
GOVERNANCE OF THE MARKET COUPLING OPERATION FUNCTIONS

TRANSMISSION SYSTEM OPERATORS' PERSPECTIVE

Policy Paper July 2016

Developing, operating, and governing market coupling is a highly complex task at the heart of cross-border trade and capacity allocation. Even more, market coupling is an **essential infrastructure for wholesale market functioning** as well as for **system operation** and ultimately for **security of supply**. As markets integrate further and move closer to real time, there is an increasing need for TSOs to get involved in how power exchanges design and operate market coupling operation functions.

1 CONTEXT AND PURPOSE OF THE PAPER

Day-ahead market coupling has become the most evident feature of integrated European electricity markets. Through this process, bids and offers collected around European day-ahead markets are matched together, compatibly with both network capabilities and clearing prices are defined, and day-ahead cross-border transmission capacity is simultaneously allocated.

Market coupling requires processing input from all involved nominated electricity market operators (NEMOs) and transmission system operators (TSOs) – essentially bids and offers and network capacities and constraints – matching them by operating a central algorithm, and lastly validating and sending outputs, such as matched trades, clearing prices, and scheduled exchanges, to NEMOs and TSOs. All this has to happen within precise and tight timelines, while ensuring optimal economic solutions, high performance, and robustness.

Developing, operating, and governing market coupling is thus a highly complex task at the heart of cross-border trade and capacity allocation. Even more, market coupling is an essential infrastructure for wholesale market functioning as well as for system operation and ultimately security of supply.

In this context, and considering TSOs' legal responsibilities to allocate capacity and maintain secure grid operation, ENTSO-E and its members are naturally very mindful of the establishment and operation of market coupling operator (MCO) functions. The TSOs' key interest is that the MCO functions can continuously ensure robust and optimal solutions, especially in view of future evolutions of its geographical scope (i.e., market extensions) and of its technical capabilities (new products and closer to real-time processes).

TSOs recognise NEMOs' core competences and proven experience, which has led, for instance, to successful projects on day-ahead market coupling. As such, we have supported their leading role recognised by capacity allocation and congestion management (CACM) in establishing and operating MCO functions. At the same time, we believe that the governance framework of MCO functions needs to ensure appropriate TSO involvement, together with transparent decision making and regulatory oversight of performances and costs. While CACM – and multilateral NEMO-TSO agreements – already define elements of such a framework, we see potential space for further improvements, in particular to address challenges deriving from market integration and transformations.

With this paper, ENTSO-E aims at identifying such challenges and possible improvements. Distinction is made between improvements that can already be put into place today by NEMOs and TSOs in the framework of a respectful and effective cooperation as well as others that may require future legislative intervention.

2 MCO FUNCTIONS TODAY: EXPERIENCES AND REGULATION

The Commission Regulation (EU) 2015/1222, establishing the guideline on CACM, entered into force in August 2015. Compared to the previously applicable legal framework, CACM is not only more detailed but also now governs different aspects of the relations between the parties involved in day-ahead or intraday market coupling (in particular cooperation between TSOs and power exchanges) and of their activities related to market coupling.

WHAT EXACTLY DOES CACM DEFINE?

NEMOs AND NEMOs' TASKS:

The CACM introduces a new definition in capacity allocation and congestion management, the NEMOs, a role normally covered by power exchanges. A NEMO is defined by Art. 2 CACM as *'an entity designated by the competent authority to perform tasks related to single day-ahead or single intraday coupling'*. The tasks of a NEMO are described in Art. 7; NEMOs act as market

operators in national or regional markets to perform, in cooperation with TSOs, day-ahead and intraday coupling. This includes receiving orders from market participants, having responsibility for matching and allocating orders based on the coupling results, publishing prices, and settling and clearing the contracts resulting from the trades.

MCO FUNCTION:

Article 7(2) also contains a list of tasks that NEMOs have to perform jointly with other NEMOs for the implementation of the MCO function. These include *'developing and maintaining the algorithms, systems and procedures for single day-ahead and intraday coupling'*, *'processing input data on cross-zonal capacity and allocation constraints provided by coordinated capacity calculators'*, *'operating the price coupling and continuous trading matching algorithms'*, and *'validating and sending single day-ahead and intraday coupling results to the NEMOs'*. Different from the NEMO role, the MCO is not a defined entity but a function

corresponding to *'the task of matching orders from the day-ahead and intraday markets for different bidding zones and simultaneously allocating cross-zonal capacities'*. All NEMOs shall submit *'a plan that sets out how to jointly set up and perform the MCO function. The plan shall include a description of the expected impact of the terms and conditions or methodologies on the establishment and performance of the MCO function'* to all NRAs and ACER. As long as tasks of Art. 7(2) are fulfilled, NEMOs thus have relative freedom to jointly decide how to establish and operate the MCO function.

COMPETITION BETWEEN NEMOS:

Article 4 stipulates that each Member State shall ensure that at least one NEMO is designated in each bidding zone in its territory. *‘For that purpose, domestic and non-domestic market operators may be invited to apply to be designated as a NEMO’*. A NEMO designated in one Member State has the right to offer day-ahead and intraday trading services with delivery

in another Member State, subject to a simple notification to the designating authority of that Member State.¹⁾ This implies that multiple competing NEMOs may exist in the same bidding zone, while being forced to cooperate in the establishment and operation of the MCO function.

REGULATORY OVERSIGHT OF NEMOS:

The Member State where the NEMO has been designated shall ensure that designation is revoked if the NEMO fails to maintain compliance with the criteria in Art. 6 (e.g., adequate resources, cost-efficiency, non-

discrimination of market participants, appropriate market surveillance arrangements, proper transparency, and confidentiality agreements).

REGULATORY OVERSIGHT OF MCO FUNCTIONS:

All NRAs shall approve NEMO plans on how to jointly set up and perform MCO functions. Further, ACER shall monitor the progress of NEMOs in establishing and performing MCO functions and report to the EC if this progress is satisfactory within 12 months after entry into force of the CACM regulation. Moreover,

ACER *‘may assess the effectiveness and efficiency of establishment and performance of the MCO functions at any time. If that assessment demonstrates that the requirements are not fulfilled, the Agency may recommend to the Commission any further measures needed or timely and efficient delivery’*.

BEYOND LEGAL REQUIREMENTS: EXPERIENCE FROM DAY-AHEAD AND INTRADAY IMPLEMENTATION PROJECTS

In the **day-ahead** timeframe, a number of regional market coupling initiatives have now led to couple together the majority of EU markets under multi-regional coupling (MRC). These experiences have proven the capability of good cooperation among NEMOs as well as between NEMOs and TSOs.

At the same time, in the **intraday** timeframe, the cross-border intraday market project (XBID) to couple the European market together has experienced significant delays over the last years. Several factors have led to this situation: technical challenges, lack of stakeholders’ consensus on the target model, inherent competition of NEMOs, inefficient decision-making processes,

communication issues with the service provider, and lack of clarity on cost sharing and cost recovery. Compared to the day-ahead experience, higher inherent complexity of the market design, with the integration of the capacity management module and the shared order book function, has also been mirrored in higher governance complexity. The peculiarity of the intraday markets, their process timings, and closer interactions of market and physics have to be considered when establishing, operating, and monitoring MCO functions. As such, different governance and regulatory solutions could be needed for the coupling of day-ahead markets compared to those of intraday ones.

¹⁾ However, a Member State may still refuse the trading services by a NEMO designated in another Member State, for instance if a national legal monopoly exists already, if technical obstacles exist affecting operational security, if trading rules are not compatible, or if the NEMO is a national legal monopoly in the Member State where it is designated.

CURRENT CHALLENGES AND POTENTIAL SHORTCOMINGS OF THE EXISTING GOVERNANCE FRAMEWORK

Most NEMOs are private companies competing with one another (even within the same bidding zones) on products, services, fees, and covered market areas. At the same time, they have a legal obligation to cooperate closely in establishing and operating an essential system, such as the MCO functions. This current hybrid set up of competitive entities jointly establishing a monopoly function could result in some inherent conflicts and possible drawbacks. Effective competition between NEMOs could be distorted, for instance, due to the possibility for some NEMOs acting as monopolies within their Member State, while proper

regulatory oversight could be challenging. Competition may hamper the cooperation for further development of market design or, in the worst case, may even reduce the NEMOs' attention to the required robustness of the system. Essentially, there are potential risks that, while competition creates complexity for capacity allocation (for instance management of fall-back auctions with several NEMOs within a bidding zone), NEMOs would not have enough incentive for jointly establishing and operating the MCO functions in an efficient manner.

FUTURE CHALLENGES

There is a widespread trend towards shorter market time units (for instance with the introduction 15-minute products) and of shorter lead times for intraday trading at the local level, which will inevitably also affect cross-border markets in the future. Many major markets in Europe are already allowing trading up to 30 minutes before delivery. As per cross-zonal intraday exchanges, CACM sets gate closure times at 60 minutes before delivery as a starting point. However, intraday cross-border gate closure time (GCT) could move closer to real time in the future.

This shortening trend for products and processes is already affecting how TSOs manage congestions (e.g., redispatching). Further evolutions of process timings and algorithms, including possible co-optimisation of energy and reserves (as foreseen in the draft 'Electricity Balancing Guideline'), will have major implications for TSOs' abilities to uphold their responsibilities for secure grid operation.

New products and wider geographical scale of coupled markets will inevitably increase algorithm complexity by stressing performances, robustness, and the capability to respect process deadlines for delivering results. Furthermore, the challenges and potential shortcomings of the current governance framework highlighted above are likely to become even more evident. With these developments, the way that the MCO functions are developed and operated becomes even more critical to the TSOs' tasks of capacity allocation and grid operation; this increases the need for TSOs to control the algorithm requirements but also the execution of MCO functions.

On the other hand, it must be ensured that TSOs can still define the limits of feasible process timings as these affect system operation. Such limits should thus not be trespassed.

3 SOLUTIONS

In the context of ongoing experiences and the current legislative framework, ENTSO-E recommends a number of solutions to address the challenges and shortcomings described above.

First, we recommend some **no regret improvements**, which do not require any legislative changes. As implementation of CACM arrangements becomes a reality, cooperation between TSOs and NEMOs can be further enhanced via well-defined processes as well as existing platforms:



- In accordance to Art. 37, TSOs will propose a common set of requirements for the price coupling algorithm and continuous trading matching algorithm to NEMOs. In requiring functionalities, performances, and deadlines for delivery of results, TSOs should be entitled to set the necessary level of detail and robustness, especially for cross-zonal capacity, and the allocation constraints should be respected. As such requirements will be subject to public consultation (together with NEMOs' common set of requirements), the input from market parties and other stakeholders will also be useful to identify additional requirements that are essential for efficient capacity allocation. The TSOs are working on such requirements.
- On top of making the best use of the processes and inputs that are legally defined by CACM, it is important for TSOs to be able to flag risks or suboptimal solutions to NEMOs as soon as they are identified. For this purpose, NEMOs should be open to a constructive and continuous dialogue with TSOs and to proposing timely solutions to the issues identified by TSOs.
- Such regular dialogue between TSOs and NEMOs should take place at different levels, making the best use of existing cooperation platforms, such as the MRC algorithm task force where TSOs are invited, and the future TSO-NEMO Committee. We welcome NEMOs' initiative to open up their working level groups to TSOs and consider that the most transparent and responsible involvement should be guaranteed.

Based on the experience of the ongoing projects under the CACM implementation, NRAs and EC should assess the effectiveness of its legal provisions and of current implementation processes. Should the level of NEMOs cooperation or TSOs involvement not be satisfactory, further regulatory measures should be considered. The CACM actually already requires the EC to evaluate – two years after the entry into force – *‘the governance of single day-ahead and intraday coupling established by this Regulation, with particular emphasis on the transparency of MCO functions carried jointly by the NEMOs. On the basis of that report, and if the Commission deems that there is ambiguity in carrying out the monopolistic MCO functions and other NEMO tasks, the Commission may consider appropriate legislative or other appropriate measures to further increase transparency and efficient functioning of single day-ahead and intraday coupling’*.

A second category of improvements, if necessary, may not necessarily require legislative changes but at least a concrete **CACM regulation upgrade** of TSOs' participation in NEMO-led tasks related to cross-zonal capacity allocation. In particular, either via a CACM amendment or via an appropriate contractual framework, further involvement of TSOs in MCO processes should be ensured, such as:



- Due TSO participation in the selection process for the designation of the MCO coordinator will allow TSOs to have an upfront overview of the robustness of the designated party;
- The possibility for all TSOs to actually approve day-ahead and intraday algorithm amendments with a similar role to NEMOs (not only to submit amendments for TSO requirements with only a cooperative role in drafting the amended proposal). This would ensure that the final amended proposal by all NEMOs is fully in line with the requirements for efficient capacity allocation;
- The possibility for all TSOs to have a role in the decision-making process whenever a new bidding zone border joins in order to properly assess the consequences of the MCO processes and efficiency when enlarging the geographical scope and introducing new 'products' (e.g., specific orders or specific features like the Italian Prezzo Unico Nazionale – PUN) and to have a due capability of intervention.

Whenever necessary, ENTSO-E sees the potential for a more significant intervention in **defining market coupling functions**, possibly requiring amendments to CACM or other regulations. In particular:



- The MCO functions will need to be clearly defined at the European level; the establishment of the MCO should not be left to a plan submitted by NEMOs to NRAs for approval but instead clearly defined by legislation as monopoly functions with rules on governance and decision-making, cost sharing and cost recovery principles, liabilities, etc.
- The solution for the MCO functions would need to be jointly developed by Member States and NRAs, in close cooperation with TSOs and NEMOs. In any case, TSOs should be closely involved in the selection process of the MCO function to be able to control robustness and efficiency of the implemented solution.
- To ensure that NEMOs' cooperation to operate the MCO functions is not negatively affected by their competition for services, liquidity and fees in local markets, the MCO functions need their own governance structure and business rules. This would imply clear separation of accounting, decision-making processes, revenues, and costs. This may allow introducing real incentives for NEMOs to cooperate efficiently for the MCO role and algorithm development. >>>

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At the same time, the separation of competitive activities from the ones related to MCO functions may be very challenging, especially in relation to the fact that MCO functions are essential for the allocation of cross-border capacities, which is a TSO core responsibility, but also for fixing the prices, which is vital for NEMOs. Member States should have the possibility to choose regional solutions in a coordinated manner, including the possibility of delegating the operational roles for matching of bids and offers (i.e., matching coordinator) to an entity with a national or regional monopoly, while maintaining competition on the other NEMO tasks, ensuring non-discrimination towards NEMOs, and duly considering the importance of MCO functions for the NEMOs. The operation of the single algorithm should be jointly assigned, similarly to the price coupling of regions (PCR) mechanism in place today, with rotating roles between different regions.

Depending on the success of regulated measures on the MCO functions, the EC, Member States, and NRAs, together with TSOs and NEMOs, should assess the need for possible further actions related to MCO solutions (establishment of solutions at the regional level, unbundling of MCO functions, etc.), and the respective roles of TSOs and NEMOs.

ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
CACM	Capacity Allocation and Congestion Management
GCT	Gate Closure Time
EC	European Commission
ENTSO-E	European Association of Transmission System Operators for Electricity
MCO	Market Coupling Operator
MRC	Multi-regional Coupling
NEMOs	Nominated Electricity Market Operators
NRA	National Regulatory Authority
PCR	Price Coupling of Regions
TSO	Transmission System Operator



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