

Proposal for a Regulation to improve the EU's Electricity Market Design: A Brief Assessment

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Abstract

The Proposal for a regulation to reform EU's electricity market design (EMD Proposal) leaves unchanged the central mechanism of marginal pricing, while promoting forward trading, PPAs and CfDs. The purpose is to maintain the integrity of the Internal Electricity Market (IEM) while delinking, as much as possible, the price formation on the wholesale power markets from the volatility of gas prices. At the same time, the overarching goal is to bolster European Green Deal: growth of renewables, energy efficiency, storage, flexibility, and active consumers.

The marginal pricing mechanism is paramount to deepening the integration of IEM, whereas PPAs and CfDs are important in reducing the excessive dependence on short-term spot trading and in bolstering investment in renewables. For all their benefits, though, CfDs ought to be carefully designed and tendered through competitive auctions, to avoid bad incentives (e.g., 'produce and forget') and regulatory uncertainty.

Energy sharing is a major theme of the EMD Proposal. It refers to the right of active customers (households, small and medium enterprises, and public bodies) to share renewable energy between themselves, based on private agreements or through a legal entity. New legislation, as well as technical and IT developments across the EU will be needed for a successful implementation of the concepts and tools surrounding energy sharing.

EMD Proposal's objectives

The European Commission's March 14 [Proposal](#) for a regulation to improve the Union's electricity market design (henceforth EMD Proposal) was issued on the heels of the energy crisis exacerbated by the Russian war on Ukraine. It is meant to offer solutions that can both protect consumers from the volatility of energy prices and maintain the EU's firm course set by the European Green Deal. The key issues addressed by the EDM Proposal are the following:

- **Enhance stability and predictability of electricity prices** by reducing their exposure to the volatility of the gas market, especially by increasing the uptake of power purchase agreements (PPAs) closed between low-carbon power generators and consumers, adopting price-stabilizing contracts for difference (CfDs), and boosting the forward power markets.

- **Protect energy consumers from volatile prices** by means of a “variety of contracts that best fit their circumstances,” combining dynamic and fixed pricing components to “keep market incentives for consumers to adjust their electricity demand, while providing more certainty for those who wish to invest in ... rooftop solar panels, for instance, and stability of costs.”
- **Boost investment in renewable energy sources** “in order to ensure that deployment triples, in line with European Deal Goals.” While PPAs and CfDs will provide renewable energy producers with reliable revenues, another critical element for renewables’ system integration is **flexibility**: “The more flexible the system is (generation that can rapidly turn on and off, storage that can absorb or put power onto the system, or responsive consumers who can increase or decrease their demand for power) the more stable prices can be and the more renewable energy the system can integrate.”

From the second half of March to June 2023, four rounds of revisions have been submitted for the Electricity Market Design during the Swedish Presidency of the Council of the EU, bringing useful clarifications. The present analysis also reflects the main elements of the Presidency’s compromise proposal.

On March 17, EPG organized a roundtable with major stakeholders of the Romanian power system (energy regulator, TSO, DSOs, electricity producers, suppliers, etc.) to discuss the fresh EMD Proposal. Several of them provided substantive feedback on previous drafts of this paper. The positions expressed, though, as well as any possible error, belong entirely to EPG.

Analysis

1. Maintaining the marginal pricing mechanism while bolstering forward trading

Following the outcry across the EU at the peak of last year’s energy crisis asking for measures to protect the end consumers, the **marginal pricing mechanism** for electricity in the wholesale market (by which the market price is set at the level of the last accepted offer that meets demand) was put into question, with various proposals to decouple the marginal prices of fossil fuel-based power generation from the low carbon electricity.

Thankfully, though, the Commission’s EMD Proposal has, in the end, not pursued a curtailment of the marginal pricing mechanism, which, alongside interconnection capacity, is a pillar of the EU Internal Market **integration**, incentivizing the flow of available energy from where generation is least expensive to where it is most needed. Visible price signals also incentivize innovation and investment in clean power generation, as well as energy efficiency.

However, the national emergency measures taken by the Member States in response to the record high energy prices of 2021 and 2022, followed by the introduction of a temporary State Aids framework to counter the prices’ impact risk affecting the integrity of the Internal Electricity Market. Such piecemeal regulatory measures should not continue past a six-months timeframe deemed acceptable by the Commission, especially now that the current energy prices have practically returned to the pre-crisis level (albeit high volatility on the European gas markets may be in the offing).

This demand, though, is not incompatible with targeted state support measures in other areas, such as the new revised Temporary Crisis and Transition Framework and the General Block Exemption Regulation (GBER) allowing for support to investment in green technologies until the end of 2025. Meanwhile, a general emergency mechanism in case of steep price increases caused by external shocks ought to be readied, and the Member States should have the latitude to activate it transitionally.

Romania's Emergency Government Ordinance (GEO) 27/2022 regarding the measures to protect the electricity and gas consumers between 1 April 2022 – 31 March 2023, with subsequent modifications (especially GEO 153/2022, which introduced a constraining mechanism of single centralized power purchaser and reseller, operational from 1 January 2023 until 31 March 2025), has proved a crucial help for electricity suppliers, as they were caught between a very expensive spot market and regulated retail prices, which the state had never managed to compensate in full and in time. Nevertheless, it is now high time for the electricity market to return to a competitive wholesale setting, reinforced with forward contracting. Therefore, the current market restrictions (the single buyer-seller mechanism) ought to be lifted this summer already, alongside the excessive over-taxation of energy production and trading. In particular, the capped retail prices, despite the government's expectation, cause regulatory uncertainty and disincentivize forward energy trading, thus being a barrier to PPAs.

2. Promoting PPAs, CfDs, and flexibility

As most of the current trading on the power markets consists in short-term contracts, the EMD Proposal favors the development of long-term forward trading as well, seeking to facilitate a decoupling of the price of electricity from the spot market and to allow suppliers to hedge their portfolios. This, of course, can only have stabilizing effects on the medium term at best. Yet the return of gas prices back to the [pre-crisis level](#), with a welcome downside in the short-term contracts, should obfuscate neither the volatile nature of the European gas markets, given their persisting fundamentals, nor the importance of hedging through long-term forward contracts.

Therefore, the barriers to **power purchase agreements (PPAs)** ("in particular the difficulty to cover the risk of payment default from the buyer in these long-term agreements") should be removed, since they enable producers to ensure bankability, suppliers to hedge their portfolios, and customers to choose a suitable price and profile.

The procedures for access to state supported PPAs (e.g., guarantee schemes at market prices) ought to be transparent and indiscriminatory, and the charges should not be disproportionate. Indeed, for wider adoption, the PPAs – which, in the EMD Proposal, emphatically exclude fossil fuel power plants (Art. 19a, 3) – would benefit from increased transparency and standardization, while liquidity on the wholesale markets would be enhanced by expanded interconnections and cross-border market coupling. Moreover, as rightly pointed out by [Brostroem](#) (2023), in order "to facilitate PPAs, all renewable projects should receive Guarantees of Origin certificates required to track and trace power across borders.

As regards the **two-way contracts for difference (CfDs)**, in recent years they have turned into the support instrument of choice to investment in renewables (i.e., wind, solar, geothermal, and hydropower without reservoir) and are available to bolster the European nuclear revival, as well. CfDs have an important role to play in bringing low-emissions technology to maturity, as has been the case with offshore wind turbines – and is still the case with bottom-fixed offshore wind turbines. In the countries where renewables face more difficult investment conditions, such as Eastern

Europe, with higher costs of capital (WACC), CfDs still have an important role to play in supporting the needed development of renewable capacities.

Nonetheless, CfDs should be smartly designed and judiciously applied to avoid market distortions. Some indications are provided in the introductory part of the EMD Proposal: CfDs “should be limited to low carbon, non-fossil fuel technologies, with low and stable operational costs and to technologies which cannot provide flexibility to the electricity system, while excluding technologies that are at early stages of their market deployment.”

One of their drawbacks, as noticed by Brostroem (2023), is that “the regulated power prices they provide creates a ‘produce and forget’ mentality, undermining the incentive to trade forward, or to invest in the technologies that balance supply and demand, like storage and hydrogen.” This is why the Council’s Energy Working Party added the requirement in Art. 19b that CfDs must be designed so that the generating facility maintains incentives to adjust electricity production to “reflect market circumstances.”

The revenues arising from the application of CfDs are to be distributed by the state to final consumers, including by financing new CfDs or other investments needed to reduce the energy bills for final consumers.

On a different note, CfDs should not be imposed by the government on either existing power plants, or on new projects (just as PPAs should not be imposed on existing power generators), as suggested by some Member States. Imposing PPAs at regulated prices would lead to market distortions and reinforce piecemeal approaches at Member State level. Such statist reflexes, outgrowing the emergency responses at the peak of past year’s energy crisis, would “undermine the whole basis of the Internal Electricity Market, replacing competition with state-regulated prices and markets.” (Jones and Borchardt, 2023). The regulatory uncertainty would deter investors, whose capital is crucial to the energy transition.

Aware of such challenges, the EMD Proposal notes that “Member States should ensure that the support schemes do not undermine the efficient functioning of the electricity markets, preserving the incentives of producers to react to market signals, including stop generating when electricity prices are below their operational costs, and of final customers to reduce consumption when electricity prices are high.” However, the specific measures to avoid undermining the efficient functioning of the markets are left undetermined. Therefore, however important as an instrument of direct price support, CfDs should remain optional in the new market design and tendered via competitive auctions.

On a distinct note, the Member States with less developed capital markets and less administrative capacity should find solutions to be able to make use of PPAs and CfDs (which are still to be legally defined and adopted) and thus frontload renewable investments in line with their targets. At present, on account of market uncertainty, there is ostensibly little appetite for either PPAs or CfDs, which raises concerns about investments in new renewable projects – other, that is, than those approved for generous CAPEX funding through the Modernization Fund and the National Recovery and Resilience Plan.

The EMD Proposal strongly emphasizes **demand side response and energy storage**, as well as **aggregation** and **interconnection** as key elements of system flexibility, necessary to facilitate the integration of increasing shares of renewables and ensure that the role of gas power plants in providing flexibility is progressively reduced. Smart meters and grid digitalization are prerequisites of demand side response, alongside adequate regulation, and the existence of dynamic tariffs for

the supply contracts. Indeed, Romania should strongly accelerate the roll-out of smart meters, which has been unwarrantedly delayed and postponed by the energy regulator.

Importantly, apart from that, the network tariffs for both transmission and distribution grids should allow the system operators to invest in innovative flexibility solutions and to incentivize flexibility services by means of demand side response and battery storage.

Moreover, where the national demand side response and storage investments are insufficient to achieve the indicative national objectives for non-fossil flexibility – which the EDM Proposal urges to be reflected in the Member States' National Energy and Climate Plans – the EU countries can apply green **capacity mechanisms**, consisting of payments for the available capacity of non-fossil flexibility.

Art. 19 f delineates some needed principles for the design of non-fossil capacity mechanisms. They must be cost-effective, not go beyond what is necessary to achieve the indicative national objective for flexibility, be limited to investment in non-fossil flexibility such as demand side response and storage, not imply starting fossil fuel-based generation behind the meter, as well as be transparent, competitive, and non-discriminatory.

3. Energy sharing and active customers

Finally, a topic that receives considerable attention in the EMD Proposal is **energy sharing**. Energy sharing refers to households, small and medium enterprises (SMEs) and public bodies having the right to share renewable energy between themselves as **active customers**, based on private agreements or through a legal entity (Art. 15a, inserted by the Council).

The Member States are urged to create the IT infrastructure needed to allow for the netting of the shared electricity by active customers with their total metered consumption within a time interval no longer than the imbalance settlement period.

Active customers will be entitled to share energy between themselves for a total installed capacity of up to 10.8 kW for single households and up to 50 kW for multi-apartment blocks. The figures are provided, respectively, in the revised Renewable Energy Directive and the recast Energy Performance of Buildings Directive. The technical capacity limits have to do with the need to prioritize self-consumption over commercial interests (that is, financial profit should not be the primary aim), as well as the technical challenges that oversized power generation facilities pose to the distribution networks. The shared renewable electricity will take place within a group of consumers (e.g., neighbors in the same building or group of buildings, or members of an energy community) which are connected to the grid through a single grid connection point.

These technical capacity limits, however, should be revised and updated in time, as the distribution system operators (DSOs) become increasingly able to deal with larger prosumers. Moreover, energy sharing ought to be accessible to large commercial and industrial customers as well, not only to households, SMEs, and public bodies. As pointed out by [smartEU](#) (2023), “the concept of energy sharing should be applicable to all demand side management, storage and renewable installation behind the boundary meter that allow for a self-balanced optimization at the local level.”

The EMD Proposal is quite liberal, though, in a different respect: “Active customers that own, lease or rent a storage or generation facility should have the right to share excess production and empower other consumers to become active, or to share the renewable energy generated or

stored by jointly leased, rented or owned facilities, either directly or through a third-party generator.” The purpose here is to allow any consumer, including those that are unable themselves to install behind the meter renewable energy production, to be in the position to benefit from electricity from offsite generation that is injected into the grid being deducted from their energy bill.

This is a daring step, and one that will require a significant transformation of the legal and regulatory landscape of downstream business (electricity distribution, supply, prosuming, energy storage, netting, etc.), alongside technical adaptation in digitalization and IT infrastructure. For successful implementation of the new concepts surrounding energy sharing, the Member States ought to allow for transitions periods.

