

# Reforming the EU electricity market

## SUMMARY

The energy crisis of 2022 has brought new challenges for the EU electricity market. Concerns over very high prices (driven in part by their coupling with gas prices), security of energy supply, and the need to increase decarbonisation have sparked discussions on the need to redesign the EU's electricity market.

The EU has already taken a number of short-term measures to contain the energy crisis. The REPowerEU plan of May 2022 was introduced to phase out Russian fossil fuel imports, diversify supplies, boost energy savings and accelerate the clean energy transition. Other measures, focusing more specifically on electricity, included a Council regulation of October 2022 on an emergency intervention to address high energy prices, which introduced electricity demand reduction targets and set a revenue cap on inframarginal electricity producers, i.e. those producing electricity below the cost of the most expensive 'marginal' fuel source.

More long-term structural electricity market reform aims to make the market more resilient, contain excessive price volatility and ensure secure energy supplies, especially from clean sources. The reform is expected to focus on the following areas: making electricity bills less dependent on short-term fossil fuel prices, e.g. by reducing the role of gas in short-term markets; pricing inframarginal technologies on the basis of their true production costs; boosting the role of renewables; better protecting consumers against price volatility and empowering them to produce and share electricity; and improving market transparency, surveillance and integrity. There is also an ongoing discussion as to whether the current merit order system based on marginal pricing, effectively responsible for coupling electricity prices with gas prices, should be reformed.

The Commission is expected to present its legislative proposal on the electricity market reform in mid-March 2023.



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## Introduction

The 2022 energy crisis, which followed Russia's invasion of Ukraine, brought multiple challenges relating to energy security and affordability. Energy prices had been going up since mid-2021 in light of the post-COVID economic rebound and [reduced](#) supplies of Russian gas, while the war-related gas delivery disruptions exacerbated the trend (see Figure 1). According to the European Commission, in Q3 2022 the gas wholesale price (Dutch TTF) stood at [€159/MWh](#) (megawatt hour), down from an all-time high of €320/MWh in August.

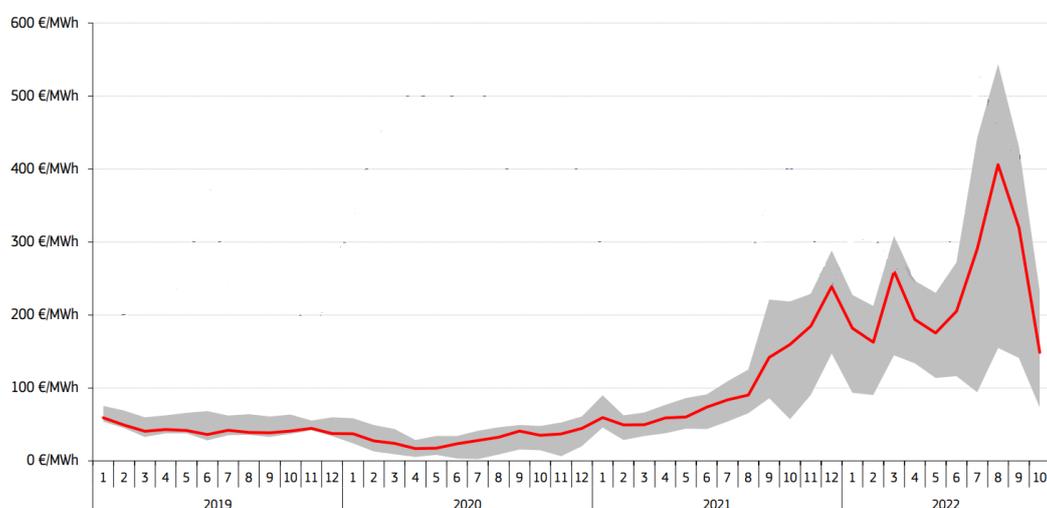
For electricity, the European Power Benchmark stood at [€339/MWh](#) on average in Q3 2022, which was 222 % higher year-on-year. High gas prices had a contagious effect on electricity prices due to the [merit order](#) system (marginal pricing), which sets the price for electricity on the basis of the last fuel to complete the energy mix. This is the most expensive source of fuel, which in 2022 was usually gas but sometimes coal. Electricity can be produced from various energy sources, such as fossil fuels, nuclear or renewables. In 2021, the share of renewables in gross electricity consumption stood at [37.5 %](#) (mainly driven by wind, solar and hydropower).

## Measures already taken

The EU has already taken some short-term measures to address the price volatility and security of supply concerns. The [REPowerEU](#) plan of May 2022 included legislation and other initiatives aimed at reducing dependence on Russian fossil fuels, making energy savings and accelerating the rollout of renewables. This included, for instance, higher 2030 targets for renewables in energy consumption (45 %) and higher energy efficiency targets. In the months that followed, other pieces of legislation have been adopted.<sup>1</sup> One of these, [Council Regulation \(EU\) 2022/1854 on an emergency intervention to address high energy prices](#), included specific provisions on electricity. It introduced a mandatory 5% reduction in peak electricity consumption and a voluntary 10% reduction in electricity consumption, as well as a revenue cap on inframarginal electricity generators whenever wholesale electricity prices exceed €180/MWh.

Member States have also taken individual measures to contain energy prices, for instance through price regulation, reduced energy taxes, transfers to vulnerable groups, business support, windfall taxes, greater use of coal-fired and nuclear power plants, etc. (see [Bruegel](#) dataset for an overview of national measures undertaken during the current crisis).

Figure 1 – Evolution of lowest and highest regional wholesale electricity prices in the European day-ahead markets 2019-2022



Source: European Commission, [Quarterly report on European electricity markets](#), Q3 2022, based on S&P Global Platts. The shaded area delineates the spectrum of prices across European regions.

Spain and Portugal have been benefiting from the 'Iberian exception' since June 2022, ensuring an exceptional cap on the price of gas used for electricity generation in the day-ahead markets, a solution that has sometimes been [contested](#) for driving up gas consumption and exports.

## Electricity markets set-up

The various players on the electricity markets include suppliers, consumers, transmission system operators (TSO), distribution network operators (DSO) and regulators (see EPRS [briefing](#)). Supply and demand in the electricity grid must always be balanced in order to avoid blackouts; therefore, consumption must be perfectly matched with generation. Energy storage can stabilise fluctuations; however, storing large quantities of electricity is complex and expensive, and requires new and commercially viable technological solutions.

The EU electricity markets are divided into retail and wholesale markets. The retail markets organise supply to end-customers such as companies and households, while wholesale markets link electricity producers, suppliers and large industrial consumers. Wholesale prices often differ from retail prices, as the latter may include taxes, transmission and subsidies, etc. Prices also vary between household and non-household consumers.

Electricity is traded on wholesale markets, where it is purchased by suppliers and sold by producers for delivery at different moments, e.g. on the same day, the next day, or months/years in advance (intraday, day-ahead and forward markets, respectively). It can also be exchanged via interconnections between countries, which facilitates price convergence and balancing of supply and demand. The merit order rule applies to the day-ahead markets based on 'marginal cost pricing' (i.e. cost of the last MWh generated). This means that producers with lower operating costs (usually renewables and nuclear) are contacted as a priority, while the production cost of the last power plant called sets the wholesale market price. During the current crisis, this often tended to be gas (and more rarely coal, depending on the national energy mix).

The rules regarding the operation of electricity markets are set by national regulators, while at EU level the Agency for the Cooperation of Energy Regulators ([ACER](#)) defines the guidelines for cross-border electricity networks and markets (so-called 'network codes'). The European Network of Transmission System Operators for Electricity ([ENTSO-E](#)) further develops the guidelines.

## The need for reform

Over several decades, the EU has worked towards a liberalised and interconnected electricity market that can ensure competitive and converging prices, with the idea that allowing electricity to move freely to where it is most needed will bring benefits from cross-border trade and competition, drive investments, and ensure security of supply, consumer protection and decarbonisation of the energy system. According to a 2022 [ACER report](#), the annual gain from the integrated cross-border electricity market for European consumers amounts to €34 billion. However, in light of the prolonged energy crisis, the EU is seeking ways to optimise the electricity market design to tackle price volatility, further accelerate investments in renewables, and enhance the flexibility and resilience of the power system.

## Current legislation

The EU electricity market is based on several pieces of legislation.<sup>2</sup> Four of them were last revised in 2019, when the [Clean Energy Package](#) was adopted to make the energy market fit for the clean energy transition. These revisions included Directive (EU) 2019/944 on common rules for the internal market for electricity ([Electricity Directive](#)), Regulation (EU) 2019/943 on the internal market for electricity ([Electricity Regulation](#)), Regulation (EU) 2019/941 on risk-preparedness in the electricity sector ([Risk Preparedness Regulation](#)), and Regulation (EU) 2019/942 establishing a European Union Agency for the Cooperation of Energy Regulators ([ACER Regulation](#)).

The Electricity Directive and Electricity Regulation set the basis for competitive, efficient and integrated electricity markets, aiming to ensure security of supply, affordable prices for consumers and a transition towards a decarbonised energy system. While the directive covers the retail electricity markets and includes common rights for energy consumers across the EU, the regulation refers to the wholesale markets and network operation. The 2019 **Electricity Directive** lays down the [rules](#) for the generation, transmission, distribution, supply and storage of electricity, as well as some consumer protection aspects such as the right to freely choose the supplier and a dynamic price contract, and the protection of vulnerable consumers. The directive also has provisions on billing information, smart metering systems, aggregators,<sup>3</sup> citizen energy communities, distribution system operators, transmission system operators and energy regulators.

The 2019 **Electricity Regulation** sets out [principles](#) for the operation of EU electricity markets, such as free price formation on the basis of supply and demand, facilitating more flexible and low carbon generation and more flexible demand, empowering consumers as market players, supporting decarbonisation of the electricity system by integrating renewables, facilitating the removal of obstacles to cross-border flows between countries and bidding zones (i.e. the largest geographical areas within which market participants can exchange energy without capacity allocation), and incentivising investments in low-carbon production and technologies. The regulation also includes provisions on the balancing market, day-ahead, intraday and forward markets, bidding limits, dispatching and redispatching, network access and congestion management, transmission and distribution systems operation, network codes and guidelines, and regulatory oversight.

The 2019 **Risk Preparedness Regulation** [requires](#) Member States to prepare plans for dealing with potential electricity crises, e.g. electricity shortages due to events such as extreme weather conditions, cyberattacks and fuel shortages, or a sudden failure of the largest power station (n-1). While Member States are primarily responsible for managing their own electricity supply, the focus of EU regulation is to counter any cross-border effects that could undermine market functioning and drive up electricity bills. It also lays down rules for cooperation between Member States with a view to preventing, preparing for and managing such crises.

The 2019 **ACER Regulation** updates the provisions relating to the role of the EU Agency for the Cooperation of Energy Regulators, which was established in 2011 on the basis of the 2009 ACER Regulation. The [role](#) of ACER is to assist regulatory authorities and perform regulatory and supervisory functions. It is competent to take decisions regarding conditions and methodologies envisaged in network codes and guidelines, bidding zone reviews, arbitration between regulatory authorities on cross-border issues, exemptions from certain market rules, infrastructure, and matters related to wholesale market integrity and transparency rules. It also monitors the wholesale and retail markets in electricity and natural gas, including retail prices of electricity and gas, compliance with consumer rights, the impact of market developments on household consumers, and access to the networks, including access of electricity produced from renewable energy sources.

The 2018 [Renewable Energy Directive](#) (currently under [revision](#)) also has provisions pertaining to electricity, as it obliges the Member States to support integration of renewable sources into their power grids, prioritising their grid access. It also contains provisions on energy communities, rules on cross-border projects, and accelerated permit granting for renewable energy projects.

Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure ([TEN-E Regulation](#)) supports the integration of national electricity networks via projects of common interest necessary to implement priority corridors and areas falling under the energy infrastructure categories, including electricity.

Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency ([REMIT Regulation](#)) sets out EU oversight rules for wholesale electricity and gas markets, with the aim of counteracting abuses such as insider trading and market manipulation. It tasks ACER with monitoring trading activities in the wholesale energy market and annual reporting to the European

Commission, obliges market participants to register with a national regulatory authority, and outlines penalties for non-compliance with the regulation.

## Reform of the EU electricity market

The new market realities brought about by the energy crisis have compelled the EU to undertake a reform of its electricity market design to ensure energy security, affordable prices and further decarbonisation. The upcoming reform was announced by the Commission President in her [State of the Union address](#) in September 2022 and again in the 2023 [Commission work programme](#) published a month later, with Q1 2023 as an indicative date for the legislative proposal(s). In its [conclusions](#) of 20-21 October 2022, the European Council called on the Commission 'to speed up work on the structural reform of the electricity market, including an impact assessment', highlighting the dual objective of energy sovereignty and climate neutrality. The revision of electricity market design was [discussed](#) by the Energy Commissioner Kadri Simson at the Energy Council on 19 December 2022.

In anticipation of the legislative proposal, the Commission conducted a [public consultation](#) on the reform of the EU electricity market design between 23 January and 13 February 2023. Four main [areas](#) for reform were identified: 1) Making electricity bills less dependent on short-term fossil fuel prices, and boosting the deployment of renewables; 2) Improving market functioning to ensure security of supply, and fully utilising alternatives to gas, such as storage and demand response; 3) Enhancing consumer protection and empowerment; and 4) Improving market transparency, surveillance and integrity. The results have not been published at the time of writing. However, information on the type of respondents is already available (over 52.52 % are EU citizens, over 20.37 % are companies, 13.41 % are business associations and 3.85 % are NGOs, while the others include public authorities, academic institutions, consumer organisations and trade unions).

Some details of a possible reform were outlined in a Commission [communication](#) in May 2022 on 'Short-Term Energy Market Interventions and Long Term Improvements to the Electricity Market Design', the [non-paper](#) on 'Policy Options to Mitigate the Impact of Natural Gas Prices on Electricity Bills' sent to the Energy Council of 25 October 2022, and another [non-paper](#) on 'Electricity Market Design' of December 2022 intended to serve as a basis for an exchange of views.

The Commission communication of May 2022 proposes some ideas for a 'future-proof electricity market design' and possible market reforms to manage price volatility and make it fit for a decarbonised electricity mix with a high share of renewables. The main issues identified (based on the 2022 ACER report and stakeholders' feedback) are the need to protect consumers and deliver affordable electricity in both the short and the long run, ensure the resilience of the electricity market and system to cope with high amounts of variable renewables and a more decentralised production structure, and support the achievement of the European Green Deal.

In terms of consumer protection, the communication highlights the need to treat electricity as a basic right for vulnerable consumers and design the market in such a way that it ensures access to energy for all citizens, while providing certain consumers with 'a minimum level of electricity demand at a reasonable price, regardless of the situation in the electricity markets'. In order to protect consumers against high prices and excessive volatility, it proposes hedging as a way of mitigating the risk of future price increases through supply agreements at a fixed price. As electricity can be traded for forward delivery on the forward markets, it also suggests regulatory interventions to improve liquidity on these markets. It highlights the benefits of market-based instruments to protect consumers against price risks, e.g. 'a contractual promise by a generator to make electricity available to certain consumer categories at pre-established conditions once the normal market price hits a certain level'.

In order to prevent situations where customers have to choose new suppliers at short notice with less favourable conditions due to some suppliers not being able to honour their obligations, the communication suggests 'requirements for suppliers to hedge part of their supply obligations and

other regulatory requirements to ensure that suppliers are sufficiently robust to withstand future crises. Suppliers could also be required to have fixed priced offers available in their portfolio similarly to existing requirements to offer dynamic contracts to customers'.

The communication also supports investments in firm and low carbon capacity. In order to 'ensure long term security of supply and provide investor certainty', it argues for further assessment of capacity mechanisms (i.e. remuneration for power plants to secure long-term supply) to ensure investments in firm renewable and low carbon capacity and integrate some of the contractual affordability mechanisms. For publicly supported generation such as renewables, in order to avoid excessive returns for investors during periods of high market prices, it proposes two-way contracts for differences (CfDs), 'under which the operator receives a top-up when market prices are low and returns it when they are high', which could 'contribute to making the electricity price formation more independent from the cost of natural gas'.

Another proposed way to contain the volatility of prices is to ensure flexibility instruments such as demand-side response and storage, which would enable consumers to react to prices by increasing their consumption when there is excess generation available and reducing it when supply is tight. Flexible technologies such as smart grids and collective/individual self-consumption based on solar power are also proposed in this context.

The communication also stresses the need to support innovation in electricity and gas infrastructure and remove barriers in this regard, and proposes 'locational pricing' intended to reduce costs and windfall profits thanks to the creation of different market prices reflecting the local balance of supply and demand and the availability of transmission.

In terms of market surveillance and transparency, the communication mentions the possibility of reviewing Regulation (EU) 1227/2011 on wholesale market integrity and transparency ([REMIT](#)), to improve market transparency and enforcement at EU level, and enhance market data quality and collection.

Similarly to the above communication, the [non-paper](#) of October 2022 focuses on the issue of coupling gas prices with electricity and presents several options for short-term and long-term measures. In terms of long-term structural solutions, it proposes remunerating renewables and other technologies based on their true production costs. This would apply to renewables and other types of inframarginal producers (e.g. nuclear), where so-called 'contracts for difference' (CfD) would be used, independently of the marginal price. The price of these contracts would be established by tendering and reflect actual production costs.

The non-paper also makes suggestions on effective competition for gas on the short-term market, which would complement the above new revenue structure for inframarginal generators based on CfDs. The main role of gas-fired electricity generation would be to counterbalance intermittent renewable generation (e.g. from solar or wind power) until alternative renewable technologies are able to do it. A well-functioning short-term market would ensure the use the cheapest and most efficient technology at any moment in time, thanks to the removal of barriers for alternative technologies such as storage and demand response. This would enhance their ability to compete on a level playing field and progressively replace gas-fired power plants, alongside other renewable and low carbon energy sources. According to the non-paper, the above arrangements would end the excessive dependence of electricity bills on highly volatile natural gas markets and bring the benefits of lower cost renewables to consumers.

The European Commission [non-paper](#) on electricity market design of December 2022 focuses on ways to ensure affordable and secure energy from sustainable and renewable sources, mainly in the long term as part of a structural reform, and lays out the details of the issues included in the 2023 stakeholder consultation. It highlights the crucial role of accelerating and incentivising investments in renewables due to their positive impact on energy prices thanks to low operational costs, their role in decarbonisation and the phasing out of fossil fuels, and their contribution to the security of energy supply. The non-paper stresses that the reform should focus on increasing market resilience,

reducing the impact of gas prices on electricity and supporting decarbonisation. It outlines four possible areas for reform to be further considered, depending on the outcome of the public consultation: 1) Pricing inframarginal technologies based on their true production costs; 2) Reducing the role of gas in short-term markets, 3) Better consumer empowerment and protection; 4) Improving market transparency, surveillance and integrity. As one of the reform objectives is to ensure lower and more stable prices in the long term, the non-paper proposes improving consumer access to lower cost renewables and other inframarginal generators (e.g. nuclear).

The non-paper also argues that the revenues of producers should more closely reflect their production costs and be less dependent on the short-term marginal price in the day-ahead market, currently determined by the price of the last most expensive unit called to meet demand (usually gas). For this purpose, it proposes long-term contracts with different remuneration structures for new inframarginal generators entering the market, depending on whether or not a given investment receives public support.

For investments based on market conditions, it suggests long-term [power purchase agreements](#) (PPAs) as a way to guarantee long-term stability of the project's revenues independently of short-term prices on the day-ahead market. It suggests incentivising generators, suppliers, and industrial and non-industrial consumers to enter into PPAs and thus strengthen the liquidity on forward markets.

For investments requiring public support, it proposes 'two-way contracts for difference' (CfD), under which the revenues of certain generators would reflect the total costs of the relevant technology. The parameters of these contracts would be established by a competitive tender process, allowing support to be channelled to the projects with the lowest expected production costs. In crisis situations, CfDs could provide Member States with additional revenues to be used, for instance, for mitigating the impact of high electricity prices on consumers. CfDs could also allow generators to combine public support with PPAs. According to the Commission, these 'long-term remuneration mechanisms would also provide sufficiently stable sources of revenues and predictability to trigger the necessary investments'.

The non-paper considers options to prevent excessive revenues being made by existing inframarginal generators and make these revenues less dependent on the short-term marginal price. It also considers including some aspects of the temporary inframarginal revenue cap under Council Regulation 2022/1854 – for instance, applying it on a more permanent and harmonised basis or activating it only in crisis situations.

In terms of reducing the role of gas in short-term markets, the non-paper proposes improving the conditions 'under which flexibility solutions such as demand response and energy storage compete in the short-term markets', arguing that, combined with renewable generation, this would reduce the role of gas-fired generation in the short-term market as a flexible source of generation, and help phase out gas-fired power generation over time in line with the EU's decarbonisation targets. Moreover, a new revenue structure for inframarginal generation could change the impact of current short-term markets based on marginal pricing, so that they would determine to a much lesser extent 'the revenues of all generators while continuing to ensure that supply and demand is matched at all times, that the cheapest available electricity is always utilised to meet demand and that cross-border flows and market coupling function smoothly'. The Commission sees the role of short-term markets as increasingly important in light of the rising shares of variable renewable generation.

In terms of better consumer empowerment and protection, the non-paper highlights the need to ensure access to essential energy for vulnerable consumers and industries. In this context, it suggests exploring options for enhancing the existing emergency provisions on regulated prices to ensure that, in an emergency, 'certain consumers have access to a minimum level of electricity at a reasonable price, regardless of the situation in the electricity markets'. It also suggests 'improving consumer choice by obliging suppliers above a certain size to offer fixed price fixed term contracts

covering a fixed share of the average household's consumption' to mirror and balance the existing obligation to offer dynamic price contracts and mitigate the costs of supplier failure 'by requiring suppliers to be adequately hedged'. Furthermore, it proposes 'introducing a formal obligation to appoint a supplier of last resort and clarifying the roles and responsibilities of the appointed supplier and the rights of consumers transferred to the supplier of last resort'. In addition, taking advantage of digitalisation is intended to enable energy sharing and support prosumers using electricity from renewable generation. Another measure could be to 'facilitate the development of offers from suppliers and aggregators to use demand response capabilities of appliances such as heat pumps and electric vehicles'.

In terms of improving market transparency, surveillance and integrity, the Commission considers the need to update the framework laid down by Regulation (EU) 1227/2011 on wholesale market integrity and transparency (REMIT), which 'ensures that consumers and other market participants can have confidence in the integrity of electricity and gas markets, that prices reflect a fair and competitive interplay between supply and demand, and that no profits can be drawn from market abuse'. In light of recent developments such as very high volatility, interference by external actors, reduced supplies and new trading behaviour, such an update could be 'considered to increase transparency, monitoring capacities and ensure more effective investigation and enforcement of potential market abuse cases in the EU'. In this context, the non-paper suggests aligning ACER powers under REMIT with relevant powers under the EU financial market legislation, adapting the scope of REMIT in line with new market circumstances, strengthening the enforcement regime and improving the transparency of market surveillance.

Additional non-papers proposing more fundamental changes have been provided by [Spain](#) and [Poland](#), while seven countries (Germany, Denmark, Estonia, Finland, Luxembourg, Latvia and the Netherlands) issued a [letter](#), in which they called for cautious reform largely preserving the current market set-up and making only targeted changes.

While it is not yet known which legislation will be part of the reform, the above documents suggest that it could encompass at least the Electricity Directive and Electricity Regulation, and possibly also the REMIT Regulation. According to the non-paper of December 2022, the proposal is expected to be published in March 2023, before the meeting of the European Council scheduled for 23-24 March. The Energy Commissioner, Kadri Simson, [announced](#) at the informal meeting of EU energy ministers on 27 February 2023 that the Commission will present the proposal in mid-March.

## European Parliament's position

In its [resolution](#) of 10 July 2020 on a comprehensive European approach to energy storage, the Parliament called for removing the obstacles to integrating storage into electricity markets and for promoting the role of active consumers able to self-generate electricity, as well as consume, store and sell it on the market.

In its [resolution](#) of 19 May 2021 on a European strategy for energy system integration, the Parliament stressed the benefits of an increasingly decentralised and renewable power generation mix, maximising electricity trade and the role of demand-side response, storage and smart energy management.

In its [resolution](#) of 19 May 2022 on the social and economic consequences for the EU of the Russian war in Ukraine – reinforcing the EU's capacity to act, the Parliament called on the Commission to submit proposals addressing the problem of excessive electricity prices and 'to assess the impact of gas prices on the functioning of the electricity market, in particular on the setting role of the gas price in the final price'.

In its [resolution](#) of 5 October 2022 on the EU's response to the increase in energy prices in Europe, the Parliament stressed that any reform of the electricity market should be aligned with EU climate

goals and decarbonisation efforts, and called on the Commission to analyse the option to decouple electricity prices from gas prices.

In its [amendments](#) of 10 November 2022 to the proposal for a regulation on REPowerEU chapters in recovery and resilience plans, the Parliament stressed the need to speed up permitting procedures for renewable energy plants, including improvements of related electricity generation.

## Stakeholders' views

Eurelectric, the federation of the European electricity industry, calls in its 2022 position [paper](#) on electricity market design for retaining the underlying features of the current market design (based on merit order and marginal pricing), stating that the current market design is not to blame for high electricity prices, but rather ensures optimal operation of the energy system and delivers benefits to consumers. Therefore, changes should be assessed in light of long-term benefits rather than problems relating to the current crisis. In this context, it calls for preserving the market's cost-efficiency, cross-border exchanges and competition between market players. It also proposes a number of additions, such as an enhanced customer contracting framework with possibilities for long-term hedging and contracts, an investment framework for renewables and low carbon technologies, and a framework that maintains adequacy and security of supply and meets the evolving power system requirements, in particular regarding decentralisation and flexibility. It also supports a high level of harmonisation for wholesale (spot and future) markets, while preserving the inevitable diversity of retail markets.

ACER published its final [assessment](#) of the EU wholesale electricity market design in April 2022. It finds many elements of the current design worth keeping but calls for improving the functioning of short-term electricity markets; driving the energy transition through efficient long-term markets and improving liquidity on these markets; better integrating the forward markets; increasing the flexibility of the electricity system; protecting consumers against price volatility; improving access to PPAs; tackling non-market barriers; and considering public intervention to establish hedging instruments against future price shocks.

The Council of European Energy Regulators (CEER), in its 2022 draft policy [paper](#) on the EU electricity forward market co-written with ACER, points out that the day-ahead and intraday markets have undergone significant revision, harmonisation and integration in the last 15 years, while the forward market has received less attention despite struggling with challenges such as insufficient liquidity, accessibility, competition and transparency, as well as concentrated market power. The paper proposes a better allocation of long-term cross-zonal capacities, in order to better integrate national forward markets into the electricity forward market, with three policy options for regulatory intervention: 1) allocation of zone-to-hub financial transmission rights by TSOs; 2) market coupling with contracts for differences; and 3) market coupling with energy futures.

ENTSO-E (European Network of Transmission System Operators for Electricity), in its 2022 policy [paper](#) on the 'EU's Electricity Forward Markets', discusses two alternative policy options: 1) TSOs as providers of hedging opportunities (by issuing LTTRs – long-term transmission rights); and 2) purely financial forward markets. In its 2022 vision [paper](#) on 'A Power System for a Carbon Neutral Europe' it highlights the need for decarbonisation, system flexibility and an interconnected power grid, and predicts that electricity will become the dominant energy carrier in a fully carbon neutral economy.

In its 2023 [statement](#), SolarPower Europe argues that changing the foundations of electricity markets (e.g. marginal pricing) can create regulatory instability and halt investments in renewables. It calls for facilitating access to renewable Power Purchase Agreements for consumers and businesses to bring benefits from low-cost renewable electricity, and for accelerating clean flexibility (e.g. storage) access to the wholesale and balancing market to boost electricity system reliability. It also states that an electricity market aiming for 100% renewables needs to be based on a resilient and reliable electricity grid, which requires investment incentives for grid operators and fast-tracked permitting procedures.

In its 2022 position [paper](#), WindEurope calls for maintaining short-term wholesale markets based on marginal pricing and merit order, boosting domestic energy supply (especially offshore wind), and accelerating the deployment of electricity grids and climate-friendly energy security instruments that safeguard climate action (such as capacity remuneration mechanisms).

BusinessEurope [supports](#) decoupling gas and electricity prices only as an exceptional and temporary measure, justified by the exceptional situation on the energy market.

The European Trade Union Confederation (ETUC), in its 2022 [position](#) on EU proposals to mitigate the energy crisis, calls for structural reform of the electricity market, which would prevent fossil fuels from setting the price of decarbonised electricity and secure large-scale investment in additional generation capacity, as well as 'developing the infrastructure to transport, store and distribute clean power'. It also supports capping the price of gas in electricity generation, with a financial mechanism that would partly use the excess profits of energy companies.

Energy Cities, in its 2022 [letter](#) 'Reform Electricity Market Design legislation to empower citizens in the energy transition', urges tapping into the potential of energy communities, especially in terms of renewables self-production and electricity sharing.

The Centre on Regulation in Europe (CERRE), in its 2022 [report](#) 'Recommendations for a Future-Proof Electricity Market Design', stresses the need to reduce demand, accelerate low-carbon investments, remove trade barriers, avoid power price caps, introduce power purchase agreements and fixed-price contracts for differences, and better link the wholesale and retail markets.

In its 2023 working [paper](#) on 'Reforming the EU internal electricity market in the middle of a huge energy crisis', the Florence School of Regulation proposes five market pillars for the future EU electricity market design: three types of long-term contracts (for price hedging, for energy delivery, and for capacity building), and the existing two types of short-term markets (for energy and for reserves). In addition, it considers it necessary for the EU 'to implement a stronger policy with both transmission grids and distribution grids, and several other types of infrastructure such as storage and flexibility assets'.

## Outlook

The energy crisis, which followed Russia's invasion of Ukraine, brought new challenges around electricity security and affordability. According to the [International Energy Agency](#), despite the drop in wholesale electricity prices due to the exceptionally mild winter of 2022/2023, prices will remain high compared with recent years, and prices in the winter of 2023/2024 may be even more elevated owing to geopolitical uncertainties over gas supply in Europe in future months. Another factor that may affect future electricity prices are the rising costs of ETS (emission trading system) allowances when power generation is linked to fossil fuels.

While the upcoming EU electricity market aims to ensure security, affordability and decarbonisation, its details and final outcome are still being worked out, as the proposed new legislative framework is only expected in mid-March. Opinions on the most suitable solutions vary from keeping the current market set-up (including the merit order principle), to introducing new instruments such as CfDs, PPAs and ways to reduce the impact of gas prices on electricity, to a more substantive overhaul of the market. Regardless of the specific solutions chosen, they will have to take into account the future power generation mix with a higher share of often weather-dependent renewables, increasing electrification, rollout of technologies such as electric vehicles and heat pumps, and geopolitical developments, while ensuring affordable prices for businesses and consumers and securing adequate energy supplies and storage capacity in preparation for next winter.

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## ENDNOTES

- <sup>1</sup> Regulation (EU) 2022/1032 of the European Parliament and of the Council on gas storage, Council regulation (EU) 2022/1369 on coordinated demand-reduction measures for gas, Council regulation (EU) 2022/1854 on an emergency intervention to address high energy prices, Council regulation (EU) 2022/2576 on enhancing solidarity in gas markets (via coordination of gas purchases, cross-border gas exchanges and price benchmarks), Council regulation (EU) 2022/2577 laying down a framework to accelerate the deployment of renewable energy, Council regulation (EU) 2022/2578 establishing a Market Correction Mechanism against excessively high prices.
- <sup>2</sup> The EU internal energy market for gas and electricity was established through three legislative packages adopted in the 1990s, in 2003 and in 2009.
- <sup>3</sup> An aggregator is a natural or legal person who combines multiple customer loads or generates electricity for sale, purchase or auction in any electricity market.

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