

## Investing ourselves out of the energy crisis with market-oriented solutions Recommendations for a sound long-term EU Electricity Market Design reform

### Executive summary

---

Since the beginning of the energy crisis, the wholesale electricity market has signaled the stresses of the underlying gas supply scarcity caused by the lack of supply from Russia, resulting in very high wholesale electricity prices across the board. However, depending on the hedging of energy suppliers and the structure of the retail electricity market in some Member States, prices to end- or industrial customers have taken longer or been fed through in very different ways across Europe. Key measures were also taken at EU level with the Toolbox adopted in October 2021 and more recently with the REPowerEU Plan of May 2022.

At present, the EU and national governments are looking at how the long-term market design should be adapted to ensure that Europe tackles the crisis. During this time, we would like to share our conviction that Europe can come out stronger from this crisis if we act in a smart way. And we would like to share our beliefs about how Europe can best act today through adopting an incremental approach from the 20-year-achievements of the fully integrated EU power markets to date, both in the short- and long-term.

The European Energy Exchange (EEX) and EPEX SPOT (EPEX) strongly support the Commission's process to find a way out of the crisis and would like to contribute from our first-hand experience of operating spot- and forward electricity markets to further complement and optimize the existing electricity market design.

#### General remarks for protecting end-consumers while facilitating the EU decarbonisation path:

- Implement fit-for-purpose help for vulnerable end- and industrial consumers. It is each national government's role to shield vulnerable end-consumers via targeted emergency actions. However, assistance should focus on protecting only the truly vulnerable fully, and for the rest, the incentive to consume less energy needs to be maintained so as to not worsen the crisis through over consumption.
- Ensure that retail customers that are not facing incentives to reduce their demand do so e.g., through looking at reforming regulated or capped tariffs for all consumption.
- Target policies at fulfilling the EU long-term decarbonisation objectives, e.g., by urgently focussing on measure to improve energy efficiency, heating efficiency, or distributed solar and other renewable generation.
- Make sure that the investment climate for new renewable and local investment is favourable, so that Europe maximises the amount of new supply brought onto the energy system to make up for the supply shortages as quickly as possible.

#### Spot market optimization:

- Preserve the pay-as-clear pricing mechanism and zonal model for the spot day-ahead auction market to secure supply at the lowest possible cost.

- Implement the ongoing Market Coupling projects: (i) Nordic Flow Based Market Coupling, (ii) Pan-EU Intraday Auction at D-1 10pm as long as cross-border capacity is made available to boost optimization of the power system.
- Complete the EU electricity market integration by fully implementing the Clean Energy Package: (i) increasing cross-border interconnection capacity available in line with the binding 70% target to optimize electricity flows across Europe, (ii) market-based TSO/DSO procurement of flexibility to optimize grid investments, creating savings for the end-consumer.
- Complement the harmonized Energy Only Market with decentralized market-based products, to secure investments in supply, and increase efficiency of the energy system: (i) new hedging / risk sharing products in the day-ahead and intraday markets, (ii) decentralized flexibility markets, (iii) harmonized, well-designed capacity markets if and where needed, (iv) markets to support the energy transition.

#### Forward market optimization:

- Enhance predictability of market design to allow market participants to enter long-term hedging positions and make use of already existing products (e.g., EEX Cal+10).
- Refrain from structural market intervening policies (e.g., Iberian exception) increasing uncertainty and consequently decreasing forward market liquidity.
- Avoid subsidies (e.g., state-backed contracts for difference (CfDs)) for competitive technologies reducing competitive pressure thereby minimizing demand for market-based hedging.
- Improve conditions for PPAs (Power Purchase Agreements) by strengthening existing platforms (e.g., Pexapark), providing sufficient transmission capacity in power networks and speeding up permitting procedures.
- Use already existing instruments such as locational spread products offered by exchanges to increase forward market liquidity.
- Weigh bidding zone configuration against market harm such as a loss in liquidity

#### **Introduction**

---

Major efforts undertaken to integrate European electricity markets have resulted in the current market design, which the Agency for the Cooperation of Energy Regulators (ACER) estimated to deliver 34 billion Euros of direct benefits to the consumer every year<sup>1</sup> and an estimated 300 billion euros for the next decade to come.<sup>2</sup> Today, the wholesale electricity market consists of forward, day-ahead, and intra-day markets, and allows for cross-border electricity trade with standardized contracts from years ahead to close to real-time.

---

<sup>1</sup> European Union Agency for the Cooperation of Energy Regulators. (2022). ACER's Final Assessment of the EU Wholesale Electricity Market Design. Ljubljana: ACER.

<sup>2</sup> European Union Agency for the Cooperation of Energy Regulators and the Council of European Energy Regulators. (2022). Wholesale Electricity Market Monitoring 2021 - Progress of European electricity market integration. Ljubljana: ACER & CEER.

To achieve the EU's decarbonisation targets, the market reform needs to build on the existing electricity market design. It is of utter importance that the discussion around short-term emergency measures is kept separated from the long-term market reform.

Today, it is up to EU governments to protect vulnerable end-consumers from high energy prices via targeted and temporary measures. But when looking at long-term reform options, governments should refrain from introducing structural claw back mechanisms that disrupt the price signal, undermine investor certainty and hamper forward market liquidity.

As for the long-term market reform, its scope should be to design a policy framework that would foster the investments needed to ensure that the electricity system delivers a secure, affordable, and sustainable energy that is prepared for risks. We need to invest our way out of the energy crisis with market-oriented solutions, in bringing new renewable energy sources with appropriate products to day-ahead, intraday and forward markets.

A stable policy framework aimed at further integrating the EU Power markets and exploiting the full potential of the forward, day-ahead and intraday markets would ensure the formation of an unbiased price signal delivered by transparent, secure and organized markets that are necessary for assets optimization and long-term investments.

Given the complexity of the electricity market, potential improvements require a comprehensive analysis of the interactions with and between forward- and spot market.

### **Recommendations for a sound Electricity Market Design Reform in the spot market**

#### **Preserve the existing price formation mechanism based on marginal pricing**

The pay-as-clear model of the day-ahead market ensures the most efficient allocation of resources at the least expensive cost. Alternative price building mechanisms exist, such as 'pay-as-bid' – used in the intraday continuous market – but they are not as efficient for auctions. Under pay-as-bid, the power generation unit's activation priority is based on the traders' ability to best forecast the market price, instead on their economic and environmental efficiency.

#### **Refrain from claw back mechanisms disrupting the harmonized cross-border EU spot market**

It is fundamental that price signals are left intact, to strengthen investment incentives. Short-term government interventions addressing the effects of the current crisis (e.g., the revenue cap on inframarginal technologies approved by the EU Energy Council on the 30<sup>th</sup> of September 2022) do significant harm to investments and should not be part of EU Power markets. Undermining investors will endanger security of supply. In addition, such mechanisms, as the recent experience shows, are extraordinary complex and harm the effectiveness of cross-border trade, and their effectiveness is questioned overall.

#### **Implement the ongoing day-ahead and intraday market coupling projects**

EU spot power markets can further be integrated for the benefit of end-consumers. According to ACER, further short-term electricity markets (day-ahead, intraday and balancing) integration can yield 1 billion Euros of additional welfare gains every year. Therefore, it is essential to enlarge the market products offerings by implementing (i) Nordic Flow Based Market Coupling, (ii) One more Pan-European Intraday Auction (IDA) when cross-border capacity is made available, namely at 10pm D-1 with 15 minutes products.

#### **Complete the EU power market Integration**

The existence and resilience of the European internal electricity market is one of the EU's greatest achievements. We should build on this development. The Clean Energy Package (CEP) already gives clear guidance for the improvement of the zonal model in Europe. Instead of setting off a complete overhaul of spot markets, for instance implementing a costly and lengthy nodal scheme with central dispatch, the CEP needs to be fully applied through: (i) increasing cross-border interconnection capacity available in line with the binding 70% target, (ii) market-based TSO/DSO procurement of flexibility to optimize grid investments.

### **Complement the harmonized energy only market with other decentralized market-based products**

To facilitate the integration of vast amounts of renewables, the energy only market should be complemented with:

- Hedging, risk sharing products in the intraday and day-ahead markets
- Decentralized flexibility markets as cost-effective complement to expensive and lengthy grid extension. Ready-to-use solutions already exist, such as EPEX SPOT's local flexibility trading platform, a market mechanism for TSOs & DSOs to (i) efficiently centralize localized physical flexibility where and when needed; (ii) facilitate grid-oriented transmission & distribution coordination & optimization; (iii) foster development of new decentralized flexibility sources.
- Harmonized, well-designed capacity markets if and where needed, ensuring timely investments in back-up and dispatchable generation, and enhancing security of supply. In addition, this will decrease the likelihood of price spikes occurring in the future.
- Market-based remuneration for investment in renewables to support the energy transition. E.g., a European market for Guarantees of Origin (GO) for renewable electricity to boost renewable investment across Europe.

### **Recommendations for a sound Electricity Market Design Reform in the forward market**

#### **Assessing the obstacles hampering liquidity of the forward market**

It must be noted that different from spot markets, price determination in electricity forward markets is much more depending on the economic context (e.g., economic growth outlook), the development of other or related markets (oil-, coal-, gas-, CO2 emission allowance price), extraordinary events (e.g., nuclear power plant moratorium) and the overarching political framework.

While there is a consensus about the need for liquid forward markets, there is no consensus on whether these markets are sufficiently liquid to attract the necessary investments into renewable technologies and if not, what the main obstacles are to improved liquidity. We believe an in-depth assessment of the specificities hampering or fostering liquidity in each individual bidding zone is needed to answer this question. Such an analysis should also recognize the presence of locational spread products offered by exchanges, which allow market participants to benefit from a liquid market in a certain bidding zone no matter the liquidity of their own bidding zone.

When assessing the obstacles for forward market liquidity, it is important to consult market participants and assess this question for each type of them and for the envisaged price risk to be mitigated. From our perspective, one element is often missing from the debate: certainty, the prerequisite for an investment decision. Market participants need to observe stable market conditions to make an investment decision. Forward market liquidity varies with uncertainty. Times of economic turmoil or crises, such as the current energy supply shock, lead to uncertainty

for market participants and can have a detrimental impact on forward market liquidity. This is especially exacerbated by the political discussions on short-term market intervention, such as the price cap on gas used for power production in the Iberian Peninsula.

A real-life example – The Iberian exception:

The decision to cap gas used for power production on the Iberian Peninsula, also called the “Iberian exception”, has contributed to a 50% decrease in year-on-year volumes traded on EEX Spanish power futures. The decreases in liquidity could be observed since the discussions on a potential market intervention started in March 2022. Political and regulatory uncertainty led to a splitting of participants’ interests and consequently fractured the market. Volumes in the long-term calendar future 2023 is still limited due to the mechanism lasting until end of June 2023. Utilities, industrials, and generators must still hedge their needs in 2023 but the volumes remain low as financials are hesitant to trade beyond the front-month due to given regulatory uncertainty. We see encouraging signs for the next calendar future (2024) with the market assuming no further price cap on gas.

Uncertainty or ambiguity aversion reduces trading activity and therefore liquidity in the forward market. However, traders still quote bid and ask prices reflecting those prices that would allow traders to improve their rank-ordering in the light of uncertainty leading to an increased uncertainty spread.

**Avoid subsidies (e.g., CfDs) for competitive technologies reducing competitive pressure**

State-backed two-sided contracts for difference (CfDs) for RES expansion are detrimental to the forward market, as they entirely remove the price risk exposure for the beneficiaries of the instrument. With state backed CfDs, the state becomes the counterpart and market participants are no longer exposed to risk. Two-sided state backed CfDs adversely affect the demand side, which is lacking the possibility to hedge the long-term procurement of electricity due to shrinking liquidity provided from the supply side.

**Weighing bidding zone configuration against market harm**

Reconfigurations should always be weighed against market harm such as a loss in liquidity and anticipate future changes in electricity flows in the network. These can for example be induced by planned investments in the grid infrastructure to reduce local bottlenecks or by the commissioning and decommissioning of new generation capacities. This is to avoid bidding zones are constantly amended, which is detrimental for liquidity in the market. The drop of liquidity can be caused by financial firms who act as risk takers in the market and thus allow other market participants to hedge their investments in, for example, RES. Such financial firms do favour stable indices, which is not the case if the basis risk arising from a potential reconfiguration of the bidding zones is significant.

The bidding zone review as such should be open to both mergers and splits. Using member state borders as boundary condition excludes configurations of two or more countries that could turn out efficient in the future. We recommend allowing mergers between bidding zones. A nodal pricing system would not improve the existing market design, causing extra costs and inefficiencies.

**Improve conditions for Power Purchase Agreements (PPAs)**

Conditions concerning PPAs should be improved by bringing additional supply and demand to the market to properly hedge their respective price and volume risks. Today, supply side liquidity

in forward markets stems from existing conventional power generation and increasingly from RES generation outside of subsidy schemes. Demand side liquidity on the other hand stems from industry demand and – in the case of fixed end-consumer tariffs – also from retail demand. Especially in the current crisis, priorly signed fixed consumer contracts based on long-term hedges have been beneficial for consumers to be protected from fast price increases.

PPAs, which are complementarily hedged at forward markets to manage the price risk and counterparty risk, can contribute to the forward market liquidity. The rise of PPAs in the last five years as a proper alternative to subsidy schemes has already led to an improvement of the forward market by introducing longer-term trading products of up to ten years in advance (Cal+10). Further room for improvement includes amongst others the matching of smaller PPAs by strengthening existing platforms (e.g., Pexapark), the provision of sufficient transmission capacity in power networks and permitting.

### **Make use already existing instruments such as locational spread products**

Existing instruments such as locational spread products offered by exchanges can be used to increase forward market liquidity. The spreads enable trading participants to efficiently trade the price differences between two delivery areas. Consequently, e.g., a renewables producer in a bidding zone with an illiquid forward market can properly hedge against a liquid forward market in another. If there is a market demand, we as EEX stand ready to support with extending our offering or introducing new products.

### **Including financial market regulation in the assessment**

A major obstacle to market liquidity over the last year has been the high margin requirements, which market participants pay directly or indirectly via clearing members to the clearing houses to manage counterparty default risks. These additional costs to trading have led to the situation that some market participants are refraining from trading on the exchange. Furthermore, other regulatory requirements such as reporting obligations keep smaller market participants from being active in the derivative markets and hence should be included in the assessment of obstacles to forward market liquidity.

Leipzig, Paris – 21 December 2022

## **Contacts**

---

Daniel Wragge  
 Director Political & Regulatory Affairs  
[daniel.wragge@eex.com](mailto:daniel.wragge@eex.com)

Robert Gersdorf  
 Expert Political & Regulatory Affairs  
[robert.gersdorf@eex.com](mailto:robert.gersdorf@eex.com)

Jan Eustachi  
 Political & Regulatory Affairs Officer  
[jan.eustachi@eex.com](mailto:jan.eustachi@eex.com)

Davide Orifici  
 Director Public & Regulatory Affairs  
[d.orifici@epexspot.com](mailto:d.orifici@epexspot.com)

Samy Beltaief  
 Public & Regulatory Affairs Manager  
[s.beltaief@epexspot.com](mailto:s.beltaief@epexspot.com)

Michele Stretti  
 Public & Regulatory Affairs Officer  
[m.stretti@epexspot.com](mailto:m.stretti@epexspot.com)

## Annex – The role of Spot and Forward markets

---

### The role of Spot markets

Spot markets allow market participants to buy and sell physical quantities of electricity in a short timeframe ahead of delivery. As electricity is a particular commodity that cannot be stored efficiently at large scale, and as the frequency on the electricity grid needs to always remain stable, power generation and consumption must always be balanced – 24 hours a day, 7 days a week, all year round. Therefore, the role of spot markets is to balance the overall system, providing electricity where it is needed and when it is needed, even across borders.

Spot markets consist of the day-ahead market and the intraday market. Those two markets fulfil different purposes and are indispensable links of the energy value chain. The day-ahead market is operated through a coupled European-wide daily auction across all European countries, at the end of which a single market clearing price is calculated based on supply and demand. A large part of the production is marketed on the day-ahead market, because one day before delivery, both producers and suppliers have an accurate picture of electricity supply and demand. The day-ahead market therefore decides which plant must be activated to meet the demand. On the intraday market, market participants trade continuously, up to delivery and through hourly, half-hourly or quarter-hourly contracts, depending on the bidding zone. As this allows for a high level of flexibility, members use the intraday market to make last-minute adjustments and to balance their positions closer to real time. In addition, balancing markets allow Transmission System Operators (TSOs) to procure reserve power and maintain system stability and frequency close to real time. Trading takes place in real time to avoid possible blackouts if demand and supply do not match.

Spot prices represent price signals that are decisive, in the short-term, for generation and consumption decisions, in the long-term, for providing investment signals. Therefore, the spot price signal has a direct impact on physical electricity flows. High prices provide incentives, for example, for investments in new power plants or for saving electricity. Moreover, spot prices are key reference for other markets, such forward markets and bilateral trade outside of organized marketplaces.

### The role of Forward markets

The forward market's role is to provide market participants with the opportunity to hedge the risk of future spot prices changing. As these contracts are typically financially settled, the forward market has no direct impact on physical flows. Its only purpose is to re-allocate risks and consequently organize future cash-flows. Like an insurance, it allows for risks and financial losses to be mitigated. In addition, the prices formed on transparent marketplaces by hundreds of market participants each day have a major benefit to the market. These prices provide an early indication of supply shortages in the near future, as well as signals of investment for the long-term. This information is crucial to investors, especially considering the bulk of investments that are required considering the EU long-term objective to become climate neutral by 2050.

Such investments are fundamentally dependent on stable market conditions. For an investor to invest in additional generation capacities, the investor needs to be able to estimate its return on investment. The basis for this may be the power price in 10, 15 or even 20 years. As described above, forward markets provide important information to project developers concerning future electricity price expectations as well as the possibility to hedge this price risk. The more liquid the

market the better the price formation as well as the easier it is to find a counterpart for a transaction. At this moment EEX already offers 10-year power future contracts in German, Spanish and Italian power base.