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The EU Commission's Proposal for Improving the Electricity Market Design: Treading Water, but not Drowning

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Abstract

Purpose of Review On March 14, 2023, the European Commission (EC) published the much awaited "Proposal for a regulation (…) to improve the Union's electricity market design." The proposed regulation reflects the verdict of the EC after several months of fervent debate triggered by the energy crisis that has affected the European region. In this paper, we discuss several crucial elements that are part of the proposed regulation.

Recent Findings In a nutshell, we deem the EC has done a great job managing a highly complicated situation. The proposal preserves the crucial role of short-term electricity markets and puts the focus on the key flaw: the perennial incompleteness of long-term power markets. The EC has put forward a large battery of measures, covering different dimensions and with very different potential impacts on the market design.

Summary Here we focus on what we consider to be the four key elements of the proposal: (i) the promotion of long-term contracting, (ii) interventions during electricity price crises, (iii) the strategy for an efficient supplier risk management, and (iv) flexibility support schemes and capacity remuneration mechanisms.

Keywords Electricity market design · European Union · Energy crisis · Renewables · Flexibility

Introduction: Keeping the Building Standing During a Long-Lasting Earthquake

Over the past year and a half, European energy policymakers have faced an extremely complex conjuncture. The electricity price crisis, triggered mainly by Russia's invasion of Ukraine, has put very high pressure on European institutions to intervene and subsequently to reform the market electricity design. With the alleged goal of protecting customers, governments of several member states advanced controversial proposals, pointing in different directions (for an overview see Batlle et al. [1, 2]). However, crises are not the best time to carry out major reforms and the European Commission (EC), with the proposal published in March 2023 [3], did an excellent job in "defusing" a risky overhaul of the European electricity market design. The biggest challenge was to avoid entering into a regressive process that would have disabled some of the fundamental tools that have supported an increasingly efficient integration of the Union's electricity systems. The proposal preserves the key role of short-term electricity markets, deactivating certain loud and unjustified criticism (which for instance started by questioning the fundamental role of marginal pricing as signals that inform an efficient economic dispatch and medium-term planning).[1]

We highly welcome the proposal from the EC for the above-mentioned reasons, though there are some elements of the proposal that, in our view, require further analysis. We discuss these elements in this paper. The EC has put forward a large battery of measures, covering different dimensions and with very different potential impacts on the market design. Our review is not intended to be exhaustive. We focus on what we consider to be four key elements and structure the remainder of the paper in the same manner:

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[1] There are still several design elements of EU short-term markets that could and should be improved while not having a direct link with the current high prices. Examples are more locational prices, bidding formats, the removal of portfolio-based balance responsible parties (BRPs), and scarcity pricing (see, respectively, [4–7]).

i) the promotion of long-term contracting, ii) interventions during electricity price crises, iii) the strategy for an efficient supplier risk management, and iv) flexibility support schemes and capacity remuneration mechanisms (CRMs). We end the paper with a brief conclusion.

Dealing with Long-Term Market Nothingness

The EC rightly identifies the lack of liquidity in long-term electricity markets as one of the main shortcomings to be addressed. The risk hedging provided by long-term contracts is essential to accelerate the deployment of low-carbon technologies while mitigating, to the extent possible, the impact of periods of high spot prices on consumers. This is particularly important for independent project developers, who should have access to risk-hedging instruments on equal terms as other market participants, such as vertically integrated incumbents that can rely on the natural hedge provided by their retail portfolio.

In the months leading up to the publication of the proposal, there was an intense debate between two polar positions on how to improve the access to risk-hedging instruments.[2] On one side, there is the so-called power purchase agreements (PPAs) approach, which argues that no meaningful market design reform nor significant regulatory intervention is needed. Proponents of this approach claim that market agents should be left to their own devices; free to enter into long-term bilateral agreements. Only some initial regulatory support might be needed to accelerate long-term contracting by eliminating some regulatory or economic barriers. The main argument for this approach is that it allows for innovation in contracting arrangements to flourish and limits the influence of the government on the final supply mix (see, e.g., Pollitt et al. [8]). On the other side, the contracts-for-difference (CfDs) approach argues that only a centralized mechanism promoted by the government/regulator, buying on behalf of end users, would lead to a high enough supply of long-term contracts needed to support the projected investments in low-carbon resources.[3] Besides the low risk of having the government as guarantee (see, e.g., Neuhoff et al. [11]), other important arguments for this approach are price transparency, the creation of a level-playing field for all project developers to compete on equal footing, and the possibility to coordinate generation and transmission access and expansion.

In its proposal, the Commission clearly favors the PPA approach, although it does not exclude the possibility of introducing CfDs to complement the PPA market if necessary. For example, in Art. 19a(5) it is stated that projects with part of the generation committed through PPAs should have preference over other bids in centralized markets for renewables for the procurement of CfDs. More importantly, in Art. 19a(2) it is stated that member states shall ensure that instruments such as guarantee schemes at market prices are in place to reduce the financial risks associated with off-taker payment default in the framework of PPAs. Such schemes shall be accessible to customers that face entry barriers to the PPA market. We assume that "member states ensuring that instruments such as guarantee schemes for PPAs at market prices are available" implies PPAs being, at least to some extent, state backed. As also argued by Fabra et al. [12] such policy will put large amounts of public money at risk while giving rise to moral hazard problems and gaming opportunities on the side of the offtakers.

What we miss in the proposal is a more thorough diagnosis of the market incompleteness problem, i.e., the reasons why long-term power markets have never worked. Also, why PPAs have (somehow) seen significant uptake in some jurisdictions and not at all in others.[4] There is no assessment that explains why PPAs have not grown to the minimum level necessary to create a liquid long-term electricity market open to all parties, both supply and demand. As discussed in Schittekatte and Batlle [13][5], in our view the main reasons behind market incompleteness are the following:

- lack of demand-side participation in long-term markets, partly due to transaction costs but mainly due to the trust in governmental intervention in times of stress (confirmed by this crisis, as well as by *Article 66a* of the proposal, discussed later);
- vertical integration between generation and retail of the incumbent utilities, combined with an asymmetric distribution of diversified generation portfolios.

The fact is that demand-side concerns about hedging against potential future high prices were negligible before

[2] While in principle both approaches should be perfectly compatible.

[3] In 2022 the combined disclosed PPA contracted volumes for Spain, France, the Netherlands, UK, Ireland, Denmark, Poland, Germany, Italy, and Finland was 8.4GW—a 21% decrease with respect to 10.7GW in 2021 [9]. As a comparison, average annual additions of 48 GW for solar PV and 36 GW for wind are needed in the EU to reach the 2030 targets set out in the REpowerEU legislation that was agreed upon in March 2023. The targets include a binding target of 42.5% renewable energy with the ambition to reach 45%, which implies that renewable energy in electricity would need to climb to an estimated 69% by 2030 [10]. Considering these facts, it seems very likely PPAs will need to be complemented with centralized CfD auctions to reach these targets.

[4] For example, in 2022 the disclosed contracted capacity via PPAs in Spain (3.2 GW) was about 5 times as large as in Germany or France and 10 times as large as in Italy [9].

[5] For a broader literature review that supports this assessment, see [14–22].

the crisis. The problem was not that end users wanted to enter into long-term contracts and could not because of barriers that prevented them from doing so. End users just never felt the need to. We keep on wondering what the reasons are. Our claim has so far been that electricity end users have always relied on some sort of government parachute. After this crisis, that is no longer an expectation. It actually happened. In those jurisdictions where retailers are publicly owned (directly or indirectly by the national, regional, or municipal government), governments/regulators have a straightforward tool to take the lead and promote among their customers this long-term hedging strategy. These retailers are also naturally less risk averse to assume the volume risk involved (see discussion later). But why should we expect that the situation is going to change when retailers are not publicly owned?

This matter is directly related to the second factor mentioned above: why would vertically integrated utilities be willing to offer long-term hedges to competing investors in renewable sources and retailers rather than investing themselves and allowing their own retail arm to benefit from their natural hedge? It is extremely important to address this issue if a liquid long-term market is to be developed. For this reason, if the CfD approach was not considered suitable for further development, we proposed in Schittekatte and Batlle [23] the introduction of a market making obligation (MMO) in organized forward markets.[6] As described in more detail in Batlle et al. [2], a "market maker" is a firm that stands ready to buy or sell a financial derivative at publicly quoted prices. Market makers quote two prices, bid (buy) and ask (sell) prices, on a given pair, thus creating liquidity and speeding transactions in the market, when sellers cannot find buyers or vice versa. They commit to accept trades at these prices within certain restrictions and obtain remuneration on the difference between these two prices, the so-called spread. In some cases, the role of market maker can be granted in an auction, in which the potential candidates can ask for a predetermined remuneration to develop the role. We strongly recommend that such a measure is at least further explored.

The EC proposal attempts to circumvent the vertical integration problem by favoring, in a potential CfD market (which can co-exist), those generation projects that sign PPAs with "buyers that face difficulties to access the PPA market." However, it is not clear how these customers/retailers would be identified without introducing arbitrariness in the allocation of CfDs. In addition, this clause does not solve the problem of independent project developers. In most jurisdictions, buyers facing barriers to entry (independent retailers?) have small portfolios, which are largely insufficient to act as counterparties for all the new generation needed. It is therefore likely that independent developers would still not be able to find sufficient demand willing to sign long-term contracts.

CfDs are a tool for regulators to take action to address the problems just discussed. They are not needed in power systems where there are large state-owned incumbents, both on the generation and the retail side. In this situation, the will of the government may be sufficient to induce these companies to dynamize the market for long-term contracts. These incumbents could even favor demand segments that are considered to be the most suitable counterparty for the PPA contracts. It is important to note that in most cases the PPA contract details are not public, not even the price. To avoid such a scenario unfolding, an obligation to improve the transparency of PPAs should be required. Centralized markets for CfDs are transparent by nature.

Overall, the impact on the dynamics of the long-term market of state-backed guarantees for PPA offtakers aiming at fostering the uptake of PPAs and co-existing CfD auctions in which sellers of PPAs signing with buyers "that face difficulties to access the PPA market" would be favored can only be guessed at. We argue that more research is necessary to understand the implications of such proposals before introducing them.[7]

Last but certainly not least, the proposal does not address how the format of these long-term contracts should be defined to maintain efficient economic signals for generators (and end users). During the consultation phase, several stakeholders highlighted the distortionary impact that different settlement arrangements may have on the dispatch of market agents.[8] Guidance at the European level on this highly controversial topic will be needed at some point to avoid a proliferation of a diverse set of contract formats leading to fragmentation within the internal electricity market. The agency for the cooperation of energy regulators (ACER) would be the perfect institution to lead this effort.

[6] In 2014 the Secure and Promote (S&P) MMO was introduced by Ofgem in the Great Britain market, placing the obligation on the six largest vertically integrated companies at its time of introduction. The mechanism was later suspended in 2019, among other alleged reasons because at least four of the six utilities that assumed the market maker role divested their generation assets (it is not clear that the MMO had any impact on the decision made by the firms). As reflected in the responses to the open letter in which Ofgem discussed its decision [24], there was a consensus among all the large companies against the mechanism; but not surprisingly, a good number of small companies argued in favor of it.

[7] We are not aware of any paper or report investigating the interaction effects of policies fostering bilateral PPA contracting while also organizing centralized auctioned-off CfDs.

[8] For relevant academic references see, e.g., [25–30].

Consolidating the Unavoidable Intervention, but Making it Unpredictable

With the inclusion of Article 66a, the proposal also formalizes the conditions under which an "electricity price crisis" can be declared. We understand that pragmatism requires the inclusion of some sort of emergency price buffer. In this respect, we welcome the fact that future electricity price crises will have to be identified as such by the Commission at the regional level, based on a pre-defined set of criteria. This can avoid potential opportunistic behavior by member states.

However, while it sets out the conditions under which an "electricity price crisis" may be declared and the extent to which member states may apply targeted public intervention in the pricing of electricity for residential and small- to medium-sized enterprises, nothing is mentioned about where the money would come from to finance these interventions. Just as the proposal sets out guidelines, including specific limitations, on the type of price setting intervention that member states can introduce with regard to end users (i.e., a retail market intervention), one would expect the proposal to also outline the wholesale market interventions that member states can (and cannot) resort to in the event of a declared "electricity price crisis."

Future episodes of sustained high prices are not to be excluded as fossil fuels are expected to remain for many hours the marginal technology in many EU member states (see, e.g., Gil Tertre [31]). If such a crisis were to recur in the next couple of years, the payouts from government promoted CfDs will not suffice to mitigate an affordability shock. The CfD volumes are not sufficient and renewable production profiles do not necessarily align with consumption profiles. Also, there is a rising trend of PPAs being held by corporates, e.g., corporate PPAs accounted for 80% of deal count, and 83% of contracted volumes, being a 20% increase compared to the previous year [9]. Nearly all remaining PPAs had utilities as offtakers. This implies that residential and small commercial consumers are little to none protected from price shocks via PPAs. Member states with strong public finances could indeed use their government budgets to protect consumers from affordability concerns but it seems unlikely that this will be the case for all member states.[9] The temptation to resort to wholesale market interventions (e.g., revenue caps, the Iberian exception, mandated auctions, etc.—see Batlle et al. [1, 2]) seems strong, while the proposal does not contain provisions to avoid a repetition of such a chaotic scenario.

The problem is not necessarily the introduction of a wholesale market intervention per se, but uncertainty about when, how, and to what extent market players can expect such intervention. Uncertainty about the type of intervention to be expected during stress events discourages investment in new generation and is inconsistent with the call for improved long-term hedging, which is arguably the most important element of the proposal. If market participants (on both the supply and demand side) do not know the rules that will apply during future periods of sustained high prices and cannot quantify their impact in advance, they cannot define an efficient hedging strategy and are less likely to enter into long-term contracts.

If the Commission recognizes that there is a price level that should not be exceeded for long periods of time, then it will be more efficient to have recourse to a market mechanism that provides such specific protection. In Schittekatte and Batlle [23], we proposed the introduction of what we called affordability options (AOs). The detailed design is less complex than direct intervention in retail prices, significantly less distortive, and predictable. With AOs in place, there would be no risk of wholesale market intervention because the impact of AOs on market settlements can be predicted by agents (i.e., the transferring inframarginal rent between generation and demand is pre-agreed at the expense of an option premium payment). Such a mechanism facilitates the definition of their hedging strategy. Importantly, affordability options are asymmetric, i.e., they protect against periods of sustained high prices, while if wholesale prices are low, they are not exercised. As such, the design of AOs would maintain a certain degree of end user exposure to short-term market signals, thereby improving dispatch efficiency. Other academics have argued to procure fixed-price forward contracts (obligations) rather than options (e.g., Wolak [34]).[10] Even though on the margin an option or obligation would send the same price signal, we deem an option more suitable as the objective is not to stabilize the consumer bill, as forward contracts would do, but rather to protect the consumer bill against price shocks.

Hedging Obligation on Suppliers and the Room Left for Retail Competition

Another key guideline included in the proposal is to enforce a certain level of financial coverage for suppliers. The idea is to avoid harmful bankruptcies in the event of

[9] For an overview of interventions by member states during the energy crisis, see [32, 33].

[10] Note that in terms of contractual form what we have called "PPAs" are typically the same as fixed-price forward contracts (obligations), or at least very similar. The difference in practice being that what are called PPAs are often longer term (10 years and longer) and are often sold by a developer who needs the PPA to make a (renewable) investment financeable, while the fixed-price forward contracts, as mentioned here, would be shorter term (maximum a couple of years) and typically sold by already existing generation.

unexpectedly high prices. We find this initiative a sensible lesson learned from the price crisis that we have experienced. However, this approach also entails significant implications that are not discussed in the proposal. Independent suppliers are exposed to a significant volume risk. In most cases, customers will be able to switch regardless of the terms of the PPAs and the estimations made by the supplier. A sudden drop in the number of customers or in their demand may lead to a default of the supplier, since it may not be able to honor its PPAs (which may be backed by state guarantees, leading to at least the partial socialization of such default).

The hedging obligation may make sense, but once again it reinforces the already largely advantageous competitive position of suppliers belonging to a vertically integrated holding company. In this context, we believe that it is essential to launch an in-depth debate to reconsider the role of suppliers, and in particular whether it is appropriate to unbundle the price hedging task from all the other tasks that suppliers might be expected to develop (energy efficiency advice, aggregation, demand flexibility, etc.). Further discussion of the future of retail markets in such a scenario is beyond the scope of this paper but it is certainly an issue that needs to be considered carefully.

Also, full hedging may not be the best strategy for all end users. Hedging through long-term contracts stabilizes electricity prices but does not imply a net reduction in bills over a sufficient time horizon. This stabilization (which also comes at the cost of a risk premium) may be worth it for those customers who may be subject to significant financial distress if electricity prices suddenly spike (e.g., vulnerable households or electricity-intensive businesses). However, there may also be a significant proportion of customers for whom electricity price volatility is not a financial problem. It is not necessarily efficient to force suppliers to hedge the demand of these customers and to require them to include a fixed-price contract in their offer.

Besides hedging via retail contracts, already today an important volume of electricity production is covered by CfD contracts that are backed up by governments. This volume is expected to rise, even though the ultimate scope of CfDs will depend on the dynamics between PPA vs CfD approach, as discussed in the previous section. In periods of high spot prices, these contracts are in-the-money, i.e., leading to revenues that can be returned to end users (details depend on the national arrangements). As already seen during the energy crisis, this revenue can be redistributed to mitigate to some extent impacts on consumer bills (see, e.g., an article in Les Echos [35] for the French case). The Commission's proposal states in this respect that: "the revenues collected when the market price is above the strike price [shall be] distributed to all final electricity customers based on their share of consumption (same cost/refund per MWh consumed)" while at the same time "the distribution of the revenues to final electricity customers [shall be] designed so as not to remove the incentives of consumers to reduce their consumption or shift it to periods when electricity prices are low and not to undermine competition between electricity suppliers."

We have three concerns with these provisions. First, there is an inherent trade-off between distributing revenues from a CfD based on per-MWh consumed basis and limiting the removal of the incentives of consumers to reduce their consumption. For example, in case the consumption would be measured on monthly, quarterly, or even annual basis, those consumers that really made an effort to scale back their consumption would receive less relief from the CfD revenues. As such incentives are distorted. The least distortive approach would be to use the revenues of the CfDs for lump-sum payouts to consumers. These lump-sum payouts could be the same for consumers with a certain consumer class (e.g., residential, commercial, industrial) or differentiated based on income or other proxies. Second, in case the volume of CfDs continues to rise, the redistribution of its revenue serves as an intrinsic hedge for consumers entitled to the pay-outs. The hedge is not perfect, as not the entire consumption volume is covered, and the capture value of renewables and the load-weighted average price of consumers is expected to diverge. Anyhow, for some consumers, the ones for which the volatility of the electricity price does not represent a financial problem, such mechanism could be enough to serve as bill protection. In that case, there is little role for retailers regarding the price hedging task as the government takes over that task (this takes us back to the argument raised in the second paragraph of this section). Third, the CfDs will not always be in-the-money. During periods of relatively low spot prices, which sooner or later will resurface, the CfD contracts will be a net cost. The reform does not mention that those consumers that profit from the redistribution of revenues during periods of high spot prices shall also be the ones that carry the burden during periods of low spot prices. It is also not clarified how to design the format of such payments. Preferably payouts and payments should be symmetrically designed; a certain volume of CfD contracts is associated with a certain consumer group and the revenue over a certain period (which can be positive or negative) shall be settled via lump-sum payouts/payments distributed across the members of that consumer group. It is important to provide European guidance in this respect as there might be a temptation to favor certain consumer groups when it comes to payouts and change the arrangements when suddenly the CfDs turn out to be out-of-the money, e.g., leading to an unleveled playing field between electro-intensive industry within the internal European market.

Flexibility Support Schemes and CRMs: Wrenches for Bolts, Hammers for Nails

The proposal, as other recent legislative initiatives from the Commission, has a strong focus on flexibility. It foresees the introduction of specific assessments of flexibility needs, indicative national objectives for two of the "new" technologies called to provide this flexibility, i.e., demand-side response (DSR) and storage, and flexibility support schemes that should drive their deployment. At the best of our knowledge, the proposal also provides for the first time in European legislation a definition of flexibility: "*flexibility means the ability of an electricity system to adjust to the variability of generation and consumption patterns and grid availability, across relevant market timeframes.*" We welcome this necessary definition, but we remark that it has a significant overlap with the security of supply problem (the definition would be correct also if we substitute "flexibility" with "security of supply" or "reliability"). Flexibility can be interpreted as a "short-term dimension" of security of supply, and it should be treated as such in European legislation. This problem can be addressed through the introduction of capacity remuneration mechanisms (CRMs), as for instance it is the case for the Italian mechanism [36].

Totally aware of this synergy, European policymakers propose that, if a CRM is in place, this regulatory instrument should be used to promote flexibility from DSR and storage. This approach violates an important tenet of economic regulation, i.e., different regulatory objectives are better pursued through different regulatory instruments. CRMs aim at driving the system toward a resource mix that allows to fulfil the reliability criterion set by the regulator. If designed efficiently, a capacity mechanism will target the kind of scarcity conditions expected in the system. If the main reliability threat concerns the very short-term time horizon (e.g., an expected lack of ramping capability), the CRM will automatically target flexibility. However, if reliability concerns are more related to resource adequacy (e.g., a dry season in a hydro-dominated power system, an extremely hot summer that forces to shut down nuclear plants, or a full week without wind in the North Sea), the CRM should not be artificially tilted toward flexibility.

In this context, it must also be remarked that the electricity price crisis showed us that European power systems are not as capacity constrained as we used to think. Besides the three (hydro, nuclear, wind) factors previously mentioned, power systems with dwindling gas reserves (or, in the future, hydrogen, biogas, or even electro-chemical reserves) rapidly become energy constrained, reducing the value of flexibility to guarantee security of supply. Symptoms of capacity-constrained systems are infrequent scarcity prices, in contrast, symptoms of energy-constrained systems are sustained periods (weeks or more) of very high prices.[11] It is hard to forecast the kind of scarcity conditions that European power systems will have to face in 10 years, and they may vary significantly among member states. To tackle them, we need dynamic and efficiently designed CRMs, potentially harmonized at the European level, not mandatory requirements for a specific reliability service, as flexibility, which may not be required the same way in all European power systems.

Furthermore, by requiring CRMs to support flexibility from DSR and storage, the proposal may force regulators to introduce specific subproducts in their mechanism and to define specific requirements for these subproducts. This segmentation of the CRM may result in inefficient outcomes. Brought to an extreme, this approach may end up mimicking central planning, with several targets for specific product, each one tailored to a certain technology. Although this may become progressively more difficult in the future, from a regulatory point of view, it is better to define a single CRM product (tailored to the reliability target and the expected scarcity conditions) and let different technologies compete for its provision.

This does not mean that DSR and storage should not be supported. If the Commission believes that there are market failures or externalities that are impeding an efficient deployment of these technologies, specific support schemes should be introduced (proposals in this sense are being discussed in several member states, see, e.g., RES [38]). As for renewables, these support mechanisms should minimize distortion of market competition.

A similar reasoning can be applied to the peak-shaving product introduced in the proposal, whose aim is described as enabling demand response to contribute to decreasing peaks of consumption in the electricity system at specific hours of the day. According to the high-level description of this service provided in the proposal, the peak-shaving product is a short-term product to be added to the market for ancillary services. The TSO would activate the peak-shaving product during peak hours, which are defined as those hours "with the highest electricity consumption combined with a low level of electricity generated from renewable energy sources, taking cross-zonal exchanges into account." Similarly to what happens with CRMs, this approach segments the market for ancillary services. The same concerns expressed above for the segmentation of the CRM can be applied here to the market for ancillary services. Once again, it would be more efficient to introduce specific support schemes for DSR and then let these resources offer the ancillary services tailored to the system needs, and not on the characteristic of a specific technology. Furthermore, if

[11] Examples of current energy-constrained systems are hydro-dominated Latin American countries as discussed in Barroso et al. [37].

a CRM is in place, the peak-shaving product would clearly interfere with the CRM's operation during scarcity conditions, providing double protection to consumers which likely results in an economically inefficient outcome.

Conclusions

The European Commission (EC) published on March 14, 2023, its "Proposal for a regulation (…) to improve the Union's electricity market design" (EC, 2023). The declared objective of the proposal is "to accelerate a surge in renewables and the phase-out of gas, make consumer bills less dependent on volatile fossil fuel prices, better protect consumers from future price spikes and potential market manipulation, and make the EU's industry clean and more competitive." We are of the opinion that the EC proposal did an excellent job in "defusing" a risky overhaul of the European electricity market design triggered by the energy crisis that has affected the European region. Besides this crucial accomplishment, we discuss in this paper what we consider to be four other key elements of the proposal: (i) the promotion of long-term contracting, (ii) interventions during electricity price crises, (iii) the strategy for an efficient supplier risk management, and (iv) flexibility support schemes and capacity remuneration mechanisms.

First, in its proposal, the EC clearly favors power purchase agreements (PPAs), although it does not exclude the possibility of introducing regulatory-driven contracts for differences (CfDs) to complement the PPA market if necessary. What we miss in the proposal is a more thorough diagnosis of the market incompleteness problem, i.e., the reasons why long-term power markets have never worked. Also, why PPAs have (somehow) seen significant uptake in some jurisdictions and not at all in others. We see several advantages in more reliance on CfDs over PPAs. However, if the CfD approach was not considered suitable for further development, we propose the introduction of a market-maker obligation in organized forward markets. Last but certainly not least, guidance at the European level on how these long-term contracts should be designed to maintain economic signals for generators (and end users) will be needed at some point to avoid fragmentation within the internal electricity market. ACER would be a perfect institution to lead this effort.

Second, we welcome the fact that future electricity price crises will have to be identified as such by the EC at the regional level, based on a pre-defined set of criteria. However, nothing is mentioned in the proposal about where the money would come from to finance these interventions. The idea that member states would not resort to wholesale market interventions seems hard to guarantee. The problem is not necessarily the introduction of a wholesale market intervention per se, but uncertainty about when, how, and to what extent market players can expect such intervention. We argue that it would be more efficient to have recourse to a market mechanism that provides specific bill protection such as what we call affordability options.

Third, to avoid harmful bankruptcies in the event of unexpectedly high prices, the proposal argues for enforcing a certain level of financial coverage for suppliers. We find this initiative a sensible lesson learned from the price crisis, but its implementation might not be straightforward and create an unleveled playing field between independent retailers and vertically integrated incumbent. Further, we discuss several concerns with the settlement of CfDs and their revenue/costs to end users. In this context, we believe that it is essential to launch an in-depth debate to reconsider the role of suppliers, and in particular whether it is appropriate to unbundle the price-hedging task from all the other tasks that suppliers might be expected to develop (energy efficiency advice, aggregation, demand flexibility, etc.).

Fourth and last, the proposal has a strong focus on flexibility, i.e., demand-side response (DSR) and storage. It is proposed that if a capacity remuneration mechanism (CRM) is in place, this regulatory instrument should be used to promote flexibility from DSR and storage. We argue that such an approach violates an important tenet of economic regulation, i.e., different regulatory objectives are better pursued through different regulatory instruments. This does not mean that DSR and storage should not be supported. If the EC believes that there are market failures or externalities that are impeding an efficient deployment of these technologies, specific support schemes should be introduced. A similar reasoning can be applied to the peak-shaving product defined in the proposal that could lead to a segmented market for ancillary services and unwanted interactions with CRMs.

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