# Gekoppelte Großhandelsmärkte für Strom – Update NEMOs

APG Marktforum

Hotel NH Danube City, 18. November 2026

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# Agenda

1. Einleitung und Vorstellung der Präsentatoren
2. SDAC: Erfahrungen 15 Minuten MTU
3. SDAC: Fallback Improvement
4. SDAC: Storage Block Orders
5. SIDC: Corrective Measures

# 1. Einleitung und Vorstellung der Präsentatoren

**Vortragende**

- EPEX SPOT: **Arnold Weiß**
- EXAA: **Robert Eichriedler**
- Nord Pool**: Levente Lukacs**

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# 2. SDAC: Erfahrungen 15 Minuten MTU

- **Anteil von 15-Minuten Produkten in der SDAC Auktion**
- **Performance von Euphemia**

Die folgenden Folien basieren auf den Präsentationen, die im Rahmen des MCCG-Treffens am 22. Oktober von NEMOs und TSOs vorgestellt und mit den Beteiligten diskutiert wurden.

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## Overall data

Period 01/10/2025 until 30/09/2026

- This slide contains data on two metrics:
1. Share of curve volume in 15' out of total curve volume
2. Share of curve + block volume in 15' out of total curve + block volume.
- The blue shade indicates the relative percentage. Darker blue indicates a higher share of 15' products in a region.
- The total is included at the bottom.
  - *Note: these totals do not include 30' MTU orders on the island of Ireland*

| Area | 15' MTU curve volume/ total curve volume per area | 15' MTU curve&block volume/ total volume per area |
|---|---|---|
| AUSTRIA | 50% | 46% |
| BALTIC | 95% | 69% |
| BELGIUM | 58% | 82% |
| BULGARIA | 73% | 73% |
| CROATIA | 55% | 50% |
| CZECHIA | 47% | 67% |
| DENMARK | 67% | 56% |
| FINLAND | 89% | 88% |
| FRANCE | 64% | 87% |
| GERMANY | 82% | 84% |
| GREECE | 94% | 95% |
| HUNGARY | 77% | 65% |
| IBERIA | 100% | 100% |
| ITALY | 81% | 82% |
| NETHERLANDS | 60% | 58% |
| NORWAY | 89% | 87% |
| POLAND | 59% | 61% |
| ROMANIA | 39% | 41% |
| SLOVAKIA | 82% | 81% |
| SLOVENIA | 65% | 64% |
| SWEDEN | 81% | 83% |
| Total | 80% | 80% |

01/10/2025 until 31/01/2026

| Area | 15'MTU Curve volume/total curve volume | 15'MTU curve&block volume/total volume per area |
|---|---|---|
| AUSTRIA | 49 % | 47 % |
| BALTIC | 95 % | 81 % |
| BELGIUM | 61 % | 85 % |
| BULGARIA | 77 % | 77 % |
| CROATIA | 61 % | 57 % |
| CZECHIA | 63 % | 78 % |
| DENMARK | 68 % | 56 % |
| FINLAND | 89 % | 88 % |
| FRANCE | 70 % | 89 % |
| GERMANY | 84 % | 83 % |
| GREECE | 94 % | 96 % |
| HUNGARY | 81 % | 74 % |
| IBERIA | 100 % | 100 % |
| IRELAND | 0 % | 0 % |
| ITALY | 81 % | 83 % |
| NETHERLANDS | 62 % | 68 % |
| NORWAY | 88 % | 87 % |
| POLAND | 60 % | 62 % |
| ROMANIA | 46 % | 47 % |
| SLOVAKIA | 84 % | 84 % |
| SLOVENIA | 69 % | 69 % |
| SWEDEN | 79 % | 82 % |
| Total | 79 % | 82 % |

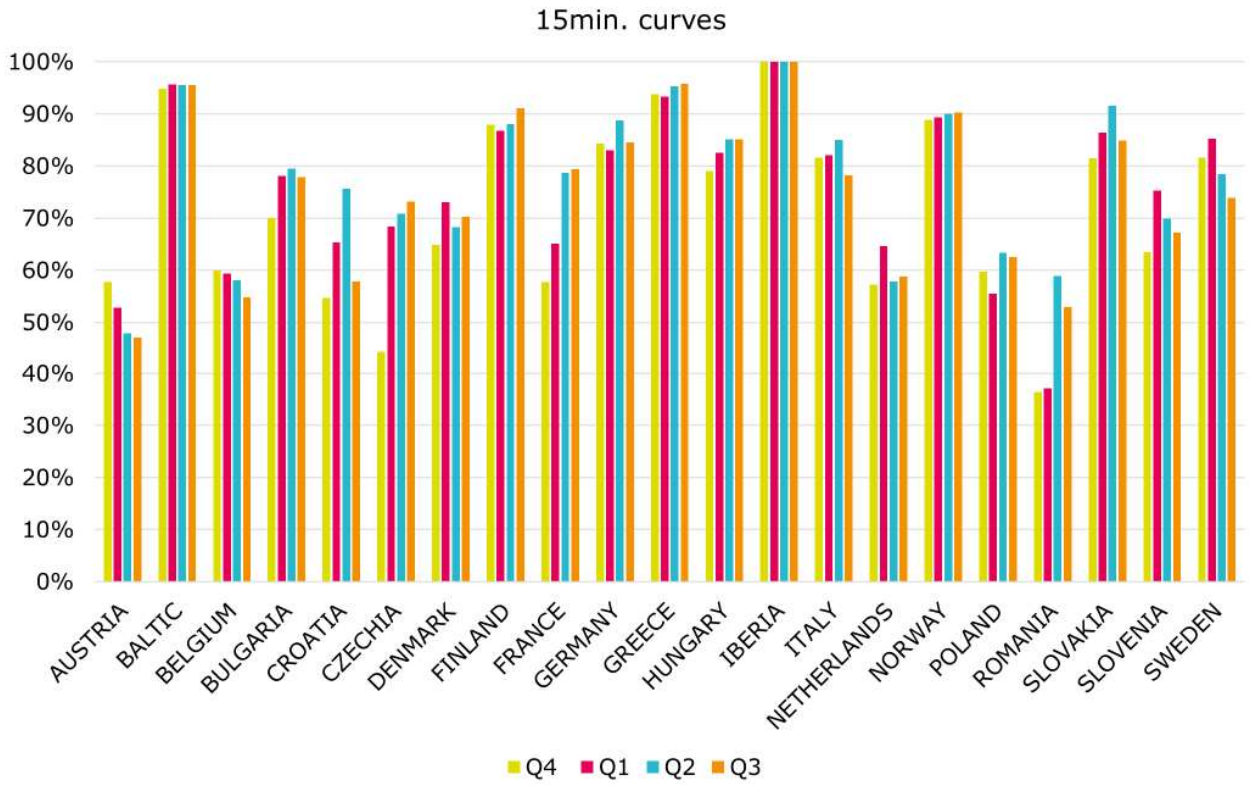
01/10/2025 until 30/09/2026

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## Monthly data

### 15’ MTU curve volume as share of total curve volume

- This slide contains an overview of the share of curve volume in 15’ MTU, out of total curve volume (left column in previous slide), now split by each quarter since Q4 2025.

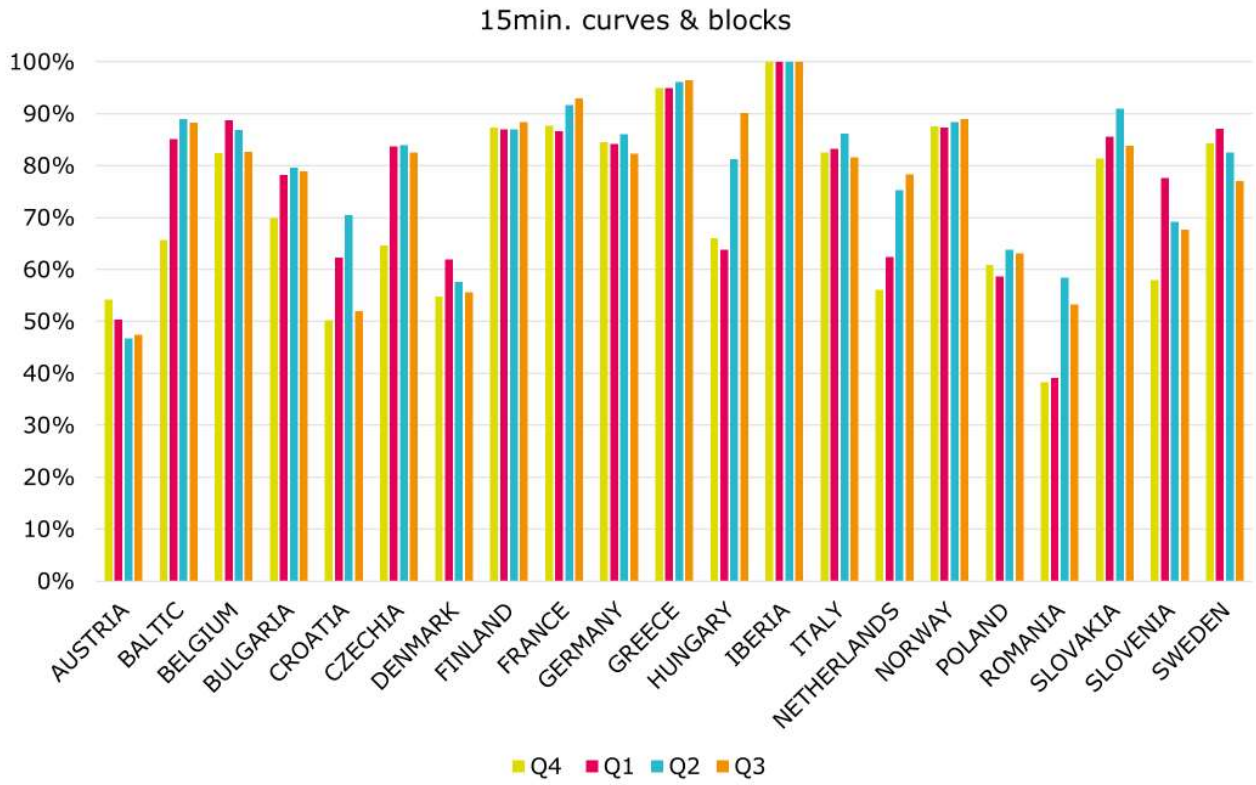


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## Monthly data

15’ MTU block + curve volume as share of total block + curve volume

- This slide contains an overview of the share of curve + block volume in 15’ MTU, out of total curve + block volume (right column in previous slide), now split by each quarter since Q4 2025.



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# SDAC 15 Min MTU

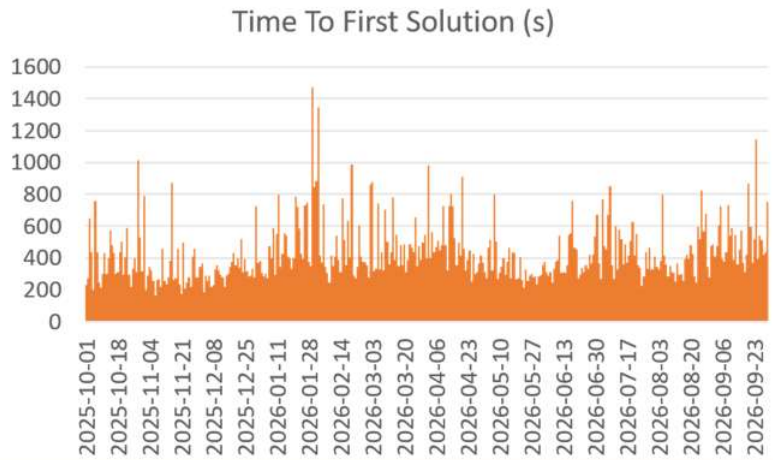
## Summary

### Background

- MCSC NEMOs and TSOs implemented 15 min MTU in SDAC for first delivery day 1 October 2025
- The next slides show some usage and performance (Time To First Solution) figures for the first year since this go-live

### Caveat

- The Time To First Solution (TTFS) indicator is retrieved from the calculation that led to the published result. This may not necessarily correspond to the fastest First Solution from any of the parallel Euphemia calculations. I.e., results may skew a little pessimistic.



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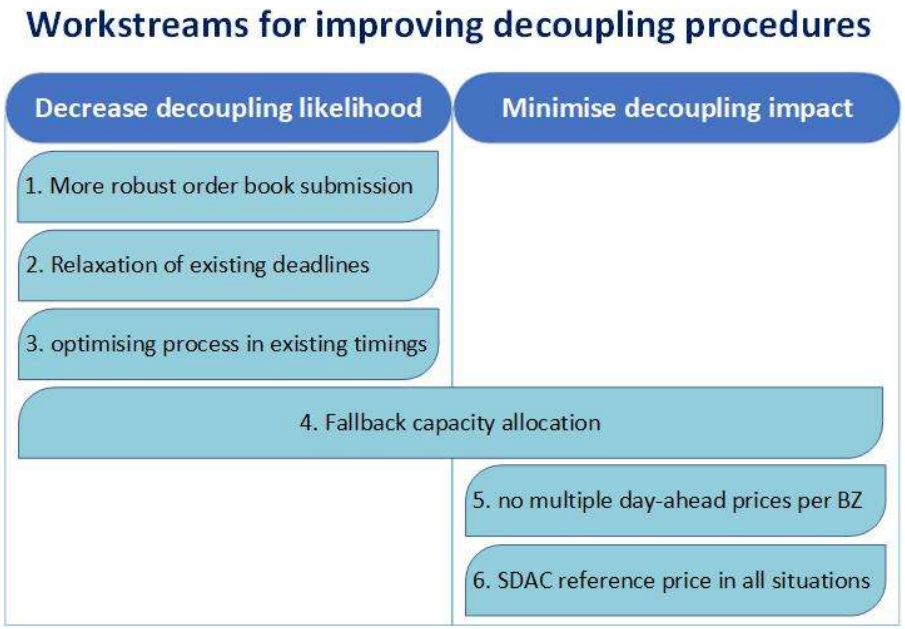
# 3. SDAC: Fallback Improvements

- **Überblick über Arbeitsstränge (WS)**
- **Update zu WS4/WS5/WS6**

Die folgenden Folien basieren auf den Präsentationen, die im Rahmen des MCCG-Treffens am 22. Oktober von NEMOs und TSOs vorgestellt und mit den Beteiligten diskutiert wurden.

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# Fallback Improvements




Source: PCG

**What are the concrete ideas/approaches to be further reflected?**

1. Minimise likelihood of partial decoupling by failed submission of orders in due time (i.e., orderbook snapshots, early submission testing, more robust local trading solutions).
2. Move deadlines for cross-border schedules (i.e., later than 15:30) and/or Day-ahead Auction (i.e., earlier than 12:00).
3. Remove unnecessary steps, optimise necessary steps.
4. Evaluate to which extent SIDC/IDAs can be used as backup.
5. Prevent multiple prices in any bidding zone. Legal assessment on so-called matching against a price.
6. What happens in a situation of full decoupling? Can the rules for SIDC continuous provide any insights?

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# SDAC Fallback Improvements – WS4 & WS6 (1/2)

## Investigated Fallback Options

### Investigated fallback options

**Different mechanism for CZC allocation and volume clearing + price formation**

| # | Name of fallback option | CZC allocation** | Volume clearing | Unique SDAC reference price formation |
|---|---|---|---|---|
| #1 | **CZC goes to SIDC CT +DA volume allocation (shared/individual)** | Cross-border continuous trading | -Volume Allocation (shared among NEMOs/locally executed)<br>-SIDC CT opens as usual | TBD. **For example** from SIDC (index) or historical SDAC prices |
| #2 | **CZC goes to SIDC CT +Intra-BZ DA auction*** | Cross-border continuous trading | DA intra-BZ auction with shared order book of NEMOs active on the BZ | DA results from the intra-BZ auction |

**Same mechanism for CZC allocation and volume clearing + price formation**

| # | Name of fallback option | CZC allocation** | Volume clearing | Unique SDAC reference price formation |
|---|---|---|---|---|
| #3 | **CZC goes to SIDC CT +only SIDC CT volume clearing** | Cross-border continuous trading | Cross-border continuous trading (no possibility for matching in DA) | WAP calculated based on trades executed on the day of fallback for D+1, within a defined time window |
| #4 | **Regional Coupling** | Coupling | Coupling | Coupling |
| #5 | **Usage of IDA instrument** | Coupling | Coupling | Coupling |

*Option #3 is applicable also to non-MNA areas, as monopoly NEMOs will run local auctions
** Not considering external Core borders

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## SDAC Fallback Improvements – WS4 & WS6 (2/2)

### Investigated Fallback Options

NEMOs and TSOs presented their assessment and discussed it with ACER in the last PCG WS. The assessment lists the alternative options and provides an initial evaluation based on several aspects like operational feasibility, price reliability, volume clearing, congestion income, etc.

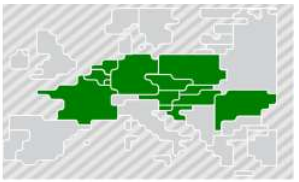
In their assessment, NEMOs and TSOs assume that regional coupling will continue to be applied in those regions where it currently serves as the fallback mechanism, maintaining the existing approach whereby no SIDC Continuous trading (CT) process is initiated prior to the completion of the regional fallback process. Likewise, it is assumed that non-MNA bidding zones currently relying on local auctions as a fallback mechanism for volume and price determination will continue to do so in accordance with the existing process.

Focus will be on the removal of the risk of price multiplicity, in case of Full Decoupling, in the Core MNA zones (WS6).

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# SDAC Fallback Improvements – WS5

## Volume Allocation: Overview of Implementation Timeline

### Status of volume allocation implementation

| NEMO | Status | Implementation timeline |
|---|---|---|
| BSP | | To be implemented with introduction of Slovenian MNA (not yet present at time of writing) |
| BRM | | Live as of 10/09/2026 |
| CROPEX | | To be implemented with introduction of Croatian MNA. Without multiple NEMOs, volume allocation is not possible. |
| EPEX | | |
| EXAA | | |
| Nord Pool | | |
| OPCOM | | |
| TGE | | Expected end of 2026: technical implementation ongoing; consent on necessary changes in our internal regulations from Polish Financial Supervision Commission pending |

### Open point on timings

- Core NEMOs and TSOs have a discussion on the timings of the closure of the reception of volume allocation requests. MCCG will be informed once this is finalised.

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# 4. SDAC: Storage Block Orders

- **Feedback Konsultation**
- **Änderung in Produktdefinition als Reaktion auf Antworten**

Die folgenden Folien basieren auf den Präsentationen, die im Rahmen des MCCG-Treffens am 22. Oktober von NEMOs und TSOs vorgestellt und mit den Beteiligten diskutiert wurden.

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# SDAC Storage Orders

## Update

### Background

- NEMOs and TSOs are developing a new order type – storage order - to support bidding for systems that can buy and sell energy during the same day. Target Go-Live is end 2027.

### Update – Public Consultation

- **Public consultation was held from 01/06 - 14/07 2026**, including a webinar on 16/06.
  - NEMOs and TSOs would like to thank all market participants for their high interest in the public consultation (300+ participants attended the webinar) and for submitting the answers!
  - All documents related to the public consultation (webinar presentation and recording, detailed pdf description, Q&A document) are available on NEMO Committee and ENTSO-E websites.
- In total **39 answers were received, all SDAC bidding zones were covered** in the responses to the public consultation.
  - Responses were received from individual traders, storage assets owners, aggregators, as well as associations such as Eurelectric and national associations.
- NEMOs and TSOs in SDAC MSD are now working on the new data for final simulations, which will consider the input from the public consultation as well as the expected future market. **The final decisions on the concept will be taken only after the simulations will be performed and the results analysed.**

**Key takeaways:** The public consultation attracted many market participants and provided valuable inputs from them, which are considered in the finalisation of the storage order concept. Final simulations are to be performed.

SDAC

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# SDAC Storage Orders

## Update

### Public Consultation – General Points Raised in the Answers

- **Respondents highly welcomed the introduction of the storage order type**
- Respondents provided many suggestions on **potential additional parameters** to better reflect their needs especially regarding the pumped hydro storage systems, though they highlighted that additional parameters should not be introduced if they have large negative algorithm performance impact.
  - SDAC MSD has been assessing all the proposed parameters, and whether it is possible to include them to the design or not. **Several of the proposed parameters have been included in the final prototype**, the rest of the parameters had to be discarded due to high expected impact on the algorithm performance (see the comments in the following slides). See the list of the currently considered parameters in the following slides (Please note that the final list of the parameters is still subject to change depending on the final simulations).
- Some questions were raised by the respondents regarding whether there will be any impact on the calculation time of the algorithm and the publication of DA results.
  - SDAC MSD would like to stress that no extension of calculation time nor changes to any other market coupling session timings are considered in relation to the introduction of storage orders.
- Respondents confirmed the assumption that the storage order type would be used largely for batteries and hydro pump stations, which will also be considered in the final simulations.
- From the answers, it seemed that it was not clear which granularities will be supported for the storage orders.
  - SDAC MSD confirms that **all available granularities (15', 30', 60') will be supported for the storage order by the algorithm** (Note: the availability depends on the individual NEMO offering in the individual bidding zones).

**Key takeaways:** The public consultation attracted many market participants and provided valuable inputs from them, which are considered in the finalisation of the storage order concept. Final simulations are to be performed.

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# SDAC Storage Orders

## Update

### Storage Order Adjusted Parameters Based on Market Participant's Feedback

- Storage Order (SO) is optimally allocated across periods (15'/30'/60') by Euphemia using the following parameters that are considered for defining the SO. The adjustments to the parameters reflecting the market participants' feedback in the public consultation are highlighted in blue (please note that the final list of the parameters is still subject to change depending on the final simulations results).
  - **Required parameters** for SO:
    - Maximum energy stored (One per period, MWh)
    - Maximum input power (One per period, MW)
    - Maximum output power (One per period, MW)
    - ~~Cycling costs (One per order, €/MWh)~~ Replaced by two parameters:
      - Costs for charging (One per period, €/MWh)
      - Costs for discharging (One per period, €/MWh)
    - ~~Efficiency (One per order, %)default 100%~~ Replaced by two parameters:
      - Efficiency for charging (One per order, %)
      - Efficiency for discharging (One per order, %)

**Cycling cost** was in the original design only taken into account during discharging. MPs wanted it to be included in both directions and also with varying values throughout the day, which is now reflected.

**Efficiency** was in the original design taken into account only during charging. MPs wanted it to be represented in both directions, which is now reflected.
Additionally, no default value will be considered for efficiency, as per the request of MPs.

**Key takeaways:** Additional parameters were included in the storage order design reflecting the feedback from market participants in the public consultation.

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## SDAC Storage Orders

### Update

### Storage Order Adjusted Parameters Based on Market Participant's Feedback

- Storage Order (SO) is optimally allocated across periods (15'/30'/60') by Euphemia using the following parameters that are considered for defining the SO. The adjustments to the parameters reflecting the market participants' feedback in the public consultation are highlighted in blue (please note that the final list of the parameters is still subject to change depending on the final simulations results).
  - **Optional parameters** for SO (in case not specified the default value is used):
    - Starting energy stored (one per order, MWh), default 0
    - Minimum energy stored (one per period, MWh), default 0
    - Value given to energy stored at the end of the day (one per order, €/MWh), default 0
    - Maximum charged energy over the whole day (one per order, MWh)
    - Maximum discharged energy over the whole day (one per order, MWh)

MPs emphasized the need to introduce a parameter limiting the number of cycles. Adding two parameters representing the **max charged/discharged energy over the whole day** has the least impact on the algorithm, while still serving the desired purpose (it does not limit the number of switches between charging/discharging, but limits the overall charged/discharged energy over the whole day). Limiting the number of switches would not be feasible due to the substantial complexity that it would bring to the algorithm.

**Key takeaways:** Additional parameters were included in the storage order design reflecting the feedback from market participants in the public consultation.

SDAC

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# 5. SIDC: Corrective Measures

- **Update zur Performance von XBID R5.0**
- **Update zu den Corrective Measures**

Die folgenden Folien basieren auf den Präsentationen, die im Rahmen des MCCG-Treffens am 22. Oktober von NEMOs und TSOs vorgestellt und mit den Beteiligten diskutiert wurden.

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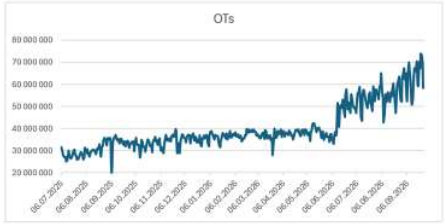
# SIDC Corrective Measures

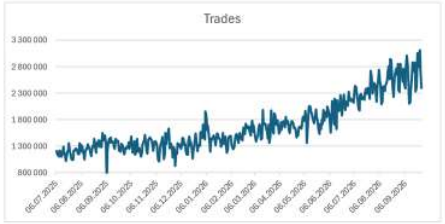
XBID 5.0 Update

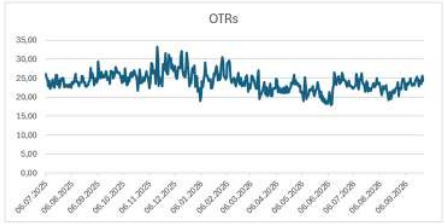
## Background

- XBID Release 5.0 has introduced a substantial performance improvement in continuous trading, which allowed for an increase of submited Order Transactions (OTs) resulting into more trades (including application of new system boundaries).

## Updates




Exceeded system boundaries are highlighted in yellow

| Date | No. of OTs | No. of Trades | OTRs | Observed latency issue |
|---|---|---|---|---|
| 16.08.2026 | 51 989 586 | 2 701 475 | 19,24 | |
| 17.08.2026 | **56 270 520** | **2 800 366** | 20,09 | |
| 18.08.2026 | 54 649 153 | 2 568 536 | 21,28 | |
| 19.08.2026 | **57 432 936** | **2 939 248** | 19,54 | |
| 20.08.2026 | **60 272 820** | **2 928 998** | 20,58 | |
| 21.08.2026 | 55 177 991 | 2 574 708 | 21,43 | |
| 22.08.2026 | 52 931 869 | 2 416 838 | 21,90 | |
| 23.08.2026 | 47 130 621 | 2 235 413 | 21,08 | |
| 24.08.2026 | 56 884 127 | 2 569 919 | 22,13 | |
| 25.08.2026 | 59 676 551 | 2 670 462 | 22,35 | |
| 26.08.2026 | 61 556 716 | 2 755 478 | 22,34 | |
| 27.08.2026 | 63 448 494 | 2 652 067 | 23,92 | |
| 28.08.2026 | **57 861 794** | **2 851 422** | 20,29 | |
| 29.08.2026 | 52 807 927 | 2 356 855 | 22,41 | |

| Date | No. of OTs | No. of Trades | OTRs | Observed latency issue |
|---|---|---|---|---|
| 30.08.2026 | 52 225 130 | 2 323 912 | 22,47 | |
| 31.08.2026 | **63 015 257** | **2 853 177** | 22,09 | |
| 01.09.2026 | 64 560 864 | 2 715 113 | 23,78 | |
| 02.09.2026 | **67 322 346** | **2 713 802** | 24,81 | |
| 03.09.2026 | 62 326 623 | 2 517 001 | 24,76 | |
| 04.09.2026 | **65 087 931** | **2 755 545** | 23,62 | |
| 05.09.2026 | 54 799 660 | 2 475 022 | 22,14 | |
| 06.09.2026 | 52 428 392 | 2 388 829 | 21,95 | |
| 07.09.2026 | **65 128 726** | 2 755 036 | 23,64 | |
| 08.09.2026 | **69 788 086** | **3 006 150** | 23,22 | |
| 09.09.2026 | **66 737 051** | **2 813 555** | 23,72 | |
| 10.09.2026 | 62 320 684 | 2 593 946 | 24,03 | |
| 11.09.2026 | 52 451 330 | 2 104 164 | 24,93 | |
| 12.09.2026 | 50 864 607 | 2 133 514 | 23,84 | |

| Date | No. of OTs | No. of Trades | OTRs | Observed latency issue |
|---|---|---|---|---|
| 13.09.2026 | 53 531 594 | 2 331 954 | 22,96 | |
| 14.09.2026 | 60 008 157 | 2 549 414 | 23,54 | |
| 15.09.2026 | **67 118 538** | **2 881 815** | 23,29 | |
| 16.09.2026 | **65 824 052** | **2 843 584** | 23,15 | |
| 17.09.2026 | **66 653 610** | 2 711 573 | 24,58 | |
| 18.09.2026 | **70 364 536** | **2 880 794** | 24,43 | |
| 19.09.2026 | 59 143 840 | 2 335 753 | 25,32 | |
| 20.09.2026 | 59 319 631 | 2 407 310 | 24,64 | |
| 21.09.2026 | **70 056 703** | **3 054 349** | 22,94 | |
| 22.09.2026 | **67 218 151** | 2 788 960 | 24,10 | |
| 23.09.2026 | **73 842 523** | **3 026 335** | 24,40 | |
| 24.09.2026 | **73 147 956** | **3 109 383** | 23,52 | |
| 25.09.2026 | **69 763 880** | 2 730 375 | 25,55 | |
| 26.09.2026 | 58 311 217 | 2 402 414 | 24,27 | |

**Key takeaways:** Despite the substantial increase in OTs and trades, **the processing is much faster than in the previous XBID release**. In the first 3 months of XBID 5.0 operation **no latencies have been observed**.

MCSC

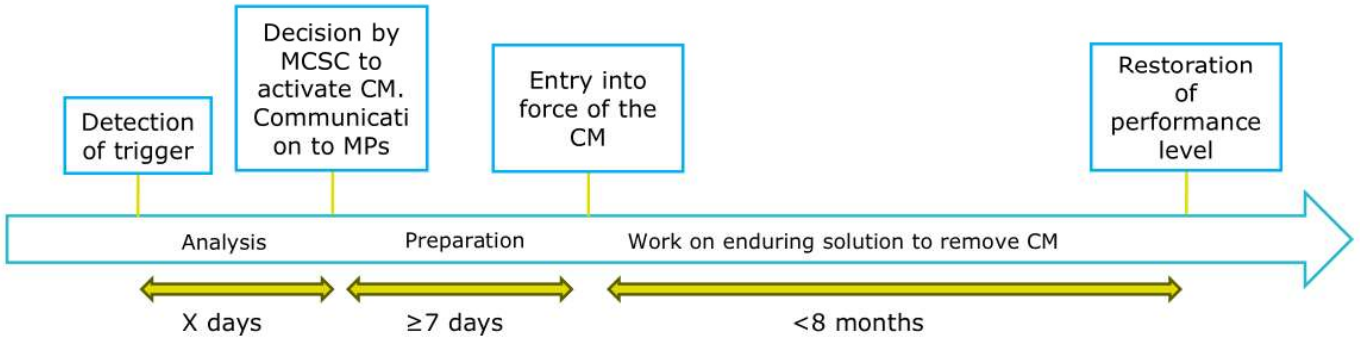
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# SIDC Corrective Measures

Process

## Background

- Corrective measures are:
  - **Last resort** intervention, and by definition, **interim**
  - **Targeted and proportionate**
  - Potentially a combination of several measures can be selected




**Key takeaways:** NEMOs and TSOs prepared a clear process. **Market participants will be informed by MCSC and via the relevant NEMO at least one week before the activation of the CM itself.**

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# SIDC Corrective Measures

Status

## Background

- Modification of the Price Tick Size (PTS) and decrease of Order Book Depth (OBK decrease) are approved as Corrective Measures (CMs), provided the testing confirm its benefits.
- Order Management CMs (OTRs & OTs per timeframe) are subject to performance and to a competitive and economical analysis.
- Downstream corrective measures (deactivation of OCC files) are subject of consideration.
- Overarching document provides all details on the definition, procedures and activation of CMs.

## Updates

- Implementation/testing of PTS modification is completed, and it is confirmed as eligible CM. The testing in production **is not foreseen** as of now.
- Testing of OBK depth decrease was completed on 18/09 with results which will be available by end of September. The preliminary information confirms added value of the CM, especially if the number of OTs is over 60 millions per day. The details of the quantitative statistics on the test outcomes for OBK will be incorporated shortly prior MCCG CC.
- Provider for competitive and economical analysis of Order Management CMs is selected. Clarification on the scope of data for economical analysis and final firm roadmap is ongoing.
- Deactivation of OCC files proved not to be efficient as CM and therefore, it has been removed from the CM list. The reason for it is that XBID R5.0 has substantially improved both trading and downstream parts including OCC file generation CMI. Hence, it is consuming very limited time and any changes will not show further performance improvements.
- The overarching document is almost finalized, there is pending confirmation of the thresholds at which CMs are activated as well as finalization of procedures. It is expected to have a draft finalized for MCSC approval very soon.

**Key takeaways:** Overarching document & initial CM(s) **are expected to be ready in October**, Order Management related CM(s) will take more time.

MCSC

# Q&A





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