, IFUS, and Nodal. As a result, a market participant may hold up to 3,000 equivalent sized cash-settled natural gas contracts under existing exchange-set limits. The exchanges also have a conditional position limit framework for natural gas contracts. This exchange-set conditional spot month position limit permits up to 5,000 cash-settled NYMEX NG equivalent-sized referenced contracts per exchange that lists such contracts, provided that the market participant does not hold positions in the physically-settled NYMEX NG referenced contract.*"

448 NYMEX Rulebook, Chapter 5, Rule 559A, https://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/1/5.pdf

economically appropriate to the reduction of price risks in the conduct and management of a commercial enterprise.

For the exemption to apply, these transactions or positions must arise from the potential change in the value of assets which a person:

- owns, produces, manufactures, processes or merchandises;
- or anticipates owning, producing, manufacturing, processing, or merchandising;
- or from liabilities or services that a person anticipates incurring or providing.[449]

Special price fluctuation limits to mitigate volatility for Henry Hub NG Futures on NYMEX

Special price fluctuation limits serve as a mechanism to prevent extreme price movements during a trading session. They are designed as an instrument to mitigate volatility and to ensure stability and integrity on the market. Price limits function by temporarily halting trading when a triggering event occurs[450]. The general process of implementing special price fluctuation limits involves several steps:

- Before the beginning of each trading day, the fluctuation limit is calculated based on the previous day's closing price, determining an upper and a lower limit of how far prices can move during trading day/session.

- During the trading session, if the price of a futures contract reaches the fluctuation limit (triggering event), trading is halted in the contract for a period of time (for example two minutes) in order to allow the market to cool off and resume trading within a reasonable range around the previous day's closing price.

- After the temporary trading halt, trading will resume. If the futures contract continues to trigger the limit set during the trading session, a wider fluctuation limit might be applied for a specified period. This provides more flexibility in trading and helps prevent rapid price fluctuations that could disrupt the market.

Under the NYMEX Rulebook, Henry Hub NG Futures are subject to so-called dynamic price fluctuation limits (or dynamic circuit breakers).[451]

---

449 Code of Federal Regulations, Title 17, Chapter 150, https://www.ecfr.gov/current/title-17/chapter-I/part-150.

450 Circuit breakers are a series of price limits above or below a reference price which, when reached, pause the market for a particular period of time to allow it to reset. Static circuit breakers set a fixed upper and lower limit for a trading session. Dynamic circuit breakers adjust the upper and lower limits according to the activity in the market, and therefore move throughout the day.

451 NYMEX Rulebook, Chapter 220, Henry Hub Natural Gas Futures, Rule 220102.D, https://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/2/220.pdf; See also https://www.cmegroup.com/trading/price-limits.html#energy. For general information on the application of Special Price Fluctuation Limits see NYMEX Rulebook, Chapter 5, Rule 589, https://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/1/5.pdf. A list of products that Special Price

- Such dynamic price fluctuation limits basically follow the manner described above and define an upper and a lower limit of how far a price is allowed to move for a given product in a given time interval.

- Compared to a static price fluctuation limit, the price corridor of dynamic price fluctuation limits however moves with the market.

During the open of the market, the underlying price range is therefore calculated according to the highest bid and lowest ask of the previous 60 minutes by using a so-called **dynamic circuit breaker variant.** When prices break through the set limits, the dynamic circuit breaker triggers and transitions the market automatically into the pre-open market state for two minutes. After that, the trading resumes and the dynamic circuit breakers are calculated accordingly.

Accountability limits applied on NYMEX

Accountability levels are designed to ensure that traders do not accumulate excessive positions in a particular commodity. According to the NYMEX Rulebook[452], reaching the accountability limit obligates the person holding the position to provide information on the nature and size of the position, the trading strategy employed and the hedging information. Furthermore, the person is required to not further increase the positions, to comply with any prospective limit or to reduce any open position. Currently, neither spot month nor daily accountability levels are set for Henry Hub NG Futures on NYMEX.[453]

As an interim conclusion, we note that there is **no discussion** to revise the *de minimis* threshold under the Dodd-Frank Act or to change the concept of MSP, SD and Commercial End-User classification.

Trends and developments: Financial Stability Board ("FSB")

The FSB published a consultation report[454] on liquidity preparedness for collateral and margin calls containing eight concrete policy recommendations to improve the liquidity preparedness of market participants.

These recommendations entail, inter alia, the incorporation of liquidity risk frameworks, contingency funding plans, liquidity stress testing, resilient and effective processes and collateral management practices.

Fluctuations apply to can be downloaded here https://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/1/5.pdf.

452 NYMEX Rulebook, Chapter 5, Rule 560, https://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/1/5.pdf.

453 NYMEX (2024), "Position Limits", https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.cmegroup.com%2Frulebook%2Ffiles%2Fposition-limits-nymex.xlsx&wdOrigin=BROWSELINK.

454 FSB (2024), Consultation report, "Liquidity Preparedness for Margin and Collateral Calls", https://www.fsb.org/wp-content/uploads/P170424.pdf

Trends and developments: IOSCO

According to IOSCO's recent review and policy proposals,[455] there is **no suggestion** to introduce licensing requirements, investment firm status or prudential capital requirements to energy market participants.

Position on transparency and ease of margining

IOSCO suggests that CMs shall comply with certain transparency requirements in relation to their clients, e.g., to make sure that their clients understand the margin requirements, especially if the method by which the client's margin is determined differs from the margin set by the CCP. The aim is to help clients understand the impact on their portfolio and any additional margin requirements initiated by the CM over and above those set by the CCP.

Transparency requirements also include disclosure of any planned adjustments to the methodology used to calibrate margin requirements, particularly where these differ from those set by the CCPs.

Position on IM requirements

According to a survey conducted on margin dynamics in centrally cleared commodity markets in 2022, IOSCO observed that in times of market turmoil, CCPs have responded by expanding the types of collateral they accept. In particular, NFCs in the commodities space have needed adaptable requirements for eligible collateral types, as they often face challenges in obtaining cash and other liquid collateral.

The survey sets out that some CCPs have accepted European Union Emission Allowances ("**EUA**") to settle short EUA futures, while other CCPs have opted for collateralised bank guarantees, gold warrants, short term US Treasury Exchange Traded Funds or securities denominated in a wider range of currencies.[456]

EMIR 3.0 further considers changes in CCPs' non-cash collateral practices as observed during the energy market crisis (see section 3.3.7). Accordingly, CCPs may accept public guarantees, bank guarantees or commercial bank guarantees as collateral.[457]

---

455 IOSCO, Board of the International Organization of Securities Commissions (2024), Consultative report, "Transparency and responsiveness of initial margins in centrally cleared markets – review and policy proposals", p. 31 et seq., https://www.iosco.org/library/pubdocs/pdf/IOSCOPD757.pdf.

456 IOSCO, Board of the International Organization of Securities Commission (2023), "Margin dynamics in centrally cleared commodities markets in 2022", dated May 2023, p. 12 et seq., https://www.bis.org/bcbs/publ/d550.pdf.

457 EMIR 3.0., Art. 46.

Trends and developments: EU

As already explained, the EU has endorsed a mandate to review the AAE by mid-2024, and the position management and position limit system until 2025.[458] As set out before in section 3.1, the review is closely linked to the developments during the energy crisis, which led to unprecedentedly high market prices for gas and power in the EU.

In the context of our study, we have further assessed the appropriateness on the current regulatory regime for energy commodity derivatives (section 3.2).

As part of this chapter, we can also conclude that the EU regime is the **most restrictive regime** compared to those in the US, UK and Singapore. From the outset, it applies the widest understanding of in-scope products (inclusion of physically settled derivatives) and in-scope activities (full consideration of own account trading). The current scope of the AAE is therefore a **necessary adjustment** of the legal system to keep a level playing field in international comparison.

As a result, we recommend **not** to abandon or alter the AAE for the following main reasons. The consequence of applying investment firm regulation would:

- reduce market liquidity and restricts proper market functioning;
- limit hedging opportunities for proper risk management by EMPs; and
- ultimately contradict EU policy goals and put the delivery of the Green Deal at risk.
- Abandoning or narrowing the AAE would further result in a competitive disadvantage for EU markets and EU EMPs and is misaligned with the regulatory principles for financial and energy market regulation in the EU.

458 Draft Revised MiFID II, Art. 90 para. 5 (a).

Annex A – Key stakeholders in Europe acknowledge the benefits of energy trading

The benefits of energy trading for European consumers of energy are acknowledged by key regulatory stakeholders in Europe. In Figure 33 we summarise statements recently made by relevant European institutions, such as the EC, ECB, ESMA and ACER.

Figure 33 Key EU stakeholders acknowledge the benefits of energy trading

Source: Frontier Economics based on references provided in the figure

The statements by regulatory stakeholders broadly fall in two categories.

- Energy trading is a **key pillar for efficient and well-functioning energy markets today and in the future enabling benefits of billions of Euros each year**; and
- Energy trading **mitigated the adverse impact of the energy crisis** on the market which was caused by physical shortage of supply (see section 3.1.1 for a detailed explanation on the root cause).

A.1 Energy trading is a key pillar for efficient and well-functioning energy markets enabling benefits of billions of Euros each year

Energy trading is a key pillar for efficient and well-functioning energy markets today and in the future

With regard to the first point, ESMA, for instance considers that *"**open and well-functioning commodity derivatives markets play an essential role for price discovery**"* (emphasis added).[459] As we have set out in section 2.1 on the benefits of energy trading, price discovery materially contributes to efficient market outcomes, thus improving overall market transparency. Accurate and reliable price signals provide valuable insights into recent market developments and expected trends (e.g., the transition from conventional power plants with steady outputs towards renewable energy production with intermittent generation patterns or structurally reduced gas supply volumes in Europe after the announcement to end of gas production in The Netherlands). This reduces uncertainty for EMPs on both the buy and sell side.

Similarly, ACER considers that the long-term trading of energy derivatives such as forwards *"allows market participants to **stabilise and hedge their future cash flows** and thereby secure their businesses against the risks of future price changes"* (emphasis added).[460] This holds, as set out in the previous section, for both sides of the market. Long-term trading of energy derivatives allows the sell-side to secure adequate financing for investments in new (renewable) generation assets. The buy side in turn benefits from security of supply at predictable prices.

ACER considers further room for improvement in the European derivatives market for electricity. The agency notes that the forward market is yet struggling with *"insufficient liquidity, accessibility, competition and transparency as well as concentrated market power*".[461] **ACER explicitly calls for better market integration**, highlighting the importance of market liquidity and derivatives trading for efficient energy market outcomes: *"Forward markets in smaller bidding zones suffer from poor liquidity, high bid-ask spread and the problem increases with longer maturities. This problem cannot be solved with just better hedging incentives or better market structure."*[462]

The **EC** gathered **similar views** in the recent market consultation on electricity market design: *"While the large majority of professional respondents (83%) consider forward hedging as an*

459 ESMA (2022), "Ref: Response regarding the current level of margins and of excessive volatility in energy derivatives markets", page 2, https://www.esma.europa.eu/sites/default/files/library/esma24-436-1414_-_response_to_ec_commodity_markets.pdf

460 ACER (2023), "ACER Policy paper on the Further development of the EU electricity forward market", page 2, https://acer.europa.eu/Position%20Papers/Electricity_Forward_Market_PolicyPaper.pdf

461 See previous fn., page 2.

462 See previous fn., page 6.

efficient way to mitigate exposure to short-term volatility for consumers, only a minority (18%) consider that the liquidity in forward markets is currently sufficient to meet this objective".[463]

The benefits are difficult to estimate, but the order of magnitude in the EU is expected to be in billions of euros annually

As discussed, in section 2.1, there is a wide range of benefits from energy trading to the EU economy and consumers. Due to the complexity and secondary effects (e.g., more affordable energy makes European industries more competitive, thus creating more jobs and employment, etc.), it is very difficult to put an exact value tag to the benefits.

Analogous considerations from a recent ACER analysis on **cross-border trading** in Europe (which is only feasible due to the existence of liquid and competitive power markets) illustrate that already direct effects from power trading on spot markets only can reach **two-digit billion amounts**. Indirect benefits of cross-border trading including those of lower power prices for the economy (e.g., at the benefit of aluminium or steel producers that can produce higher outputs under lower power prices), nor the benefits of trading other energy commodities such as gas are yet not taken into account.

Spot market power trading benefits

"OVERALL, IN 2021, CROSS-BORDER TRADE DELIVERED AN ESTIMATED 34 BILLION EUROS OF BENEFITS WHILE HELPING TO SMOOTHEN PRICE VOLATILITY"

ACER (2022), Final Assessment of the EU Wholesale Electricity Market Design, p. 21

ACER quantified the benefits of cross-border power trading on the spot (day-ahead) markets alone with EUR 34bn for the year 2021.[464] In addition to these financial savings at the benefit of European (end) consumers ACER's analysis further highlights that market integration and higher market liquidity materially reduced price volatility: *"Price volatility would have been considerably higher (around seven times as high) if national markets were isolated."*[465]

ACER as well as the EC further highlight the particular importance of energy trading in the context of the energy transition for the European economy as a whole. For instance, ACER notes that the in light of the increased renewables energy production and the need for security of supply *"the integration of forward markets is key"*[466] *and* that ***"long-term markets and***

463 European Commission (2023), "Commission Staff Working Document: Reform of Electricity Market Design", page 34, https://energy.ec.europa.eu/system/files/2023-03/SWD_2023_58_1_EN_autre_document_travail_service_part1_v6.pdf

464 The ACER analysis compared actual 2021 market results ('historical' scenario) with a scenario where all cross-border capacities were set to zero (the 'zero scenario', implying no electricity trade across Member State borders).

465 ACER (2022), "Final Assessment of the EU Wholesale Electricity Market Design, page 22, https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf

466 ACER (2023), "ACER Policy paper on the Further development of the EU electricity forward market", page 5, https://acer.europa.eu/Position%20Papers/Electricity_Forward_Market_PolicyPaper.pdf

improved hedging instruments need more attention *to drive the massive investments needed up ahead"* (emphasis added).[467]

Similarly, the EC further indicates that in the context of its *"Green Deal Industrial Plan"* power derivatives traded amongst EMPs such as PPAs or other *"(…) long-term price contracts could play an important role to enable all electricity users to benefit from more predictable and lower costs of renewable electricity."*[468]

A.2 Energy trading mitigated the adverse impact of the energy crisis on the market which was caused by physical shortage of supply

On the second point stakeholders widely agree that **physical shortage of supply triggered price and volatility movements** for energy commodities in the recent crisis. For example, ESMA notes that *"financial market developments appear to us to have been driven largely by the geopolitical situation and the associated spot market movements".*[469] Similarly the EC states that *"Russia's weaponisation of its gas exports had a clear impact on pushing up gas prices (…) which then passed on to the whole EU energy sector".*[470]

According to the ECB, the extreme price and volatility movements for energy commodities on financial markets that followed from the physical shortage further "*highlight the* ***importance of energy derivatives markets for hedging risks*** *in the energy sector"* (emphasis added).[471] The ECB further draws the conclusion that it *"one of the main policy challenges ahead is to ensure that energy traders can continue to properly hedge their risks and guarantee continuity in the essential services they provide to households and corporates"*[472]

Similarly, the EC highlights the importance of financial energy trading in mitigating the adverse effects of the energy crisis: "***Derivative markets are essential for energy companies*** *to continue their activities. However, price spikes and extreme volatility (…) have led to liquidity issues for energy companies. It is of utmost importance to give our energy companies*

---

467 ACER (2022), "Final Assessment of the EU Wholesale Electricity Market Design, page 4, https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf

468 European Commission (2023), A Green Deal Industrial Plan for the Net-Zero Age, page 6, https://commission.europa.eu/system/files/2023-02/COM_2023_62_2_EN_ACT_A%20Green%20Deal%20Industrial%20Plan%20for%20the%20Net-Zero%20Age.pdf

469 ESMA (2022), "Ref: Response regarding the current level of margins and of excessive volatility in energy derivatives markets", page 1, https://www.esma.europa.eu/sites/default/files/library/esma24-436-1414_-_response_to_ec_commodity_markets.pdf

470 EC (2022), "New reports highlight 2nd quarter impact of gas supply cuts", https://commission.europa.eu/news/new-reports-highlight-2nd-quarter-impact-gas-supply-cuts-2022-10-17_en

471 ECB (2022), "Financial stability risks from energy derivatives markets", https://www.ecb.europa.eu/pub/financial-stability/fsr/special/html/ecb.fsrart202211_01~173476301a.en.html#toc8

472 See previous fn.

additional margin of maneuver so that they can secure supplies and purchases of energy commodities in the medium term" (emphasis added).[473]

ACER's recent assessment of the EU wholesale electricity market design further strengthens the EC's conclusions on the importance of energy derivatives markets. In fact, according to ACER the current electricity market design (which relies on electricity trading), *"is not to blame for the current crisis"*.[474] ACER considers that the market rules in place have even helped to some extent mitigating the crisis, thus avoiding curtailments or even blackouts of power in certain quarters. In ACER's view, any regulatory changes to the current electricity market design should therefore be carefully selected and *"**if pursued (…) tackle the root cause of the problem (currently gas prices) rather than the electricity market framework itself**"* (emphasis added).[475]

473 European Commission (2022), "Energy Emergency – preparing, purchasing and protecting the EU together", page 6, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022DC0553

474 ACER (2023), "ACER's Final Assessment of the EU Wholesale Electricity Market Design", https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf, page 2.

475 See previous fn., page 5.

Annex B – Price formation on gas and power wholesale markets

B.1 Introduction

This note **focusses on the empirical properties** in relation to the following questions:

- What are key characteristics of spot, forward and future markets for gas and power?
- What is the relationship between spot and forward/future markets?
- What is the relationship between forward and future markets?
- How are gas and power markets interlinked?
- How are European energy markets interlinked geographically?
- Particularities during the crisis – what happened in August 2022?

In this context, RWE and the London Energy Brokers' Association ("LEBA") have provided Frontier with market data for power and gas in the **trading period January 2021 until December 2023.** For our empirical analysis, we focus on the most liquid markets for gas ("TTF") and power ("German power").

Particularities of commodities gas and power

Before we present the empirical results, we briefly summarise some particular characteristics of the commodities gas and power which influence energy trading (in particular: products and price formation).

- **Limited storability** – gas and particularly power can only be stored in limited volumes.[476] This implies that carry-forward cost considerations (buying spot and storing the commodity for a future period as opposed to buying in the future/forward market for future delivery) break down and wholesale prices reflect the short-term scarcity, resulting in fluctuating short-term prices (in power even on an sub-hourly basis).

- **Transport infrastructure** – gas and power, as grid-bound commodities, are traded for delivery to a particular location, typically a national or sub-national market area. These geographic markets are interlinked through dedicated transport infrastructure (gas pipelines, LNG terminals and high-voltage transmission lines). Since cross-border capacities are limited[477] and the construction of new transport infrastructure is costly and

[476] In a Frontier study in eight European countries, total power storage capacity only sufficed to cover demand for less than 4 hours while in gas, combined storages could coverage demand for more than 3 months, see https://www.frontier-economics.com/media/lgqlhwwr/value-of-gas-infrastructure-report.pdf, p. 23.

[477] This is why the EU has set an interconnection target of at least 15% by 2030 to encourage EU countries to interconnect their installed electricity production capacity, see https://energy.ec.europa.eu/topics/infrastructure/electricity-interconnection-targets_en.

requires long lead times, prices between regional markets can materially differ (reflecting local difference in supply costs and scarcity) in periods where cross-border capacities are not available or already fully utilised.

- **Inelastic demand** – at least in the short-term, energy demand is inelastic, i.e., demand does not react significantly to price changes.[478] Energy used as a key input (for example gas for heating or power in industrial processes) cannot easily be substituted, at least not short-term. In addition, the supply side is capacity-constrained and new production facilities take time to build. Therefore, minor changes in supply or demand can lead to relatively large fluctuations in commodity prices and price peaks in times of high demand.

B.2 Key characteristics of spot, forward and future markets for gas and power

Summary

Commodities gas and power are traded on **different venues** (exchange and OTC) and as **different products** (spot, derivatives with different tenors).

Price setting in power markets works according to the "**merit order**" principle where generation units (or more specifically supply offers) are ranked in ascending order of their short-run marginal cost and the most expensive plant that is required to cover demand sets the market clearing price. This results in a **multitude of supply and demand side drivers** on power prices.

The main **differences of gas** compared to power are:

- gas supply is more concentrated;
- gas is better storable, and storages play a larger role for price setting; and
- gas demand has a pronounced summer-winter seasonality for heating purposes.

In this section we briefly summarise:

- trading venues, products, and trading schedules; and
- price setting (merit order principle) and price drivers.

Trading venues, products, and trading schedules

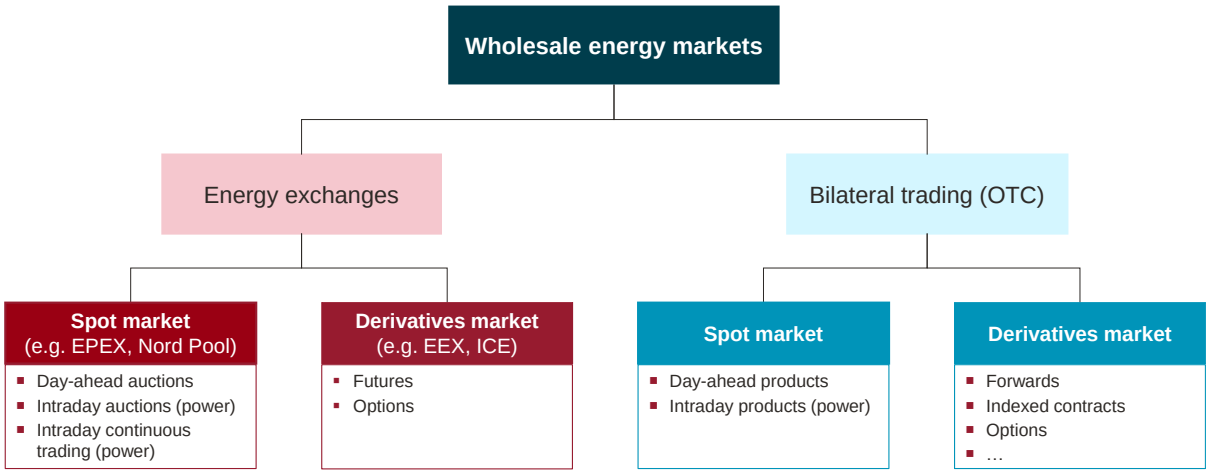
Energy commodities, traded on the relevant venues of regulated exchange and OTC markets, broadly fall in two categories (Figure 34).

[478] During the energy crisis, Europe has seen unprecedent levels of demand reduction as a reaction to energy price spikes, see https://www.iea.org/commentaries/europe-s-energy-crisis-understanding-the-drivers-of-the-fall-in-electricity-demand, https://www.iea.org/commentaries/europe-s-energy-crisis-what-factors-drove-the-record-fall-in-natural-gas-demand-in-2022.

- **Spot products** – physical contracts for immediate settlement between the buyer and seller (payment and delivery). In energy markets, spot products can be traded very close to physical delivery, e.g., day-ahead (for delivery on the next day) and intraday (for same-day delivery). They are always linked to a physical flow of the underlying commodity, e.g., gas or hydrogen molecules and electric currents.[479]

- **Derivatives** – forward contracts (both physically or financially settled), where the time period between execution and settlement exceeds the spot delivery period and whose value is dependent on an underlying fixed or reference price of the commodity. The most relevant products are forwards, futures, swaps, and options.

Figure 34 Wholesale energy venues and products



Source: Frontier Economics

- **Forward/future markets** – market participants can hedge their exposure to the short-term (spot) price by trading forward. Large purchasers (retail companies, large industrial customers) may acquire forward/futures to hedge against the risk of increasing power and gas prices in the future. Generators and import companies, conversely, sell forward/futures to hedge against falling energy prices. Forward/future markets also serve a key role to signal expected future scarcities and thereby influence investment and divestment decisions.

  Futures and forwards are both contracts on the future transaction of an underlying asset at a price agreed today. The difference is that futures are standardised contract traded on central energy exchanges while forwards are customised[480] contracts traded "over-the-counter" (OTC).

479 Other energy spot markets, including those for coal and emission certificates, allow for longer periods between settlement and physical delivery.

480 This included the standardised contracts traded on exchanges.

Forward/future products are traded between several days and months and – for annual products – up to several years before the actual delivery. Settlement can take place either physically or financially.[481]

- **Day-ahead market** – on day-ahead markets, buyers and sellers sign contracts for the following day's delivery. Day-ahead markets are typically the most liquid type of spot market[482] and key to determining the optimised dispatch of the power plant park. Day-ahead markets are also the main marketing channel for intermittent renewables (wind and solar PV). Since their output cannot reliably be forecasted long-term, any future/forward hedge positions of those renewables need to be adjusted in the spot market, depending on the actual renewable output on that day. The day-ahead market also serves as a benchmark for renewable support schemes[483] and acts as the reference price for the financial settlement of certain swaps/indexed contracts.

  Day-ahead auction bids are typically submitted around noon the day before delivery and auction results are published shortly after.

- **Intraday market** – intraday trading allows for the fine-tuning of contracted positions after the day-ahead market closes and before intra-day gate closure (for final nominations to system operators of injection and withdrawal by market parties). Intraday trading relies on the short-time optimisation of flexible assets. In power, the importance of intraday markets has grown in recent years,[484] due to the renewable expansion (which require intraday markets to manage short-term weather variations) and the coupling of the intraday markets across different geographies. In gas, the intraday market is predominantly a balancing market, which is less important than in power since storages enable gas market participant to absorb unexpected short-term events.

Price setting (merit order principle) and price drivers

In the merit order, generation units (or more specifically supply offers) are ranked in ascending order of their short-run marginal cost ("SRMC")[485] to produce an incremental megawatt-hour

481 Financial settlement requires bids to be placed on the spot market to ensure physical delivery and off-take.

482 See ACER (2023). Progress of EU electricity wholesale market integration– 2023 Market Monitoring Report, Figure 13 (day-ahead) and Figure 16 (intraday), https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf. Day-ahead volumes are typically 5 to 10 times as high as intraday volumes.

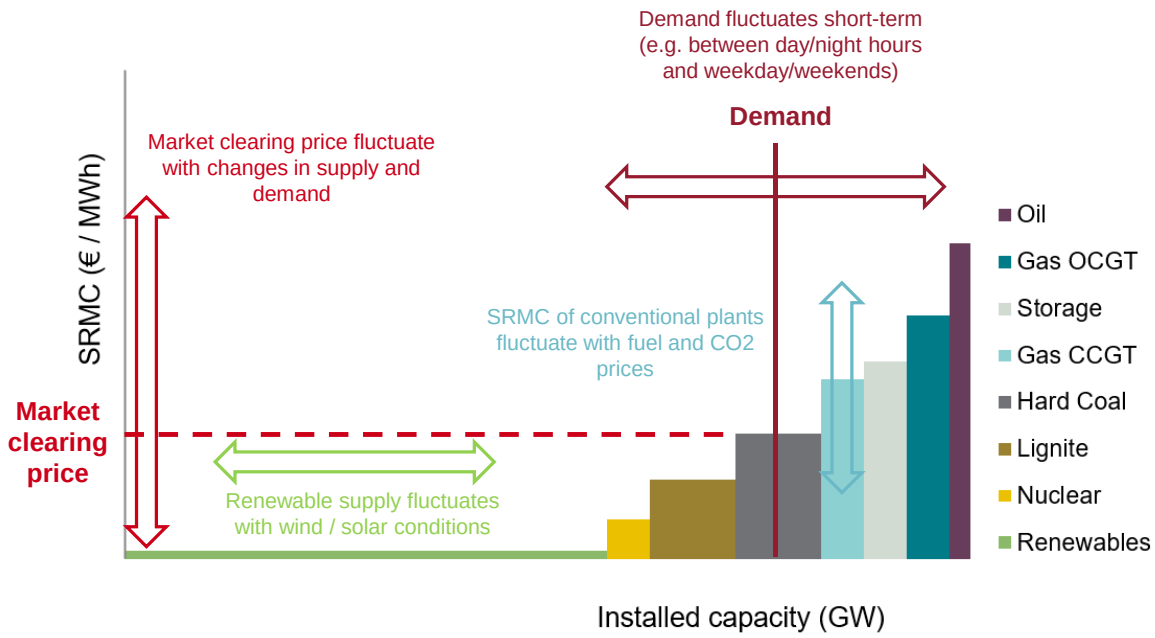
483 For example, to determine payments under contract-for-differences where payments are determined as the difference between the day-ahead price and the strike price of the subsidised plant. In market premium models, such as applied in Germany, the day-ahead price is the basis for calculating the monthly premium on top of market revenues for subsidised renewable plants.

484 See ACER (2023), Progress of EU electricity wholesale market integration – 2023 Market Monitoring Report, p. 23, https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf

485 For thermal power plants, the SRMC largely depends on fuel prices, the cost of CO2-allowances and the efficiency of the power plant. There is a range of further complexities that affect the price formation in the electricity generation and wholesale supply market. These include, for instance, dynamic considerations (e.g., dispatching constraints, such as ramping constraints and minimum down times, and start-up costs of power plants) or the influence of imports and exports.

(MWh) of power (Figure 35).[486] The market clearing price (uniform price) results from the point of intersection between the supply curve and the demand curve. Generation units with SRMC above the market clearing price remain idle while units with SRMC below the market clearing price are dispatched.

Figure 35 Merit order principle



Source: *Frontier Economics*

Note: *Illustrative example for a market where the technologies above are available. There might be power markets where, for example, nuclear is not part of the power mix. The order between conventional plants can change depending on fuel and CO_2 price developments, e.g., coal-fired power plants might have lower SRMC at times of low CO_2 and high gas prices and vice versa.*

The typical ranking from low to high SRMC would be as follows.[487]

- **Renewables (wind onshore / offshore, solar PV and run-of-river hydro plants):** once installed, these plants do not have any significant variable cost and SRMC are at or close to zero.
- **Nuclear power plants:** without significant fuel tax, nuclear power plants have comparably low SRMC, determined by fuel costs and the efficiency of the power plant.

486 In a competitive power market, in order to prevent the risk of being excluded from the market and not being able to generate at positive contribution margins, generators will offer electricity at the short run marginal costs (SRMC) of their power plants.

487 Some conventional power plants are dispatched based on factors independent from the electricity price. For example, generation units which provide heat to industrial customers or district heating networks, will run depending on the heat demand. A further example includes plants that provide balancing reserve capacity to transmission system operators (TSOs) which are required to run at least in part load and technical ramping constraints. These external factors will cause the SRMC of electricity generation of such units to be low or even negative (e.g., depending on the value of heat produced compared to fuel costs). This "must run" capacity is omitted from Figure 35 for simplification.

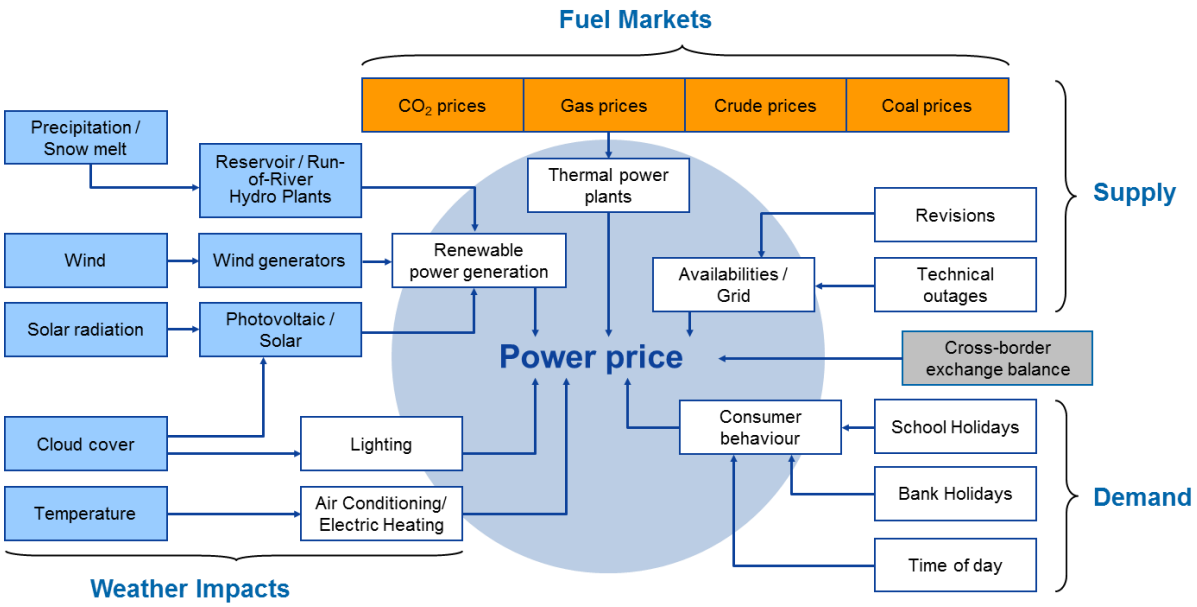
- **Fossil thermal power plants:** fossil thermal generation units which are fired by either lignite, hard coal or gas, have SRMC which are determined by the cost of fuel, the cost of CO_2-allowances and the respective efficiency of the power plant. The actual order depends mainly on fuel price relations (gas vs. coal) and prices for CO_2-allowances.[488]

- **Open Cycle Gas turbines (OCGT) and oil-fired power plants:** these power plants have rather low efficiency and therefore typically have high SRMC. They cover demand peaks and typically only run a few hundred hours or less per year.

- **Power storages:** pumped hydro storages and batteries require electric energy before they can generate power at a later point in time. Their SRMC are therefore largely driven by the power price itself (cost for power as input and opportunity cost of storing energy and producing at a later time) and the efficiency of power conversion.

Figure 36 provides an overview over the multitude of drivers which influence the demand and/or supply side in the merit order and therefore have an impact on the short-term power price.

Figure 36 Major fundamental drivers of short-term power prices



Source: RWE Supply & Trading
Note: All fundamental factors are determined in the settlement and reflect the supply-demand balance.

Power prices are driven by a multitude of factors.

[488] Historically, lignite plants had the lowest fuel cost, but they are also the most CO2-intensive technology.

- **Power demand** fluctuates in real time,[489] driven by:
  - systematic demand patterns, e.g., peaks during noon and evening hours and lower demand on weekends due to reduced industrial activities. There is also a seasonal pattern, with power demand being high during winter (summer) periods, in particular in countries where power is used for heating (cooling); and
  - random patterns, i.e., demand driven by temperature (for heating/cooling) and light conditions.
- **Power supply** also fluctuates on an hourly basis, driven by:
  - fuel markets (fossil fuels and CO_2-allowances) – these factors directly impact SRMC of thermal plants which often set the price;
  - weather/climatic conditions – besides the influence on the demand side (see above), these factors directly affect the availability of renewables, both in the short-term (cloud cover on solar PV and wind speeds on wind turbines) and longer-term (low availability of hydro plants during drought periods).[490]
  - outages and revisions – revisions rather take place periods or expected low prices, shortages mainly arise if the timing of revisions or outages are correlated, like the shut-down of parts of the nuclear fleet (like in Germany after the Fukushima incident or in France 2022 after corrosion problems were detected); and
  - transmission constraints – the availability and capacity of transmission infrastructure can impact prices by affecting the flow of power between regions. Transmission constraints can lead to congestion, where power prices differ across different market areas.

A similar merit order logic can be applied to gas. The main difference to power is that:

- **supply is more concentrated** – the EU imports 80% of its total gas needs and domestic production has halved in the last 10 years.[491] EU gas imports come from a small number of countries supplying pipeline gas,[492] and LNG. Before the Russian invasion of Ukraine in 2022, the majority of gas imports came from Russia. These have been widely replaced by LNG imports, meaning that the EU's dependencies have shifted from Russia to LNG exporting countries such as the U.S., Qatar, and a few others.[493] This implies that the gas market is strongly impacted both by the unavailability of import infrastructure (as illustrated

489 The shortest products depend on the market time unit (MTU) typically ranges between 15 and 60 minutes.

490 Hydro conditions also impact the availability via cooling water requirements, i.e., the availability of thermal plants tend to be lower during droughts and warm seasons.

491 ACER, Gas factsheet, https://www.acer.europa.eu/gas-factsheet

492 Russia, Norway, Algeria, Libya, UK, and Azerbaijan.

493 See DG Energy, Quarterly report on European gas markets Q2 2023, Figure 12 and Figure 18.

by the energy crisis, see **section B.7**) and by the willingness of suppliers from other jurisdictions to export to the EU.

- **larger role of storages** – gas is better storable in large volumes than power. This has two implications on the pricing of gas compared to power:
  - Gas spot (day-ahead) prices tend to be less volatile than power spot prices since short-term changes in the supply-demand balance can be balanced by storages;
  - Expected future supply shocks have a greater impact on current spot prices via the intertemporal optimisation of storages.[494]
- **seasonality** – residential demand, where gas is mainly used for heating, accounts for approx. 40% of total gas demand in Europe.[495] This implies that gas demand has a pronounced seasonal shape, with low demand in summer and high demand in winter. Pipeline gas supply tends to be relatively flat over the year (to maximise utilisation of the infrastructure) such that this seasonality is typically reflected in gas prices (dampened by storages).

The price drivers above are described from the perspective of short-term gas and power markets. The **fundamental relationships** – at the relevant time scales[496] – also **carry over to long-term forward/future prices** which are basically a function of expected future spot prices over the delivery period. In contrast, long-term derivatives prices, which reflect expectation about the long-term demand-supply balance, do not influence spot prices (due to the limited storability of gas and power).

494 For example, in the expected event of lower future gas supplies, storages would either not discharge today (if storage levels are full) or inject (if storage levels are low) and thereby increase demand/prices today.

495 ACER, Gas factsheet, https://www.acer.europa.eu/gas-factsheet

496 I.e., expectation about the long-term availability of supply sources, input costs and demand are relevant while short-term load patterns would not affect the year-head future/forward price.

B.3 Relationship between spot and forward/futures markets

Summary

In this section we show for the trading period 2021-2023 that:

- **spot and future prices followed similar price trends** in gas and power, driven by common price drivers (loss of Russian gas suppliers, long-term unavailability of power generation capacity);
- **spot prices are with few exceptions significantly more volatile** due to their reaction to short-term changes in the supply-demand balance which do not affect the expectation of future prices (to a similar extent);
- The main notable differences between gas and power are:
  - the price level on a per MWh basis power costs around 2-3 times as much as gas, partly reflecting the efficiency losses when converting gas to power; and
  - gas day-ahead and month-ahead prices move closely together due to the better storability of gas while prices day- and month-ahead products can be materially different in power.

In this section we compare the properties for spot and futures prices for power and gas. Our findings are also applicable to forwards as prices are almost identical to futures for the same underlying (see section B.4).

For the empirical comparison in this section, we focus on the following products:

- **spot**: deliveries for the next day ("day ahead")[497]; and
- **futures**: deliveries for the next calendar month ("month ahead") and the next calendar year ("year ahead").[498] For example, in the trading period of March 2022 we would consider the delivery periods of April 2022 and the calendar year 2023.

In this section we analyse power and gas separately since we focus on the relationship between spot and future markets. See section B.5 for a cross-commodity comparison.

[497] We focus on day-ahead prices which are more liquid than intraday prices. Note that day-ahead prices are typically reported for a delivery day and futures for the respective trading day. We have shifted day-ahead prices by a day to report all price series for trading days.

[498] These products are often referred to as "front month" and "front calendar year" (or "Cal Y+1"). According to the definition in MiFID II/EMIR, products with delivery two days ahead and later constitute derivatives. Hence, day, week and weekend futures also qualify as derivatives. We focus on products with longer tenor to illustrate the different properties of shorter-term and longer-term prices.

In this section, we compare price levels and price volatilities.

- We compare spot and future **price levels** in absolute terms (€/MWh) to identify co-movements and/or divergences;
- We compare **price volatility**, measured as the standard deviation of prices over a defined period of time. We primarily rely on standard deviation over the preceding 14 trading days, as is commonly used in the risk assessment of trading positions.[499] We also report the standard deviation of daily price over each of the three calendar years.

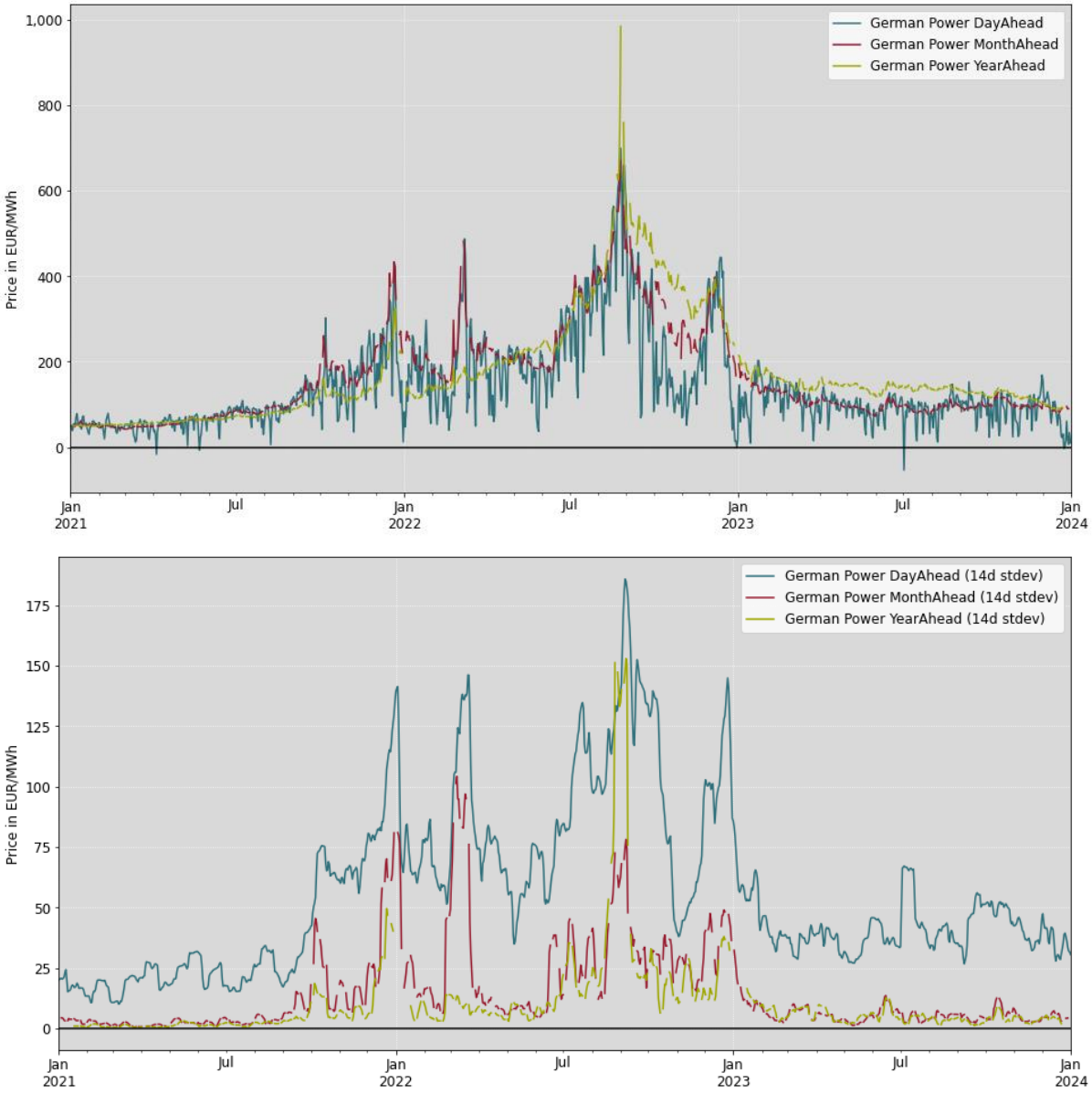
Power prices (German power)

Figure 37 shows the price levels and 14-day standard deviation for German power (baseload[500]) for the three delivery periods DayAhead, MonthAhead and YearAhead for a given trading period (depicted on the horizontal axis). The corresponding descriptive statistics (mean and 14d-standard deviation) are presented in Table 5.

499 Halkos et al. (2019), "Using Value-at-Risk for effective energy portfolio risk management", https://mpra.ub.uni-muenchen.de/91674/1/MPRA_paper_91674.pdf. The period might deviate and can be longer, e.g., 21 days or 30 days.

500 Baseload is the constant delivery of 1 MWh over the delivery period (day, month, or year).

Figure 37 Spot vs. future prices – price levels and volatility in power as traded 2021-2023



Source: *Frontier Economics based on price data provided by RWE, Energate and LEBA*

Note: *Time axis are trading days. Note that Power futures are only traded on weekdays, which explains the discontinuities in the future price series.*
The 14-day standard deviation ("14d StDev") is calculated over daily prices of the last 14 days for each trading day.

Table 5 Spot vs. future prices (power, 2021-2023) – descriptive statistics

German Power	DayAhead			MonthAhead			YearAhead		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
Mean	96.9	235.5	95.2	108.9	286.2	104.3	88.4	298.9	137.5
14d StDev	35.1	90.8	41.9	9.1	29.7	6.0	4.8	21.3	5.2

Source: *Frontier Economics*

Note: *The 14-day standard deviation ("14d StDev") is calculated over daily prices of the last 14 days for each trading day; the annual standard deviation ("Annual StDev") is calculated over all daily prices of a calendar year.*

The comparison of spot vs. different future products traded in 2021-2023 shows two prominent properties.

- **Spot and future prices follow a common trend** – prices rise gradually – with some intermediate peaks – until a sharp peak in August 2022 (see section B.7 for details) and decline afterwards. Following the August 2022 price peak, we observe a physical wedge between spot and future markets (futures are higher) reflecting limited storability of power.

  The reason for the joint movement is common factors for short-term and long-term scarcity (i.e., steepness of the merit order curve) and level of SRMC (i.e., the height of the bars in the merit order).

  - Gas prices, which are an input into gas-fired power plants, and which are frequently the price setting technology, are a main driver of power prices. This is reflected in the co-movement of power prices and gas prices (see Figure 40 in section B.5 where we analyse the relationship between the two commodities).

  - The unavailability of a significant part of the French nuclear fleet (see also section B.7), which due to low variable generation costs set on the left in the merit order (Figure 35) and run most hours of the year ("baseload"), meant that plants with higher variable costs (coal and gas) became price setting in the short and longer run.

- **Spot prices for power are significantly more volatile than future prices** – spot prices for power show a pronounced variation around the common trend, with spot prices on individual days reaching zero or even becoming negative. The variation would be even larger for hourly prices instead of the daily baseload prices (which are the average over the 24-hourly prices per day). The large variation in spot prices results in a significantly higher price volatility, measured by the standard deviation, than the monthly and yearly future. This holds for the entire 3-year period, with the only exception of a brief period in August 2022, when the 14d-standard deviation of the yearly future reached the same – or even slightly higher – levels than the spot price, driven by a few extreme spikes in the German baseload future (almost reaching 1,000 €/MWh) while the spot prices peaked at around 750 €/MWh. The descriptive statistics of the 14d-standard-deviation (see Table 5) confirms this finding across all three products in each of the analysed years: The 14d-standard-deviation of power day-ahead prices between 2021 and 2023 is 3 to 7 times higher than month-ahead prices, while the 14d-standard-deviation of day-ahead prices in the same period is even 4 to more than 8 times higher than year-ahead prices.

  The reasons for the systematically higher spot price volatility for power lies in a combination of the price drivers and the limited storability of power.

  - The **future price is basically a function of expected future spot prices** over the delivery period: Futures are either financially settled against future spot prices or power is delivered physically and would then be valued against the future spot price (mark-to-market).

- Spot prices are influenced by a number of random drivers, such as power demand and renewable supply. The realisation of these drivers changes much more on a daily basis than their expected value for futures periods would. For example, a wind front (which would reduce prices) does not impact the expectations of wind feed-in next year.

- In addition, spot power prices are driven by the weekday/weekend pattern, which introduces a non-random volatility not reflected in monthly/yearly futures which represent a weighted average of weekend and weekday prices. So even with a perfect foresight, price fluctuations in the spot price would be higher than in the future price.

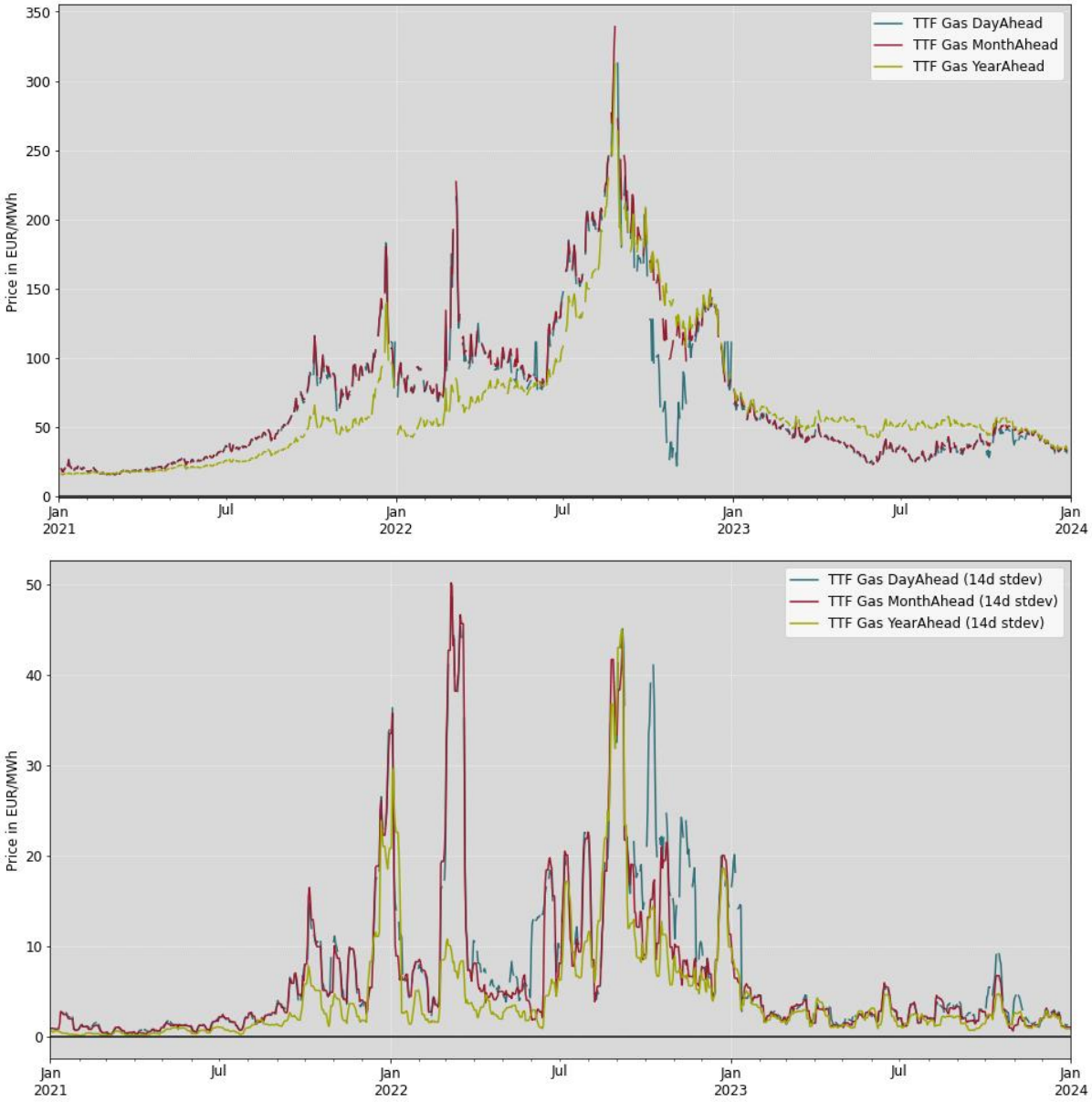
- Due to **the limited storability**[501], short-term changes in fundamental price drivers (such as a strong wind front for a couple of days at very low spot prices) do not carry over into future periods (next month or year).

Gas prices (TTF)

Figure 38 presents price levels and 14-day standard deviation for TTF gas prices. The corresponding descriptive statistics (mean, standard deviation) are presented in **Table 6**.

[501] In a Frontier study in eight European countries, total power storage capacity only sufficed to cover demand for less than 4 hours, see https://www.frontier-economics.com/media/lgqlhwwr/value-of-gas-infrastructure-report.pdf, p. 23.

Figure 38 Spot vs. future prices – price levels and volatility in gas as traded 2021-2023



Source: *Frontier Economics based on price data provided by RWE, Energate and LEBA*

Note: *Time axis are trading days. Note that gas products are only traded on weekdays, which explains the discontinuities in the price series. The 14-day standard deviation ("14d StDev") is calculated over daily prices of the last 14 days for each trading day; the annual standard deviation ("Annual StDev") is calculated over all daily of a calendar year.*

Table 6 Spot vs. future prices (gas, 2021-2023) – descriptive statistics

Gas TTF	DayAhead			MonthAhead			YearAhead		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
Mean	47.6	123.1	40.7	47.8	133.1	41.4	33.9	114.0	52.1
14d StDev	4.1	15.5	3.4	3.8	13.1	2.7	2.2	8.9	2.3

Source: *Frontier Economics*

Note: *The 14-day standard deviation ("14d StDev") is calculated over daily prices of the last 14 days for each trading day; the annual standard deviation ("Annual StDev") is calculated over all daily of a calendar year.*

The overall **findings are similar to power**, with the notable differences of a lower price level (see section B.5) and that in gas, day-ahead and month-ahead price generally move very closely together due to the longer storability of gas which tends to balance out short-term difference in the demand-supply balance.[502] The price difference for different gas products therefore mainly occur between short-term (day-ahead, month-ahead) and longer-term prices (year-ahead).

- **Spot and future prices follow a common trend** – similar to power, gas prices gradually rise – with some intermediate peaks – until a sharp peak in August 2022 (see section B.7 for details) and have since been declining. The main prices drivers, the loss of Russian gas supply, which was to a large extent replaced by LNG, was perceived as long-term (in particular after the explosions at Nord Stream 1 and 2 pipelines) and would be reflected both in short-term and long-term prices.

- **Short-term prices are more volatile than longer-term future prices** – similarly to power, future prices reflect the expected future short-term prices. Short-term gas prices are driven by annually recurring seasonality and short-term deviations from normal temperatures (e.g., the mild winter 2022/23) and infrastructure congestion (see example of drop in October 2022, see footnote 502). The 14d-standard-deviation of gas day-ahead prices between 2021 and 2023 is 9% to 24% higher than month-ahead prices, while the 14d-standard-deviation of day-ahead prices in the same period is even 47% to 89% higher than year-ahead prices.

B.4 Relationship between forward and futures markets

Summary

Our empirical findings confirm that there is **essentially a "no-arbitrage"** condition between futures and forwards for the same underlying. **Price differences** between future and forward contracts **are very small and only temporary** and can be attributed to difference in price reporting and market volatility.

In this section we investigate the relationship between forward and future markets for gas and power in the trading period 2021-2023.

Table 7 provides a comparison of future and forward contracts.

[502] There is notable exception of the close co-movement of day-ahead and month-ahead products: At the end of October and early November 2022, TTF day-ahead price briefly plummeted to 30 €/MWh as a number of LNG cargoes could not be unloaded at north-west European hubs, due to full gas storages and grid congestion in the region. The day-ahead rebounded to the level of the month-ahead price in early December.

Table 7 Comparison of future and forward contracts

	Futures	Forwards
Venue	Exchanges	OTC
Products	Standard products (week/month/quarter/year)	Standard and negotiated products
Settlement	Physical / financial (power) Physical (gas)	Physical
Credit support	Margining (mandatory)	Margining (optional) Third party guarantees[503] Master netting agreements

Source: Frontier Economics
Note: OTC contracts with a standardised set-up can be registered with the exchanges for clearing.

The main differences between the two are as follows.

- **Futures** – futures are standardised contracts traded on central exchanges, which allows anonymity (which can be important for market participants if they do not want to reveal their market expectation through deals) and create close to no credit risks for trading parties through central counterparties (CCP).
- **Forwards** – forwards are traded "over the counter" (OTC), either through brokers or bilaterally. OTC offers greater product flexibility, lower trading fees, does not require an exchange membership and offer alternative credit support measures to collateral (in particular at times of cash liquidity shortages).

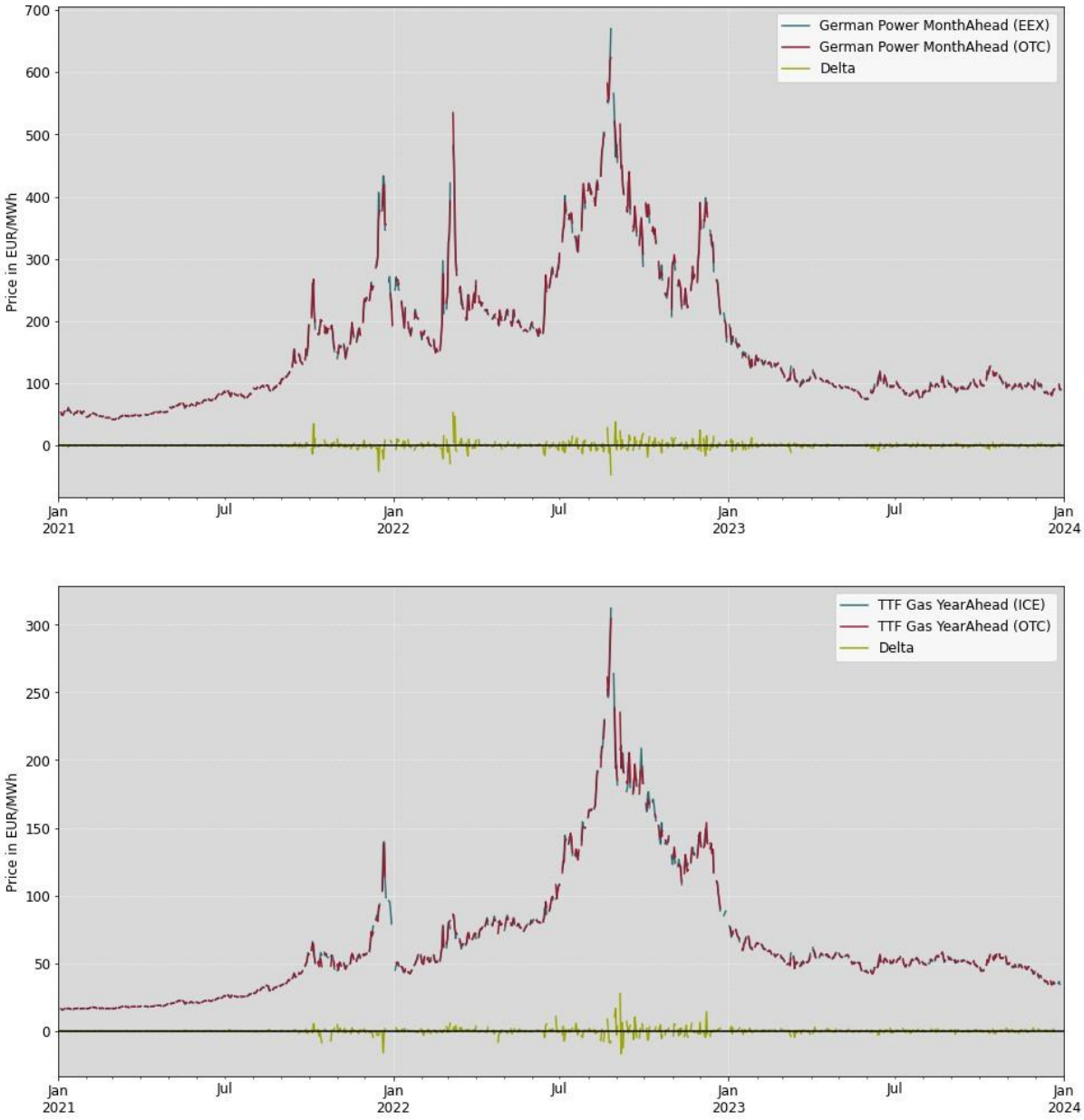
For a like-for-like comparison of forwards and futures, we chose contracts with the same underlying, i.e., gas and power with the:

- same gas quality (power is homogenous);
- same location (delivery point); and
- same delivery time (calendar month/year).

Figure 39 shows a comparison of forward and future contracts for German power month-ahead (traded on EEX and published by LEBA) and the TTF year-ahead gas product (traded on ICE and OTC published by LEBA). The green line ("delta") represents the difference between the future and forward on the same trading day. **Table 8** presents the corresponding descriptive charts.

503 Such as parent company guarantees and bank guarantees/letters of credit.

Figure 39 Future vs. forward prices as traded 2021-2023



Source: *Frontier Economics based on price data provided by RWE, Energate and LEBA.*

Note: *Time axis are trading days. Note that futures are only traded on weekdays, which explains the discontinuities in the price series. The delta is defined as exchange price minus OTC price.*

Table 8 Future vs. forward prices (2021-2023) – descriptive statistics

	German Power MonthAhead (EEX)	German Power MonthAhead (OTC)	Delta	TTF Gas YearAhead (ICE)	TTF Gas YearAhead (OTC)	Delta
count	768	758	756	772	727	727
mean	166.7	166.5	0.4	66.7	65.5	-0.1
std	112.0	112.0	6.1	48.0	47.2	2.6
min	42.0	42.1	-46.7	15.6	15.7	-16.9
Q1 (25%)	88.8	88.2	-1.2	39.0	37.1	-0.5
Q2 (50%)	117.8	116.8	0.1	52.9	52.1	0.0
Q3 (75%)	220.0	221.0	1.6	78.1	76.2	0.5
max	670.0	623.3	52.9	312.2	304.5	27.4

Source: *Frontier Economics*

Note: *"Delta" is defined as the difference between future and forward on the same trading day. A delta can only be reported on a trading day if price data is available for both time series. The descriptive statistics for the price delta are calculated on the level of this delta price series and, thus, cannot be derived from the descriptive statistics of the price times series.*
The first quartile (Q1) is defined as the 25th percentile where lowest 25% price data is below this point. The second quartile (Q2) is the median of the price data; thus 50% of the data lies above and below this point. The third quartile (Q3) is the 75th percentile where lowest 75% price data is below this point (i.e., 25% is above).
The extreme outliers of the German Power Delta (min -46.7 €/MWh, max +52.9 €/MWh) occurred on 26-08-2022 and 07-03-2022 respectively, while the extreme outliers of the TTF Gas Delta (min -16.7 €/MWh, max +27.4 €/MWh) occurred on 06-09-2022 and 05-09-2022 respectively.

These empirical findings confirm that there is **essentially a "no-arbitrage"**[504] condition between futures and forwards for the same underlying. The historical price comparison shows that **price differences** between future and forward contracts are **very small and only temporary**.

- Average price levels and volatility (measured by the standard deviation over the period 2021-2023) are very close; and
- The mean difference[505] ("delta" in Table 8) is <1 €/MWh for both products.

If there was a significant price difference between forwards and futures for the same underlying, arbitrageurs could buy the cheaper contract and at the same time sell the more expensive contract which would result in a premium while contracts cancel each other out at settlement.

The observed minor differences can be explained by the following.

- **Different settlement conditions** – a physical future is paid daily after delivery (t+1). A forward delivery is paid later (in general 20th of the following calendar month). As the difference is quite small, this could only be detected in the price data if forward and future trades for the identical underlying would be traded at the same time.

504 This is not a strict "no arbitrage" condition since a trader cannot ensure to sell / buy at exactly the same time which creates a small temporary price risk.

505 As note below Table 8, the mean difference cannot be calculated from the mean future and forward price since price data does not exist on for both venues on all trading days (as illustrated by "count" in the table).

- **Difference in price reporting** – exchanges reported the closing price for futures while LEBA published a volume weighted average price ("VWAP") for forwards which accounts for all trades over the whole trading day.
- **Volatile markets** – forwards and futures are traded continuously on each trading day. Therefore, small timing differences can have a significant impact on the average trading prices. This also explains why the difference in price reporting leads to more pronounced price differences at the price peaks in December 2021, February 2022, and August 2022.
- **Other factors**, such as cash costs for margining (futures) and bid-ask costs (forwards), which can work in opposite direction.

Ultimately, in their decision between forwards and futures (or no hedging transaction), EMPs need to balance three types of commercial risks: market, cash liquidity and credit risk (the so-called "risk triangle"). Generally speaking, futures offer a lower credit risk but higher cash liquidity risk (due to margining) while forwards (unless centrally cleared) carry lower cash liquidity and higher credit risk (which can be reduced by credit support instruments, see Table 7).

B.5 Interlinkage between gas and power markets

Summary

Gas and power markets are interlinked since **gas is an important input into power generation** (20% volume share) and the power sector accounts for more than one third of gas demand in Europe.

We observe power-to-gas price **ratios of 2-3**, which are consistent with the typical efficiency of gas-fired power plants (33%-50%). The ratio is very **volatile for day-head products**, reaching values of close to zero, due to different short-term price drivers and degrees of storability between gas and power.

In this section we analyse the relationship between prices for gas and power for different exchange-traded products (day-ahead, month-ahead, and year-ahead).

Gas and power are interlinked through the following.

- **Gas as input in power generation** – gas is an important input into power generation. In 2022, gas-fired generation accounted for almost 20% of power generation in the EU.[506] This in turn makes the power sector an important demand source for gas (second only to

[506] Consilium (2023), "Infographic – How is EU electricity produced and sold?", https://www.consilium.europa.eu/en/infographics/how-is-eu-electricity-produced-and-sold

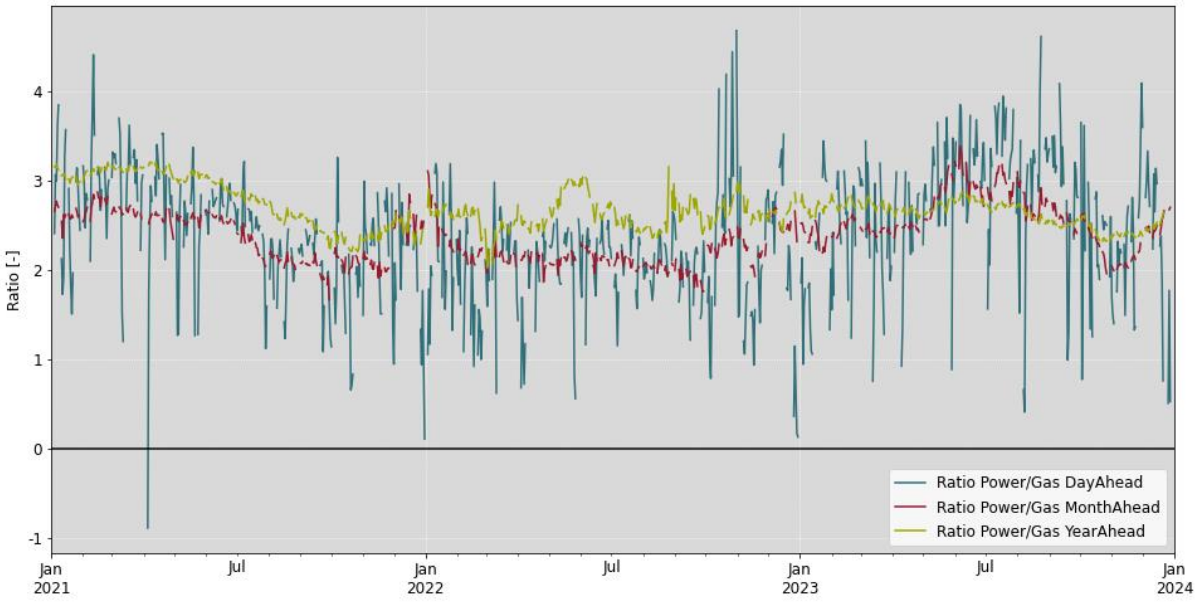
the residential sector). In 2022, gas is estimated to account for more than one third of European gas demand.[507]

- **Substitutability between gas and power as inputs** – gas and power can be substituted to some degree (in the medium and long term), in particular for heating (e.g., heat pumps vs. gas boilers in the residential sector or high-current electric arc vs. gas furnaces in industrial applications).

  However, this relationship has mainly a very long-term effect, in line with amortisation periods and technical lifetimes of the applications and should therefore have no significant impact within the 3-year period we analyse below.

Figure 40 displays the ratios between power and gas prices for the equivalent exchange-traded products, for the period between Jan 2021 and Dec 2023. Additionally, Table 9 shows the descriptive statistics of these time series. A ratio of 3 means that the price for the power product with the same delivery period was three times as high as the corresponding gas product.

Figure 40 Power-to-gas price ratios 2021-2023



Source: *Frontier Economics based on price data provided by RWE, Energate and LEBA*

Note: *Time axis are trading days. Note that gas products and power futures are only traded on weekdays, which explains the discontinuities in the price series.*

507 Honoré (2023), "European gas demand fundamentals – H1 2023 review and short-term outlook", Figure 4, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2023/07/Insight-134-European-gas-demand-fundamentals.pdf.

Table 9 Ratios between Power and Gas for DayAhead, MonthAhead and YearAhead products – descriptive statistics

	DayAhead	MonthAhead	YearAhead
count	763	732	763
mean	2.4	2.4	2.7
std	0.7	0.3	0.2
min	-0.9	1.7	2.0
Q1 (25%)	1.9	2.1	2.5
Q2 (50%)	2.4	2.4	2.7
Q3 (75%)	2.9	2.6	2.8
max	4.7	3.4	3.2

Source: *Frontier Economics, based on price data provided by RWE, Energate and LEBA*

Note: *Negative ratios (as observed here as the minimum ratio for day-ahead), stem from negative power prices that can occur in some hours of the year.*
The first quartile (Q1) is defined as the 25th percentile where lowest 25% price data is below this point. The second quartile (Q2) is the median of the price data; thus 50% of the data lies above and below this point. The third quartile (Q3) is the 75th percentile where lowest 75% price data is below this point (i.e., 25% is above).

We observe the following relationship between gas and power prices.

- The ratios between power and gas for **month-ahead and year-ahead** futures range most of the time between values of 2-3, well reflecting typical thermal conversion efficiencies of 33-50% (depending on the power plant technology (OCGT, CCGT, CHP) and age (which is related to the efficiency of the plant)) of the marginal gas-fired power plant.
  - Take for example a relatively inefficient OCGT with an efficiency of 33%, i.e., 3 MWh of gas are needed to generate 1 MWh of power. Ignoring other variable costs (in particular for CO_2 allowances), this would mean that the power price needs to be at least 3 times as high as the gas price for the plant to run profitably.
  - Means and standard deviations confirm this (month-ahead 2.4±0.3, year-ahead 2.7±0.2)
- The ratios between the **day-ahead products** are on average also in the range of 2-3 (2.4±0.7). However, there is a significant volatility of the ratios which can be explained by different short-term drivers and different degrees of storability.
  - As illustrated in section B.3, the day-ahead power price exhibits high volatility due to the limited storability and the impact of random drivers. This is also the case for gas day-ahead prices, but to a lesser extent due to the better storability of gas.[508] This implies that the ratio (of power and gas prices) fluctuates more for day-ahead products than for longer tenors.
  - For example, on a sunny summer day with little power demand, there will be lots of solar power in the system, reducing the need for gas fired power generation and the power price significantly (prices might even become negative in individual hours),

[508] This is true also in terms of coefficient of variance which corrects for the different price levels. The coefficient of variance can be calculated by dividing the standard deviation by the mean in Table 5 and Table 6.

while the gas price will not be impacted. This can, at times, lead to extremely low or even negative ratios.

- On the other hand, if renewable power supply is low and demand is high, inefficient gas-fired plants with a very low efficiency (or power storages) might set the power price, resulting in a ratio significantly above the range 2-3.

B.6 Interlinkage between different geographic energy markets in Europe

Summary

Gas and power are traded on regional European markets that are connect through power transmission lines and gas pipelines which facilitate cross-border trading. The availability of transmission capacity determines the relationship of prices on neighbouring markets.

During the height of the energy crisis in **2022, power and gas wholesale prices diverged significantly due to congestion** in transport infrastructure.

Cross-border transport infrastructure (interconnectors) plays a key role for the price formation on gas and power markets. In this section we summarise how different geographic markets were linked during the energy crisis.

Gas and power are typically traded on markets that are generally national in geographic scope.[509] These markets are connected through power transmission lines and gas pipelines which facilitate cross-border trading.

There are two ways how transmission/transport rights are allocated.

- **Explicit allocation of transmission right** – transmission rights are bought and sold through an auction or other market mechanism. Market participants have to buy transmission rights if they want to buy or sell in a neighbouring market. This type of allocation is used for gas.
- **Implicit allocation of transmission rights** – transmission rights are not directly bought and sold by market participants. Instead, they are implicitly bundled with transactions on wholesale markets. The transmission system operator ensures that the energy transactions comply with the available transmission capacity and network constraints. This type of allocation is widely used in electricity where markets are coupled.[510] Implicit

[509] Markets can be wider (e.g., the joint bidding zone Germany/Luxemburg (DE/LU) in power) or smaller (e.g., the split of the French hub in PEG Nord and PEG Sud and different subnational bidding zones in Italy and the Nordic countries). Geographic markets are generally the same for spot and derivatives, but there are exceptions where subnational bidding zones for spot markets are pooled for derivatives markets (e.g., the Nordics and Italy).

[510] See https://www.entsoe.eu/network_codes/cacm/implementation/sdac/. In the case of market coupling, no separate acquisition of transport rights is required for cross-border trade (this is therefore also referred to as an implicit allocation of transmission capacities) or a conscious export decision by generation companies. The allocation of transport rights is done

capacity allocation leads to a much more efficient capacity allocation as energy and transport markets are cleared simultaneously and in an optimised manner.

The **availability of physical transmission capacity in the short term determines the relationship of prices** on neighbouring markets.

- If transmission capacity is **available** on the spot market, prices between neighbouring markets converge and are (almost) identical.
- If transmission capacity is **congested**, and congestions cannot be solved by TSOs (e.g., via redispatching, countertrading), prices between neighbouring markets diverge.

Figure 41 presents the evolution of weekly average **spot wholesale power prices** in nine selected European markets during the period January 2019 – August 2023.

- All European prices follow a **similar trend**, with prices increasing significantly in the second half of 2021, peaking in August 2022 and trending downwards – apart from another peak end of 2022 – in the remainder of the period.
- Despite this co-movement, prices between different European **markets diverged** significantly: the range of prices exceeded 300 €/MWh at the peak in August 2022.
  - Italy (due to high dependency on gas in power generation) and France (low availability of nuclear, the dominant generation technology) range at the top of the sample, while Nord Pool prices ("NP") are lowest, due to their low dependency on fossil fuels and higher reliance on hydro power.
  - Sweden is the most striking example for these discrepancies, with day-ahead prices in 2022 remaining at 50 €/MWh on average while central Western European markets closed at around 250 €/MWh, i.e., five times as high.[511]
- These massive price differences during the energy crisis can only be explained by **grid congestion**.[512] ACER estimates that congestion income across Europe, which correlates with the available interconnector capacity and location price spreads, reached EUR 16bn in 2022, an increased by more than three times compared to the previous year.[513]

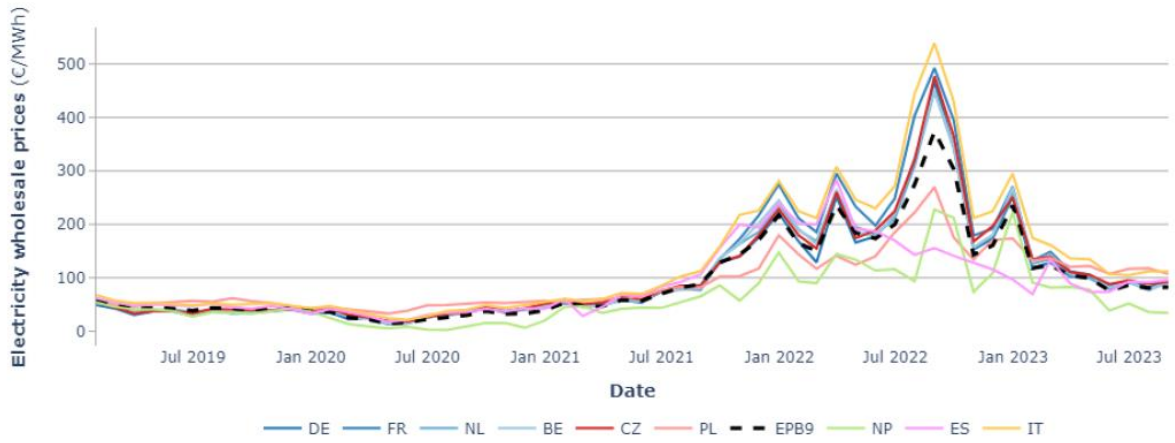
automatically by the market coupling algorithm, taking into account the price differences between the participating markets and technical restrictions.

511 ACER (2023), Wholesale Electricity Market Monitoring 2022 - Key Developments, p. 14, https://acer.europa.eu/sites/default/files/documents/Publications/Electricity_MMR_2022-Key_Developments.pdf.

512 Grid congestion might necessarily occur at the interconnector itself but can stem from internal congestion in the domestic power grid before or behind the interconnector.

513 ACER (2023), Progress of EU electricity wholesale market integration – 2023 Market Monitoring Report, p. 20, https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf.

Figure 41 Weekly average power prices in nine European markets (2019-2023)

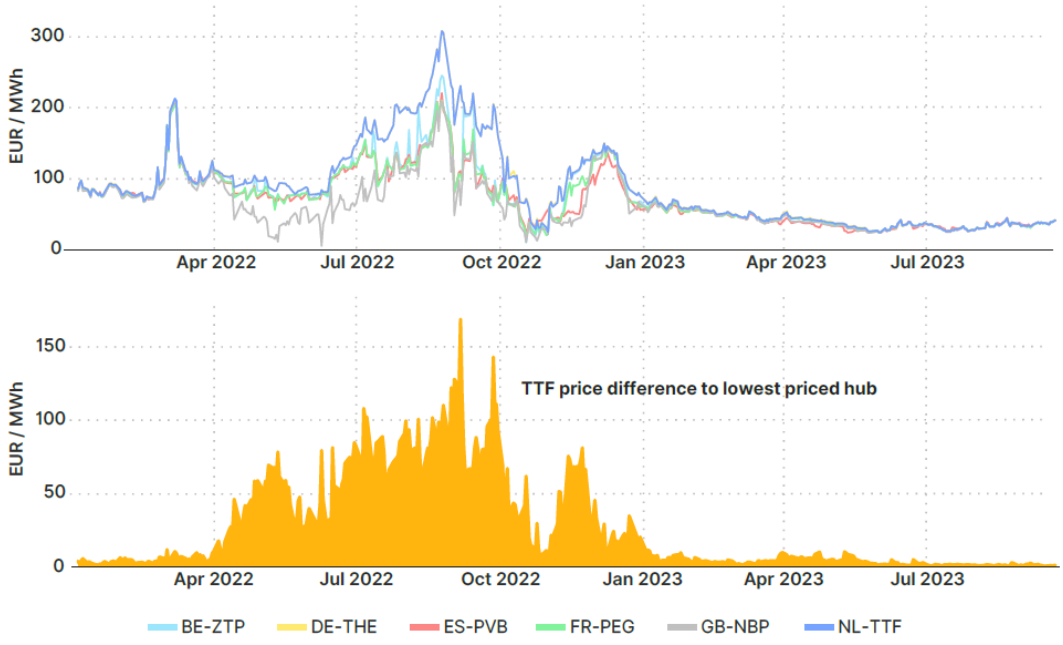


Source: *DG Energy, Quarterly Report on European Electricity Markets, Q2 2023, Figure 10*

Note: *Lower prices in Spain in the summer of 2022 were supported by strong solar PV generation. The fossil-fuel cost adjustment mechanism ('Iberian exception') measure was not activated during Q2 2023. EPB = European Benchmark Price 9 hubs from Platts, NP = Nord Pool Spot*

Figure 42 shows day-ahead gas price for six European hubs in January 2022 - August 2023 and the difference TTF (the most liquid gas hub in Europe) to the lowest priced hub.

Figure 42 Day-ahead gas prices of six selected European hubs (2022 - 2023)



Source: *ACER (2023), European gas market trends and price drivers – 2023 Market Monitoring Report, Figure 4*

The development of gas prices shows a similar pattern like the development in power (Figure 41). According to ACER, the significant price spreads of up to 150 €/MWh between TTF

(Netherlands) and other European hubs in the summer of 2022 were largely driven by infrastructure constraints[514]. These spreads have reverted to close to pre-crisis levels (i.e., from 1 to 3 €/MWh) by 2023, due to reduced gas demand, increased availability of LNG import capacity and a less congestion in transit pipelines.

ACER reports that congestion revenues amounted to EUR 3.4bn in 2022, of which nearly 90% were attributed to Belgium, France, Germany, and the Netherlands. For comparison, the EU's total gas congestion revenues in 2021 only reached EUR 55m.

ACER provides further details on Infrastructure congestion during the summer 2022 in their 2023 Market Monitoring.[515]

B.7 Particularities during the crisis – August 2022

Summary

In August 2022, market prices for power and gas reached unprecedented levels, caused a "**perfect storm**": a massive drop in Russian pipeline gas supplies to Europe that coincided with a significant reduction in available power generation capacity (outage of French nuclear reactors, depleted hydro resources, coal phase-out).

The cut in Russian gas supplies then **triggered reactions** on the **demand and supply side**.

- Lost physical supply from Russian pipeline flows caused large short positions for gas wholesalers. Additionally, gas demand from gas storage operators (to meet gas storage obligation) and the power sector increased in response to a reduced availability of power generation capacity.
- Europe increased its reliance on LNG supplies that are subject to intense global competition. Market participants (gas-fired power generators and retailers), priced-in the considerable risk of gas supply interruptions. In parallel, congestions from re-routing gas flows in Europe contributed to the upward price pressure.

In August 2022, market prices for power and gas reached unprecedented levels. Stakeholders, including market participants and regulators, widely agree that the massive drop in Russian pipeline gas supplies to Europe has been the primary driver of this development.[516]

514 ACER, European gas market trends and price drivers - 2023 Market Monitoring Report, p. 15, https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf.

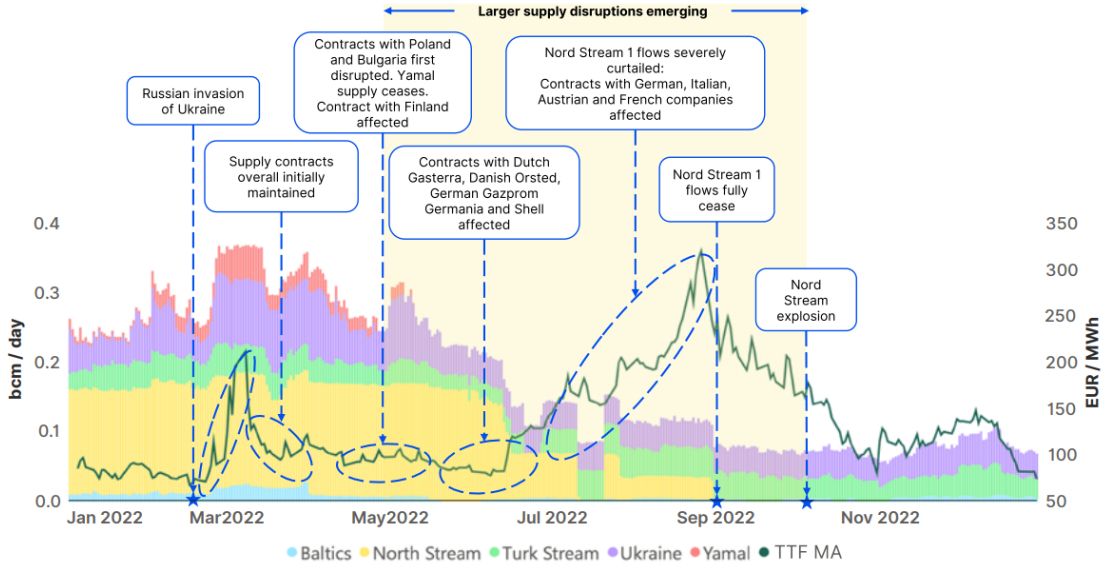
515 See previous fn., section 2.5.

516 See for example ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.8ff., https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

As we set out in Figure 43 below, the disruption of Russian supplies is closely linked to the August 2022 price spikes on gas and power markets.

- On 16th June, Gazprom curtailed Nord Stream 1's gas supply to Germany to 40% of the pipeline capacity. As an immediate consequence, TTF gas prices (month-ahead, "MA") materially increased.
- On 11th July, Nord Stream 1 was taken out for annual maintenance with limited impact on TTF MA prices since this unavailability was scheduled ahead. However, after the maintenance, Gazprom continued to deliver only 40% of the pipeline's capacity in late July, further reducing supply to only 20% of the capacity in August. TTF MA prices reacted with a sharp increase, reaching price levels up to 300 €/MWh by the end of August.[517]
- In early September 2022, Gazprom eventually stopped delivering gas through Nord Stream 1. While the TTF spot gas price increased for a brief period, the market reaction was less severe than previously. Continuous LNG supplies, high storage levels and mild weather conditions further contributed to a downward-trending TTF gas spot price.

Figure 43 Disruption in Russian supply linked to price spikes in August 2022, example TTF front-month gas prices

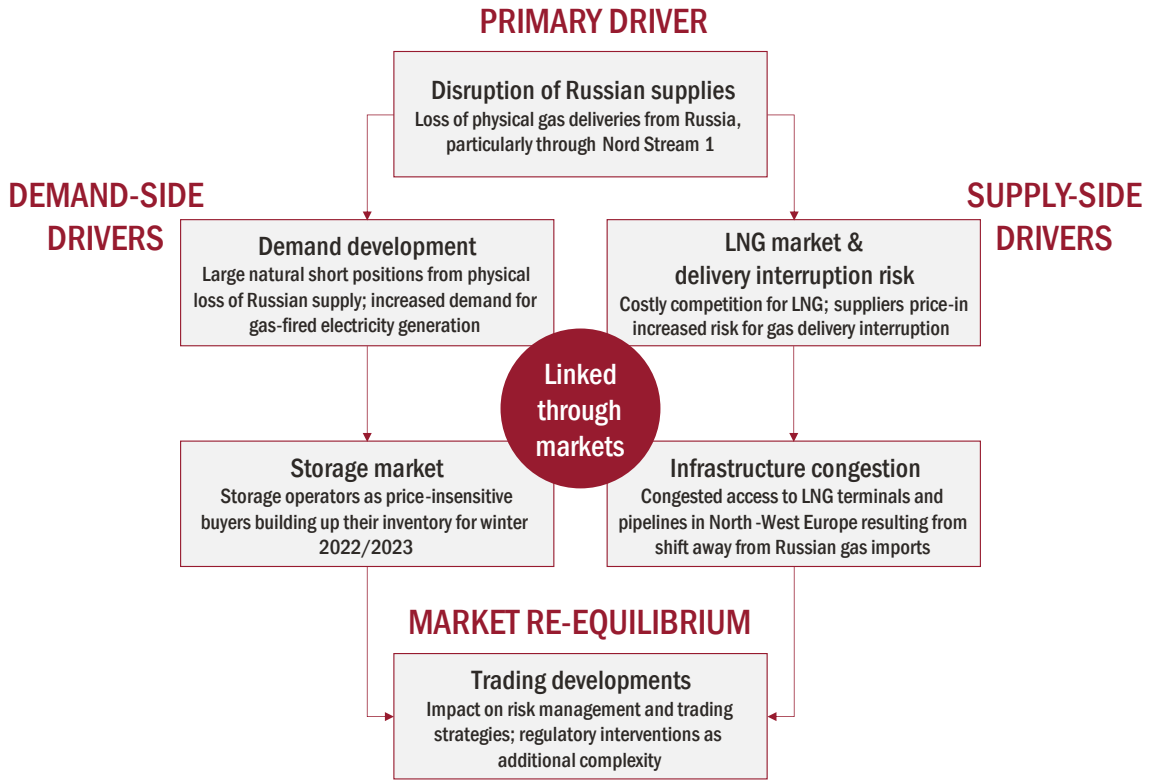


Source: ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", Figure 22.
Note: Russian supply into the EU in bcm/day; evolution of TTF front-month prices in €/ MWh

517 Bundesnetzagentur (2024), „Rückblick: Gasversorgung im Jahr 2022", https://www.bundesnetzagentur.de/DE/Gasversorgung/a_Gasversorgung_2022/start.html#:~:text=Gassfl%C3%BCsse%20%C3%BCber%20Nord%20Stream%201%20nach%20Deutschland%2C%20in%20GWh&text=Die%20Liefermenge%20wurde%20Ende%20Juni,Gas%20mehr%20aus%20Russland%20importiert.

The cut in Russian gas supplies then triggered reactions on the demand and supply side, as well as policymakers (see Figure 44 below).

Figure 44 Disruption of Russian supplies triggered August 2022 unprecedented price spikes for gas and power



Source: Frontier Economics

- **Demand side drivers:** Lost physical supply from Russian pipeline flows caused large short positions for gas wholesalers in the short- and medium term. Additionally, gas demand remained relatively price-insensitive in August 2022, including demand from storages filling up their inventories ahead of the winter 2022/2023 which was re-enforced by the newly introduced storage obligation.[518,519] Additionally, the short-term need for gas-fired power generation in response to a reduced availability of power generation capacity contributed to increased spot market prices (shut-down of 10 French nuclear reactors for

[518] 80% minimum storage level for the winter 2022/23, introduced in June 2022, see https://www.consilium.europa.eu/en/press/press-releases/2022/06/27/council-adopts-regulation-gas-storage/. In particular the German regulation presumably led to the inelastic demand by storages as it imposed a storage injection obligation regardless of prices and seasonal price spreads in the market - and it contained no clear rule on how the stored gas under the regulation would be released back to the market.

[519] In the short-term, gas demand is relatively inelastic (e.g., industrial users or households cannot easily switch between fuels). Demand reduction has therefore played a more prominent role in the medium- to long-term, including the winter 2022/2023, see ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.36, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

repairs, depleted hydroelectric reserves across Europe and reduced availability of coal plants and renewable energies).[520]

- **Supply side drivers:** In a brief period of time, the loss in Russian gas materially increased Europe's reliance on the global LNG market in which suppliers deliver to the region of the world offering the highest return. Intense global competition on LNG deliveries further increased European price levels in August 2022 on both spot and derivatives markets. Given the tight supply situation in August 2022, gas-fired power generator and gas retailers further faced a risk of gas supply interruptions. This required them to either price-in the risk of supply interruptions or stop supplying the market. In parallel, the restructuring of gas supply routes away from Russia and congestion on physical gas (import) infrastructure in North-Western Europe reinforced the upward price pressure in the market, as the underlying physical flows remained strongly limited by the transport capacity available, at least in the short-term.[521]

520 ACER (2023), "European gas market trends and price drivers – 2023 Market Monitoring Report", p.37, https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_MMR_2023_Gas_market_trends_price_drivers.pdf

521 In the medium-term, derivatives markets benefitted from the expansion of physical import capacities, such as the additional LNG terminals installed across Europe.

Annex C – Investment Firms Regulation prudential calculations for energy traders

C.1 Introduction

Background and purpose of the Survey

Energy Traders Europe has undertaken a survey of its members to consider the impact of potential changes to European Union financial markets regulation, specifically MiFID II [522] and its "AAE[523]. Survey participants trade in commodity derivatives and emissions allowances as part of their business activities, which is prima-facie an activity that requires authorisation from a European financial regulator under MiFID unless the participant can rely on a MiFID exemption such as the AAE.

Firms that do not qualify for a MiFID exemption must seek authorisation from financial regulators under MiFID, and such authorised firms must comply with prudential capital requirements under the Investment Firms Regulation ("IFR")[524]. The IFR requires an authorised firm to have 'Capital Resources' that are larger than its 'Capital Requirement'. The Survey explores the risk that a firm who is no longer eligible for the AAE, may have Capital Resources (by way of shareholders equity and high-ranking debt) that is insufficient to meet its IFR Capital Requirement. This would imply that either additional Capital Resources would be required to continue business activities, or those activities of trading in commodity derivatives would need to be curtailed. The Survey also considers the IFR Liquidity Requirement, which addresses minimum levels of cash or near-cash instruments an authorised firm must hold to meet requirements from ongoing business.

For the Survey, firms calculated their Capital Resources and Capital Requirement using the IFR approach to assess the quantum of any potential additional Capital Resources that they may require. They also considered how well the capital requirements approach in the IFR captures the commercial risks of Survey Participants given that their business activities as energy firms are different from those of the majority of authorised MiFID II investment firms today.

Please note that because of timing and calculation capacity constraints of the Survey it was not possible to perform a full IFR calculation which is very complex, and some simplifying assumptions and limitations were applied by Survey Participants; these are set out in the

522 The Markets in Financial Instruments Directive ("MiFID II") Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast)

523 MiFID II Article 2.1.j, the Ancillary Activities Exemption

524 IFR, Regulation (EU) 2019/2033 of the European Parliament and of the Council of 27 November 2019 on the prudential requirements of investment firms and amending Regulations (EU) No 1093/2010, (EU) No 575/2013, (EU) No 600/2014 and (EU) No 806/2014.

Appendices. The calculations performed by Survey Participants have not been audited, and the simplifications and assumptions made mean they are not represented as IFR compliant.

Timing and approach

The Survey was undertaken between June and November 2023. Survey participants were provided with guidance on how to perform the IFR prudential capital calculations (the "**IFR Calculations"**). They each modelled the IFR impact of portfolios of transactions chosen by the contributors themselves to be representative of their recent wholesale energy market participation, including the use of MiFID Financial Instruments[525] and other wholesale energy products. For the purposes of this report, "Participants" refers both to the contributors to the survey, and to the entities or portfolios of trades that they chose to model. The survey also analysed the impact on survey participants' existing capital funding arrangements expressed as a surplus or deficit relationship between existing capital resources (calculated according to IFR rules) and the IFR capital requirement estimated under the scenario. Contributors chose calculation periods for their portfolios consistent with the availability of their most recently published annual accounts, where balance sheet is the basis of the IFR capital resources metric.

Survey participation

Survey participation was voluntary, and nine contributors took part and one contributor submitted calculations for two entities, making ten entities in total. The survey participants are all wholesale market facing entities belonging to (and sometimes heading) groups of firms that are amongst the largest wholesale energy-generation, trading, and retail supply groups active in the European Union.

Four broad categories of survey participant can be discerned according to the characteristics of their business model, relevant to the survey results as set out in the table below.

[525] "**Financial Instrument**": as defined in MiFID Annex II Section C

Table 10 Key activities of survey participants

Business activities / Entity's role in the group	Category of survey participant			
	Top-cos	Physical trader	Financial trader	Other firms
Group Holding Company	✓			
Holds physical generation assets in same entity	✓ (some)	✓ (some)		
Trading in wholesale physical energy is the major focus of the business model		✓		✓
Trading in MiFID Financial Instruments is a main focus of the business model			✓	
Intercompany exposures arising from 'route to market' or 'hedging services' provision to group affiliates.	✓	✓	✓	✓
Number of participants	2	5	1	2

Source: Energy Traders Europe

The profiles of these four categories of participant are described in Appendix 2.

The reader's attention is drawn to the following limitations of analysis in this Survey Result document.

- Category 3 – Financial trader: To preserve the confidentiality of the financial trader's survey contribution quantitative results are not reported for this Category. The quantitative result of Category 3 is included in the aggregate (mean, max, min) results.
- Category 4 – Other firms: These firms did not submit a consistent combination of Capital Resources and Capital Requirement. Their quantitative results have been excluded from aggregate (mean, max, min) results in this report, however their qualitative insight is represented.

C.2 Survey insights

The key insights arising from the survey are set out below.

Quantitative results of capital Resources, capital Requirement and liquidity requirement

Survey participants reported a mean EUR910m deficit per firm of IFR Capital Resources over IFR Capital Requirement suggesting they are on average inadequately capitalised under the

IFR rules. However, the mean result hides a wide variance in Capital Resources, Capital Requirement, and net surplus/deficit overall.

Table 11 Summary of the range of capital resources and capital requirements across eight entities[526]

Data point	Capital resources (EUR bn)	Capital requirements (EUR bn)	Surplus/ Deficit (EUR bn)[527]	Survey participants reported a mean EUR910m deficit of IFR Capital Resources over IFR Capital Requirement suggesting they are on average inadequately capitalised under the IFR rules
Mean	2.57	3.48	-0.91	
Median	2.14	2.33	0.71	
Max	6.20	8.55	2.39	
Min	0.29	1.15	-7.46	

Source: Energy Traders Europe

Table 12 Summary of the range of Capital Resources and Capital Requirements across Top-cos

Data point	Capital resources (EUR bn)	Capital requirements (EUR bn)	Surplus/ Deficit (EUR bn) [528]	The class physical traders showed the greatest variance in overall surplus/deficit. This variance is driven by the wide range of both Capital Resources (EUR0.29bn to EUR2.57bn) and Capital Requirement EUR1.15bn to EUR8.55bn) reported.
Mean	5.01	3.32	1.69	
Median	5.01	3.32	1.69	
Max	6.20	4.30	[529]	
Min	3.83	2.35	[530]	

Source: Energy Traders Europe

526 The 2 “Other firms” are excluded from quantitative results as noted under Survey participation above.

527 Please note that the calculation of Maximum and Minimum Surplus/Deficit is performed at the firm level, so cannot be compared with the Maximum and Minimum Capital Resources and Capital Requirement in this table.

528 See previous fn.

529 The Maximum and Minimum Surplus/Deficit values are not disclosed by Category

530 See previous fn.

Table 13 Summary of the range of capital resources and capital requirements across physical traders

Data point	Capital resources (EUR bn)	Capital requirements (EUR bn)	Surplus/ Deficit (EUR bn) [531]	The class physical traders showed the greatest variance in overall surplus/deficit. This variance is driven by the wide range of both Capital Resources (EUR0.29bn to EUR2.57bn) and Capital Requirement EUR1.15bn to EUR8.55bn) reported.
Mean	1.31	3.92	-2.61	
Median	1.09	2.31	-1.43	
Max	2.57	8.55	[532]	
Min	0.29	1.15	[533]	

Source: Energy Traders Europe

NB: Category 3: Financial trader reported a surplus of Capital Resources over Capital Requirement, consistent with the compliant IFR status expected of an authorised firm.

Survey participants reported a mean Liquidity surplus of EUR1.88bn, and no material deficit. This implies that firms hold sufficient cash reserves under IFR rules.

Table 14 Summary of the range of Liquid assets and Liquidity requirements across eight[534] entities.

Data point	Liquid assets (EUR bn)	Liquidity requirements (EUR bn)	Surplus/ Deficit (EUR bn)[535]	All Top-cos held substantially higher Liquid asset balances than required under IFR rules.
Mean	1.95	0.07	1.88	
Median	1.20	0.05	1.15	
Max	5.81	0.22	5.73	
Min	0.00	0.00	-0.01	

Source: Energy Traders Europe

531 See fn. 527.

532 See fn. 529.

533 See fn. 529.

534 The 2 "Other firms" are excluded from quantitative results as noted under Survey participation above.

535 Please note that the maximum and minimum Liquidity Surplus/Deficit is calculated at firm level so cannot be derived from the Liquid assets and Liquidity requirements in this table.

Table 15 Summary of the range of Liquid assets and Liquidity requirements across Top-cos

Data point	Liquid assets (EUR bn)	Liquidity requirements (EUR bn)	Surplus/ Deficit (EUR bn) [536]	
Mean	2.42	0.15	2.26	All Top-cos held substantially higher Liquid asset balances than required under IFR rules.
Median	2.42	0.15	2.26	
Max	3.12	0.22	[537]	
Min	1.71	0.09	[538]	

Source: Energy Traders Europe

Table 16 Summary of the range of Liquid assets and Liquidity requirements across physical traders

Data point	Liquid assets (EUR bn)	Liquidity requirements (EUR bn)	Surplus/ Deficit (EUR bn) [539]	
Mean	0.98	0.03	0.95	Physical traders mostly held substantially more Liquid assets than required under IFR rules.
Median	0.66	0.03	0.63	
Max	3.33	0.07	[540]	
Min	0.00	0.00	[541]	

Source: Energy Traders Europe

NB: Category 3: Financial trader reported a surplus Liquidity Requirement, consistent with the compliant IFR status expected of an authorised firm.

Observations on the main drivers of the quantitative results

The Capital Resources and Liquid assets of each firm depend largely on their group funding models and ownership.

536 See previous fn.

537 The Maximum and Minimum Surplus/Deficit values are not disclosed by Category.

538 See previous fn.

539 See fn. 535.

540 See fn. 537.

541 See fn. 537.

- Top-cos tend to hold high Capital Resources because of their function in financing the energy industry activities of their entire groups, including holdings of power generation assets such as wind farms, solar farms, thermal and hydro generation assets.

- The Capital Resource of Physical traders is either high or low. This appears to be the result of a funding choice made by their groups. Physical traders with high Capital Resources appear to maintain external credit ratings or are party to dedicated external financing relationships. Firms with a low IFR Capital Resources appear to rely on parent company guarantees ("PCGs") to maintain their creditworthiness with market counterparties, however PCGs are not valued as Capital Resources under IFR.

- Some Survey participants are state owned which may also be relevant to market assessments of their commercial creditworthiness.

Firms explained that the IFR Liquidity Requirement substantially understated their commercial operating cash needs, because the IFR rules do not consider the amount of cash required to post collateral margin for their centrally cleared transactions.

- Firms reported surprise at the levels of Liquidity requirement arising from their calculations, which were low in comparison with the amounts of cash collateral that had been posted to meet clearing margin calls in recent market conditions.

Commodity price risk metric (K-NPR) is the most influential driver of Capital Requirement, however the requirement under K-NPR rules may overstate the commercial commodity market price risk faced by Survey Participants.

- Some Survey Participants hold physical power generation assets directly on the balance sheet of their market facing trading entities. K-NPR recognises the market risk profile arising from forward transactions to sell the power generated, but it does not recognise the market risk profile of the underlying asset. This means that under the formulation of K-NPR, hedging transactions create a net short exposure to electric power under K-NPR which does not exist commercially. In contrast where other Participants hold their generation assets in a separate entity K-NPR correctly recognises the compensating effect of intercompany and market facing transactions within the market facing (trading) entity.

- For those Participants that hold thermal generation assets, their hedging activity means they buy (for example) gas and emissions allowances and sell electric power generated through their gas-fired power plant. The 90% correlation requirement set by IFR to allow netting/offset between commodity exposures is not met between gas and power across all tenors, so a gross K-NPR exposure was reported in both gas and power commodities, despite the optionality afforded to these firms by their holding of thermal generation assets, to convert gas into power.

Counterparty credit risk metric K-TCD is also influential in driving the Capital Requirement, however firms reported that K-TCD probably understates their true commercial counterparty credit exposure.

- Survey Participants all trade in physically delivered energy instruments. Many of these transactions are not MiFID Commodity Derivatives. Under IFR, K-TCD offers a choice of two treatments to estimate the credit risk exposure of these transactions. The 'derivatives treatment' considers the 'replacement cost' of future commodity flows should the counterparty default and fail to deliver, on a mark-to-market basis. The 'long term settlement transactions' (LST) approach may also be applied to transactions where there is a delay between physical delivery and cash payment (which is almost always the case in the monthly delivery/billing cycles of the energy industry). In the Survey, Participants using the LTS approach approximated K-TCD as two months on physical energy delivered but not yet paid for, considering economic reality. Survey Participants explained that neither approach adequately represents the commercial credit risk on these transactions, and indeed it was argued that to approximate commercial reality both these exposures should be aggregated because, in the event of counterparty default, a firm may suffer both a loss of accrued receivables and the cost of replacing future deliveries.

Observations on the implementation challenges for Survey Participants

Based on the experience of Survey Participants, there are several areas where current systems would need to be significantly changed to perform ongoing capital and liquidity calculations on an IFR basis. Specialist resource would also be required. An implementation programme would likely require the building of a bespoke calculation engine or implementation of an external vendor solution, development of underlying data and documentation of extensive regulatory interpretations. It is likely this would require a significant regulatory change programme that Participants estimated would take more than a year to deliver, and thereafter would require constant maintenance to reflect business change over time.

- Throughout the Survey process, challenges were identified in performing the calculations. These challenges reflect the difficulty of performing capital and liquidity calculations under the IFR regime for firms who have not previously been subject to prudential regulation and difficulties in implementation for energy market participants.

- Examples included the interpretation of the IFR definition of "individual commodities," the application of IFR principles to transactions varying from long term ship chartering agreements, ownership of wind farms, and sourcing data in a format that is tractable to K-Factor calculations (some firms do not measure intragroup credit exposures).

Observations on the applicability of IFR calculations for Survey Participant business risks

The most significant requirements for Survey Participants are K-NPR and K-TCD (for market and counterparty credit risk respectively). Survey Participants reported several difficulties in

applying IFR concepts and rules to their industry. These were discussed and common treatments were selected to achieve consistency of approach.

Example 1: The IFR relies heavily on the concept of the "Trading Book".

- The IFR rules require that an investment firm include all 'trading book' positions in K-factor calculations for K-NPR, K-TCD and K-CON. Under the IFR, trading book is defined as "all positions in financial instruments and commodities held by an IF, either with trading intent or in order to hedge positions held with trading intent."

- Survey Participants followed the letter of the IFR rule and included all positions in the calculations (i.e., assumed that all positions were held in the 'trading book'), even though their business models of acting as a route to market for physical energy flows from other entities in the group, and marketing physical energy to customers might conceptually be closer to a 'banking book' principle.

Example 2: Survey Participants agreed to use the forward commodity price to evaluate K-NPR in their Survey contributions, rather than the spot price specified by the IFR, thus deviating from the IFR specification.

- This approach was easier to implement because it is natively supported by the risk management systems of Survey Participants. It was also felt to give a result much closer to the commercial commodity price risk of Participants. Several related reasonings were presented:

- For most commodities in general, and electric power in particular, the volatility of spot prices is usually greater than that of forward prices, so applying a volatile spot price reflecting price conditions that in reality only last a few hours or days may dramatically under- or over-estimate the commercial market risk of the full tenor of a firm's position that lasts years into the future.

- Participants considered that the survey result could be misleading if one firm submitted calculations using spot prices on a Friday night in the summer using low weekend spot prices, while another submitted a calculation on a mid-weekday in the winter when spot power prices were much higher.

- Other examples are the K-NPR treatment of generation assets and the K-TCD treatment of energy supply deals as either LSTs or derivatives as discussed above.

- Overall, the IFR capital calculations are very complex and are not designed to capture the range and variety of business undertaken by Survey Participants. Performance of a fully compliant calculation was not possible despite the concentration of significant resource over several months of the Survey timeline.

C.3 Overall conclusions

There was a wide range of both Capital Resources and Capital Requirements, and some firms in the physical trader category face a significant potential capital shortfall under IFR rules.

Capital Resources is greatest amongst the Top-co Survey Participants; however, it is unlikely that an energy group would not consider opportunities to restructure its trading activities rather than apply for authorisation of its Top-co as an IF, not least to avoid obligations of MiFID authorisation other than IFR prudential capital. This means that the commercial efficiency and agility of a current centralised Top-co capital structure would through restructuring be diluted to the extent that capital could be ringfenced in an authorised subsidiary (although other potentially compensating financing opportunities present themselves to a well-capitalised subsidiary that can sustain its own credit rating).

The incentive to restructure seems likely to reduce the diversity of business activities amongst market participants in comparison with that seen amongst today's Survey Participants, because groups would be optimising their operating models against the same regulatory constraint. The Category 4 financial trader may be representative of the most capital efficient investment firm in this kind of energy group, however some Survey Participants suggested they would seek to avoid an authorisation obligation entirely by ceasing all activities that do not benefit from a MiFID exemption.

The Capital Requirement is mainly driven by the K-Factors for market risk, and for credit risk. K-NPR may overstate the commercially realistic commodity market risk and K-TCD may understate counterparty credit risk arising from the diverse transaction types of Survey Participants.

The IFR Liquidity requirements do not capture the true cash liquidity risk faced by Survey Participants which arises from the need to post margin collateral on their cleared commodity futures positions, which is not measured by the IFR Liquidity requirements.

Performing the IFR calculations is a complex undertaking, requiring a combination of skills, calculation capability, and data that is new for Survey Participants. There is considerable uncertainty as to the correct treatment for certain common physical energy market transaction types and risks under the IFR. The IFR uncertainty is such that significantly improved calculation rules and guidance more suited to the physical energy markets would be required to result consistently in an IFR Capital Requirement that is representative of real business risks.

Annex D – Impact of Investment Firm Regulation under MiFID II on wider regulatory requirements for energy traders

Introducing investment firm regulation would result in regulatory spillover effects and wider regulatory requirements for EMPs under MiFID II, EMIR and MiFIR.

- In section D.1 we describe **organisational and legal consequences from investment firm authorisation under MiFID II** which go beyond prudential capital requirements.
- In section D.2 we then show **that investment firm authorisation under MiFID II would have a detrimental knock-on effect on EMIR**.
- In section D.3 we lastly explain **spillover effects with respect to MiFIR.**

D.1 Organisational and legal consequences from investment firm status under MiFID II

Apart from regulatory capital requirements set out in detail in Annex C, the successful application for and maintaining of an investment firm license presents significant effort and would lead to material organisational and legal consequences for EMPs.

Licensing procedure and recurrent requirements

To get licensed as investment firm requires an **individual application procedure** under national banking regulation which, based on MiFID II, entails the following mandatory preconditions:

- the resources needed for business operations, in particular sufficient initial capital, must be available in the home state;
- the initial capital is calculated in accordance with Article 4 (1) number 51 of the CRR (mainly paid-up capital, reserves as well as retained earnings) less any withdrawals and partners' loans or less the total nominal amount of the shares that are entitled to cumulative preferential profit distributions;
- the capital must be freely available and may not be derived from borrowing;
- the principles for solvency supervision of investment firms regulate, among other things, the following aspects of solvency supervision:
  - regulations on internal capital;
  - requirements for outsourcing;
  - governance structure;
  - requirements for risk management and risk-bearing capacity accounting; and

- regulations relating to administrative bodies.

- All securities trading firms must cover their liabilities arising from securities transactions through **membership in the compensation scheme** for securities trading firms. The contributions to be paid depend on the scale of a firm's business activities.

- The institution must have trustworthy senior managers who have the necessary professional qualifications:

  - "Professional qualifications" requires that the senior managers have adequate theoretical and practical knowledge of the business concerned, managerial experience and sufficient time to perform their functions. A person is normally assumed to have the professional qualifications needed to manage **a financial services institution** if he/she can demonstrate three years' managerial experience at an institution of comparable size and type of business[542];

  - The institution must be prepared and/or in a position to make the **organisational arrangements**[543] necessary for the proper operation of the business for which it is seeking authorisation.

Such application procedure requires **significant time and effort** and business transactions requiring the license cannot commence before such license is granted. Performing services without license constitutes a **criminal offense**[544].

A mandatory conversion into investment firms might therefore present a market disruptive event, even if a certain number of EMPs would follow the route of getting licensed.

Secondly, organisational processes and controls are largely designed to protect clients and their investments under MiFID. **Absent clients** and the management of client funds, for own account trading these requirements[545] do not serve a meaningful purpose.

Direct consequence of licensed status

Absent a formal **equivalence decision**[546], investment firms from outside the EEA are not allowed to perform their activities on a cross border basis within the EU[547]. They are required

[542] Which would lead to the effect that EMPs needed to find and appoint persons qualified in the financial sector to their board.

[543] According to Art. 16 MiFID II

[544] In any case under German law, see § 54 para 1 no. 2 KWG.

[545] In particular target market determination and product development.

[546] In particular target market determination and product development.

[547] See title VIII MiFIR, Art. 46, 47 and chapter IV MiFID II, Provision of investment services and activities by third country firms, in particular Art. 39, 41 MiFID II, which have to be read in conjunction with the respective national implementation.

to set up either a subsidiary or at least a branch within the EU which then applies for and operates under such license according to the procedures outlined above.

Non-financial trading firms which currently operate, for example from London or from Switzerland, would either need to restructure their business and corporate structure or may leave the market[548].

A viable option in this respect would be to trade similar energy derivatives at trading venue including exchanges based outside of the EU, for example ICE Futures Europe, London. It has to be noted, that derivative trading of products with financial settlement can occur anywhere and is not bound to the geographic region where the underlying of this derivative is produced or consumed. Examples are the markets for agricultural commodities[549] or crude oil[550].

D.2 Authorisation under MiFID II would have a detrimental knock-on effect on EMIR

Removing the AAE under MiFID II would turn EMPs from non-financial counterparties[551] ("NFC") to financial counterparties[552] ("FCs") under EMIR. Financial counterparties are subject to stricter regulatory requirements compared to non-financial counterparties.

Being treated as an FC under EMIR implies **significant burden**, in particular regarding **collateralisation requirements**.

A previous study by Frontier/Luther[553] found that due to this burden, NFCs would rather limit their trading activities as opposed to accept the financial burden associated with passing the NFC+[554] threshold.

548 In the absence of an equivalence decision by the Commission under Article 47 para. 1 of MiFIR, the MiFIR third-country regime has, so far, not been triggered. However, due to an agreement between BaFin and FINMA (the Swiss NRA), Swiss companies gain easier access to the German market, as BaFin waives the submission of company-related documents; see "Notes regarding the licensing for conducting cross-border banking business and/or providing cross-border financial services" provided by BaFin as of 11 March 2019 (only available in German under the following link: https://www.bafin.de/SharedDocs/Veroeffentlichungen/DE/Merkblatt/mb_050401_grenzueberschreitend.html;jsessionid=C52EC93F399EF879C716617EB4748DD5.1_cid503?nn=9450978#O2).

549 ICE Futures Europe provides for example trading for London's softs markets, including futures and options contracts on cocoa, Robusta coffee, white sugar, and feed wheat.

550 E.g., the crude oils West Texas Intermediate or Dubai Crude traded at ICE Futures Europe.

551 As defined in Article 2 (9) of EMIR, meaning all undertakings established in the EU other than Central Counterparties ("CCP") as defined in Article 2 (1) of EMIR and FCs.

552 As defined in Article 2 (8) of EMIR, meaning inter alia investment firms.

553 Frontier/Luther (2022), "Review of the EMIR Clearing Thresholds for Commodities (CCT)", available to Energy Traders Europe

554 NFC above the clearing threshold

As far as the status quo is concerned, in line with our results of the previous study, our conclusions regarding EMIR are twofold.

- EMPs would even **more likely withdraw** from regulated activities if continuing to perform such would not only pose additional cost under EMIR but lead to regulatory capital requirements under MiFID II; and
- the **review task** of the AAE under MiFID II by the EC (see section 3.2.1) would also **need to take into account** the implications from a different treatment under EMIR as a financial counterparty different status under MiFID II would automatically lead to the different status of under EMIR.

We base our conclusion on the effects that would apply if EMPs turn into FCs which were previous NFC- firms set out below.

- **Extended clearing obligation**

  The clearing obligation in Art. 4 para 1 EMIR applies, **if both of the contractual counterparties** fall under the clearing regime as either FC or NFC above the clearing threshold (NFC+) or its equivalents. Otherwise, they would be out of scope of the clearing mandate.
  In particular due to Art. 4 para 1 (a) (i) EMIR, the clearing obligation applied to a **significantly larger extent** if EMPs were on a broad basis forced to convert into investment firms. Unlike today, contracts between these firms would as a rule require clearing whereas currently, they do not[555].

Quantitative results: Survey by Energy Traders Europe highlights additional margining requirements under EMIR following from investment firm status under MiFID II

The investment firm authorisation under MiFID II would have a detrimental knock-on effect on EMIR. In a separate survey, Energy Traders Europe have therefore quantified knock-on effects of an investment firm status under EMIR.

[555] Within the EU, the mandatory clearing obligation under Commission Delegated Regulation (EU) 2015/2205 applies to the products referred to in this Regulation and ESMA (2024), "Public register for the clearing obligation under EMIR", ESMA70-151-2218 Public Register for the Clearing Obligation under EMIR (europa.eu). Currently, none of the OTC commodity derivative contracts are subject to mandatory clearing. According to Section 1.1. and 1.2. of the register, only OTC interest rate derivatives and OTC credit derivatives are subject to the clearing obligation.

The EMIR survey consists of submissions by eight members of Energy Traders Europe, which in some cases overlap with those participating in the MiFID survey presented in in Annex C.[556] The participants of the EMIR survey are all wholesale market facing entities belonging to (and sometimes heading) groups of firms that are amongst the largest wholesale energy-generation, trading, and retail supply groups active in the EU.[557]

Quantitative results

- As we set out in Table 17, **the investment firm status under MiFID II would result in additional collateralisation requirements for individual market participants of mean EUR 181m for IM** and EUR -155m for VM (net margin inflow for VM) for OTC trading under EMIR.[558]
- The survey further shows that additional margining requirements widely differ. In the case of one survey participant, **IM requirements reach up to EUR 1bn**.
- IM requirements under EMIR are of particular importance for EMPs. Financial regulation requires that IM positions *"may not be rehypothecated, repledged nor otherwise reused"*[559]. The cash required for IM is therefore "trapped" and can neither be used for other business purposes, nor netted against an inflow of IM from opposite trade positions.

Table 17 IM and VM requirements under EMIR knock-on effect

	IM requirements in mEUR	VM requirements in mEUR
Mean	181	-155
Median	66	-47
Minimum	-12	-700
Maximum	1,000	43

Source: Frontier Economics based on information received from Energy

Note: All calculations as per December 2022. Positive values refer to an outflow of margins, negative values refer to an inflow of margins.

556 The survey on knock-on effects under EMIR ("EMIR survey") is separate from the previously described survey on the prudential capital requirements under investment firm status with MiFID ("MiFID survey") in Annex C. For the EMIR survey, Frontier has received individual submissions by member firms of Energy Traders Europe to preserve confidentiality. For transparency, we note that Frontier has neither audited nor verified independently the results of the individual submissions.

557 In the context of the EMIR survey, survey participants considered margining for all of their respective trades with sophisticated counterparties, as well as with current FC/NFC+. For simplicity, survey participants considered other members of Energy Traders Europe as sophisticated counterparties as they would be likely to require MiFID-licensing in case of an adverse change to the AAE.

558 The survey indicates that the subsample of eight survey participants in the market would receive a net inflow of EUR 155m for VM, given their current trading portfolio underlying the calculations. It is worth noting that this cash would have to be raised by their respective trading partners. For the market as a whole, additional cash requirement could therefore follow from the EMIR knock-on effect.

559 BaFin (2022), Collateralisation of OTC derivatives, https://www.bafin.de/EN/Aufsicht/BoersenMaerkte/Derivate/EMIR/Besicherung/besicherung_otc_node_en.html

- **Separate threshold calculation requirements, Art. 4a EMIR**

  As consequence of EMIR REFIT, also investment firms are subject to a clearing threshold calculation. However, with one decisive distinction regarding the calculation of the threshold. The relevant Art. 4a para 3 EMIR reads:

  > *"(3) In calculating the positions referred to in paragraph 1, the financial counterparty shall include all OTC derivative contracts entered into by that financial counterparty or entered into by other entities within the group to which that financial counterparty belongs. (…)."*

  In contrast, Art. 10 para 3 EMIR outlining the clearing threshold calculation for EMPs[560] and providing in principle similar requirements, reads in its relevant section as follows:

  > *"(3) In calculating the positions referred to in paragraph 1, the non-financial counterparty shall include all the OTC derivative contracts entered into by the non-financial counterparty or by other non-financial entities within the group to which the non-financial counterparty belongs, which are not* ***objectively measurable as reducing risks directly relating to the commercial activity or treasury financing activity ["hedging[561]"]*** *of the non-financial counterparty or of that group."[562] (emphasis added in bold)*

  OTC derivative contracts entered into by EMPs for hedging purposes therefore do not count against the clearing thresholds. investment firms, on the other hand, **cannot make use of this exemption** and must include **all** OTC derivative contracts in their calculation. As a result, investment firms are far more likely to **exceed the clearing threshold** than NFC-EMPs, particularly as a high proportion of OTC derivative contracts are expected to be entered into by EMPs for hedging purposes.[563]

- **More transactions subject to clearing**

  Additionally, the clearing obligation applies more broadly to investment firms. Art. 4a para 1 (c) EMIR stipulates that investment firms shall become subject to the clearing obligation

  > *"(…) for all OTC derivative contracts* ***pertaining to any class of OTC derivatives*** *which is subject to the clearing obligation entered into (…)." (emphasis added in bold)*

  Conversely, the parallel provision for EMPs in Art. 10 para 1 (c) EMIR states that those entities shall become subject to the clearing obligation

560 Assuming they can be considered as NFCs under EMIR.

561 ESMA Q&As, OTC answer 10 (c) p. 29.

562 See also the respective Delegated Regulation (DR (EU) No 149/2013) specifying criteria for establishing which OTC derivative contracts can be considered as hedging: The relevant Art. 10 is referring to NFCs only.

563 Frontier/Luther (2022), "Review of the EMIR Clearing Thresholds for Commodities (CCT)", available to Energy Traders Europe

*"(…) for the OTC derivative contracts entered into (…) that **pertain to those asset classes** in respect of which the result of the calculation exceeds the clearing thresholds (…)." (emphasis added in bold)*

Thus, if the clearing threshold is exceeded, investment firms are subject to the clearing obligation not only for the class of derivatives in which the clearing threshold was exceeded, but also for **all classes of OTC derivatives**[564].

- **Extended reporting obligation**

As a consequence of EMIR-REFIT, investment firms are solely responsible and legally liable for EMIR-transaction reporting. The relevant provision of Art. 9 para 1a reads:

*"(1a) Financial counterparties shall be **solely responsible**, and legally liable, for reporting on behalf of both counterparties, the details of OTC derivative contracts concluded with a non-financial counterparty that does not meet the conditions referred to in the second subparagraph of Article 10(1), as well as for ensuring the correctness of the details reported. (…)." (emphasis added in bold)*

As a consequence, EMPs would, after becoming investment firms, unlike today, have to report **significantly more derivatives** because the former legal delegation to potential financial counterparties would fall apart and, in addition, they had to overtake this responsibility towards any remaining residual non-regulated counterparty.

- **Extended risk mitigation techniques, Art 11 EMIR**[565]

Apart from the general requirements outlined in Art. 11 para 1, a set of stricter requirements apply according to para 2 et seq. of Art. 11. It reads:

"(2) Financial counterparties and non-financial counterparties referred to in Article 10 shall mark-to-market on a daily basis the value of outstanding contracts. Where market conditions prevent marking-to-market, reliable and prudent marking-to-model shall be used.

(3) Financial counterparties shall have risk-management procedures that require the timely, accurate and appropriately segregated exchange of collateral with respect to OTC derivative contracts that are entered into on or after 16 August 2012. Non-financial counterparties referred to in Article 10 shall have risk-management procedures that require the timely, accurate and appropriately segregated exchange of collateral with respect to OTC derivative contracts that are entered into on or after the clearing threshold is exceeded.

(4) Financial counterparties shall hold an appropriate and proportionate amount of capital to manage the risk not covered by appropriate exchange of collateral."

564 See fn. 555.

565 As specified in Commission delegated regulation (EU) 2016/2251 of 4 October 2016

These requirements are further specified and detailed in DR 2016/2251. The entire set of obligations applies to all "counterparties", unless, by way of derogation, it is explicitly provided that this requirement does not apply. Art. 24 DR 2016/2251 explicitly exempts **non-financial counterparties from specific collateralisation requirements**.

As this exemption would **fall apart** as consequence of a conversion of EMPs into investment firms, the **entire set of obligations regarding collateralisation** of counterparty risk would apply. These entail inter alia the following.

- Exchange of collateral agreements, Art, 3
- Provisions on eligible collateral, Art. 4
- Provisions regarding credit quality assessments, Art. 6
- Concentration limits for initial margin, Art. 8
- Provisions on variation margin, Art. 12
- Provisions on initial margin, Art. 13,
- General requirements on initial margin models, art. 14
- Qualitative requirements, Art. 18
- Collateral management and segregation, Art. 19
- Treatment of collateral initial margins, Art. 20
- Calculation of the adjusted value of collateral, Art. 21

Apart from the operational burden to introduce calculation and evaluation processes regarding the collateral, **the funds required** in order to raise and pose such collateral in the first place, will represent **significant additional liquidity constraints to EMPs**, in particular in times of volatile market conditions. As a consequence, rather than limiting volatility, such expansion of regulation is likely to sharpen the detrimental effects of high volatility as it will, in stress scenarios, put unreasonably high collateralisation requirements on such market participants.

D.3 Authorisation under MiFID II would have further spillover effects under MiFIR

Together with MiFID II, MiFIR forms the legal framework governing the requirements applicable to investment firms, regulated markets, and data reporting services providers. Like EMIR, MiFIR imposes stricter requirements on investment firms. Art. 1 para 2 MiFIR, stipulating the scope of MiFIR, read:

> *(2) This Regulation applies to investment firms, authorised under Directive 2014/65/EU and credit institutions authorised under Directive 2013/36/EU of the European Parliament and of the Council (1) when providing investment services and/or performing investment activities and to market operators including any trading venues they operate.*

This would impact the following areas:

- **Post-trade disclosure**

Amongst the stricter rules applying to investment firms, of particular importance is Art. 21 MiFIR, setting up a post-trade disclosure obligation as the provision states:

> *"(1) Investment firms which, either on own account or on behalf of clients, conclude transactions in bonds, structured finance products, emission allowances and derivatives traded on a trading venue shall make public the volume and price of those transactions and the time at which they were concluded. That information shall be made public through an APA. (…)."*

- **Maintaining records**

MiFIR also puts the obligation on investment firms to maintain records of all orders and transactions in financial instruments that they have executed as stipulated in Art. 25 MiFIR:

> *"(1) Investment firms shall keep at the disposal of the competent authority, for five years, the relevant data relating to all orders and all transactions in financial instruments which they have carried out, whether on own account or on behalf of a client. In the case of transactions carried out on behalf of clients, the records shall contain all the information and details of the identity of the client, and the information required under Directive 2005/60/EC of the European Parliament and of the Council. ESMA may request access to that information in accordance with the procedure and under the conditions set out in Article 35 of Regulation (EU) No 1095/2010. (…)."*

- **Reporting obligation**

Beside the disclosure and record storage requirements, Art. 26 MiFIR stipulates reporting obligations which apply to investment firms:

> *"(1) Investment firms which execute transactions in financial instruments shall report complete and accurate details of such transactions to the competent authority as quickly as possible, and no later than the close of the following working day."*

- **Obligation to trade on trading venues**

Of particular importance for the energy market would be the **trading mandate** according to Art. 28 MiFIR. The provision reads:

> *"(1) Financial counterparties as defined in Article 2(8) of Regulation (EU) No 648/2012 and non-financial counterparties that meet the conditions referred to in Article 10(1)(b) thereof shall conclude transactions which are neither intragroup transactions as defined in Article 3 of that Regulation nor transactions covered by the transitional provisions in Article 89 of that Regulation with other such financial counterparties or other such non-financial counterparties that meet the conditions referred to in Article 10(1)(b) of Regulation (EU) No 648/2012 in derivatives pertaining to a class of derivatives that has been declared subject to the trading obligation in accordance with the procedure set out in Article 32 and listed in the register referred to in Article 34 only on:*

(a) regulated markets;

(b) MTFs;

(c) OTFs; or

(d) third-country trading venues, provided that the Commission has adopted a decision in accordance with paragraph 4 and provided that the third country provides for an effective equivalent system for the recognition of trading venues authorised under Directive 2014/65/EU to admit to trading or trade derivatives declared subject to a trading obligation in that third country on a non-exclusive basis."

As a consequence, if the trading obligation applied to EMPs after their conversion into investment firms, the classical bilateral **OTC-trading would be severely impacted**.