

# Market Coupling Consultative Group meeting

1st December 2022



# Agenda – morning session

MORNING SESSION (09:00 – 11:45)		
09:00 – 09:10	<p>Welcome</p> <p>Recap of the Terms of Reference</p> <p>Presenting the co-convenors</p>	<p>MCCG Co-Convenors:</p> <p>Hélène Robaye, ENGIE</p> <p>Javier Barrantes, REE</p> <p>Pierre Milon, EPEX Spot</p>
09:10 – 09:30	<p>MCO organization: year 2022 and 2023</p>	<p>MCSC Co-Chairs:</p> <p>André Estermann, 50Hertz</p> <p>Cosimo Campidoglio, GME</p>
09:30 – 10:00	<p>SDAC: impact analysis for calculation time extension</p>	<p>SDAC and ANDOA OPSCOM Chair,</p> <p>Mario Pession, GME</p>
10:00 – 10:15	<p>SDAC: publication of aggregated curves, publication of execution status of blocks</p>	<p>SDAC MSD Co-Convenor:</p> <p>Timo Suhonen, NordPool</p>
10:15 – 10:45	<p>SDAC &amp; SIDC: 15 minutes Market Time Unit (MTU) roadmap overview</p>	<p>5min MTU ICG Leader:</p> <p>Fabian Heus, E-Bridge</p> <p>SDAC MSD Co-Convenor:</p> <p>Timo Suhonen, NordPool</p> <p>SIDC OPSCOM Chair:</p> <p>Jaime Ponz García Comendador, EPEX Spot</p>
10:45 – 11:45	<p>SDAC: Non Uniform Pricing (NUP) concept</p>	<p>SDAC MSD Co-Convenor:</p> <p>Timo Suhonen, NordPool</p>
LUNCH BREAK (11:45 – 12:45)		

## Agenda - afternoon session

<b>AFTERNOON SESSION (12:45 – 15:00)</b>		
12:45 – 13:30	SDAC: curtailment management in EUPHEMIA algorithm	SDAC MSD Co-Convenor: Marja Eronen, Fingrid
13:30 – 14:15	SIDC IDAs: progress on implementation	SIDC MSD Leader: David Myska, E-Bridge
14:15 – 14:45	Regulatory: Progress on the review of Harmonised Maximum and Minimum Clearing Prices (HMMCP) Methodology for SDAC and SIDC	NEMO Technical Task Force co-convenor: Hilde Rosenblad, NordPool
	<b>CLOSURE (14:45 – 15:00)</b>	MCCG co-convenors: Hélène Robaye, ENGIE Javier Barrantes, REE Pierre Milon, EPEX Spot

**Welcome**

**Introduction of the Market Coupling Consultative Group  
(MCCG)**

Helene Robaye, Javier Barrantes, Pierre Milon

MCCG co-convenors



## Welcome - by co-convenors of MCCG

### Introduction of the ToR of the MCCG

#### Main objectives:

- To consult market participants on issues related to the design, development, implementation and operation of SDAC and SIDC
- To facilitate the exchange of views and information among NEMOs, TSOs and market participants
- this group will support the preparation of certain topics to be addressed in the MESC.

#### Scope:

- Terms, Conditions or Methodologies of EU-wide scope under CACM
- Developments and operation of SDAC and SIDC
- Relevant technical presentation and impact assessments
- High-level follow-up of relevant regional implementation projects

#### Membership and attendance

- The MCCG is open to everyone, the active members are the MCCG co-convenors, market participants (EFET, Eurelectric, IFIEC, etc.), relevant convenors or experts from NEMOs and TSOs actively contributing, individual market participants, representatives of individual NEMOs and TSOs

#### Governance

- MCCG is first and foremost a forum aiming at reaching a better common understanding between market participants, and NEMOs and TSOs. It has no decision-making power related to operation or implementation, which is a role belonging to the MCSC. The outcome of MCCG discussions will be duly considered by the MCSC. The MCCG can facilitate reaching aligned positioning that could be presented jointly to e.g. MESC.
- The MCCG is led by three co-convenors: one NEMO co-convenor, one TSO co-convenor, and one market participants co-convenor.
- MCCG meetings will typically take place twice a year

## Welcome - by co-convenors of MCCG

The MCCG is led by three co-convenors:

**Market participants co-convenor:**

**Helene Robaye**, Head of Regulation & Market Design, ENGIE (Eurelectric)

**TSO co-convenor:**

**Javier Barrantes**, Markets Advisor, Red Eléctrica de España

**NEMO co-convenor:**

**Pierre Milon**, Head of Market Coupling Projects & Algorithm, EPEX SPOT

## MCO organization

Stefano Aliamo, André Estermann  
MCSC Co-chairs



## Market Coupling organization improvements

### What TSOs and NEMOs want?

We aim for timely, robust & efficient delivery of market coupling requirements with more transparency to Market Participants and significantly less regulatory escalations. Moreover, we strive to explore synergies as much as possible.

### What has already been achieved in 2022?

- ✓ Go live of SDAC/SIDC Joint governance: Establishment of the Joint Market Coupling Steering Committee (MCSC)
- ✓ Implementation of Qualified Majority Voting (QMV)
- ✓ Establishment of Market Coupling Consultative Group (MCCG) – incl. Market Parties as Co-Convener on a rotational basis
- ✓ Agreement on how to deal with the list of new tasks to be assigned to all NEMOs and all TSOs in future
- ✓ “Delegation” of some responsibilities from ALL TSOs/NEMOs to MCSC (e.g. Cost Report, CACM Annual Report)
- ✓ Approval of MCSC organigram (incl. establishment of Joint TSO and NEMOs governance in all Working Groups and Task Forces)
- ✓ Approval of KPIs for overall MCSC Resource Management

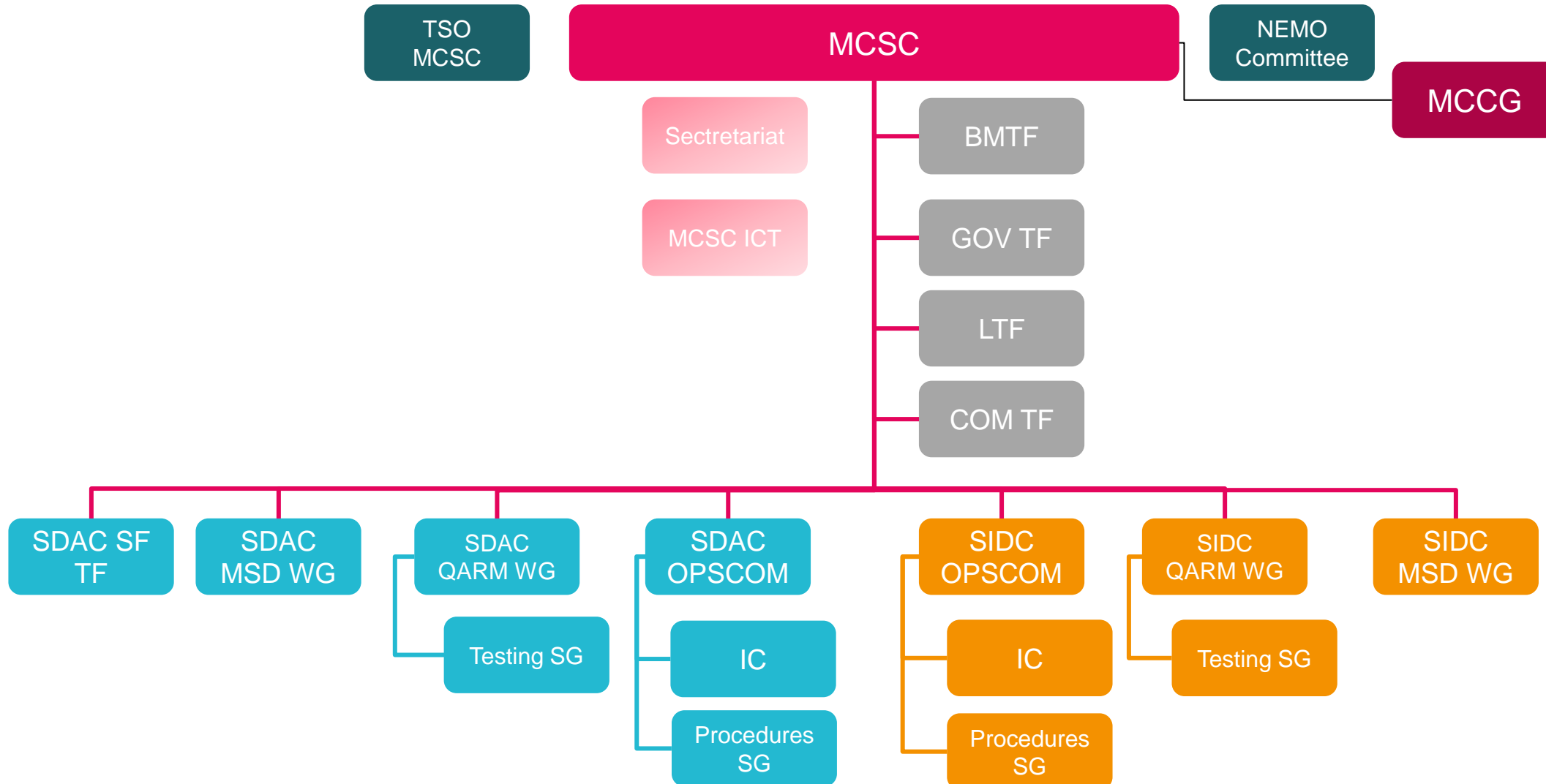
### What is already planned for 2023?\*

- ✓ Establishment of SDAC QARM to e.g. “mirror” coordinated system provider/s interactions as in SIDC
- ✓ Establishment of GOV TF to e.g. continue exploring and implement organizational improvements in MCSC
- ✓ Single Project Management Office (PMO)
- ✓ ...

\* Various additional items are currently being assessed (e.g. EFET/eurelectric list of „no regrets“)



# Market Coupling organisational chart



## Single Day-Ahead Coupling (SDAC) – organizational improvements

### Establishment of SDAC Quality Assurance and Release Management (QARM) Working Group

SDAC QARM with a NEMO and a TSO Co-Convener will manage sound short/mid-term planning and long-term outlook for the SDAC Requests for Change (RfC) in line with the strategic guidance provided by MCSC.

It will interact directly with the other project bodies as well as with N-Side and Unicorn and it will ensure that the planning is correctly executed. A more streamlined implementation with greater visibility of the overall planning will be ensured as of 2023.

**Joint approach towards service providers** – i.e. granting equal access providers to NEMOs and TSOs.



## Single Intra-Day Coupling (SIDC) – organizational improvements

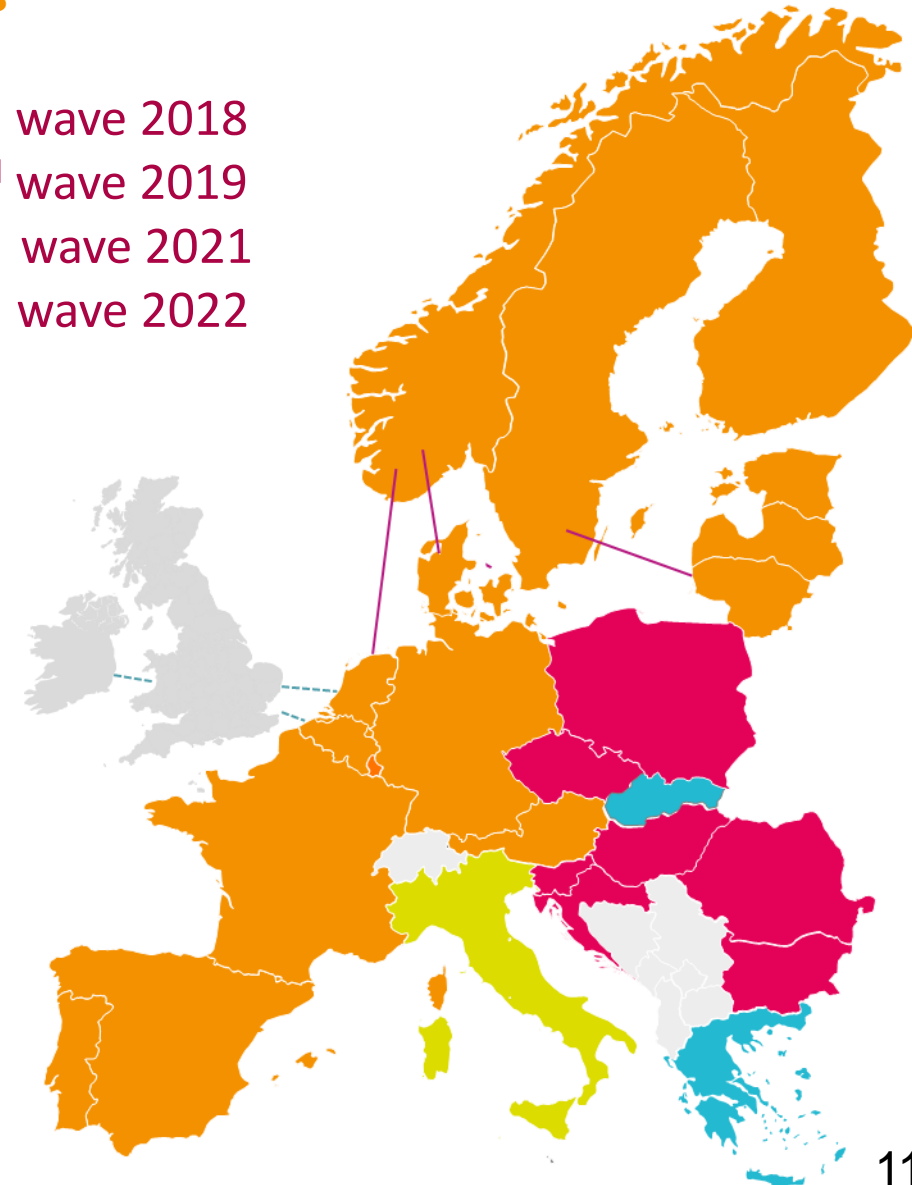
### Further refinement of SIDC Quality Assurance and Release Management (QARM) Working Group

SIDC QARM with a NEMO and a TSO Co-Convener will continue to manage sound short/mid-term planning and long-term outlook for the SIDC Requests for Change (RfC) in line with the strategic guidance provided by MCSC.

In 2023 SIDC QARM will next to the XBID release management focus with great diligence on the **delivery of Intra-Day Auctions (IDAs)** in time and quality.

**Strengthen Joint approach towards service providers –**  
i.e. granting equal access providers to NEMOs and TSOs.

- 1<sup>st</sup> wave 2018
- 2<sup>nd</sup> wave 2019
- 3<sup>rd</sup> wave 2021
- 4<sup>th</sup> wave 2022



# SDAC OPSCOM: Impact analysis for calculation time extension

Mario Pession

SDAC and ANDOA OPSCOM Chair

## SDAC: Impact analysis for calculation time extension

- As presented in MCCG #1 in June, the removal of second auction after full decoupling for CWE and Hungary and extension of partial and full decoupling deadlines were implemented in SDAC

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- Thanks to these changes, the security of the process has increased and fortunately no usage of those fallback processes were necessary.
- Complexity of the process is still increasing to upcoming new challenges the NEMOs and TSOs are working on (Nordic FB, 15 minutes MTU, ...)
- For this reason SDAC OPSCOM, in coordination with the other groups, is always looking for new opportunity to secure the process and try to reduce the incident rate, especially for the critical ones (decouplings – partial and full – and also risk of decouplings).
- A subgroup has been reactivated on this topic, in order to analyze the current SDAC process (more time for it would reduce the risk also for the current process, but particularly for the timing that the algorithm will require with the 15 minutes challenge - more than double the current one).

## SDAC: Impact analysis for calculation time extension

- Some of the possible options were already listed during the last meeting and will be retaken in consideration :
  - move deadlines,
  - shorten some steps,
  - simplify exceptional (second auctions or fallbacks mechanism).
- This analysis could bring to the major review of parts of the SDAC operational steps and provide more reliability in the process as well as more time for the algorithm to execute the calculation. The work is still at the beginning and no firm option are available nor any decision made
- Updates will probably be given in the next MCCG meeting in Q2 2023.

# SDAC

## publication of aggregated curves: publication of execution status of blocks

Timo Suhonen

SDAC MSD NEMO convenors

## SDAC publication of aggregated curves: publication of execution status of blocks

- The feature is successfully tested on technical level
- The go live window is from mid-January to end of February depending on entire release test completion.



## 15 min MTU implementation in SDAC

- In line with EU Clean Energy Package (CEP), SDAC is preparing the move of DA market coupling auction from a time resolution of 60 min to 15 min, which implies offering 15 min MTU products.
- MCSC decided in June 2022 to implement the 15 min MTU via **the Big bang approach: it means there is one single go-live where every BZ and BZ border in SDAC needs to switch from 60 min MTU data to 15 min MTU data jointly, at the same time.** The target approach is then that **all BZs** (and all its TSOs and NEMOs) and Bidding Zone borders make **jointly** the switch to the final expected MTU setup” (30 min for Ireland, 15 min for all other BZs) in **Q1 2025** Exemption is granted to Ireland where the finest granularity will be 30 min MTU.
  - We have foreseen **member testing in Q4 2024**, to be done locally. Feedback from members is much appreciated.
- But for a **product design perspective within a Bidding Zone, the Big Bang Approach can still be with products in multiple MTUs or 15 min MTU products only.** SDAC is currently assessing both multiple MTU products and 15 min MTU product-only as separate scenarios.
  - Final product set-up to be clarified during **second half of 2023**. Nevertheless, any feedback from members is much appreciated.
- SDAC is already working on the following measures that are “must-have” for the 15 min MTU implementation also in Big Bang implementation approach: **i) Removal of PUN product from SDAC, ii) Transition from Complex order to Scalable complex order, iii) Additional time to the algorithm in DA MC process and iv) Deployment of the Distributed Computing environment.**
- The work on R&D to improve the performance is still ongoing.

# SDAC: 15 minutes Market Time Unit (MTU) roadmap overview

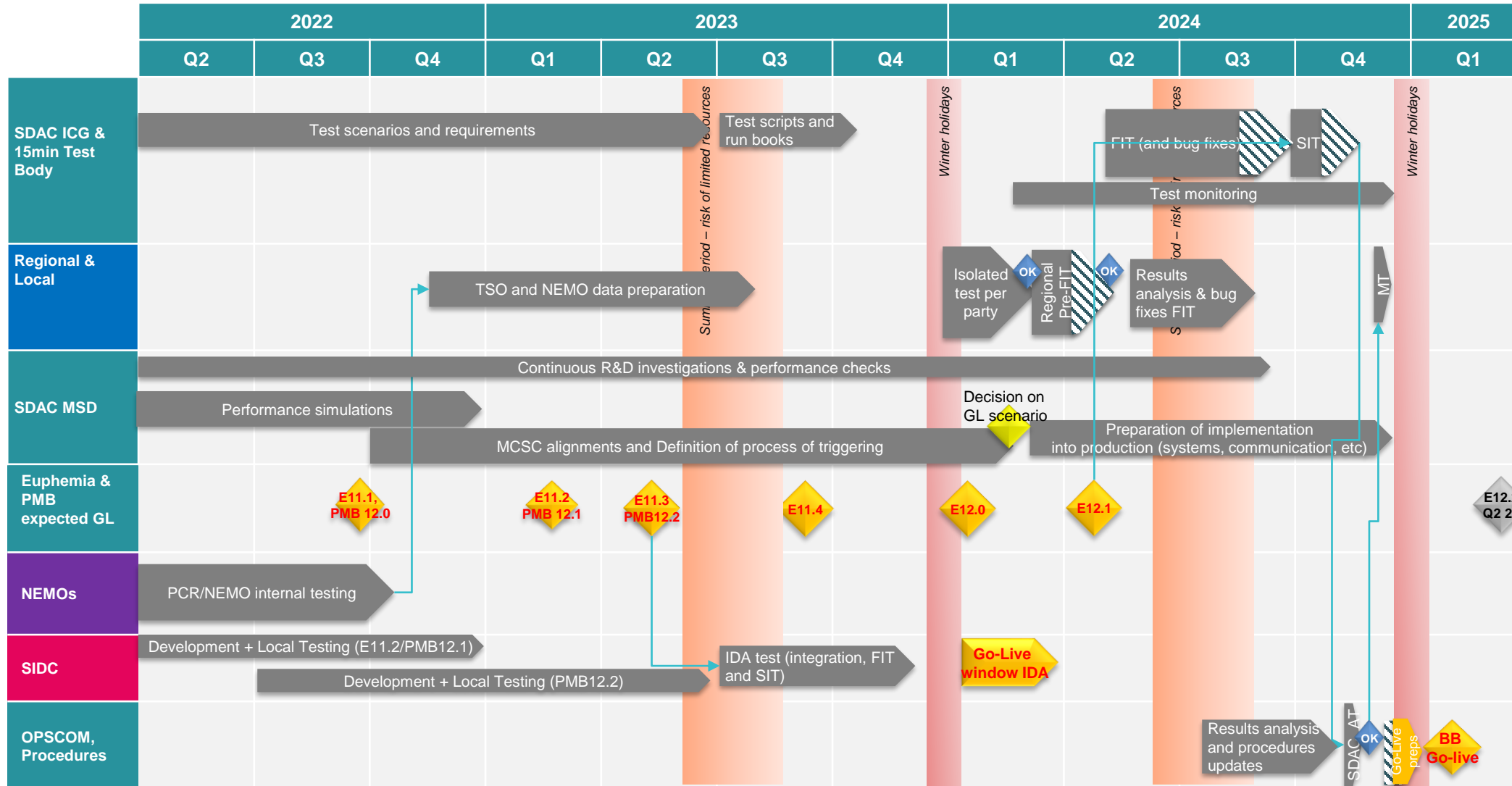
Fabian Heus

15 min MTU Implementation Coordination Group Leader

# SDAC 15 min MTU overall plan for Big Bang Approach

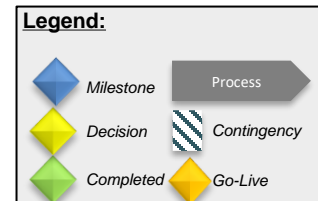


Market Coupling Steering Committee



### Comments

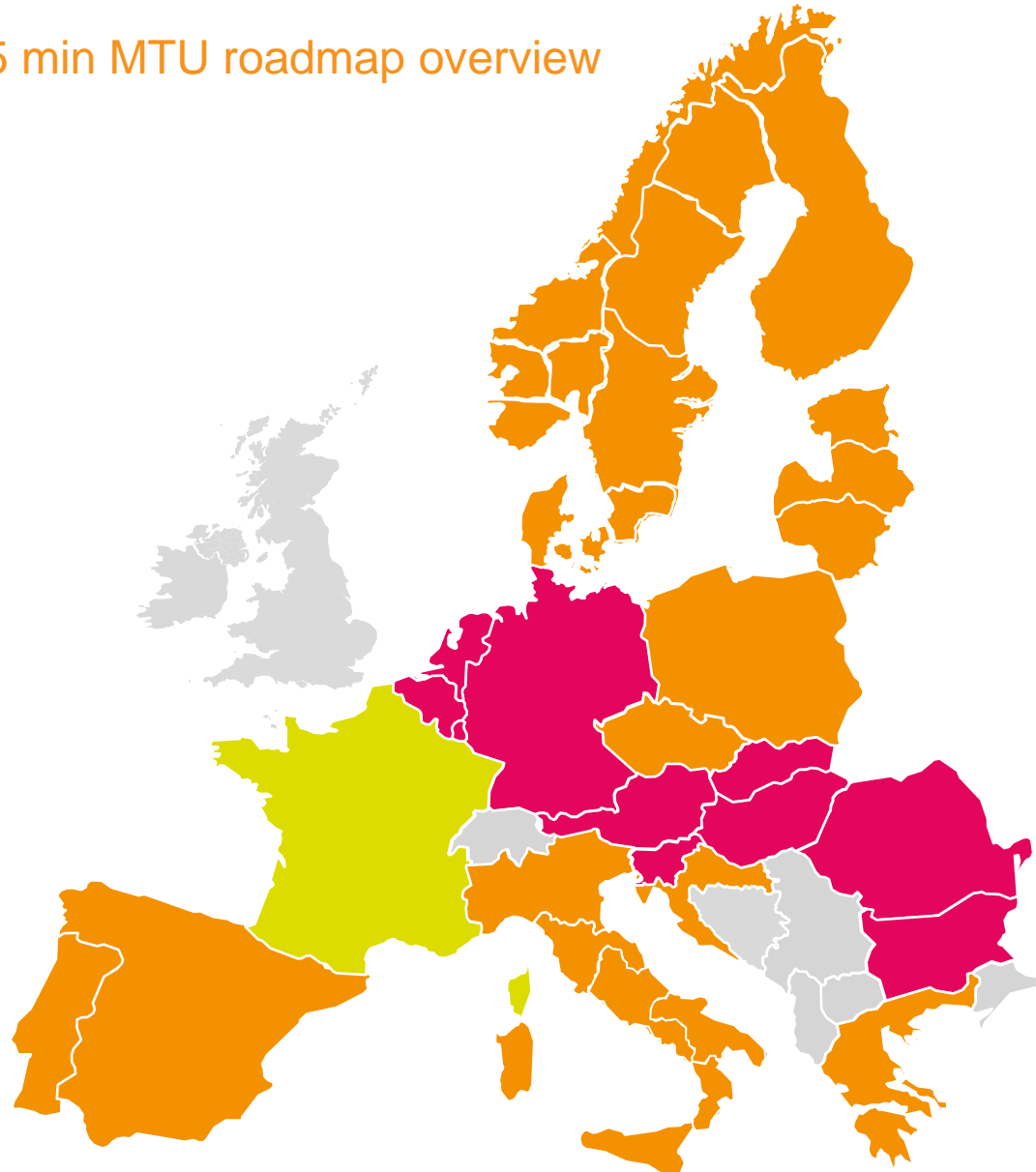
- PRE-FIT, FIT & SIT phase: includes contingency
- Eup/PMB release timeline and scopes are under discussion in SDAC MSD
- SDAC AT: 3 days testing
- GL date assumption 21 or 22 Jan 2025 – needs to be approved by MCSC, then PCG



## 15 minutes Market Time Unit (MTU) roadmap overview

Jaime Ponz García Comendador  
SIDC OPSCOM Chair

## SIDC: 15 min MTU roadmap overview



### Lowest product granularity in particular BZs

- BZ on 15 min MTU
- BZ on 30 min MTU
- BZ on 60 min MTU
- Not part of SIDC coupling

*Note 1: Hourly products are available in every SIDC country*

*Note 2: 30-min products are currently tradable across the borders FR-DE, DE-NL, DE-BE, FR-BE and BE-NL.*

*Note 3: 15-min products are currently tradable across the borders BE-NL, BE-DE, NL-DE, AT-DE, AT-HU, AT-SI, AT-SK, HU-SK, HU-RO, BG-RO.*

Upcoming 15m MTU go-lives in countries that are already in SIDC.

▷ Nordic Area – 2024 H1

# SDAC

## Non Uniform Pricing (NUP) concept


Timo Suhonen and Marja Eronen  
SDAC MSD convenors

## Purpose of the presentation

- In the June MCCG, the concept of non-uniform pricing (NUP) was presented, with examples provided
- The purpose of the following pages is to explain how SDAC MSD proceeds in analyzing the topic, what is the current state and what are the next steps
- Disclaimer
  - All results, messages, notes and statements are done while simulations, research items and work is still on-going. Those may change over the time as work continues.

## NUP in SDAC: The reason of investigation

- In line with EU Clean Energy Package (CEP), SDAC is preparing the move of DA market coupling auctions from a time resolution of 60 min to 15 min. **This represents a significant additional challenge for the algorithm performance.**
  - Already the current challenges require continuous R&D. For the implementation of 15 min, performance may not suffice to maintain everything in place – an arbitrage of requirements might be needed
- **To prepare the implementation of 15 min in January 2025, different streams are in progress** (see also topic 7):
  - There are several „must have“ measures for which the work is ongoing:
    - Removal of PUN orders, transition from MIC orders in Iberian peninsula and island of Ireland to Scalable Complex Orders
    - Extension of time limit for operations (currently 17 minutes)
    - Deployment of the Distributed Computing Environment
  - Different improvements have been already implemented and the research continues in order to bring further performance improvements

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- « Non-Uniform Pricing » (NUP) is being investigated in SDAC Euphemia Lab as part of the disruptive topics: based on the research results, **it might be a promising way of how to improve the algorithm scalability - if not for the 15 min go-live, then in mid to long term perspective**
    - The research is ongoing and further work is needed.
    - The expected performance gain from NUP is 10-15%
  - **Dialogue with Market participants will be continued and strengthened**

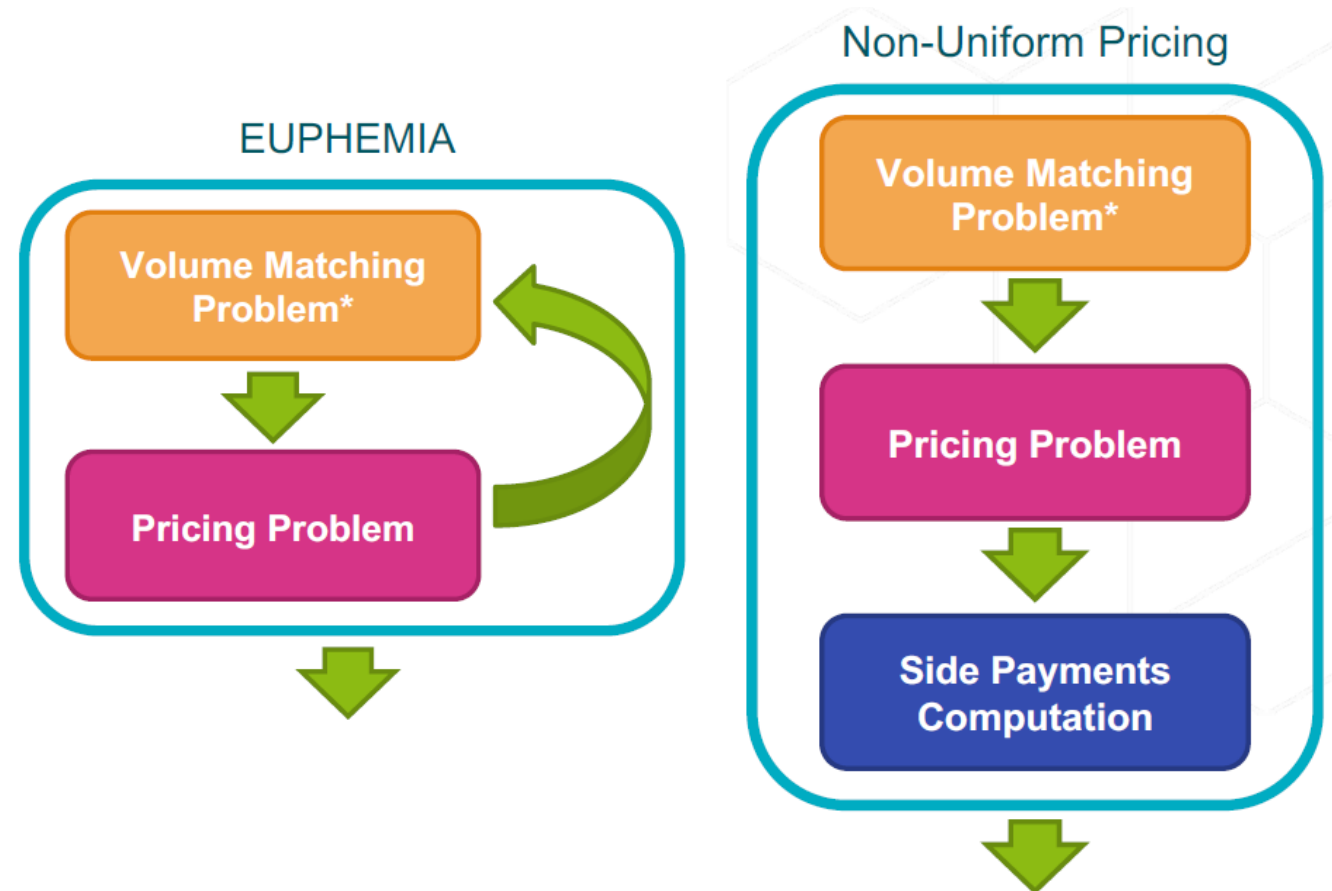


## NUP in SDAC: Key principles (reminder)

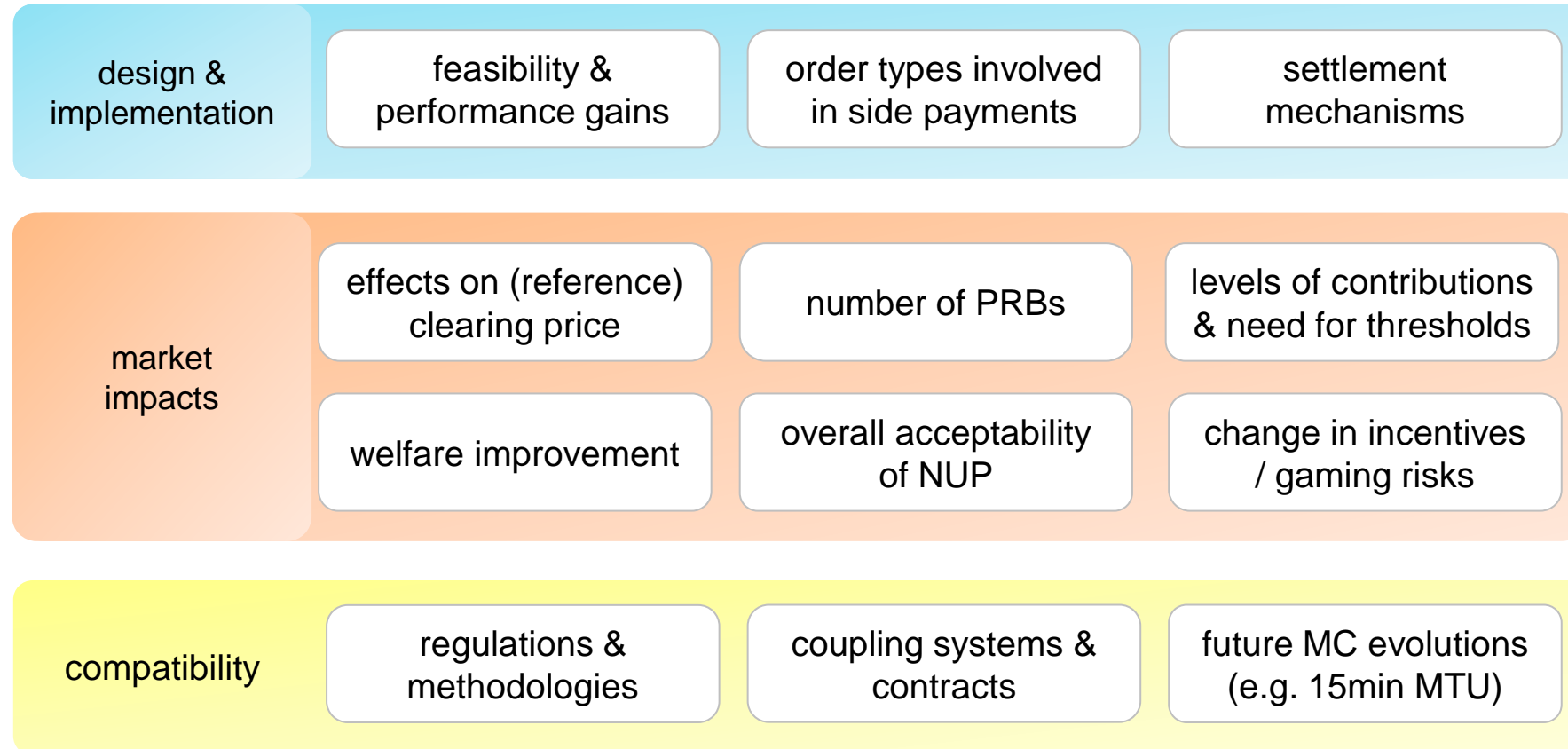
- Currently, *in Euphemia*, accepted volumes and prices are calculated concurrently, such that *no bid is paradoxically accepted* (but bids can be paradoxically rejected) while *nonuniform pricing allows paradoxically accepted bids*.
- *Both* current Euphemia (“uniform pricing”) and non-uniform pricing solve a *volume matching problem* and then a *pricing problem*. *But non-uniform pricing allows the overall problem to be simpler to resolve as volumes and prices can be set independently.*

⇒ *Key scalability advantage of NUP*

⇒ NUP could also make more efficient use of parallel computation with Distributed Computing, which is foreseen to be implemented into Euphemia before 15 min GL in SDAC



## NUP in SDAC: different points of attention being studied / to be further studied



- Investigation and potential adaptation of these points need to be taken in account in building the potential NUP implementation timeline (Eg fix deadlines/delays for methodology or agreement/law adaptation,...)
- **Research is still ongoing: the results presented are only preliminary, with set ups and conditions that present some differences wrt the production environment („real life context“)**

## NUP in SDAC: design & implementation

- **Within the definition of possible design, SDAC parties are assessing different options, while focusing on the following:**
  - Attention given to the definition of contributions, so that the mechanism is considered "fair"
  - The solution shall not lead to significant changes in bidding behaviours
  - The solution shall not lead to financial concerns from MP point-of-view
- **Options being discussed**
  - **Balance compensations per bid type, or overall (product-wise)**
    - To the question "who shall contribute", several variants can be considered
    - One option is to consider that all types of orders contribute, curves included
    - A second option is to restrict contribution to orders with binary acceptance (blocks / SCOs)
      - These orders are the only ones that may benefit from side-payments
      - Curve orders (with low complexity) would still behave as today
    - A third option is a variant of the second option, where PABs can only be compensated by orders of the same type
  - **Balance compensations per area/zone, or overall (scale-wise)**
    - One may balance compensations in a restricted geographical area (BZ, region...) or not

## NUP in SDAC: design & implementation

- Options being discussed (*next*)

- Several compensation options could be envisaged in the context of a self-financing mechanism:

- Minimize  $\Delta price^2$
- Apportion the total contributions per order (in €)
- Contributions are proportional to RABs' (Regularly Accepted Bids) surpluses
- Contributions starts with least in-the-money bids
- Compensations are proportional to cleared volumes (no negative surplus):  $\min MAX(\Delta price)$
- Compensations are proportional to cleared volumes (surplus can be negative): It would require a trade-off between simplicity with a possible drawback on the financial balance versus a certainty on the financial balance but with a more "advanced configuration"

$\Delta price$  is the €/MWh contribution of a compensations in €:  
 $compensation = \Delta price \cdot cleared volume$

## NUP in SDAC: design & implementation

- **Within the current NUP studies, bids' acceptance/rejection under IP pricing can be categorized as follows:**
  - **PABs:** Paradoxically Accepted Bids, i.e. accepted bids despite incompatible with clearing prices.
    - **Only inflexible bids can be PAB**, i.e. block orders or Scalable Complex Orders. Normal curves are fully flexible and cannot be paradoxically accepted and thus receive compensation
    - Market parties in a need to receive compensation because their bids were Paradoxically Accepted Bids: PABs are entitled to “**side payments**” to cancel out their negative surplus.
      - PAB will be compensated by a side-payment to the level of their loss = **settled paid-as-bid** (they are not executed at a loss)
  - **PRBs:** Paradoxically Rejected Bids, i.e. rejected bids despite compatible with clearing prices. PRBs have no surplus (because not accepted) and are not entitled to side payments. Only inflexible bids can be PRB under implemented price rule of the NUP prototype.
  - **RABs:** Regularly Accepted Bids, i.e. accepted bids that are compatible with clearing prices. RABs have positive (or zero) surpluses.
    - By assumption, RABs are at worst settled paid-as-bid: *contribution*  $\leq$  *surplus*
  - **RRB:** Regularly Rejected Bids, i.e. bids not executed and out of the money. As RRBs are rejected, they have zero surplus
- **Preliminary outcomes confirm that the total amounts of contributions are rather limited; levels of contributions shall remain marginal in practice**
- Reminder: PUN orders are not compatible with NUP, nonetheless they shall be removed before the 15 min implementation; for the purpose of the NUP studies, the MIC orders in Iberian peninsula and Ireland are converted into Scalable Complex Orders (SCO)

## NUP in SDAC: design & implementation

- **The latest NUP prototype was delivered in Euphemia Lab in October 2022, based on Euphemia 11.2 and with following features:**
  - Support for 15MTU
  - Welfare maximization mechanisms for market coupling calculations
  - Paradoxically accepted orders (PAB) are allowed and compensated if and only if benefiting to the global welfare
  - Single prices per bidding zone are determined through IP pricing (i.e. standard marginal pricing, i.e. “crossing curves”) and then complemented by side-payments to ensure that no market participant is losing money
  - Financing of side payments only by block orders and SCOs
  - Some preliminary NUP-tailored heuristics have been made available
- **The prototype shall be further used to perform simulations**
  - *While comparing results of NUP and current pricing model, attention shall be paid to consider the same conditions (same features, same potential simplifications,...to compare apples to apples)*
  - In October 2022, comparison was performed between results of Euphemia 11.2 and NUP prototype based on Euphemia 11.2:
    - The data batch included a mix of 60min and 15min orders, the Iberian and Irish MIC were removed, the PUN were removed
    - This simulation included also a scenario of one BZ being delayed, so that the impact on performance can be checked
      - ⇒The average time to solution is improved significantly; however, the worst-case situations still need further investigation
  - Overall welfare improvement was observed in the October 2022 simulations

## NUP in SDAC: market impacts

- **The current results gained so far show that there could be a small decrease in number of PRBs compared to current implementation (with uniform pricing)**
- **The current results show that welfare remains on the same level or is slightly improved than with current implementation (with uniform pricing)**
- **The impact of NUP on bidding behaviour of market participants has been investigated within Euphemia Lab**
  - After the first study performed, the conclusion is that NUP is not more/ less prudent to gaming
    - *Analysis of simple examples establishes a general principle that agents will try to extract the incremental welfare that their offer brings to the market. The NUP design can be gamed to achieve this, but so can the existing UP design. A way in which we show this can be done in NUP is through overstating fixed costs, but similar effects can be observed in UP with curves.*
  - **Further analysis shall be performed within Euphemia Lab in Q4/22 and Q1/23, with focus agent-based gaming strategies simulations and analysis**
    - The simulations will reflect different bidding scenarios, including the possibility of learning based on market results to modify bids based on pre-defined gaming strategies.

## NUP in SDAC: compatibility

- **CACM 2.0**
  - The *possibility* to apply the non-uniform pricing mechanism is foreseen in the draft version of the CACM 2.0; under the current legislation, only the uniform pricing is possible
  - The NUP implementation is therefore dependent, among other conditions, on the entry into force of the CACM 2.0
    - The work and the entry into force of the CACM 2.0 might be impacted by the current energy crisis which mobilises efforts of all involved stakeholders
- **Other adaptations wrt legal requirements may be needed**
  - Algorithm methodology: entry into force of CACM 2.0 will likely require to update the methodologies, including for the NUP aspects. The question of prioritization may be raised.
  - Assessment of the related legal questions is under investigation
- **Future MC evolutions**
  - Within Euphemia Lab, the mutual compatibility of different streams is being followed up



## NUP in SDAC: Next steps

- **Further research in Euphemia Lab**
  - Focus on the impacts on the bidding behaviour
  - Possible updates of the prototype and run of simulations
- **Further work on non algorithmic topics**
  - E.g. Impacts wrt the legislation
- **Work with market participants**
  - Support the dialogue with market participants on the progress of NUP research

# Market Coupling Consultative Group meeting

**LUNCH BREAK 11:45 – 12:45**

1st December 2022



# SDAC curtailment management in EUPHEMIA algorithm

Timo Suhonen and Marja Eronen  
SDAC MSD convenors

## Curtailment Minimization in case of Maximum price

- In case of scarcity where there is not enough supply to match price-taking demand orders in the calculation in one or several Bidding Zone maximum market price will be reached, and Euphemia will perform curtailment to reach balance between supply and demand
- In case of maximum price, demand side price taking curves are curtailed
- Basic principle in curtailment is to minimize the curtailed volume
- Curtailment minimization is performed in the welfare maximization function of Euphemia

The first step aims at minimizing the curtailment of these *price-taking* limit orders, *i.e.* minimizing the rejected quantity of *price-taking orders*. More precisely, EUPHEMIA enforces local matching of *price-taking hourly orders* with hourly orders from the opposite sense in the same *bidding zone* as a counterpart. Hence, whenever curtailment of *price-taking orders* can be avoided locally on an hourly basis – *i.e.* the curves cross each other - then it is also avoided in the final results. This can be interpreted as an additional constraint setting a lower bound on the accepted *price-taking quantity* (see

## Curtailment Sharing in case of Maximum price

- Curtailment sharing between BZs (at maximum price) is possible (if chosen)
  - Added a step in the volume sharing problem together
  - Parameter to be activated on the BZs, needs to be activated on both BZs in order to get it functioning
  - Is applied to the BZs where curve orders are used
    - For merit orders, curtailment cannot be shared due the nature of merit order acceptance rules
  - The aim of curtailment sharing is to equalize the curtailment ratios between bidding zones that are simultaneously in a curtailment situation

This step aims to equalize curtailment ratios as much as possible among *bidding zones* willing to share curtailment. Bidding zones that are not willing to share curtailment will have their curtailment fixed in the welfare maximizing solution where the LOCAL\_MATCHING constraint prevented these areas to be forced to share curtailments. At the same time the LOCAL\_MATCHING constraint of adjacent areas prevented non-sharing areas to receive support from sharing areas. The supply or demand orders within a *bidding zone* being in curtailment at maximum (minimum) price are shared with other *bidding zones* in curtailment at maximum (minimum) price. For those markets that share curtailment, if they are curtailed to a different degree, the markets with the least severe curtailment (by comparison) would help the others reducing their curtailment, so that all the *bidding zones* in curtailment will end up with more equal curtailment ratios while respecting all network constraints.

## Curtailment Mitigation in case of Maximum price

- if the network constraint model is flowbased, curtailment sharing may impact the calculated social welfare
  - Flow factor competition: if an exchange from zone A to zone B results in a higher usage of the capacity compared to an exchange A to C it is possible that is more beneficial to exchange from A to C, whereas market B is in curtailment.
  - To prevent such cases, the objective function (social welfare) is penalized by a curtailment mitigation term (or penalty function)

However, under FB this is not necessarily the case: if an exchange from area A to area B results in a higher usage of the capacity compared to an exchange A to C it is possible that is more beneficial to exchange from A to C, whereas market B is in curtailment. This is referred to as "flow factor competition".

In order to prevent such cases on demand side (effectively treating curtailment outside of the welfare maximizing framework) we penalize the non-acceptance of price taking demand orders (or PTDOs) by adding to the primal objective:

$$-M \cdot \sum_h MAX\_CURTAILMENT\_RATIO$$

Where:

MAX\_CURTAILMENT\_RATIO: the largest non-acceptance ratio of the price taking order across all areas

M: a large value, used as penalty

This expression is added to the welfare. If the value of M is sufficiently large, it will help minimize the rejected price-taking quantity in all markets, before looking for a solution with a good welfare. The infinite norm penalty function will tend to harmonize the curtailment ratios across the curtailed markets if any.

## Curtailment mitigation: 2<sup>nd</sup> Auction, Peak Load Capacities

- In some areas, curtailment is mitigated by adding extra measures in the process:
  - 2<sup>nd</sup> Auction
  - Peak Load Capacity
  
- 2<sup>nd</sup> Auction:
  - Some countries (see table) have a 2<sup>nd</sup> auction, where in case the price for one MTU in a BZ is higher than a threshold, the market is reopened, and market participants can modify their orders
  - Then new calculation round is performed
  - If still supply and demand is not satisfied, then curtailment is proceeded
  
- Peak Load Capacity:
  - In Lithuania TSO have Peak Load Capacity reserved, which in case of max price can be activated. In case maximum price is reached in an MTU, peak load capacity order is added with the price and volume for all MTUs
  - New calculation round is performed.
  - If still supply and demand is not satisfied, then curtailment is proceeded



## SIDC – IDAs: progress on implementation

David Myska

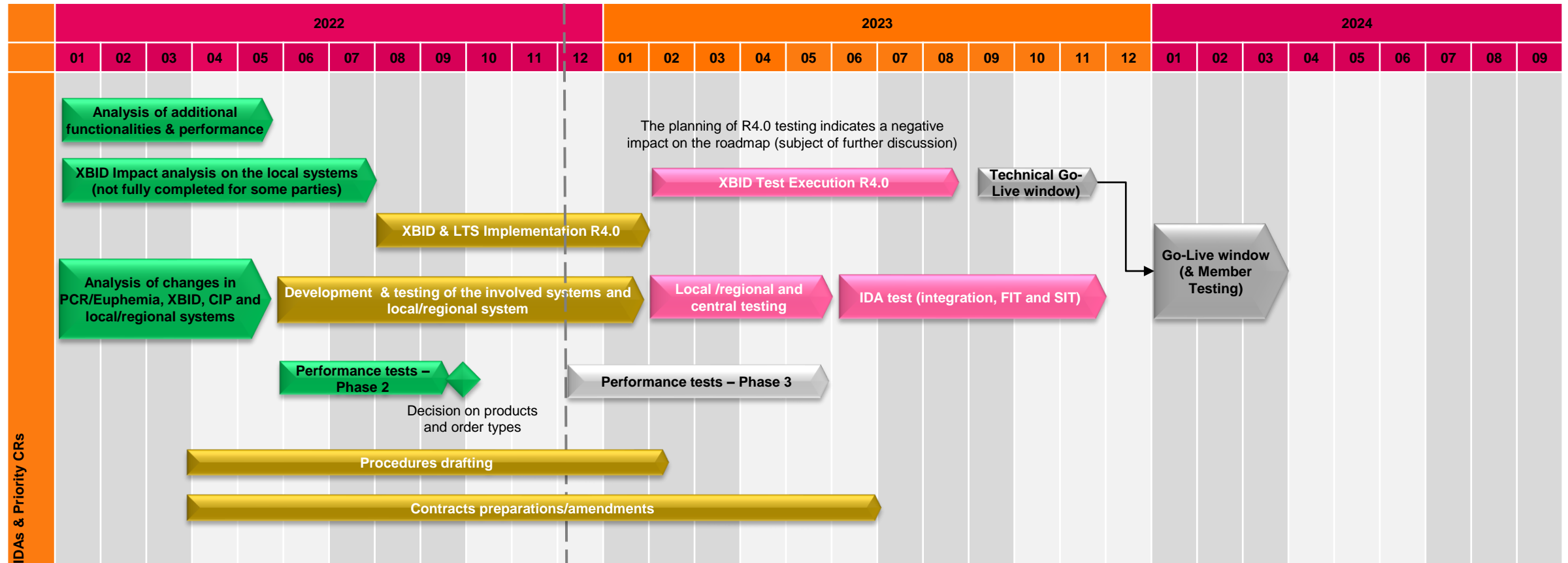
SIDC MSD Chair



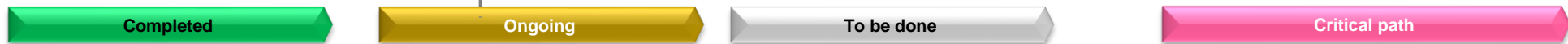
# IDA implementation project timeline

Release for IDAs & IDA Performance Measures (R4.0)

today



Legenda:



## IDA Performance test results and order types foreseen to be offered (1/2)

### Two performance test phase organized with EUPHEMIA

#### – Phase 1

- Order types included: curve orders, simple block order (C01), Merit Order (without PUN)
- Resolutions included: mix of 60min and 15min resolution in each individual BZ

#### – Phase 2

- Order types included: curve orders, simple block order (C01), Merit Order (without PUN) in combination with
    - Linked block orders (C02) or
    - Exclusive group block (C04) or
    - Scalable Complex orders
  - Resolutions included: one time resolution in each individual BZ (majority of BZs with 15 min, further details will be provided later on)
- Phase 2 has not explicitly addressed combined effect of Linked block, Exclusive group block and Scalable Complex orders

## IDA Performance test results and order types foreseen to be offered (2/2)

- **Phase 2 vs Phase 1 results**

- Calculation times show significant benefit of reducing the products offered in each BZ to the product corresponding to time resolution of bidding zone. Calculation time interval is more stable/narrow also comparing different scenarios regarding orders volume

- **Considering above stated NEMOs and TSOs agreed:**

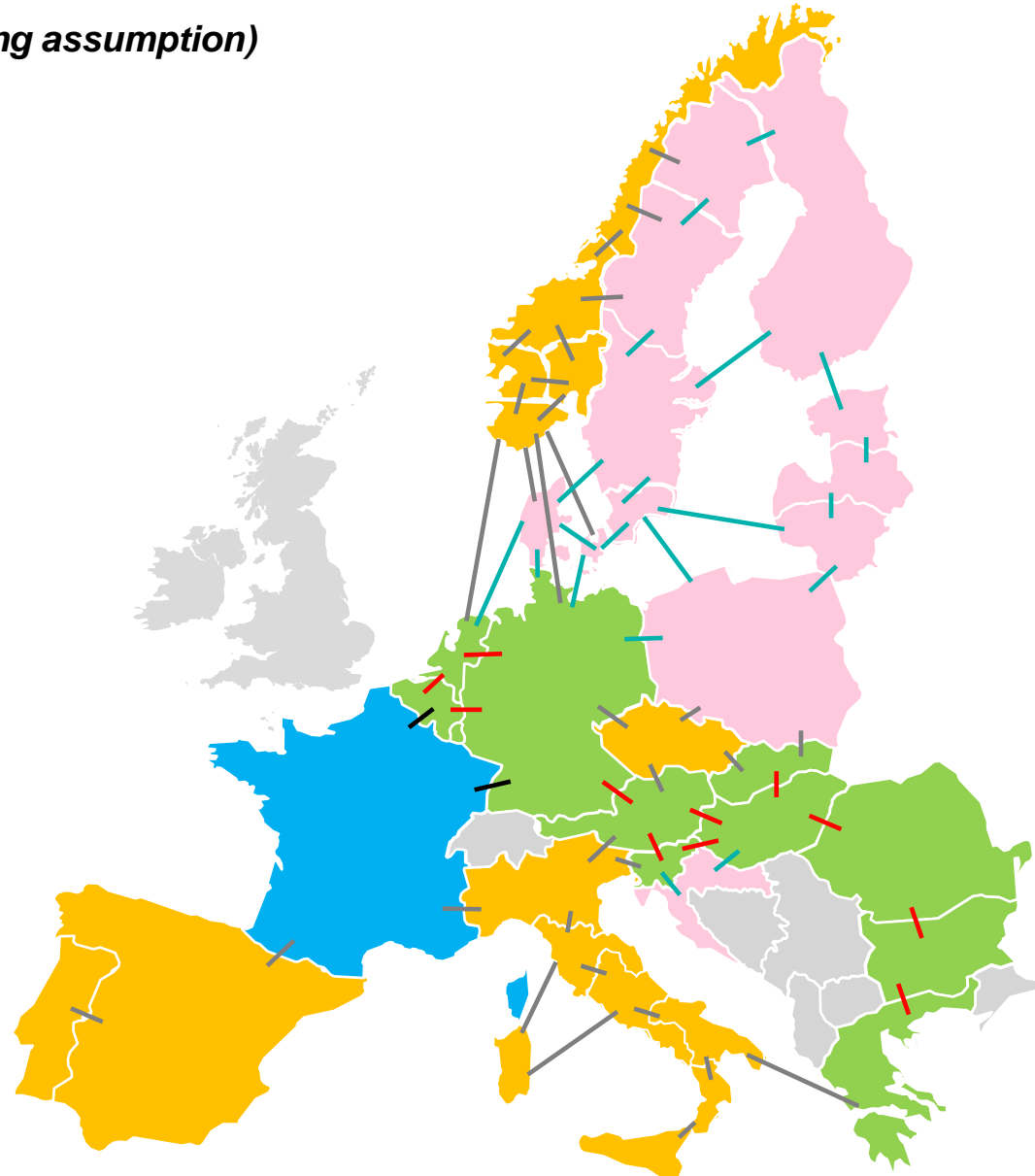
- Simple orders of only one time resolution\* will be allowed in each BZ for IDAs Go-Live (see following slides with details)
- Block order types to be supported as of Go-Live by NEMOs are
  - simple block order - C01 Block (MAR=1), C01 Curtailable Block
  - Merit Order (PUN excluded)
- Block orders to be supported upon NEMO individual readiness
  - Linked block order - C02 Block (MAR=1) + C02 Curtailable Block
  - Exclusive group block order - C04 Block (MAR=1) + C04 Curtailable Block
  - Scalable complex orders

Additional performance tests are to be executed to decide on possible combined inclusion of these additional order types at or after Go-Live.

\*15 min MTU for IDA will be operational before the 15 min MTU for DA

# Go-Live

Q1 2024 (working assumption)



- BZB on 15 min MTU
- BZB on 30 min MTU
- BZB on 60 min MTU
- BZB on 15 or 60 min MTU (not decided)\*

- BZ on 15 min MTU
- BZ on 30 min MTU
- BZ on 60 min MTU
- BZ on 15 or 60 min MTU (not decided)\*
- Not part of SIDC coupling

AT, BE, FR, DE,  
GR, HU, NL, PL, SI,  
SK areas will have  
to manage several  
BZB resolutions

*note: import/export areas not considered here*

\* Final decision is expected in Q2 2023

## Full transfer to 15 min MTU

At the latest Q1 2025 (working assumption)\*



— BZB on 15 min MTU

— BZB on 30 min MTU

— BZB on 60 min MTU

■ BZ on 15 min MTU

■ BZ on 30 min MTU

■ BZ on 60 min MTU

■ Not part of SIDC coupling

\* Transfer to status presented in this figure may happen in several steps where individual BZs and BZBs will switch to 15 min MTU

*note: import/export areas not considered here*

## Regional Implementation Projects status

- Regional implementation projects (RIPs) are setup
- Regular reporting on status of regional preparations is in place
- Some challenges with local developments have been reported
  - Local developments by some parties will not be finished for start of testing in June 2023 (not imposing impact to go-live now as these parties foresee to catch up later on and central systems testing is in principle not impacted)
  - Statnett and ENDK have not yet confirmed full readiness for planned IDA Go-live, investigation is ongoing. NEMOs and TSOs have discussed if such situation would occur how to exclude the corresponding borders/bidding zones from IDA. No decision has been made here yet as the technical and business impacts are still under review

# Harmonized Maximum and Minimum Clearing Price Amending the methodologies

Hilde Rosenblad

Nemo Committee Technical Task Force Leader



For MCCG

1 December 2022

## NEMO proposal: rationale

- The NEMO proposal is searching a balanced approach between three main requirements:

Making the triggering of price limit increases **less sensitive to occasional and non-structural events**

**Minimizing the risk that the price limit set forth in the methodology becomes a “price-cap”** limiting price formation, in line with the spirit and the letter of article 10 of EU Regulation 2019/943

**Ensuring maximum transparency and ease of implementation** of the new rule, with the goal of promoting reliable operation of the DA and ID Market Coupling activities from both NEMOs and TSOs and Market Participants.

- In addition, NEMOs took advantage of the HMMCP revision in order to propose some new elements:
  - in the DA HMMCP, foresee a mechanism for decreasing back the maximum price limit under certain conditions
  - in the ID HMMCP, introduce specific provisions related to the IDAs.



## NEMO proposal: key points for SDAC

**Current trigger mechanism** – the market clearing price exceeds 60% of the SDAC HMMCP

### Proposed triggering mechanism

- The market clearing price exceeds **70%** of the SDAC HMMCP, in a number of MTUs (market time unit) representing **at least 5 hours, in at least 3 different days, within 10 rolling days** from the first price spike.
  - **A limited transition period** is introduced between the price spikes and the price limit increase – the transition period of 4 weeks: no additional increase can be initiated during this time
- **This aims at:**
  - **Make the trigger more difficult to be reached:** 70% instead of 60% of the HMMCP
  - **Differentiate better an isolated event from a structural issue:**
    - 5 hours threshold, while the multiple MTU context was taken in account (5 hours = 5 x 60 min or 3 x 60 min + 8 x 15 min...)
    - 3 different days, rolling period of 10 days ; number of Bidding zones does not matter
  - **Provide some room to avoid another increase shortly after:** increase by 1000€ (and not less)
- **In addition, a new mechanism allowing to decrease the price back is proposed** – but not below 3 000€ - if there has been no observation of price, in any single bidding zones or any single MTU, above 70% of the previous technical maximum price limit during 12 months.
  - Motivation: impact of a very high technical price limit can have on collateral requirements and trading limits.

## **NEMO proposal: key points for SDAC**

- If the NEMO proposal had already been implemented, the two peak prices in France in 4 April 2022 and the Baltic countries on 17 August 2022, would not have led to increase in the Maximum clearing price.
  - Peak price in France: two hours with price above 60% of 3000 EUR/MWh
  - Max price in Baltic states: one hour with max price and curtailment of 2,4 MW at 4000 EUR

## **NEMO proposal: focus on new concept for the transition period**

- **Introducing a transition period of four weeks between the trigger and the increase – no further increases can be triggered.**
  - The new definition of the transition period aims at securing the market coupling operations, allowing NEMOs and TSOs to implement and properly test the needed changes in the MCO assets supporting market coupling function, but also allowing Market Participants the necessary time to anticipate future changes and amend their bidding strategies and tools.
    - Moreover, it is considered that the potential further price spikes taking place in the transition period would likely represent a simple confirmation of the ongoing short term trend.
- **....while keeping it as short as possible to avoid a *de facto* price cap limiting an efficient price formation**
  - For this reason, the implementing time has also been reduced from five to four weeks.
  - Further reductions have been assessed, but discarded as ultimately considered too risky from the perspective of the secure and reliable implementation of price limit change initially mentioned.
  - An extension of the transition period was considered but discarded as it potentially could limit price formation. Instead it is privileged to make the transition mechanism less sensitive.

## **NEMO proposal: key points for SIDC continuous**

- **NEMOs do not propose any amendment to the existing SIDC HMMCP for continuous trading:**
  - On the market side, the current price limit for continuous trading is set at a level of 9.999 EUR/MWh, which is considered not putting at risk the principle of free price formation on the continuous trading.
  - With this respect, it has been considered that the scaling mechanism implicitly applied by the existing rule linking SIDC price limit to the SDAC price limit is **adequate and satisfying**.

## **NEMO proposal: key points for SIDC – Intraday auctions**

- NEMOs proposed to include in SIDC HMMP also rules for Intraday auctions (IDA), expected to be implemented by 2024 and for which technical HMMCPs need to be defined.
- IDAs and ID continuous trading share the same or similar trading period and delivery horizon: therefore, **NEMOs have proposed to apply the same price limits and the same mechanism to IDAs as it is applied to the SIDC continuous trading.**
  - **With this approach NEMOs intend to avoid the existence of arbitrage between these two markets** which may occur when - due the existence of different maximum/minimum price limits - in one of these two markets prices have reached the maximum/minimum price limits. This applies specifically to the IDA3, which will be organized at 10:00 am and such auction concerns the MTUs for the remaining part of the day.
  - **Also, applying the same min and max price limits on IDAs and SIDC secures operational reliability** by avoiding separate implementations and updates of the technical limits in different instances of the same MCO asset.
  - **Furthermore, it facilitates harmonization** for market participants in bid submission, trading limits etc.

## **Implementation of the HMMCP update – the next steps**

- The methodology is now being reviewed and will be subject of decision by ACER Board of Regulators.
- The decision on the updated version of the HMMCP methodology is expected before the end of this year.
- NEMOs are doing their best to anticipate, so that the new rules can be implemented as swift as possible while securing safe implementation into production.

# Closing remarks



## **Closing remarks, further information**

The minutes of the meeting will be available on the NEMO Committee and ENTSO-E website. The links will be sent out via email.

The next meeting will be in the fall, details will be shared in the summer.