

ACER consultation on amending the electricity price coupling algorithm methodology due to cooptimisation

A Eurelectric response paper

February 2024

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

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Topic 1: R&D activities

1. Do you consider that the Proposal should take into account the steps listed under chapter 9 of the feasibility study when defining the R&D activities necessary to enable the implementation of co-optimisation?

☐yes

☒partially

☐no

Please explain your answer:

As this was consistently stated in previous responses, Eurelectric underlines that benefits expected from co-optimisation remain theoretical given the technical challenges associated with its implementation. While simplifications of the problem at stake may be explored, we strongly oppose any attempt that would lead to a regression, especially concerning products available to the market, and instead emphasize the necessity of complementing the existing list of energy products with energy-reserve links. Any shorter ambition would lead to substantial inefficiencies.

Obviously, this, among many other aspects, contributes to the complexity of co-optimisation implementation and Eurelectric thus strongly supports the removal of the 2029 implementation deadline from the final amendment proposal by NEMO's, and its replacement with a cautious stepwise approach. We do stress the need for a continuous stakeholder interaction process throughout the R&D, design and implementation process, and not only integrate it in the last step. This is needed to ensure it fully reflects technical capabilities and limitations of constructive assets as well as market participants' bidding behaviors.

We would like to underline that both the definition of the bidding structure and the redefinition of algorithm requirements should be conducted as close as possible to the operational implementation to ensure they remain up to date and adapted to MP's bidding strategies and to the Standardized Balancing Capacity Products that the TSOs intent to exchange. As such, while we largely agree with the amendment to Art.4, we suggest initiating the whole process only once TSOs have expressed interest in deploying the co-optimisation process. Furthermore, we want to stress that while the triggering of the process can be done by only 2 TSOs, the subsequent R&D, design and implementation process – including stakeholder involvement – should be done on a pan-European level given the impact it will have on all stakeholders involved in the SDAC process. As such, the entire development and implementation roadmap should follow the process described in Art.37 of the CACM Guideline for amendments to the SDAC algorithm. We believe that a more collaborative and inclusive approach to decision-making will lead to a more effective and beneficial outcome.

Alternatively, the individual co-optimization design, R&D and implementation process components should be included within the project prioritization and planning for future EU implementation projects. It would allow for the individual elements to be prioritized compared to other projects. This approach would allow for a decision point to account for

the outcome of a detailed co-optimisation assessment. If the envisaged theoretical benefits of co-optimisation cannot be realized considering real-world constraints and the benefits are outweighed by negative practical consequences, any further implementation steps should be stopped.

2. Paragraph 4.3.2 of the explanatory note lists a set of design elements which, according to the NEMOs, would need to be further investigated before implementing co-optimisation. However, Article 4 (16)(c) of the algorithm methodology includes other elements that are not mentioned in the explanatory note.

Do you consider that the Proposal includes all the necessary design elements requiring further R&D?

☐yes

☒no

In your view, what other elements should the Proposal consider?

It is not possible to declare a list of design elements to be investigated as exhaustive if the specific implementation context is not yet known. The list forms a good basis of elements that will have to be included but will likely have to be extended once there is more clarity on the high-level design to ensure an exhaustive investigation of the topic. As stated in the answer to the previous question, the co-optimisation design and the bidding structure should be developed in close interaction, and with sufficient stakeholder involvement. It should be noted however, that this may need to take the form of a direct involvement of stakeholders considering that associations such as Eurelectric may not be in position to provide comments or inputs on the bidding guide due to antitrust policies.

However, it should be clear that TSOs and NEMOs must develop a solution to include multilateral linking of bids between all products and market time units (MTUs) so that a true co-optimisation can be performed. Thereby it should be considered that the day-ahead and the balancing capacity markets have different prerequisites. The efficiency of the day-ahead market should not be affected negatively, and both markets must still run smoothly. The Single Day-Ahead Coupling (SDAC) algorithm is already at its limit in terms of capability and Eurelectric has concerns on the impact of co-optimisation on the performance of the algorithm and on the SDAC. We understand that a Euphemia Prototype for co-optimisation using the flow-based compatibility deterministic requirement can perform with a 60' market time unit for day-ahead and one additional standard balancing capacity product. However, the roadmap study did not provide answers to our doubts on the feasibility of the target model for co-optimization. Therefore, as underlined by the NEMOs, this initial simulation must be completed with 15' MTU data and multiple balancing market capacity products, as well as all energy-energy and energy-capacity links, to be able to assess the Euphemia algorithm's real capability to incorporate co-optimisation. This assessment should also seek to account for the degradation of welfare linked to the time-stop imposed on the algorithm that, considering the higher complexity of the problem at stake, may lead to more suboptimal solutions.

Overall, Eurelectric is strongly opposed to any limitation such as the reduction in the variety of the energy products and bidding flexibility offered for the SDAC to accommodate the algorithmic complexity of co-optimisation. We also reject any negative impact on further evolutions of new products and services for the SDAC. Finally, Eurelectric is also against any prolongation of time needed for calculation and results publication.

Topic 2: Bid design and products

3. When a market participant intends to bid in both day-ahead and balancing capacity markets, which bid design would you consider more appropriate?

☒ Separate bids for day-ahead and balancing capacity market(s)

☐ A single bid covering both day-ahead and balancing capacity market(s)

Please justify your answer and, in case of a single bid, please explain how the bid would allow to capture the interactions between the two markets:

The separate bids option is the only one that was investigated and discussed so far. Eurelectric considers that investigations should be pursued to either find solutions capable of delivering on co-optimization while, at least, preserving the efficiency of the existing market structure or conclude at the infeasibility of co-optimization under existing tools and knowledge.

Market participants that bid both in the day-ahead and balancing capacity markets also need to be able to express for which purpose they place their bid. Therefore, it is necessary to distinguish bids for the different markets. Furthermore, in the bid design it must be included so that market participants can communicate their bids in both markets simultaneously.

The bidding structure should also include the development of a solution that allows multilateral linking of bids. This implies that market participants can communicate how these bids interact i.e. how volumes and bid prices in one market change depending on the volumes accepted in the other markets. This requirement covers both linking between markets and MTUs, as well as a sufficient number of bids that market participants can submit for one portfolio or asset.

It is important to stress that if no multilateral linking is allowed, this will lead to high inefficiencies. The process would then be equivalent to two parallel clearings with artificially segregated liquidity as MPs would need to make ex ante assumptions in their bidding strategies, to avoid offering a given asset twice (in the balancing capacity market and in the energy market), leading to a strong reduction of the expected benefits of co-optimization which is definitely not the goal of co-optimisation. As mentioned by the NEMOs, the added complexity introduced by the multilateral linking has not been estimated yet, so its feasibility both for the clearing algorithm and in terms of bidding approach remains unsure.

Should a different approach from the “separate bid” be identified such as the single bid approach, Eurelectric advocates for a comprehensive consultation clearly investigating both prerequisite and consequences of such an approach. In any case, as stated in the answers to the previous question, this should be part of the integrated R&D process of the co-optimisation design, including the bid structure. However, irrespective of the eventual choice made, the bid structure should allow for the full and correct representation of the asset abilities and limitations.

4. In your view, what information would the NEMOs and the TSOs still need from market participants to define the bid design?

This question cannot be answered in isolation. As stated in the answers to the previous question, the bid design should be part of the integrated R&D process of the co-optimisation design. In addition, market participation falls outside the scope of TSO and

NEMO competences and market participants are key players when defining the bidding guide as they would be the main users of co-optimisation. An insufficient consultation of market participants would likely lead to the delivery of an unfit product and substantial inefficiencies.

5. What is the most suitable process for market participants to provide such information?

☒ Public consultation

☒ Public workshop

☒ Other

Both public and private opportunities should be provided to market participants to give feedback and information. As stated before, this should be an integral part of the design process. Eurelectric would also like to underline the importance to consider the sensitivity of the bidding topic, as it involves commercial information that must be handled with important precautions. Given this sensitivity, any discussion or process related to bidding should prioritize the protection of all shared information. The process should be carefully designed to safeguard the confidentiality of data exchanged within its framework. Additionally, Eurelectric suggest that the process aims to include correct representation of different assets owners as well as different portfolio compositions and sizes.

6. Under Article 4(16) of the algorithm methodology, a 1-year timeline is foreseen for the collection of inputs from market participants on the bid design. How do you consider this 1-year timeline?

☒ Too short

☐ Adequate

☐ Too long

Please explain your answer:

Regarding the updated process to assess and integrate the bidding requirements of market participants in a co-optimisation environment, we consider this an improvement in terms of process. The previous proposal to require market participants to express their needs and develop a bidding guide separately was unrealistic in terms of organization and legally questionable from a competition point of view. This last point will remain a point of attention even in the new approach.

It is crucial to not only collect the input from market participants but to develop the whole process in close interaction with them. Market participants should be actively involved not just in the initial bid design phase, but throughout the entire process. Previous experiences highlight that any adjustments to internal processes, tools and algorithms bring about several changes in market dynamics and demand thorough examination and an extended evaluation period. The implementation of co-optimization would represent a significant shift in market participation, with considerable implications. The proposed one-year timeline appears to underestimate the complexity involved.

At the same time, Eurelectric underlines that the process should be terminated should it become apparent that co-optimization is a dead-end because the efficiency loss generated by the additional bidding complexity exceeds the drawbacks of market forecasts or the computation becomes intractable.

7. With the introduction of co-optimisation, the list of products which can be taken into account in SDAC will need to be amended to include products related to balancing capacity and, potentially, products linking day-ahead and balancing capacity bids.

Which additional products would you consider necessary to be added to the list of SDAC products?

The structure of the products, both balancing and electricity products, must allow market participants to communicate how contracting of one product affects volumes and prices of the other product (multilateral linking across products and MTUs). Each market participant would need to enter price/volume curves into each market for each potential outcome in the other market, respectively. As stated before, this will add a high level of complexity and uncertainty but is a prerequisite to achieve the theoretical benefits of the co-optimisation model. Eurelectric strongly opposes any regression in terms of products available to the market.

Topic 3: Benefits of co-optimisation

8. By allocating cross-zonal capacity where its market value is the highest, i.e. either to the day-ahead market or to the balancing capacity markets, co-optimisation aims to facilitate the integration of balancing capacity markets and to allow for a more optimal use of cross-zonal capacity between these two markets. Thanks to the co-optimisation process, the cost for the procurement of balancing capacity is expected to decrease by making use of cheaper bids from other areas and/or by reducing the individual TSO's demand for balancing capacity through sharing of reserves.

What do you consider to be the most significant benefits of co-optimisation?

In theory, true co-optimisation ensures a more optimal usage of capacity and would set a basis for building up a European balancing capacity market. The main benefits of the co-optimisation process would be that there is no longer a need to rely on market forecasts to achieve an optimal cross-zonal capacity allocation (CZCA) between balancing capacity and the day-ahead market. Through co-optimisation, a more optimal CZCA between these markets could be achieved. However, to actually capture these benefits, it is crucial that co-optimisation is implemented correctly, which its feasibility is still questioned. This means that the design allows for the correct and full reflection of the technical flexibility of assets (be the generation, storage or demand response) in the bidding strategy, both in terms of bid quantity as in interactions between bids and markets (linking, both volumetric and temporal). It is unclear that today the technical requirements (algorithmic performance) are met to allow these preconditions to be fulfilled. Without fulfilling these preconditions, a partial

implementation of co-optimisation would risk not only to fall short of these theoretical benefits, but actually result in a deteriorated market environment compared to today.

Eurelectric therefore remains concerned about the significant drawbacks of an implementation of co-optimisation in the short to medium term. These concerns have been extensively expressed in the previous consultation.

Many current national balancing capacity procurements (the same applies to future market-based implementations in line with art.41 of the EBGL) are based on a sequential bidding process, where the SDAC happens after the procurement of balancing capacity. This allows market participants to prepare their energy bids with a deterministic view of their balancing capacity obligations.

In order to replicate the current multi-stage decision process, market participants would need to use an almost-infinite number of “if-then-clauses”, which would have to be modelled in their biddings and would hence require sophisticated linked-blocks products. Also, portfolio bidding would become almost impossible, as interdependencies between different assets would be almost impossible to reflect in addition to the balancing capacity – energy interdependencies.

This increased complexity may lead to a reduction of offered volumes or to risks mark-ups to compensate for an imperfect bidding strategy regarding the technical constraints of the assets, therefore to efficiency losses. We want to emphasise that Eurelectric is in favour of portfolio-based bidding and does not support any market design changes that shift the focus from portfolio-based to unit-based bidding.

When assessing the benefits of co-optimisation on a theoretical basis, the increased efficiency in CZC allocation is mentioned. This, however, only holds for identical bids from market parties under different CZCA methodologies. Market parties that are offering flexibility from units with intertemporal dependencies (which applies to most technical units, most prominently storage) will be affected by the exponential increase in bidding complexity by co-optimisation and will therefore need to include additional safety margins or risk premiums into their bids, or worse be forced to decide for bidding either in the BCM or the DAM. The resulting market outcome will be far from optimal, and the theoretical benefits will be outweighed by the practical inefficiencies.

Hence, to summarize, in addition to the potential benefits, any possible drawbacks should be taken into account: complexity; costs of implementation and adaptation of operating systems and processes; increase of algorithm computational times; difficulty for the algorithm to identify the optimal “share” between BC vs SDAC offers (1-step vs 2-step approach); need for bid linking and consequent complexity for the algorithm as well as for market participants’ bidding; ; transparency decrease (it could be more difficult for the operators to understand the reasons behind accepted/not accepted bids); compatibility issues with current design such as flow-based etc. On the latter, further elements of complexity could indeed derive from the need for the co-optimization algorithm to take into account the offsets of potential activations of balancing energy following the exchange of balancing capacity products. Finally, in addition to ensuring that there is not step back in

day-ahead bidding formats, one should ensure that the complexity entailed by co-optimization would not be detrimental for any future need for example in case there is a need for a new capacity balancing product. Hence, it would be appropriate to implement a Cost Benefit Analysis estimating potential benefits of implementable solutions against the above-mentioned drawbacks.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



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