

Information on the Introduction of 15- minute Products on the Day-Ahead Electricity Market in 2025



January 2025

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- ❑ Inform market participants about the implementation of 15-minute products on the day-ahead electricity market in 2025
- ❑ Provide market participants with the opportunity to ask questions about the presented information



HOW TO ASK QUESTIONS?

Any questions regarding this presentation can be sent to the email address market@ote-cr.cz

The questions will be answered during the scheduled webinar, and both the questions and answers will also be published in a [dedicated document on the OTE website](#)

- ❑ The market operator provides the following material to present to market participants the changes related to the introduction of 15-minute products on the day-ahead electricity market in 2025
 - ✓ The implementation of the **15-minute settlement and trading period in the Czech Republic, with the exception of the day-ahead electricity market, took place on July 1, 2024**, based on the Regulation on the Internal Electricity Market. ([Regulation \(EU\) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity](#) and [Regulation No. 408/2015 Coll. on the Rules of the Electricity Market](#))



The introduction of 15-minute products on the day-ahead electricity market depends on **the coordinated implementation of this period at the European level** within the coupled day-ahead electricity market (SDAC – Single Day-Ahead Coupling)!

- ❑ The transition to 15-minute products will enable better adaptation to swift changes in electricity demand and supply



□ From June 11, 2025 (for the delivery day of June 12, 2025)*, the possibility to **trade also 15-min. products on the day-ahead electricity market (DAM)** will be introduced, while the option to trade 60-min. products will still be available. The 60-min. products will be matched with 15-min. products (so-called Cross-product matching). At the same time, other procedural changes will occur on DAM:


- Introduction of 15-min. prices for the settlement of DAM, 60-min. price being provided as the arithmetic average of the corresponding 15-min. prices
- Extension of the calculation time → shift of the final results publication time to 13:01
- Removal of the Second Auction mechanism (already from January 29, 2025)

Detailed information on each point on the following slides

* The date indicated is subject to successfully completed central tests in the first half of 2025

CHANGES IN ORDERS ON DAM

- ❑ It will be possible to submit orders with both 15-min. and 60-min. granularity
- ❑ Orders will be submitted in MW for the given trading interval (15-min. or 60-min.)



*60-min. order: e.g. submitted 10 MW for a given hour
 → energy traded: 10 MWh in the given hour*

or

*15-min. order: e.g. submitted 10 MW for a given 15-min.
 → energy traded: 2.5 MWh in the given 15-min.*

→ If you submit a 15-min. order for 10 MW in one quarter-hour out of four and successfully trade this order, then the traded energy will be 2.5 MWh in that quarter-hour and in the remaining quarter-hours the traded energy will be 0 MWh. (Note: The 15-min. imbalance settlement period was introduced as of July 1, 2024)*

- ❑ The same restrictions as for orders with 60-minute granularity will apply to orders with 15-min. granularity (the complete list of order parameters is available [here](#)).
 - Minimum quantity: 0.1 MW; maximum quantity: 2,999 MW
 - Quantity can be entered with precision to one decimal place (quantity step: 0.1 MW)

**Note: in the statistical hourly reports, the hourly traded quantity for the given hour will be 2.5 MWh (as the sum of 2.5 MWh + 0 MWh + 0 MWh + 0 MWh of the individual quarter-hours).*



- ❑ The algorithm will automatically match products with longer granularity with multiple products with shorter granularity (so-called cross-product matching)
 - ❑ meaning that 60-min. and 15-min. products will be traded and matched together

- ❑ Supported types of orders – unchanged (changes to the orders took place in June 2024)
 - ❑ Standard order – divisible by volume
 - ❑ Profile block order – divisibility option (minimum acceptance ratio: 10 – 100 %)
 - ❑ Exclusive group of profile block orders
 - ❑ Linked profile block orders

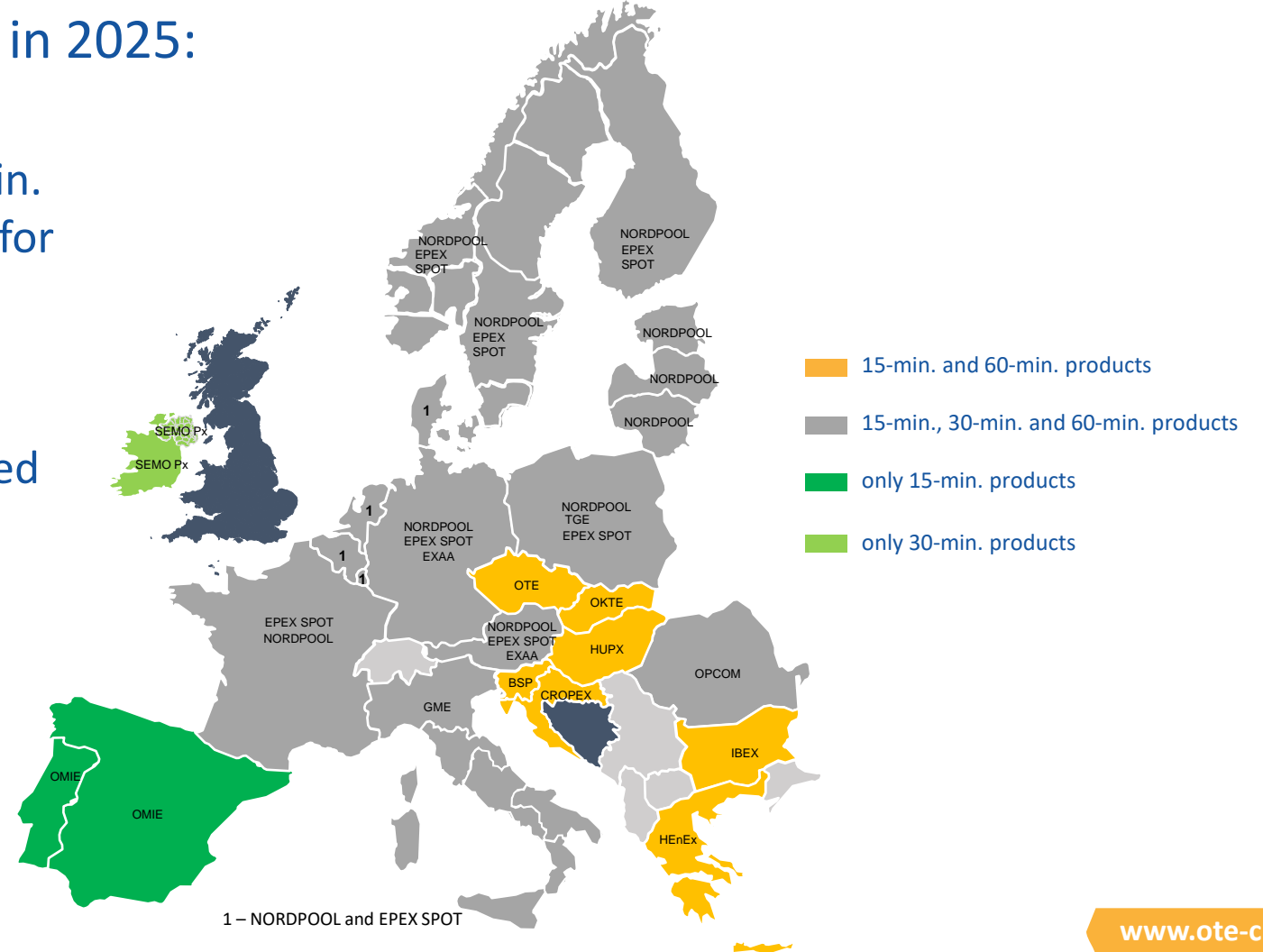
→ Parameters of individual types of orders (e.g. maximum number of segments of a standard order, maximum number of linked Profile Block Orders in one family and maximum number of families, maximum number of link levels of Profile Block Orders, maximum number of Profile Block Orders in one Exclusive Group and maximum number of Exclusive Groups, etc.)

remain unchanged even after the introduction of 15-minute orders! (see [Parameters of short-term markets](#) and DAM User Manual available in CS OTE)

□ The time resolution of products proposed by individual NEMOs from the introduction of 15-min. products within SDAC in 2025:

□ Coordinated introduction of 15-min. products within the SDAC (except for Ireland – exemption granted for SEMO Px)

□ 60-min. products will be maintained by most NEMOs even after the introduction of 15-min. products, with the exception of SEMO Px (Ireland) and OMIE (Spain, Portugal).



PRICE DETERMINATION ON DAM

❑ Until the implementation of 15-min. products on DAM, all prices on the DAM are available only for hourly products (i.e., one price for 60 minutes)



❑ After the implementation of 15-min. products:

❑ The 15-minute price will be used for the settlement of the Day-Ahead Market

❑ The 60-minute price will continue to be determined by the algorithm as the reference price for a subsequent use

➤ The 60-minute price will be calculated by EUPHEMIA algorithm as the arithmetic average of the corresponding rounded 15-minute prices (the arithmetic average of the four 15-min. prices within the hour, rounded to two decimal places, gives the 60-minute price, which will also be rounded to two decimal places) – so-called Average Rule

➤ Both 15-min. and 60-min. prices will be given with the precision of two decimal place



Period	Price (EUR/MWh)
03:00 – 03:15	0.00
03:15 – 03:30	0.77
03:30 – 03:45	-312.01
03:45 – 04:00	11.25
03 – 04	-75.00

Aritmetic average of the 15min rounded prices:

$$(0.00 + 0.77 - 312.01 + 11.25) / 4 = -74.9975 \text{ EUR/MWh}$$

→ Rounding to two decimals gives

the 60-min. price: -75.00 EUR/MWh

POSSIBILITY OF PARADOXICALLY REJECTED 60-min. STANDARD ORDERS

- ❑ Due to the strict adherence to the Average Rule (i.e., the 60-minute price corresponds to the arithmetic average of the respective 15-minute prices – see the previous slide), it may occur that standard orders with a higher granularity than the smallest granularity of the bidding zone may be paradoxically partially or fully rejected*

- ❑ **60-minute standard orders may be paradoxically be rejected** within the Czech Republic bidding zone
 - ❑ A paradoxical rejection of 60-minute standard order by the EUPHEMIA algorithm will occur if, in at least one of the sub-periods (quarter hours) of the given 60-minute standard order, it is necessary to maintain the price within the price limits. This will affect the resulting 60-minute price (due to the Average Rule), leading to a situation where the 60-minute standard order may be paradoxically partially or fully rejected.
 - Since this case only concerns standard orders with a higher granularity than the smallest granularity of the bidding zone, **15-minute standard orders cannot be paradoxically rejected!**

**Paradoxically rejected order = an order that was not accepted, although it should have been according to the original conditions and price environment. However, after the application of additional system rules or price corrections (e.g., price limits), it was partially or fully rejected by the EUPHEMIA algorithm*

EXAMPLE OF PARADOXICALLY REJECTED 60-min. STANDARD ORDER

State before the correction:

- Buy order E (60-min.): 200 MW at 2,000 €/MWh
- 15-minute sell orders A, B, and C each order 200 MW at 0 €/MWh in the individual sub-periods (Q1, Q2, Q3, respectively)
- 15-minute sell order D for Q4 offers 100 MW at 0 €/MWh
- Orders A, B, C, and E are marginal, resulting in a partial matching of only 100 MW
- Order D is fully accepted, causing so-called Indeterminacy problem (the price of order D for Q4 is therefore determined using the Average rule at 8,000 €/MWh)

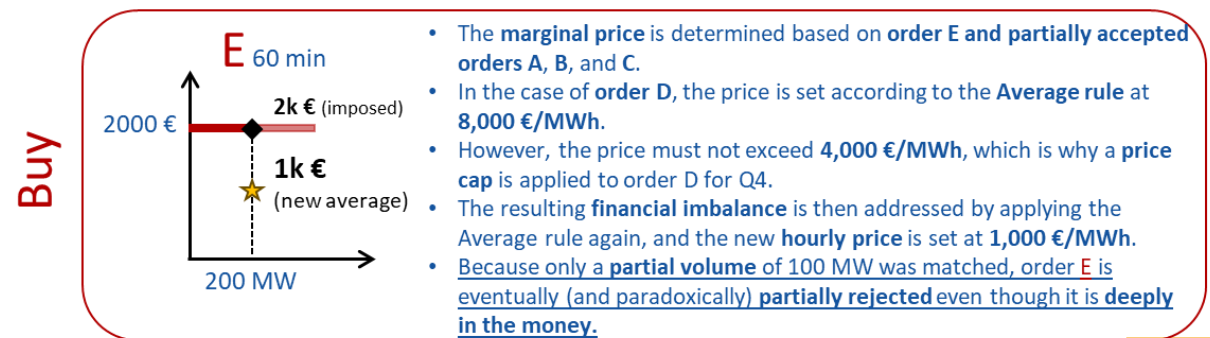
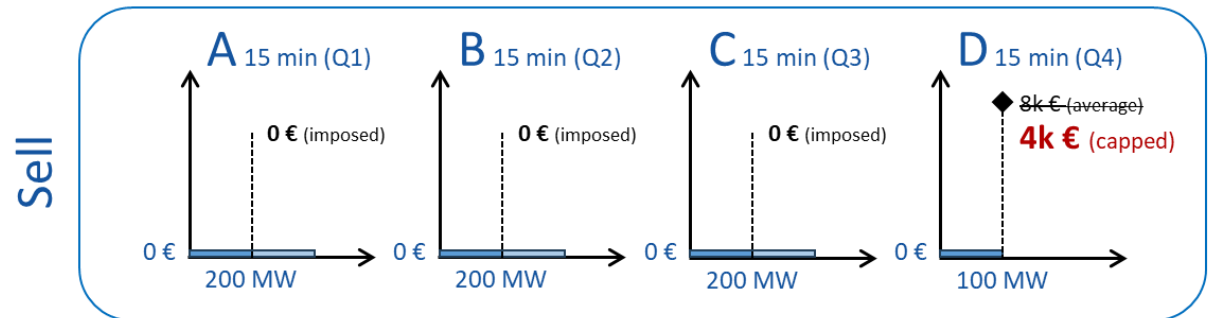
After introducing the price cap (correction):

- The price of order D for Q4 must be capped at 4,000 €/MWh.
- The new 60-minute price after the correction is calculated as the average of the 15-minute intervals:

$$(0 + 0 + 0 + 4,000) / 4 = 1,000 \text{ €/MWh}$$

Result:

- After the correction, order E is now well “in the money,” but only partial volume of 100 MW has been matched.
- A 60-minute order that was originally to be partially accepted at its price **may end up being fully or partially rejected once price caps are applied and market rules followed, in order to preserve system and price consistency.**



POSSIBILITY OF PARADOXICALLY REJECTED 60-min. STANDARD ORDERS

Summary:

Paradoxically, rejected/accepted standard orders on DAM after the introduction of 15-min. orders:

- 60-min. standard orders can be partially or fully paradoxically rejected!!
 - 15-min. standard orders canNOT be paradoxically rejected!
 - Any standard orders (15-min. and 60-min.) canNOT be paradoxically accepted!
- For detailed description, see [Euphemia public description](#)



CHANGES OF PROCESS TIMINGS ON DAM

- Due to the introduction of 15-min. products, the calculation time will be extended to 30 minutes (the current calculation time is 17 minutes), and the publication time of the results will be adjusted accordingly. To minimize the impact on market participants, the follow-up processes of NEMOs and TSOs have been optimized as follows:

	Current timings	Timings after 15-min. go-live	Process
COUPLING	12:00	12:00	NEMO Order Book Gate Closure Time
	12:10	12:10	PMB Gate Closure Time Reception of all Order Data files in PMBs and Start of Calculation
	12:27	12:40	End of Calculation
	12:45	12:51*	Submission of Preliminary Results to Transmission System Operators
	12:57	13:01*	Publication of Final Results
	13:50	13:50	Deadline to send the message for Risk of Full Decoupling
	14:20	14:20	Deadline to declare the SDAC Full Decoupling or Publication of coupled Results

* The final confirmation of these timings will take place after the completion of the central NEMO and TSO tests in the spring of 2025 www.ote-cr.cz

CHANGES OF PROCESS TIMINGS ON DAM

- ❑ Time dedicated for SDAC process is from 12:00 to 14:20
 - ❑ The nomination deadlines remain unchanged
 - ❑ 12:00 is the deadline for submitting orders, as required by the [CACM Regulation](#)
 - ❑ 14:20 is the deadline for full market decoupling, it stems from the nomination deadline, which is set at 15:30 in several countries
 - ❑ The time from 14:20 to 15:30 is dedicated to processes following the potential full market decoupling to ensure compliance with the 15:30 deadline
 - ❑ Extending the calculation time from 17 minutes to 30 minutes required optimization in daily operational processes
 - This led to the shortening of NEMOs and TSOs processes, which allowed the final results to be published only 4 minutes later *
 - The planned time for publishing the final results is 13:01*
 - With the extended calculation time, the contingency of the process is reduced

* The final confirmation of these timings will take place after the completion of the central NEMO and TSO tests in the spring of 2025

TRADING SCREEN

☰ **OTE SAND2**

Electricity
Gas
📄 📧

DM / DM - trading ↗

Dashboard ▼ ☰

Main Page

Favorites ▼

Registration ▼

DM ▲

DM - trading

Reports ▼

IDA ▼

IM

RRD ▼

Settlement ▼

CDS ▼

POZE ▼

GO

Risk Manag. ▼

Claims ▼

REMIT ▼

General ▼

Day-ahead market – summary

Session			OTE DM Index (EUR/MWh)			Price (EUR/MWh)		Volume (MWh)
Delivery day	GCT	Status	BASE	PEAK	OFFPEAK	Min	Max	Total
14/12/2024	13/12/2024 12:00	Closed						
15/12/2024	14/12/2024 12:00	Closed						
16/12/2024	15/12/2024 12:00	Closed						
17/12/2024	16/12/2024 10:47	Results	1,501.67	1,200.00	1,803.33	1,200.00	3,990.00	82.8
18/12/2024	17/12/2024 10:02	Results	-75.00	-75.00	-75.00	-389.40	29.90	453,052.5
19/12/2024	18/12/2024 12:00	Open						
20/12/2024	19/12/2024 12:00	Open						

Audit log

Time	Severity	Visibility	Description
17/12/2024 10:14:15	Info	Public	Market results publication
17/12/2024 10:02:43	Info	Public	DM session closure
16/12/2024 16:08:09	Info	Public	Market results publication
16/12/2024 10:47:42	Info	Public	DM session closure
16/12/2024 10:30:00	Info	Public	Network data publication

Order for 19/12/2024, Buy

Header

* Order category: STD PBO

* Order type: Buy Sell

* Period resolution: 60 min 15 min

* Delivery day: 19/12/2024

* Settlement currency: EUR

Order ID:

Version:

Default settlement currency: EUR

* Check for fin. security: Immediately

Participant: 8591824999905 - TESTOV...

Comment:

0 / 100

Cancel
Submit modification
Submit new

List of orders

230 entries

+ Create from XML
+ New order

Delivery day	Type	OrdCtg	Grp	Resolution	Ver	OrdID	LinkdTo	Comment	Volume (MWh)	MinPrice (EUR/MWh)		
26/10/2025	Buy	STD		60 min	1	996063			2,400.0	100.00	🔗	🗑
26/10/2025	Buy	STD		15 min	1	996064			2,940.0	120.00	🔗	🗑
26/10/2025	Buy	STD		60 min	1	996067			2,400.0	100.00	🔗	🗑
26/10/2025	Buy	STD		15 min	1	996068			2,940.0	120.00	🔗	🗑
26/10/2025	Buy	STD		60 min	1	996071			2,400.0	100.00	🔗	🗑
26/10/2025	Buy	STD		15 min	2	996072			2,942.3	120.00	🔗	🗑
26/10/2025	Sell	PBO		15 min	1	996081			7,437.5	5.00	🔗	🗑
26/10/2025	Sell	PBO		15 min	1	996082			1,194.0	10.00	🔗	🗑
26/10/2025	Sell	PBO		15 min	1	996083			126.3	15.00	🔗	🗑
26/10/2025	Sell	STD		15 min	1	996084			6,262.5	20.10	🔗	🗑

15

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TRADING SCREEN

Order for 19/12/2024, Sell

Header

* Order category: STD PBO

* Order type: Buy Sell

* Period resolution: 60 min 15 min

* Delivery day: 19/12/2024

* Settlement currency: EUR

Order ID:

Version:

Default settlement currency: EUR

* Check for fin. security: Immediately

Participant: 8591824999905 - TESTOVA...

Comment: Enter your comment here

Detail

Period	Segment 1		Segment 2	
	Volume (MW)	Price	Volume (MW)	Price
00:00	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00
01:00	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00
	10.0	100.00	10.0	101.00

Buttons: Cancel, Submit modification, Submit new

Option to submit either 15-minute or 60-minute order

Order for 19/12/2024, Buy

Header

* Order category: STD PBO

* Order type: Buy Sell

* Period resolution: 60 min 15 min

* Delivery day: 19/12/2024

* Settlement currency: EUR

Order ID:

Version:

Default settlement currency: EUR

* Check for fin. security: Immediately

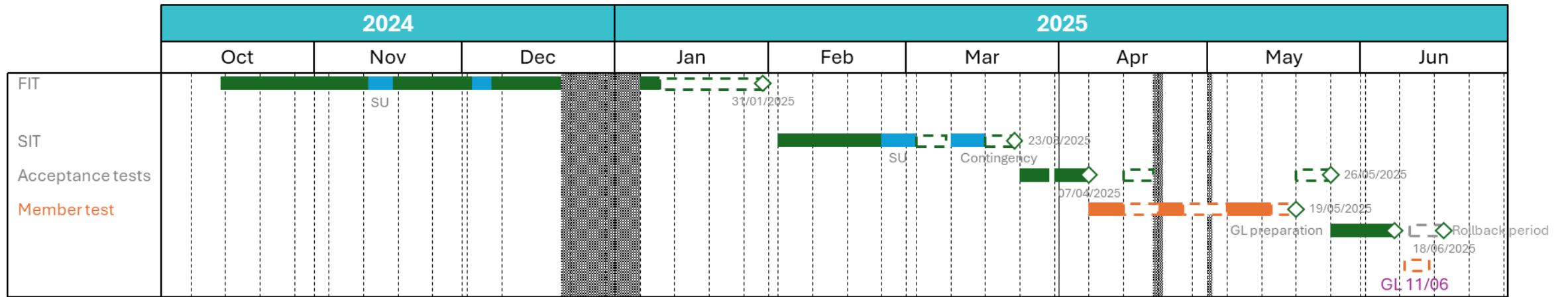
Participant: 8591824999905 - TESTOVA...

Comment: Enter your comment here

Detail

Period	Segment 1		Segment 2	
	Volume (MW)	Price	Volume (MW)	Price
00-01	10.0	100.00	10.0	101.00
01-02	10.0	100.00	10.0	101.00
02-03	10.0	100.00	10.0	101.00
03-04	10.0	100.00	10.0	101.00
04-05	10.0	100.00	10.0	101.00
05-06	10.0	100.00	10.0	101.00
06-07	10.0	100.00	10.0	101.00
07-08	10.0	100.00	10.0	101.00
08-09	10.0	100.00	10.0	101.00

Buttons: Cancel, Submit modification, Submit new



- ❑ Go-Live is scheduled for the trading day of **June 11, 2025** (for delivery day of June 12, 2025)
- ❑ Testing at the pan-European project MCSC SDAC level among all nominated electricity market operators (NEMOs) and transmission system operators (TSOs):
 - ❑ Preparatory testing took place from June 2024
 - ❑ Functional Integration Tests (FIT) began in October 2024 and includes integration testing of all local, regional and central systems
 - ❑ Simulation Integration Tests (SIT) and Acceptance Testing (additional stability tests) will start according to the timeline above
 - ❑ The timeline also includes dedicated days for system updates (SU)



☐ Testing with market participants

1. OTE local testing

- ☐ **Testing environment [Sandbox2](#) is already available for market participants**, where they can test changes associated with the introduction of 15-min products on DAM
 - Matching takes place irregularly depending on the various scenarios of the central NEMOs and TSOs testing, so the publication of results does not occur at a specific time.

2. Pan-European member tests

- ☐ **Coordinated pan-european testing with all NEMOs, TSOs and market participants will be launched in April 2025** and will last for approximately **4-6 weeks** – detailed plan will be provided in spring 2025
 - expected deadline for order submission is 14:00 (13:00 in case of partial or full market decoupling scenarios)
 - Scenarios will be specified in due time (preliminar list of scenarios was presented at the MCCG meeting on November 8, 2024, [here](#))
 - It is expected that for testing purposes, NEMOs and TSOs will provide capacities for D-7 (trading day D)

DOCUMENTATION

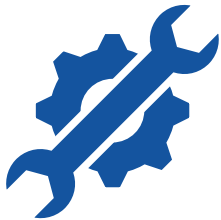
- ❑ Documentation describing the relevant IT interfaces, presentations and summary of the frequently asked questions and answers are available on a dedicated page for 15 minutes on the OTE website:
 - https://www.ote-cr.cz/en/documentation/electricity-documentation/information-to-switch-to-15-min-interval?set_language=en
 - Changes to DAM related to the introduction of 15-minute products have already been included in the specifications published in 2024 (in connection with the introduction of the 15-minute billing period in CZ bidding zone and intraday auctions)

- ❑ Documentation for the Sandbox2 test environment is available here:
 - <https://www.ote-cr.cz/en/documentation/electricity-documentation/documentation-for-sandbox-with-15-min-period>

- ❑ DAM User manual is available in CS OTE

- ❑ The key parameters of DAM (and other short-term electricity markets) are summarised here:
 - <https://www.ote-cr.cz/en/short-term-markets/electricity/parameters-of-short-term-markets>

- ❑ Despite thorough testing of the systems and verification of the algorithm performance, the SDAC project is also prepared for completely unexpected errors after the introduction of 15-min. products on DAM (Go-Live), which might affect the successful completion of SDAC process. For these unexpected cases, mechanisms are agreed at the SDAC project level in order to minimize negative impacts on the following settlement days.
 - In the case of unexpected critical errors **within 1 week after Go-Live**, a decision may be taken to revert the systems at the SDAC level back to the state before the introduction of 15-min. products on DAM, when only 60-min. products can be traded (so-called **Rollback**)
 - If there is an unexpected deterioration in the performance of the algorithm, corrective measures can be applied within SDAC
 - The mechanism of corrective measures can already be applied today in accordance with the [Algorithm methodology](#)
 - At the SDAC project level, the individual corrective measures are currently being revised
- ❑ The final version of the Rollback procedure and the modification of the existing corrective measures for the purpose of introducing 15-min. products on DAM are now being discussed, market participants will be informed about the news in due time



- ❑ The planned removal of the Second Auction mechanism has already been communicated, a [public consultation](#) was held in 2023 on this topic
 - ❑ The Second Auction mechanism is applied when electricity prices reach a predefined threshold in the affected bidding zones. The Second Auction allows market participants to adjust their orders in order to improve the market situation
 - ❑ The removal of the Second Auction will occur due to the following reasons:
 - The results of the Second Auctions in recent years show that **the Second Auctions increase operational risk, and their originally expected benefit is negligible or even none**
 - With the **introduction of 15-min products** and the associated extension of the calculation time, **overall process optimization is required to maintain operational reliability**



- ❑ **The Second Auction mechanism will be removed** jointly with other NEMOs from the single European Day-Ahead Market SDAC on **January 29, 2025 (for the delivery day of January 30, 2025)**, with the exception of the bidding zones in the Baltic states, which will remove the Second Auction mechanism together with the implementation of 15-min. products on DAM

- ❑ In Act No. 165/2012 Coll., on Supported Energy Sources, **the hourly settlement period** for subsidy in the form of green bonus or feed-in tariff **is temporarily maintained**
- ❑ The 60-min. price will continue to be used for the calculation of the hourly green bonus or feed-in tariff (for settlement with the obligatory purchaser)



Transition to 15-min. (using 15-min. price for the subsidy calculation in the form of green bonus or feed-in tariff) is planned on **January 1, 2026**, according to the recent Act amendment Lex OZE III

❑ The frequently asked questions and answers regarding the introduction of 15-min. products on the Day-Ahead Market are summarized in the document [here](#)

❑ Questions that were not addressed in this presentation:

- *How will the quarters differ on the day of the transition to daylight saving time, when the intervals for the 2 hours are the same?*
 - For the Day-Ahead Market (the same as for IDA), there will be 100 intervals instead of 96 (just as there were 25 intervals on DAM until now)
- *Is it possible to display zero values for the Day-Ahead Market results, so that the participant can generate a full 24 hours (vs. 96 intervals in 15-minute products)?*
 - Yes, the results already show zero values of the amount of electricity.
- *Is it possible to enter orders with 60-min. and 15-min. granularity together in the Exclusive Group of Profile Block Orders?*
 - Yes, it is possible to enter Profile Block Orders with 60-min. and 15-min. granularity together in the Exclusive Group of Profile Block Orders.
- *Will the principle of financial security of linked Profile Block Orders or Exclusive Groups of Profile Block Orders change with the introduction of 15-min. products on DAM?*
 - The principle of financial security remains the same even after the introduction of 15-min. products on DAM.





- We invite market participants to the follow-up OTE webinar

on March 5, 2025 from 10:00 to 11:30 a.m. (online in Czech)

- In the webinar, the latest information related to the implementation of 15-min. products on DAM, including the testing plan with market participants will be presented
 - ✓ the presentation from the webinar will also be translated into English and provided on [OTE website](#)
- The webinar invitation will be sent in due time to market participants through CS OTE

- ❑ For the latest information, please follow the [market operator's website!](#)
 - Detailed information on the above mentioned changes, including this presentation and documentation, can be found on the OTE website: [Transition to a 15-minute settlement and trading period for the electricity commodity — English](#)



- ❑ Frequently asked questions and answers are summarized [here](#)
- ❑ Should you have any question, please send us an email to market@ote-cr.cz

List of Abbreviations

CACM	Commission Regulation (EU) 2015/1222 of July 24, 2015 establishing a guideline on capacity allocation and congestion management	MCSC	Market Coupling Steering Committee
CS OTE	Central System of OTE	NEMO	Nominated Electricity Market Operator
D	Delivery Day	PMB	PCR Matcher and Broker
DAM	Day-Ahead Market with electricity	Q&A	Questions and Answers
EUPHEMIA	Pan-European Hybrid Electricity Market Integration Algorithm	SDAC	Single Day-Ahead Coupling
FIT	Functional Integration Tests	SIT	Simulation Integration Tests
IDA	Intraday Auction	SU	System Update
MCCG	Market Coupling Consultative Group	TSO	Transmission System Operator

THANK YOU