Market Coupling Steering Committee

Presentation For The IDA Pre-Launch Event

Online event - 21. March 2024

SIDC

	Topic	Presenters	TIMING – start **9:30**
1	Welcome & Introduction	André Estermann, Ondrej Maca (SIDC co-chairs)	9:30 – 9:40
2	Overview Of Intraday Auctions: - What Are IDAs? - Regulatory Background	Pierre Milon, Thomas van der Broucke (MCCG co-convenors)	9:40 – 10:00
3	Project Timeline (Incl. Trial Period) & Stakeholder Involvement	Vladimir Satek, Jean-Michel Reghem (SIDC QARM co-convenors)	10:00 – 10:15
4	Technical Solution & High-Level Architecture	Lara Visone, David Myska (SIDC MSD co-convenors)	10:15 – 10:50
5	Expected Impact of IDAs on Continuous Trading & Further Aspects To Be Considered	Lara Visone, David Myska (SIDC MSD co-convenors)	10:50 – 11:20
	Q&A Coffee		11:20 – 11:40 11:40 – 11:50
6	Scenarios Of The Trial Period	Vladimir Satek, Jean-Michel Reghem (SIDC QARM co-convenors)	11:50 – 12:10
7	IDAs Daily Operational Process From Market Parties' Perspective	Jaime Ponz Garcia Comendador (SIDC OPSCOM co-chair)	12:10 – 12:30
8	3 Timings for IDAs, Existing Products & Order Types (MTUs)	Jaime Ponz Garcia Comendador (SIDC OPSCOM co-chair)	12:30 – 12:45
9	General Q&A + Summary and close	André Estermann, Ondrej Maca (SIDC co-chairs)	12:45 – 13:00

1. Welcome & Introduction

André Estermann, Ondrej Maca

SIDC co-chairs

Intraday Auction - IDA

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Pricing the intraday capacity - via Intraday Auctions (IDAs) - is part of the Single Intraday Coupling (SIDC) and it completes the SIDC market which is currently based on continuous trading method.

IDAs shall be implemented across Europe to allow for the pricing of cross-border capacity in the intraday timeframe.

IDAs are the first intraday auction involving most of the European countries.

SIDC countries where IDAs will be introduced

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2. Overview Of Intraday Auctions:
What are IDAs?
Regulatory Background

Pierre Milon, Thomas Van Den Broucke

MCCG co-convenors

Intraday Auctions - Goals

- The purpose of introducing the intraday auctions is to **harmonize the calculation and allocation of cross-border capacity in the intraday market** and to price intraday cross-border capacity to reflect their shortage at a given time and thereby send an adequate price signal to the market.

- Intraday auctions will provide the ability to accumulate offers and efficiently allocate the scarce transmission capacity. **This will be a novelty in the intraday timeframe**, since capacity in the continuous intraday trading is currently being allocated on a first-come first served basis.

Regulatory Background

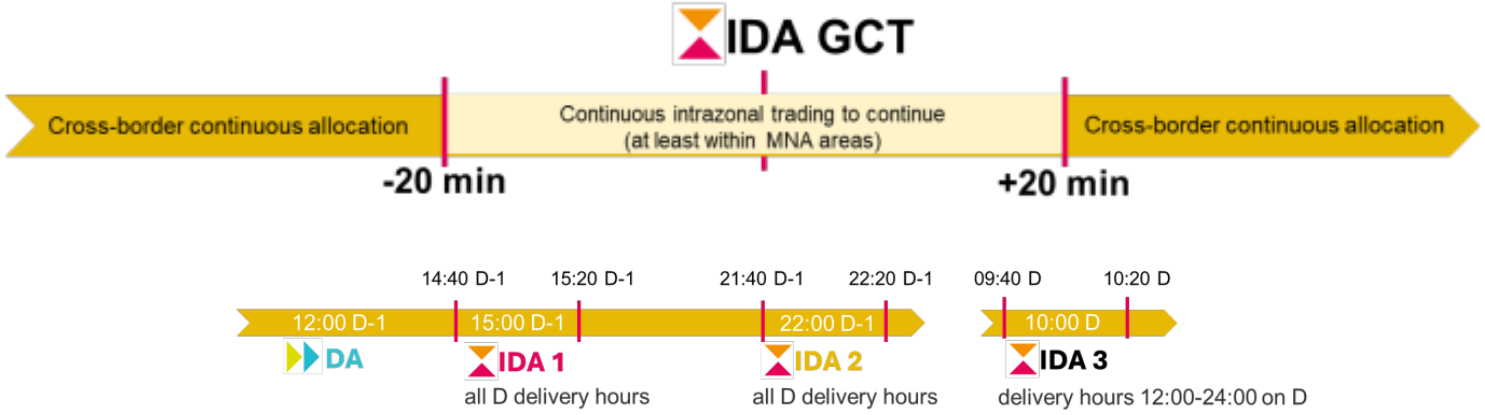
The methodology for the price coupling algorithm, the continuous trading matching algorithm and the intraday auction algorithm (“Algorithm methodology”) establishes relevant processes in accordance with Article 37(5) and Article 55 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (“CACM Regulation”) and in accordance with ACER decision 01/2019 of 24 January 2019 establishing a single methodology for pricing intraday cross-zonal capacity.

The aim of the methodology is to determine the price of cross-border capacities, which cannot be realized in continuous trading. It also further strengthens the competitiveness of EU electricity markets concerning the electricity producing, trading and supply (CACM Regulation 3 (a)), taking into account the importance of creating a level playing field for market participants in intra-day markets. Effective competition can be achieved by creating a single cross-zonal intraday auction market.

IDA Solution

The IDAs shall be organized as implicit auctions where collected orders shall be matched and cross-zonal capacity shall be allocated simultaneously for different bidding zones. IDAs shall take into account all valid orders submitted for the respective auctions and determine a clearing price for the relevant bidding zones based on matched orders.

Cross-zonal capacities cannot be allocated simultaneously on IDA and during continuous trading **along the same borders.** Therefore cross-zonal capacity allocation within the continuous SIDC shall be suspended for a limited period during which the cross-zonal capacities shall not be allocated through the continuous SIDC.



IDA1: Gate Closure Time for market parties at D-1 15h. Allocated period D [0h-24h]
IDA2: Gate Closure Time for market parties at D-1 22h. Allocated period D [0h-24h]
IDA3: Gate Closure Time for market parties at D 10h. Allocated period D [12h-24h]

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3. Project Timeline (Incl. Trial Period) & Stakeholder Involvement

Vladimir Satek, Jean-Michel Reghem

SIDC QARM co-conveners

SIDC Intraday Auctions (IDAs)

Progress Of IDAs Project & Members Testing Planning

IDA tests progress since last MCCG:

- All test in **XBID R4.0** (IDA changes in XBID) are completed including IDA performance tests related to the point in time when continuous cross border trading is reopened after IDAs – the release will be deployed in production (with IDAs deactivated) well before IDA Go Live which will limit risk level at IDA Go Live.
- **IDA Functional Integration Tests (FITs)** – The tests are completed, including CIP failover tests, with exception of Extended Full Chain Scenario (e-FCS) tests which are focused on complete chain of pre-coupling, coupling and post coupling processes covering Day-Ahead Market (post-coupling only), all three IDAs and (if possible) continuous trading.
    - **The e-FCS will address nomination processes on all borders**. This was not feasible in the previous tests as implementation on some borders was delayed.
- **IDA Simulation Integration Tests (SITs)** – The technical issues which blocked SIT1 (test of the procedures) were resolved and testing of the scenarios/procedures of SIT1 are completed, including implementation of the corrections in the procedures.
- **IDA settlement of congestion income** – It was agreed to have Core and Nordics borders ready by March 15th, with the exception of Hansa borders. For borders (or one side of the border), such as ES-FR (French side), BG-RO and PL-LT, where the target solution cannot be implemented prior to Go Live, an interim solution is being discussed between relevant TSOs, NEMOs and JAO with a final confirmation of the solution on technical and contractual level by May the 3rd.
- **IDA go-live –** Substantial progress was made on the organizational level. Cornerstones/strategic principles of the IDA go-live are approved (Go Live Approach) and they have been further developed via detailed planning focused on preparation, validation and execution of Go Live activities.

Summary:

- FIT tests with exception of Extended Full Chain Scenario (e-FCS) are completed.
- SIT1 (test of the procedures) is completed.

SIDC Intraday Auctions (IDAs)

Progress Of IDAs Project & Member Testing Planning

Ongoing & future activities:

- **Execution Extended Full Chain Scenario (e-FCS)** – the execution is scheduled for end of March / early April to ensure full readiness prior to the start of the Member Testing.

- **Execution of IDA Simulation Integration Tests 2 and 3 (SIT2/3)** – The SIT2 and SIT3 are identical in its nature. They are focused on flawless execution of IDAs, with the emphasis on normal day operation, for a predefined number of days/sessions. The intention is to finalize the test prior to the start of the Member Testing, nevertheless, if some issues are identified either during SIT2 or during Member Testing, the tests will be repeated after Member Testing.

- **IDA go-live –** Fine-tuning of Go Live activities in parallel with validation of the sequence of Go Live steps is scheduled for the weeks after Member Testing. The process also includes configuration and testing of the production infrastructure of all new IDA systems/components and validation of special process related to systems/components which are common to both IDAs and Continuous Trading to make sure that IDA Go Live does not have adverse impact on ongoing continuous trading operation.

    - **Rollbacks** - Part of this process is the development of rollback plans (where applicable). The current intraday auction trading is organized on local/regional level, therefore the rollback plans are addressed on local/regional level. For details, please contact the respective NEMOs.

- **Technical Readiness –** The IDA Go Live is a very complex process addressing technical, regulatory and commercial aspects. It is of utmost importance that all NEMOs and TSOs participating in IDAs ensure coherence of these aspects. The final step of this process is a Declaration of Technical Readiness which is due May the 17th.

Summary:

- IDA Simulation Integration Tests may be finalized after Member Testing in case of needs.
- Validation and fine-tuning of IDA Go Live related activities is ongoing.

IDA Go Live – Member Testing

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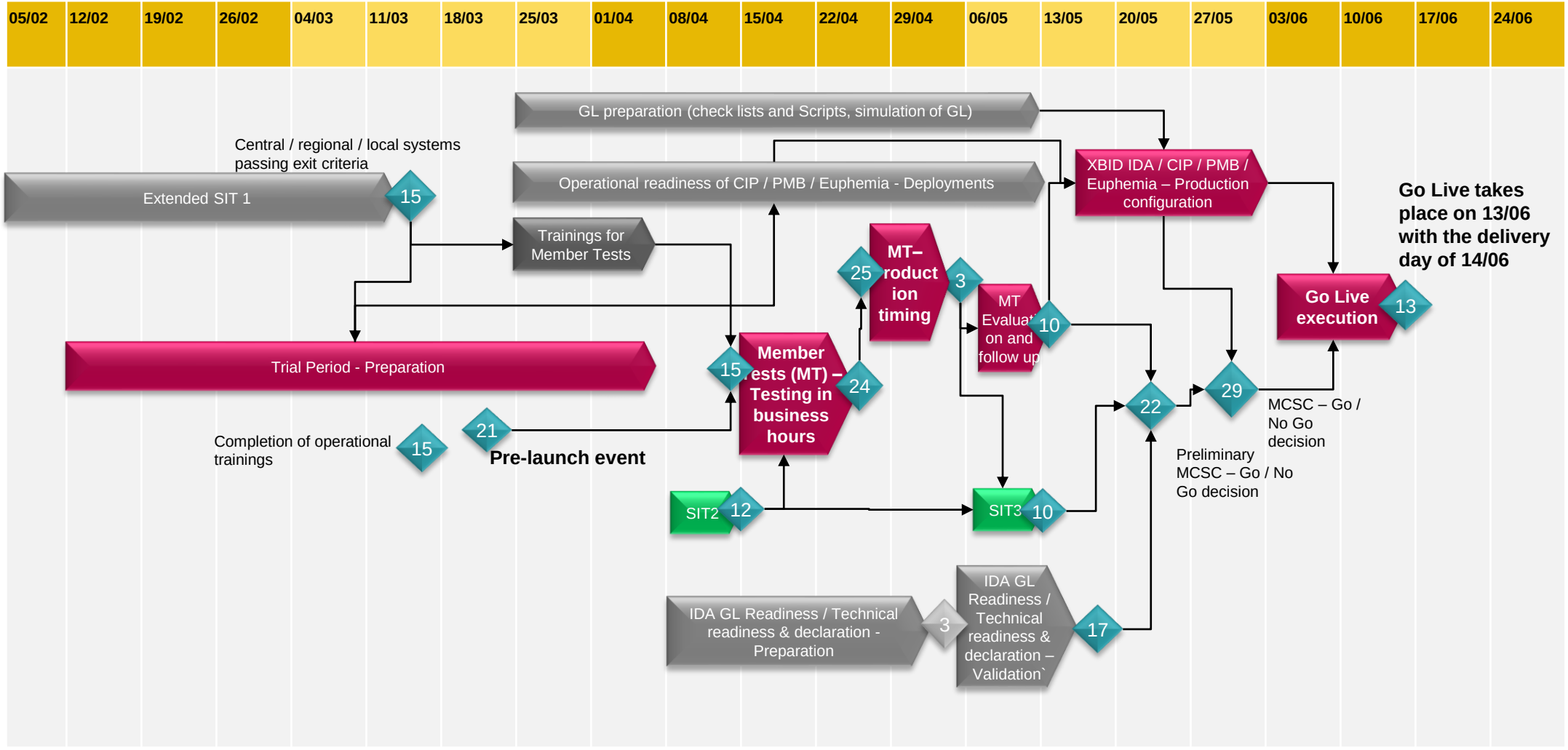
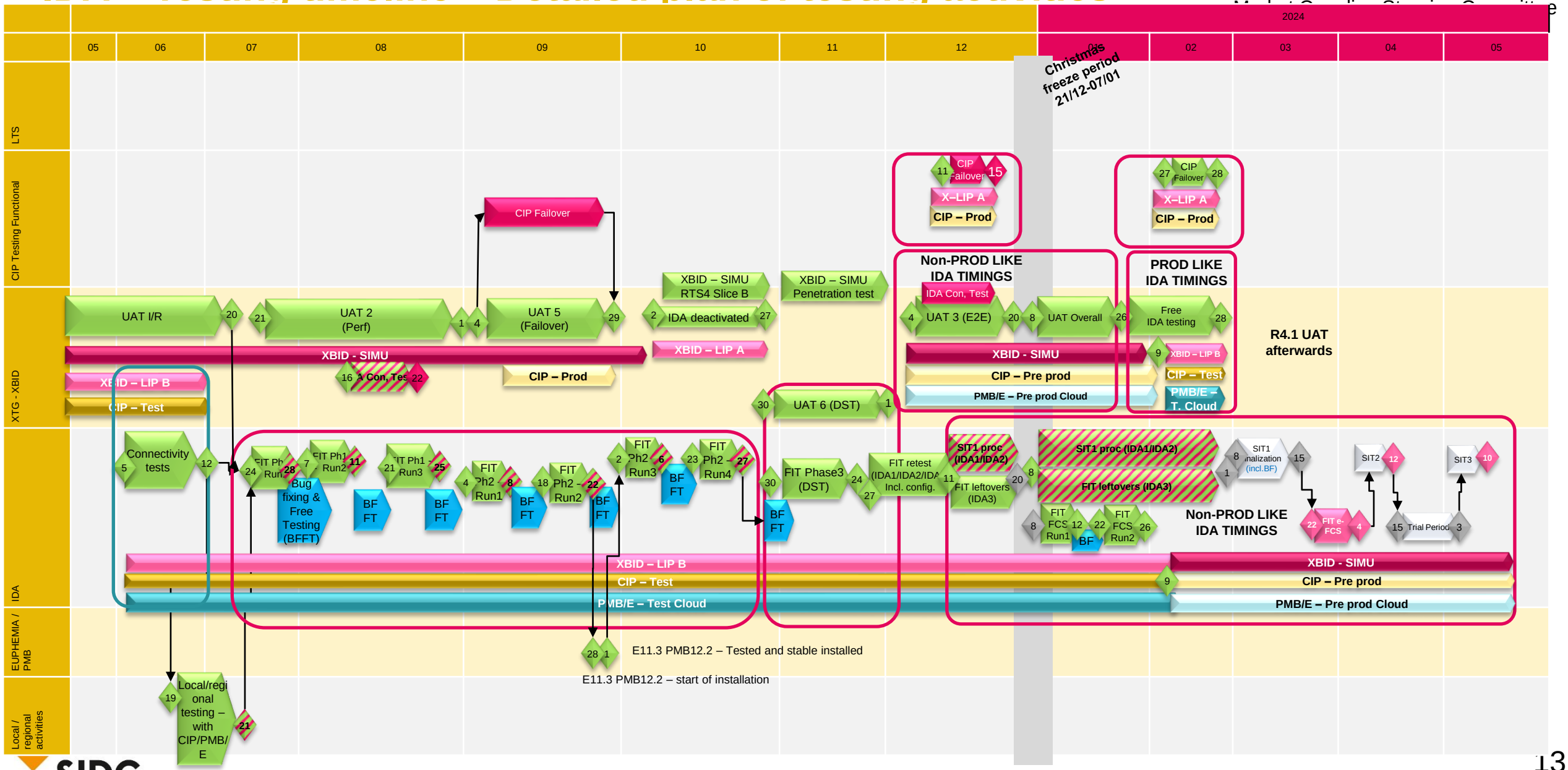


IDA – Testing timeline – Detailed plan of testing activities



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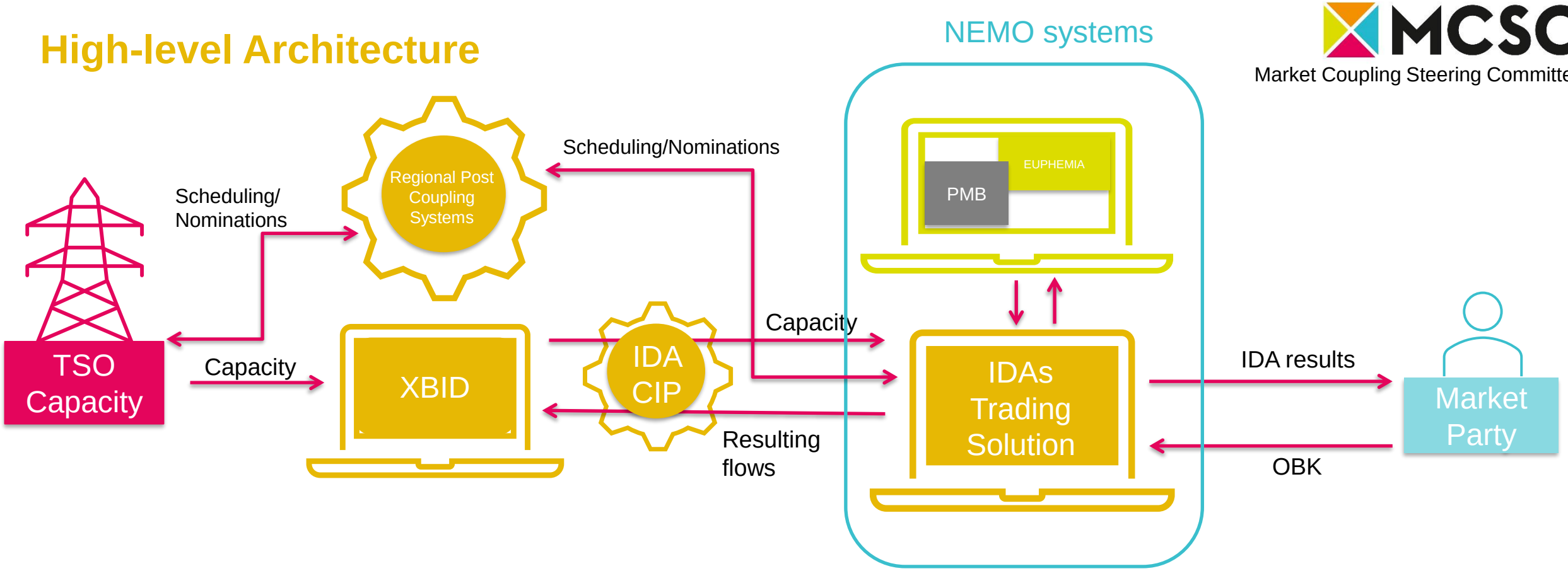
4. Technical Solution & High-Level Architecture

Lara Visone, David Myska

SIDC MSD co-conveners

High-level Architecture



- XBID (CMM) is used as source of network constraints data for IDA (**pre-coupling**) and to validate the IDA results (verification that capacity is not exceeding the network constraints – still in the **coupling** phase).
- As for Day- Ahead auction, network data are provided by NEMOs to EUPHEMIA (algorithm), via PMB (PCR Matcher&Broker).
- IDA results are submitted to XBID in form of allocation request, which is accepted if the flows coming from IDA are compatible with the network data constraints. For interconnectors with ramping, also the Already Allocated Capacity is considered to execute the validation.
- IDAs Local Trading Solutions could be the same solution as used for Day-Ahead auction, adapted for IDAs, or a new one depending on each NEMO.
- The other two modules of XBID (SOB and SM) are not functionally impacted by IDA execution.

Focus on the single entities of the architecture (1/4)
PMB

PCR stands for Price Coupling of Regions and PMB is the so-called PCR Matcher and Broker

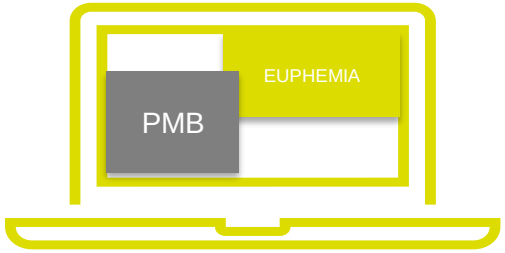
What is PCR?

PCR is based on three main principles: a single algorithm, robust operation and individual power exchange accountability.

1.The common algorithm gives a fair and transparent determination of day-ahead electricity prices and a net position of a bidding area across Europe. The algorithm is developed respecting the specific features of the various power markets across Europe and the electricity network constrains. It optimises the overall welfare and increases transparency.

2.The PCR process is based on decentralised sharing of data, providing a robust and resilient operation.

3.The PCR Matcher and Broker service enables exchange of anonymised orders and electricity network constraints among the power exchanges to calculate bidding zone prices and other reference prices and net positions of all included bidding areas.



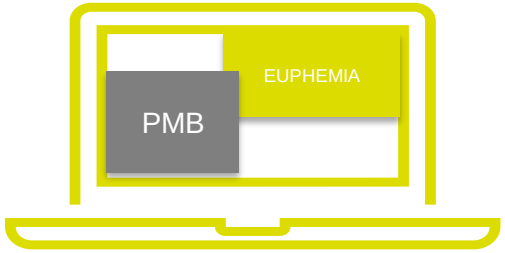
Focus on the single entities of the architecture (2/4)
Euphemia

EUPHEMIA *is the algorithm that has been developed to solve the problem associated with the coupling of the day-ahead power markets in the PCR region.*

First, Market participants start by submitting their orders to their respective power Exchange. All these orders are collected and submitted anonymized to EUPHEMIA that must decide which orders are to be executed and which orders are to be rejected in concordance with the prices to be published such that:

- *The social welfare (consumer surplus + producer surplus + congestion rent across the regions) generated by the executed orders is maximal.*
- *The power flows induced by the executed orders, resulting in the net positions, do not exceed the capacity of the relevant network elements.*

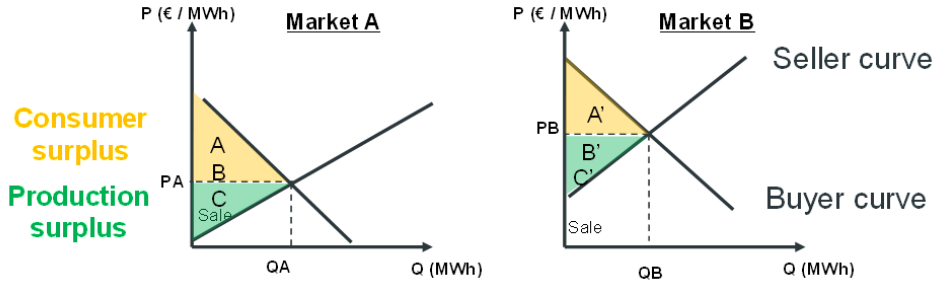
EUPHEMIA handles standard and more sophisticated order types with all their requirements. It aims at rapidly finding a good first solution from which it continues trying to improve and increase the overall welfare. EUPHEMIA is a generic algorithm: there is no hard limit on the number of markets, orders or network constraints; all orders of the same type submitted by the participants are treated equally.



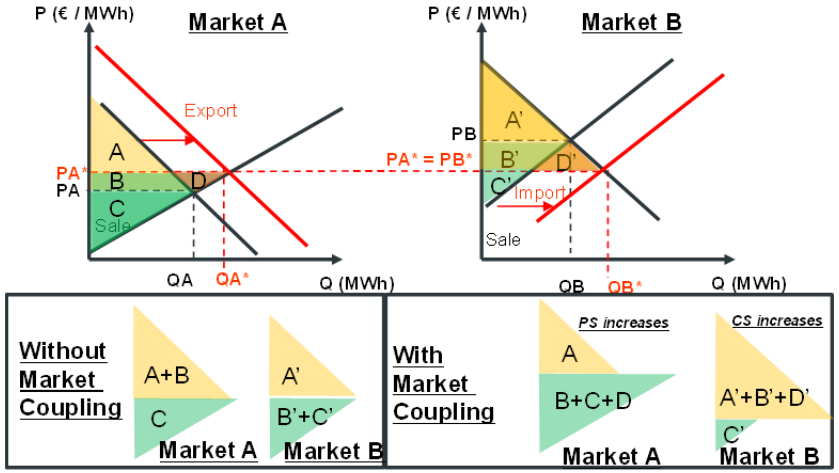
EUPHEMIA – DA Optimisation Algorithm

Objective: Max (Social Welfare)
With **Social Welfare = Producer surplus (producers' revenues) + Consumer surplus (consumers' revenues).**

If there are 2 uncoupled markets, each zone has its own independent curve



If 2 markets are coupled, producer and consumer surplus increase → overall bigger market welfare than when the 2 markets are uncoupled.



However, the capacity between the 2 markets could limit the amount of export/import. In such a case, the maximization of the social welfare will still be performed, but due to the congestion, won't allow the price convergence.

- IDA/SIDC is more than 2 zones.
- Optimization and Prices/Net Positions determination is done for the whole topology/all zones at the same time

Focus on the single entities of the architecture (3/4)
XBID (CMM)

The continuous trading matching algorithm, called hereafter single intra-day coupling algorithm is incorporated in the XBID (Cross-Border Intra-Day) solution. The XBID solution comprises, among other components, two modules which each performs part of the algorithm tasks: the shared order book (SOB) module and the capacity management module (CMM).

The CMM provides the functionality for managing and allocating available transmission capacity between all areas in the underlying power transmission network (which sometimes is called delivery grid).

With the introduction of IDA, XBID CMM is enriched with two essential functionalities:

- the management of IDA instances, so that cross border allocation is automatically halted and resumed based on the IDA schedule,
- the validation of IDA results.

Focus on the single entities of the architecture (4/4)
IDA CIP

IDA CIP is the central solution developed to work as intermediary between NEMOs' systems and XBID CMM.

Its main functionalities are:

- to receive data from XBID CMM
- to process received data from XBID CMM
- to provide processed data to NEMOs
- to accept result data from NEMOs
- to provide processed data for XBID CMM
- to ensure consistency of results between NEMOs and XBID CMM

It has been developed specifically for IDA operations and it is accessible to both NEMOs and TSOs

Intraday Auctions – Technical Solution (1/2)

Intraday Auction is the result of the combination of processes and systems acting together to fulfil the regulatory requirements for the realization of a pricing mechanism for the cross-border capacity also in the intraday timeframe, similarly to what has been established for day ahead timeframe. Most of the existing assets/processes used to run DA auctions are re-used for IDA; nevertheless, some systems have either been brand new developed for its very own purpose (IDA CIP) or adapted to it (pre-coupling/post-coupling).

Similarities with DA auction

- Orders from Market Participants are collected, aggregated and anonymized by NEMOs and sent to the Euphemia algorithm, via PMB.
- Euphemia, as much as it does for the Day Ahead auction, seeks for an optimal solution, in a fixed amount of time, solving as primal problem the maximization of the total social welfare *(consumer surplus + producer surplus + congestion rent across the regions)*, under the condition that *the power flows induced by the executed orders, resulting in the net positions, do not exceed the capacity of the relevant network elements.* The difference from SDAC is the overall shorter time at disposal (7 minutes of regular calculation vs the current 17 minutes).
- Post-coupling activities are managed regionally, between NEMOs, CCPs/Shippers and TSOs and they do not involve any XBID module (Shipping Module used only for post-coupling from SIDC continuous trading).

Intraday Auctions – Technical Solution (2/2)

Differences with DA auction

Differently than for Day Ahead,

- Data representing network constraints are sent by XBID CMM (on behalf of TSOs) to NEMOs via an intermediary system (IDA CIP).
- Market results are validated by XBID CMM module, on behalf of TSOs, which verifies the condition that the flows are not exceeding the capacity of the network elements.
- IDA presents some additional features like Already Allocated Capacity (AAC), which is provided to EUPHEMIA for interconnectors where losses and/or ramping are applicable (it is part of the network data NEMOs receive and send forward)
  - Additional boundary condition is included for EUPHEMIA which checks that when AAC and IDA flows are summed up, the change of flows between Market Time Units should not exceed the ramping constraint
  - AAC is also used in calculation of losses impact as if the flow in IDA goes in opposite direction than AAC, the losses from previous allocation phases are up to certain level mitigated.
- Only NTC regions are defined in the IDA topology (Flow-Based will be introduced in IDA at a later stage)

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5. Expected Impact of IDAs on Continuous Trading & Further Aspects To Be Considered

Lara Visone, David Myska

SIDC MSD co-conveners

Impact of IDA to continuous trading (1/2)

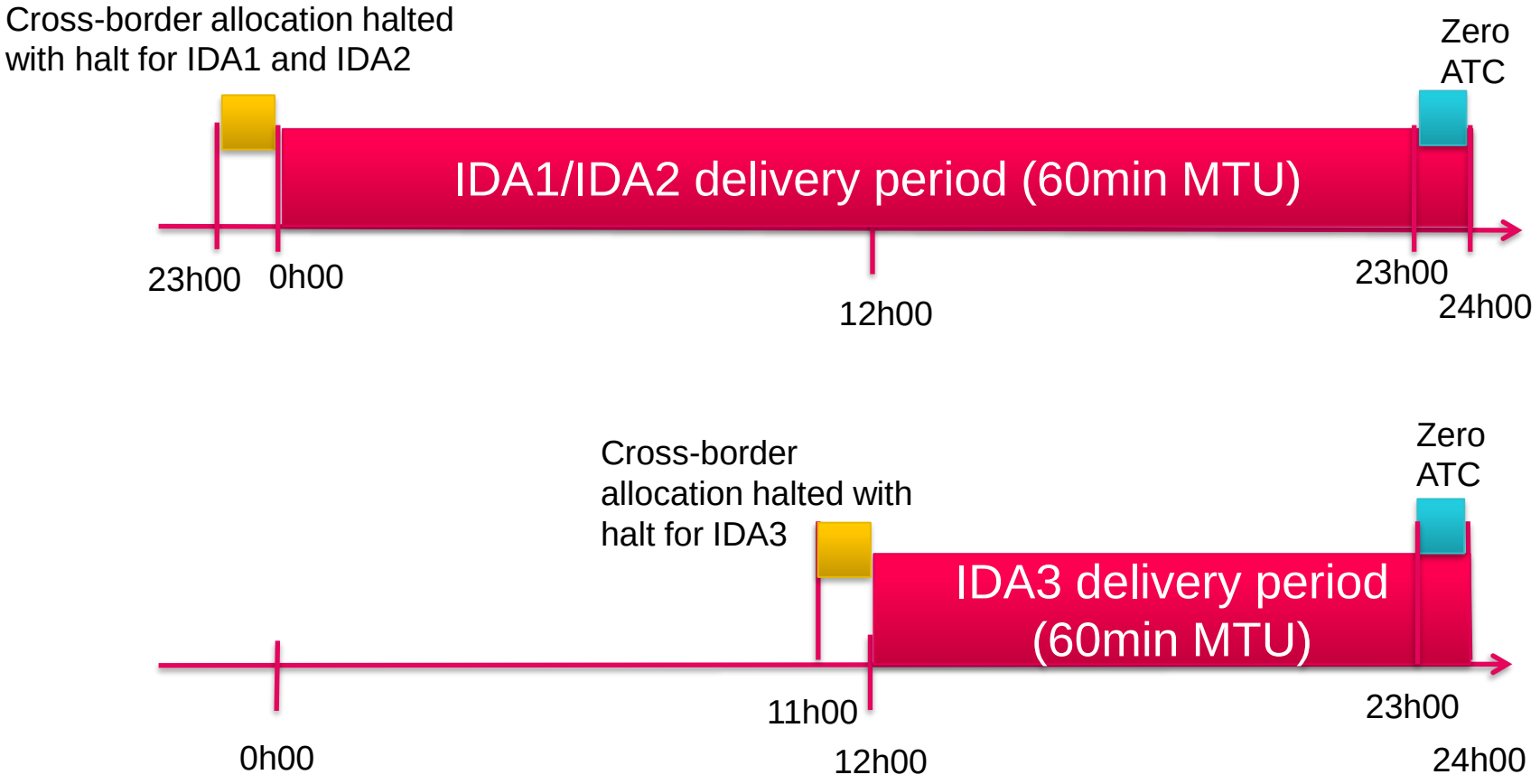
- During regular operations, XBID **cross-border trading** shall be interrupted during IDA, for 40 minutes: 20 minutes before GCT of the IDA and 20 minutes after GCT of the IDA. Cross-border trading halt is applicable to contracts and borders being included to IDA

  - For interconnectors where ramping is applicable the contract prior to IDA is also halted (e.g. for IDA3 and 60min border resolution contract 11:00-12:00 is halted) and the last contract within IDA includes zero offered capacity

- **Continuous trading within a bidding zone (Intra-zonal continuous trading)** shall be kept in MNA areas (former CWE countries, Poland and the Nordics) and it will be optionally offered in those that have only one NEMO operating there.

Impact of IDA to continuous trading (2/2)

For borders where ramping is configured (at IDA Go-Live all having 60' MTU contract resolution), the "last hour" – the hour preceding the first contract halted for IDA trading – is halted as well in CMM, although it won't be subject to any allocation in IDA.



Further Aspects To Be Considered

Process irregularities

- If DA results are not known by 14:10 D-1
  - IDA1 session will be cancelled. Corresponding message will be sent by SIDC via instructions defined in procedures
- If IDA results are not delivered by the prescribed time for validation (GCT+27)
  - IDA session will be cancelled
- Cross-border continuous allocation interruption shall not exceed GCT+30
- Partial (de)coupling
  - In case of issues experienced by a NEMO, the NEMO is decoupled and other NEMOs will be either automatically decoupled together with it or stay in the session, depending on configuration - the expected configuration is that GME (Italy), OMIE (Iberia) and HENEX (Greece) stay coupled. Such configuration reflects the impossibility, due to the short time available in IDA, of re-opening the OBKs (common practice that gives Market Participants the possibility to adjust their bids due to the unexpected changes of market topology).
  - For IDA go-live the decoupled borders are kept closed in XBID CMM until the end of IDA auction, i.e., no continuous cross-border allocation, but this feature is foreseen to be modified later (in 2025) allowing to resume continuous cross-border allocation for decoupled borders earlier.

Cross-Zonal Capacities for IDAs

CCR input for the IDA pre-launch event

Introduction

- **Background**
- This slide set was prepared by MCSC TSOs in alignment with CCRs. It aims at answering the following points:
  - Understanding whether the recalculation is expected by TSOs in various CCRs.
  - The status quo on bidding zone borders related to the set-up shall be presented in a consistent way, explaining approaches and clarifying the terminology used (whether leftover, recalculation or assessment).
- The slide set aims at reflecting the expected approach at IDA Go-live. A general binary (i.e. cross-zonal capacity for/between IDAs or not) overview is provided of all CCRs together, supplemented with detailed slides on the capacity calculation process in line with the regional capacity calculation methodologies per CCR (annex 1).

- **Version**
- A previous version was published in September 2023 and presented during the MCCG in October 2023.
- This version is prepared for the IDA pre-launch event taking place on 21/03/2024. No changes were made since the last version for GRIT, Nordics, SWE, and SEE.

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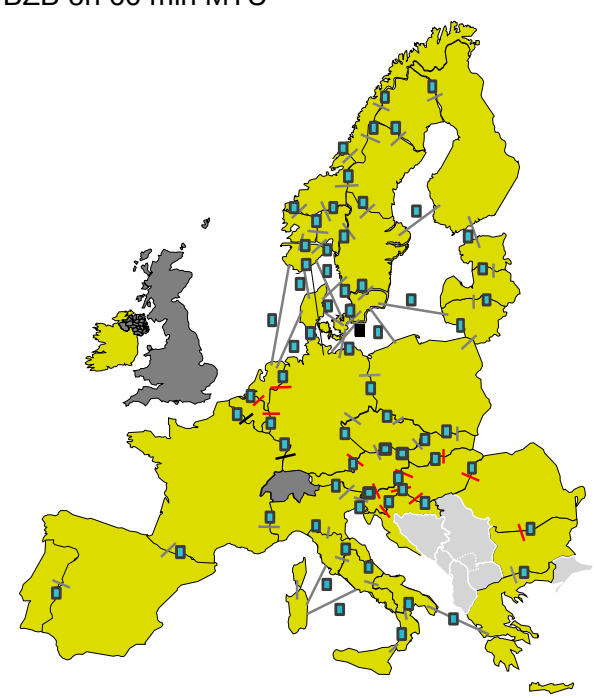
Simplified overview of expected/indicative cross zonal capacities (CZC) for IDA Go-live

- No cross-zonal capacities
- Cross-zonal capacities ➔ different approaches possible as detailed on the next slides
- BZB on 15 min MTU
- BZB on 30 min MTU
- BZB on 60 min MTU



IDA 1 (D-1 14h45)

IDA 2 (D-1 21h45)

IDA 3 (D 9h45)

*SE4-DE will have no capacities due to Baltic cable not going live at this time

**While an update of cross-zonal capacities is provided for the AT borders, this will be 0 until the inclusion of ID trades until 16:00 in the DACF is properly implemented

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Overview of approaches used across the CCRs

- Below, the different approaches for capacity calculation approaches for IDAs are listed - as indicated by TSOs from the respective CCRs. Terminology being in the same row does not automatically indicate similarity of approaches. Furthermore, letters have no further significance other than differentiating between approaches per CCR.

	Nordic	Hansa	Core CCR	IBWT*	GRIT	South-West Europe	Baltic	South-East Europe
IDA 1	a) CZCs are leftovers based on D-2 CGM and an extraction taking into account the SDAC allocations.	a) No CZCs b) Leftover CZCs c) Re-calculated CZCs	a) IDCC(a): updated CZC after DA MC: ID ATCs extracted from the D-2 CGM at DA MCP, but with different parameters for virtual capacities (complete removal is allowed). There are exceptions for specific borders (see detailed slides).	a) no CZCs b) Updated CZC after DA MC: CZCs for ID calculated as day-ahead left-over ATC without virtual capacities. There are exceptions for specific borders (see detailed slides).	a) Intra-Day cross-zonal capacities based on Day-Ahead „left-overs“ initially indicated for all borders for IDA1.	a) DA Leftovers: CZCs leftover after SDAC allocations. These CZCs are extracted based on the regional day-ahead capacity calculation process on D-2	A) DA Leftovers: CZCs leftover after SDAC allocations. These CZCs are extracted based on the regional day-ahead capacity calculation process on D-2	a) DA Leftover: CZCs leftover after SDAC allocations. These CZCs are extracted based on the European wide D-2 CGM (for IDA1)
IDA 2	b) CZCs will be leftovers for IDA go-live but target is to re-assess the CZCs based on D-1 CGM according to Nordic CCM.	B) Leftover CZCs C) Re-calculated CZCs D) Re-assessed CZCs	b) IDCC(b): Calculated ID CZC based on D-1 CGM and last info on cross-zonal exchanges (market point)	c) CZCs for ID calculated as day-ahead left-over ATC without virtual capacities d) CZCs for ID calculated as IDA1 left-over	b) "re-assessed" based on regional D-1 CGM.	b) Re-calculated ID CZC (IDCC1): 1st run of regional intraday capacity calculation process (22:00h D-1). This process was implemented in March 2022	A) Leftovers: CZCs leftover after SDAC allocations and previous IDC/IDA allocations. These CZCs are extracted based on the regional day-ahead capacity calculation process on D-2	b) Re-assessed based on regional D-1 CGM (for IDA2) .This process was implemented in October 2021
IDA 3	c) CZCs will be leftovers for IDA go-live but target is to re-assess the CZCs based on ID CGM according to Nordic CCM.	B) Leftover CZCs C) Re-calculated CZCs D) Re-assessed CZCs	c) Until Mar 26: ID capacities available for continuous trading in XBID at 9:40 will also be used for IDA3 until IDCC(d) is implemented d) Expected Mar 26 – IDCC(d): CZC is calculated based on ID CGM and last info on cross-zonal exchanges (market point)	e) CZC re-assessed based on regional ID CGM	c) "re-assessed" based on regional ID CGM.	c) Re-calculated ID CZC (IDCC2) : 2nd run of regional intraday capacity calculation process (10:00h D) Pending implementation	A) Leftovers: CZCs leftover after SDAC allocations and previous IDC/IDA allocations. These CZCs are extracted based on the regional day-ahead capacity calculation process on D-2	c) Re-assessed based on regional ID CGM (for IDA3) This process was implemented in October 2022

* For IBWT the target model is under CCR consideration

Capacity Calculation Region Baltics

Possible Capacity Calculation Approaches for IDAs and respective status

- Intra-Day cross-zonal capacities based on Day-Ahead „left-overs“ **initially*** indicated for all borders and all IDAs.
    - Updated in accordance with Intraday capacities and IDA.
- „The Capacity calculation approach for IDAs in the Baltic CCR can change in the first half of 2025 related to implementation o methodology“

Capacity Calculation Region Core
Possible Capacity Calculation approaches for IDAs and respective status

Capacity Calculation Approaches for IDAs and respective status

- Legal basis: ACER decision Mar 7 2024 on 2nd and 3rd amendment to the Core ID CCM
- IDCC(a) process is the input for IDA1 and based on DA leftovers

  a) Updated CZC after DA market coupling: ID ATCs are extracted from the D-2 common grid model at DA market clearing point, but with different parameters for virtual capacities. The parameter settings for virtual capacities are the discretionary right of every Core TSO and a complete removal of virtual capacity is allowed.

  b) For AT borders, it is expected that the capacities will be 0 as long as the inclusion of ID trades until 16:00 in the DACF is not properly implemented.

- IDCC(b) process is the input for IDA2. It concerns a flow-based re-calculation of capacities using the D-1 common grid model from the DA security analysis as starting point, integrating the latest information on cross-zonal exchanges (the market point) and extracting ID ATCs from it.
- For IDA 3 there will be an evolution over time:

  c) Until ~Mar 26: ID capacities available for continuous trading in XBID at 9:40 will also be used for IDA3

  d) From ~Mar 26 onwards the IDCC(d) process will determine the CZC for IDA 3. It concerns a flow-based re-calculation of capacities using an Intraday common grid model as starting point, integrating the latest information on cross-zonal exchanges (the market point) and extracting ID ATCs from it

Capacity Calculation Region GRIT

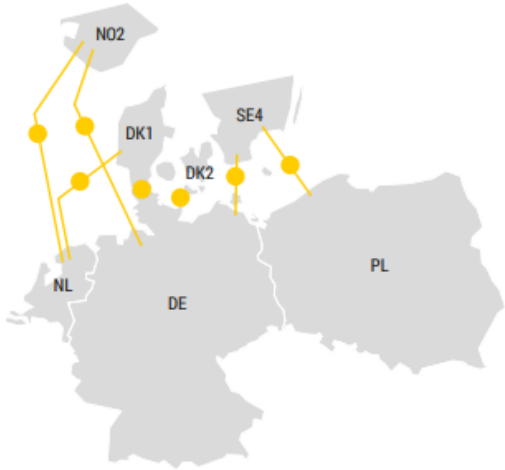
Possible Capacity Calculation Approaches for IDAs and respective status

- Intra-Day cross-zonal capacities based on Day-Ahead „left-overs“ initially* indicated for all borders for IDA1.
- For IDA2: "re-assessed" based on regional D-1 common grid model.
- For IDA3: "re-assessed" based on regional ID common grid model.

Capacity Calculation Region Hansa

Possible Capacity Calculation Approaches for IDAs and respective status

- As indicated in the 2023 Market Report: ID(A) CZCs are recalculated for DK2-DE/LU for all applicable MTUs and are re-assessed for all other CCR Hansa bidding zone borders by the RCCs once updated ID common grid models are available.
- For ID(A) go-live, A), B) and C) are going to be used, whereas A) might be considered exclusively for IDA1 at DE/DK1 as an option. Option D) is aimed at being implemented in the future for IDAs 2 and 3. For now, updated D-1 and ID common grid models will not yet be available, and hence CZCs are leftovers (if possible) based on D-2 common grid model for bidding zone borders other than DK2-DE/LU.
- Terminology explanations:
  - A) no CZCs (if existing derogation is applicable)
  - B) Leftover: CZCs leftover after SDAC allocations. These CZCs are based on the European wide D-2 CGM
  - C) Re-calculated: e.g. for DE/LU-DK2 capacities are re-calculated every 15 min. and updated every 60 min., based on the latest wind forecast.
  - D) Re-assessed: CZCs are based on new regional D-1 CGM (for IDA2) and ID-CGM (for IDA3) and the SDAC allocations + latest SIDC allocations
- SE4-DE will have no capacities due to Baltic cable not going live at this time



Capacity Calculation Region IBWT

Possible Capacity Calculation Approaches for IDAs and respective status

- For IDA 1 the following approaches can be applicable:

  a) no CZCs. For AT borders, it is expected that the capacities will be 0 as long as the inclusion of ID trades until 16:00 in the DACF is not properly implemented.

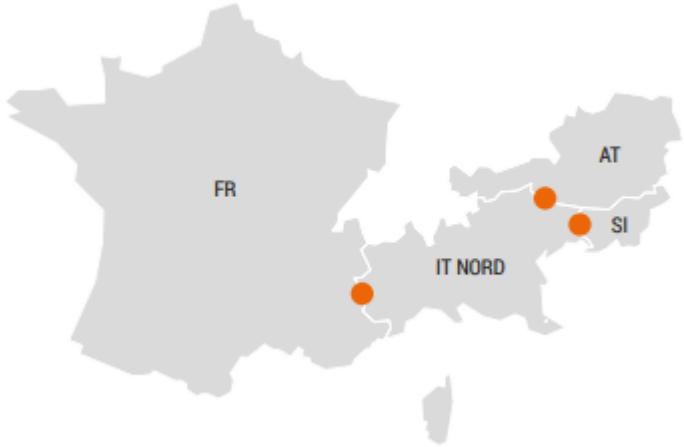
  b) Updated CZC after DA market coupling: CZCs for ID calculated as day-ahead left-over available transfer capacity without virtual capacities

- For IDA2(*):

  c) CZCs for ID calculated as day-ahead left-over available transfer capacity without virtual capacities

  d) CZCs for ID calculated as IDA1 left-over

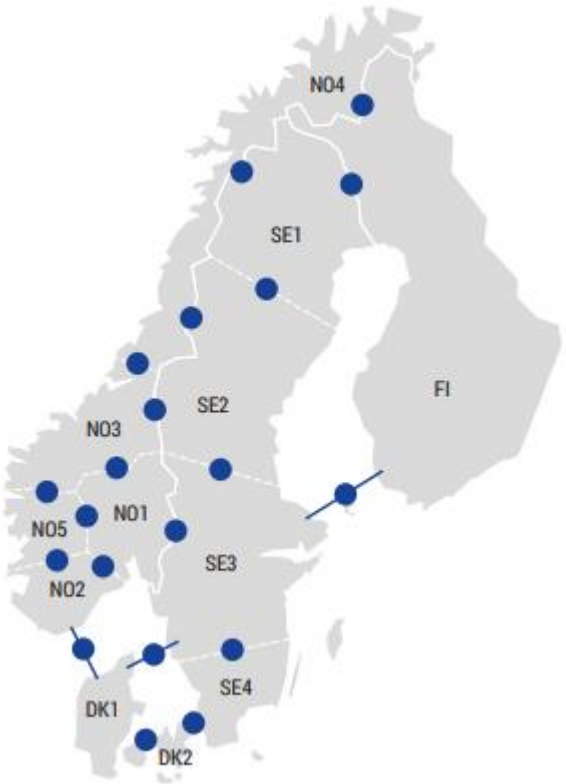
- For IDA3: CZC re-assessed based on regional ID common grid model



Capacity Calculation Region Nordics

Possible Capacity Calculation Approaches for IDAs and respective status

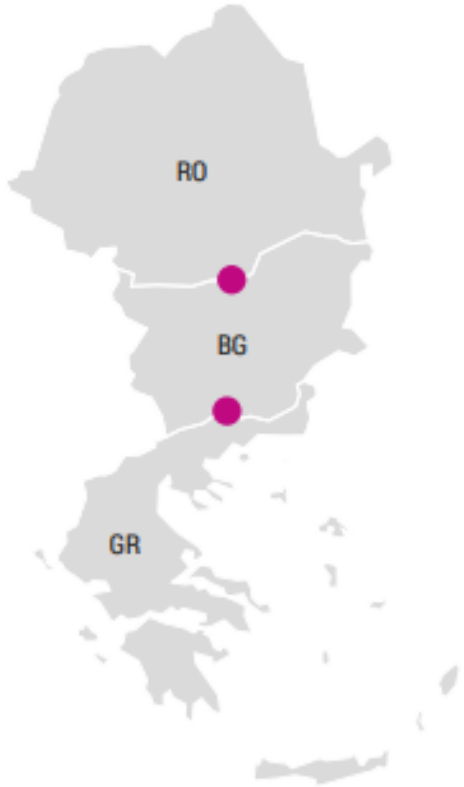
- For IDA1 the CZCs are leftovers based on D-2 common grid model and an extraction taking into account the SDAC allocations.
- For IDA2 CZCs will be leftovers for IDA go-live but target is to re-assess the CZCs based on D-1 common grid model according to Nordic capacity calculation methodology.
- For IDA3 CZCs will be leftovers for IDA go-live but target is to re-assess the CZCs based on ID common grid model according to Nordic capacity calculation methodology.



Capacity Calculation Region SEE

Possible Capacity Calculation Approaches for IDAs and respective status

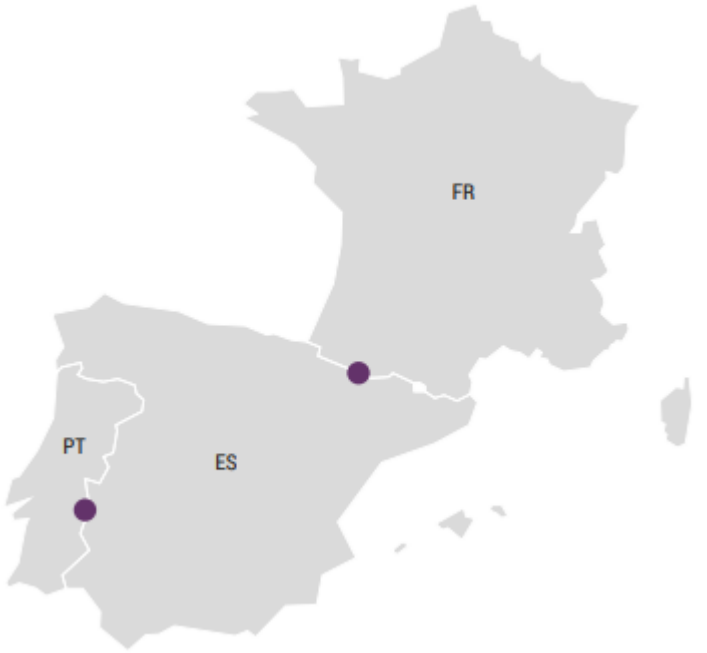
- Intra-Day cross-zonal capacities based on Day-Ahead „left-overs“ **initially*** indicated for all borders for IDA1.
- For IDA2: "re-assessed" based on regional D-1 common grid model.
- For IDA3: "re-assessed" based on regional ID common grid model.



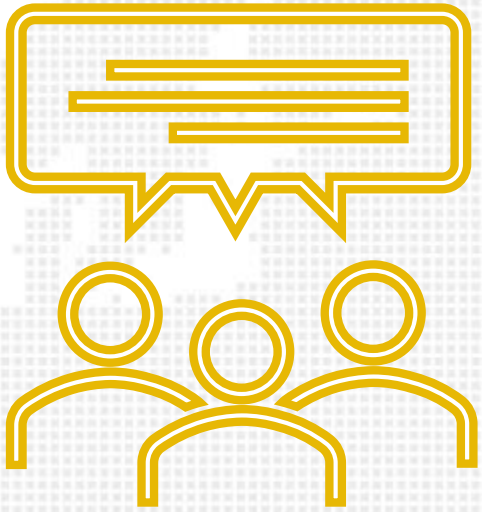
Capacity Calculation Region SWE

Possible Capacity Calculation Approaches for IDAs and respective status

- Intra-Day cross-zonal capacities based on Day-Ahead „left-overs“ indicated for all borders for IDA1.
- Intra-Day cross-zonal capacities based regional IDCC1 indicated for all borders for IDA2.
- For IDA3: SWE CCR target objective is to have a recalculation for IDA3, based on IDCC2 process (pending implementation). Unless final go-live date of IDCC2 is reached before IDA go-live, IDA3 cross-zonal capacities will be based on IDCC1 “left-overs” after ID



QUESTIONS AND ANSWERS



COFFEE BREAK

Market Coupling Steering Committee

6. Scenarios Of The Trial Period

Vladimir Satek, Jean-Michel Reghem

SIDC QARM co-conveners

SIDC Intraday Auctions (IDAs)

List of scenarios (1/2)

Market Coupling Steering Committee

Scenario to be executed in Member testing	Descriptions
• 1) Normal day / session	Operation of the IDA session without any deviation from the normal process. All steps of IDA session are completed successfully **in line with the timings (durations) set out in the regulation**. For the purpose of testing the starting and ending time of IDAs can deviate from production timing – see also slides on Timings for IDAs (section 8) – this is applicable for all scenarios. **Purpose:** MPs to validate submission of orderbooks, and reception of results during standard IDA process.
• 3) Cancellation in advance of IDA1 due to SDAC issues	Cancellation in advance implies that the IDA1 session is not started, however, the **backup possibility exists**. As a consequence, the **X-border continuous trading for related contracts will be reopened in line with local/regional procedures**. **Purpose:** MPs to validate internal processes related to the re-assignment of the internal portfolio from IDAs to Continuous Market (depending on internal strategy of each MP).
• 4) Cancellation of IDA in advance - Unavailability of XBID	Cancellation in advance implies that the IDA session is not started, **and** the **backup possibility does not exist**. **Purpose:** Though this is an unlikely scenario, it may happen, e.g. in case of exceptional maintenance of central systems or another exceptional situation. In such a case MPs shall search for the mitigation outside of SIDC.
• 18) TSO not able to validate IDA Results (XBID down)	There may be a specific situation in which XBID will not be able to validate IDA result. **The rejection of the results applies to all market/delivery areas**. **Purpose:** MPs will learn only at the end of the IDA coupling process that it is not successful. MPs shall test application of the mitigation measures after reopening of Continuous trading.

SIDC Intraday Auctions (IDAs)

List of scenarios (2/2)

Market Coupling Steering Committee

Scenario to be executed in Member testing	Descriptions
• 10) Missing Order Books at Orderbook Gate Closure Time - Partial decoupling	Operation of the IDA session is held only for Portuguese, Spanish, Italian and Greek market areas (if missing OBK is not coming from any of those areas, otherwise related area is also decoupled). The other market areas are decoupled, and the local/regional processes are applied. All steps for afore mentioned delivery are completed successfully **in line with the timings (durations) set out in the regulation, however, the liquidity may be impacted**. **Purpose:** MPs in Portugal, Spain, Italy and Greece test normal process with a potential impact on the liquidity and processing timing. MPs in other delivery/market areas encounter similar situation as in the previous scenario.
• 4a) Partial decoupling in advance	Operation of the IDA session without any deviation from the normal process for MPs which are not impacted by the partial decoupling in advance (partial decoupling in advance may be e.g. due to maintenance of one of the NEMOs, hence impacted NEMO will not participate in the IDA). All steps of IDA session are completed successfully **in line with the timings (durations) set out in the regulation with exception of MPs of the impacted NEMO**. **Purpose:** MPs to validate submission of orderbooks, and reception of results during standard IDA process of MPs which are not impacted by NEMOs unavailability. Depending on the NEMOs not being available, there might be impact on liquidity in specific delivery areas.
• 19) No IDA Global Final Confirmation (GFC) by deadline due to issue with CIP or PMB - manual opening (GFC received after deadline in PMB)	Operation of the IDA session being impacted by an internal issue, **without impact on market participants**. From MPs perspective, the ***Normal day / session scenario*** **applies but with a longer processing time (**GCT+27; see section - *Process irregularities***)**.
• 20) Negative GFC (XBID to revert allocations)	Operation of the IDA session being impacted by an internal issue, **with impact on market participants**. From MPs perspective, the behaviour is similar to scenario: ***TSOs not able to validate IDA Results*** .

Scenarios of the trial period

Main characteristics

Market Coupling Steering Committee

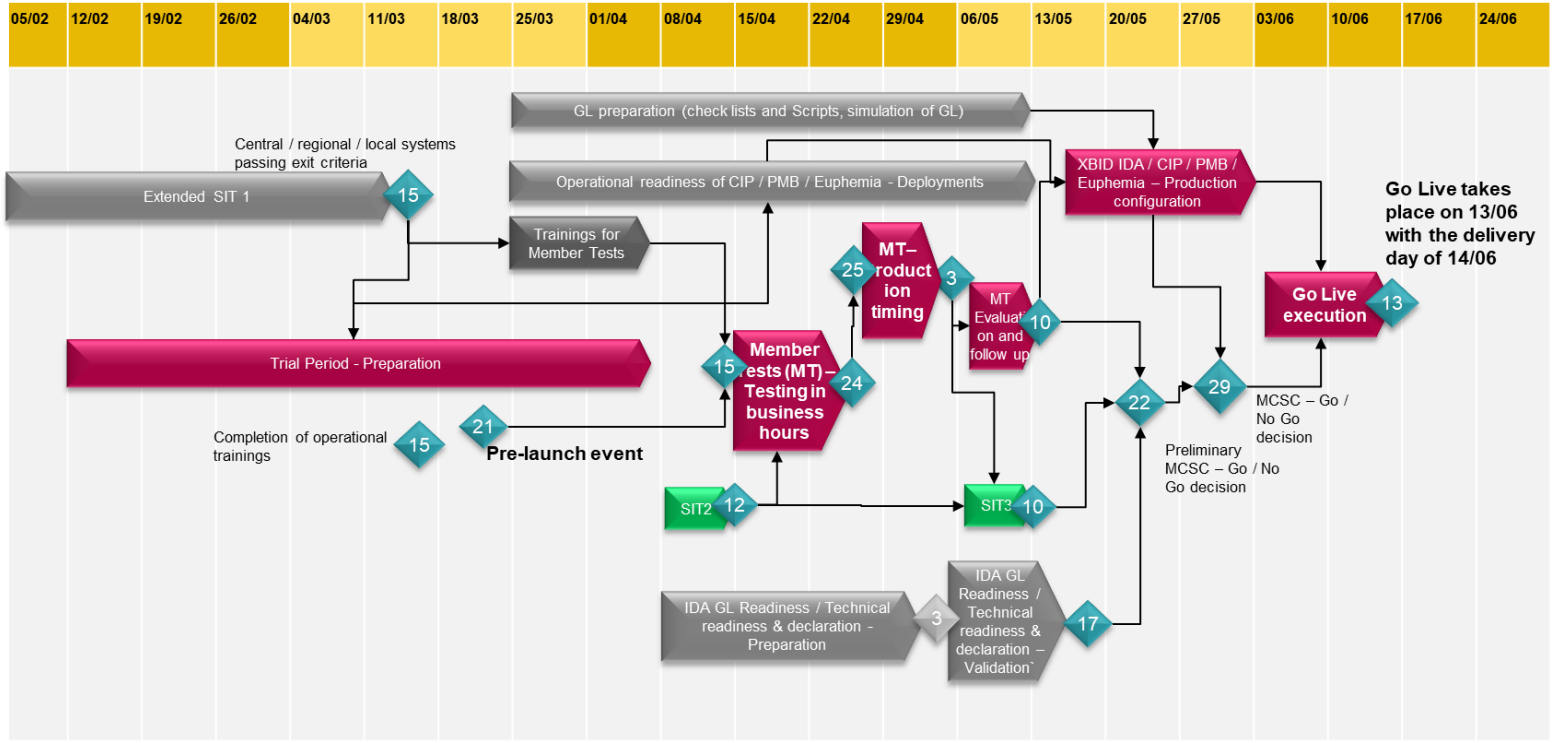
Scenario to be executed in Member testing	Expected result of the scenario for the market participants			
	IDA session is started as agreed time	**IDA session is completed at agreed time (for precise timing see the next section)**	**IDA results provided - (traded volumes & prices)**	**X-border continuous trading on hold during IDA session**
• 1) Normal day / session	Yes	Yes	Yes	Yes
• 3) Cancellation in advance of IDA 1 due to SDAC issues	No	N/A	N/A	No, depending on the regional arrangements
• 4) Cancellation of IDA in advance - Unavailability of XBID	No	N/A	N/A	N/A, there is no CT
• 18) TSOs not able to validate IDA Results (XBID down)	Yes	Yes	No	Yes
• 10) Missing Order Books at Orderbook Gate Closure Time - Partial decoupling	Yes	Yes	Limited (PT, ES, IT, GR) as long as these areas provide OBK	Yes
• 4a) Partial decoupling in advance	Yes	Yes	Yes, with exception of decoupled bidding zones	Yes
• 19) No IDA Global Final Confirmation (GFC) by deadline due to issue with CIP or PMB - manual opening (GFC received after deadline in PMB)	Yes	Yes	Yes	Yes
• 20) Negative GFC (XBID to revert allocations)	Yes	Yes	No	Yes

Summary:

- Wide range of scenarios are foreseen to be run (repeatedly) during member testing focused on the overall chain with the emphasis on the coupling phase.

Scenarios of the trial period

Basic organization



- **Member testing** are expected to take place for **3 weeks starting on April the 15th** with **two different timing arrangements**:
  - **Office hour timing: 15-19/04 and 22-24/04**
    - IDA3: 09:00
    - IDA1: 14:00
    - IDA2: 16:00
  - **Production like timing: 25-26/04 and 29/4-03/05**
    - IDA3: 10:00
    - IDA1: 15:00
    - IDA2: 22:00

Summary:

- Two approaches on the timing to support needs of all SIDC regions.
- Market parties will be able to participate in the member testing via the NEMO platforms.

Scenarios of the trial period

Application of scenarios per day/session

Market Coupling Steering Committee

			Test timing (OBK GCT in CEST (UTC+2))			Scenario		
Day	#	Date	IDA3	IDA1	IDA2	IDA3	IDA1	IDA2
Mo	6	15-Apr	-	14:00	16:00	N/A	1 - Normal Day	1 - Normal Day
Tu	7	16-Apr	9:00	14:00	16:00	1 - Normal Day	1 - Normal Day	1 - Normal Day
We	8	17-Apr	9:00	14:00	16:00	10 - Missing Order Books at OBK GCT - Partial decoupling	4a - Partial decoupling in advance	3 - Cancellation in advance of IDA 1 due to SDAC issues
Thu	9	18-Apr	9:00	14:00	16:00	16 - IDA Results rejected by NEMO (leads to automatic cancelation in CMM)	18 - TSOs not able to validate IDA Results (XBID down)	19 - No IDA GFC by deadline due to issue with CIP or PMB - manual opening (GFC received after deadline in PMB)
Fr	10	19-Apr	9:00	14:00	-	1 - Normal Day	1 - Normal Day	N/A
Mo	11	22-Apr	-	14:00	16:00	N/A	1 - Normal Day	1 - Normal Day
Tu	12	23-Apr	9:00	14:00	16:00	1 - Normal Day	1 - Normal Day	1 - Normal Day
We	13	24-Apr	9:00	14:00	16:00	2 - Cancellation of IDA in advance - Unavailability PMB & CIP	4 - Cancellation of IDA in advance - Unavailability XBID	20 - Negative GFC (XBID to revert allocations)
Th	14	25-Apr	10:00	15:00	22:00	N/A	1 - Normal Day	1 - Normal Day
Fr	15	26-Apr	10:00	15:00	-	10 - Missing Order Books at OBK GCT - Partial decoupling	3 - Cancellation in advance of IDA 1 due to SDAC issues	N/A
Mo	16	29-Apr	-	15:00	22:00	N/A	1 - Normal Day	1 - Normal Day
Tu	17	30-Apr	10:00	15:00	22:00	20 - Negative GFC (XBID to revert allocations)	10 - Missing Order Books at OBK GCT - Partial decoupling	19 - No IDA GFC by deadline due to issue with CIP or PMB - manual opening (GFC received after deadline in PMB)
We		1-May				N/A	N/A	N/A
Thu	18	2-May	10:00	15:00	22:00	1 - Normal Day	1 - Normal Day	1 - Normal Day
Fr	19	3-May	10:00	15:00	-	1 - Normal Day	1 - Normal Day	

- Note that it may be updated prior Trial Period.

Capacity for Trial Period *

- **Approach**
- Main goal is to provide during Trial Period **realistic** ID capacities (as provided at go live – see previous section)
- However, limitations of test systems do not always allow to provide ID capacity production (or parallel run) data for the same business day
  - Core regions: 4-5 representative days will be selected from parallel run (https://parallelrun-publicationtool.jao.eu/coreID/) and used to feed capacities for the trial Period.
  - For other borders, ID capacities calculated from production in D-1 or D-2 will be used.
  - In cases TSOs cannot provide capacity on one border (because of parallel testing for other projects), default non-zero capacities will be provided in the system, in order to ensure IDA and continuous trading allocations on these borders.
  - Depending on the border and the expected left-over/reassessments/recalculation process planned at go live, capacities could be updated before IDA2 and/or IDA3. If not, leftover of previously provided capacity would be reused for next IDAs.
  - After each IDA, leftovers will be available for continuous trading purpose as in production.

- Note that it may be updated prior Trial Period.

Market Coupling Steering Committee

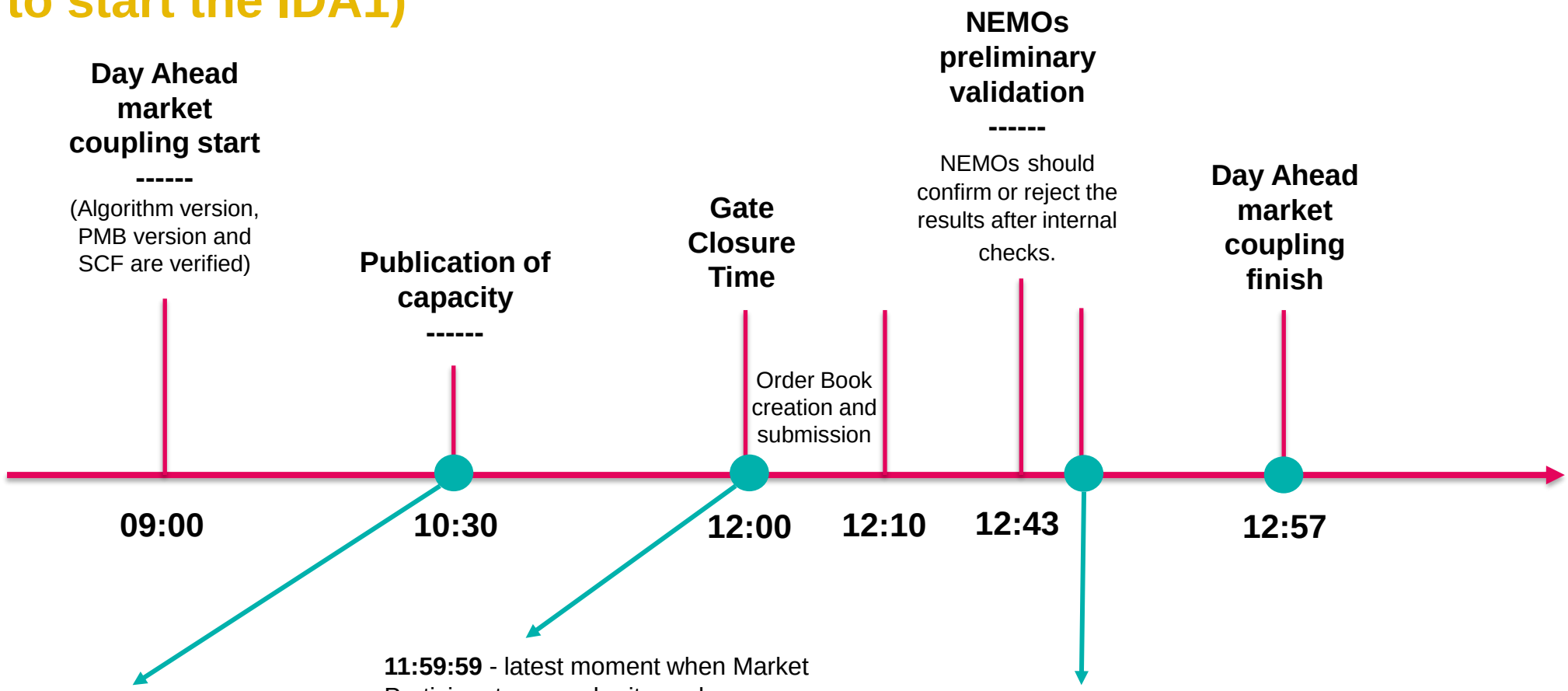
7. IDAs Daily Operational Process From Market Parties' Perspective

Jaime Ponz Garcia Comendador

SIDC OPSCOM co-chair

Auction process timing for the Day Ahead (prior to start the IDA1)

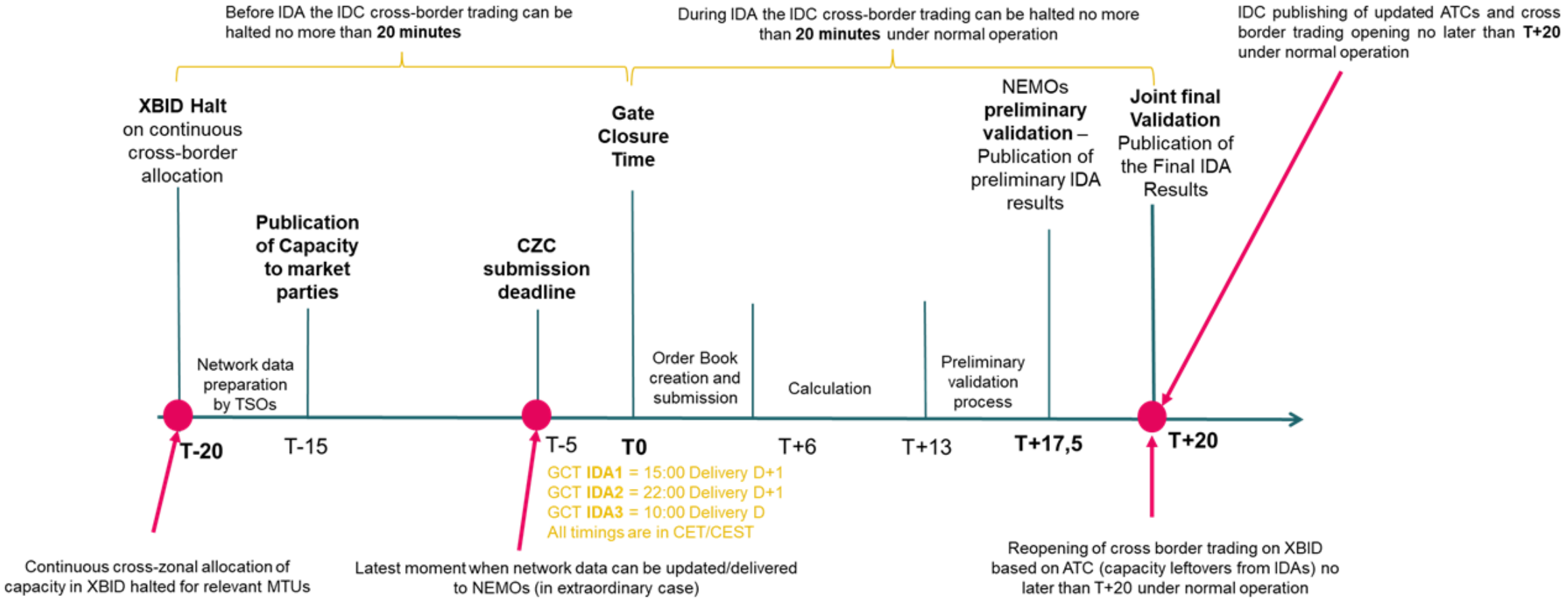
Market Coupling Steering Committee



NOTE: All times provided in the timeline are in CET (Central European Time)

Auction process timing (for any of the three IDAs)

Market Coupling Steering Committee



Process Clarification

IDAs Daily Operational Process From Market Parties' Perspective

- GCT → Is the latest moment when Market Participants can submit an order to participate in the ongoing IDA session.
  - GCT IDA 1 = 15:00 Delivery day D+1
  - GCT IDA 2 = 22:00 Delivery day D+1
  - GCT IDA 3 = 10:00 Delivery day D

- T+17,5 → Market participants will have the results available related to the ongoing IDA session.

Market Coupling Steering Committee

8. Three Timings for IDAs, Existing Products & Order Types (MTUs)

Jaime Ponz Garcia Comendador

SIDC OPSCOM co-chair

Timings for IDAs

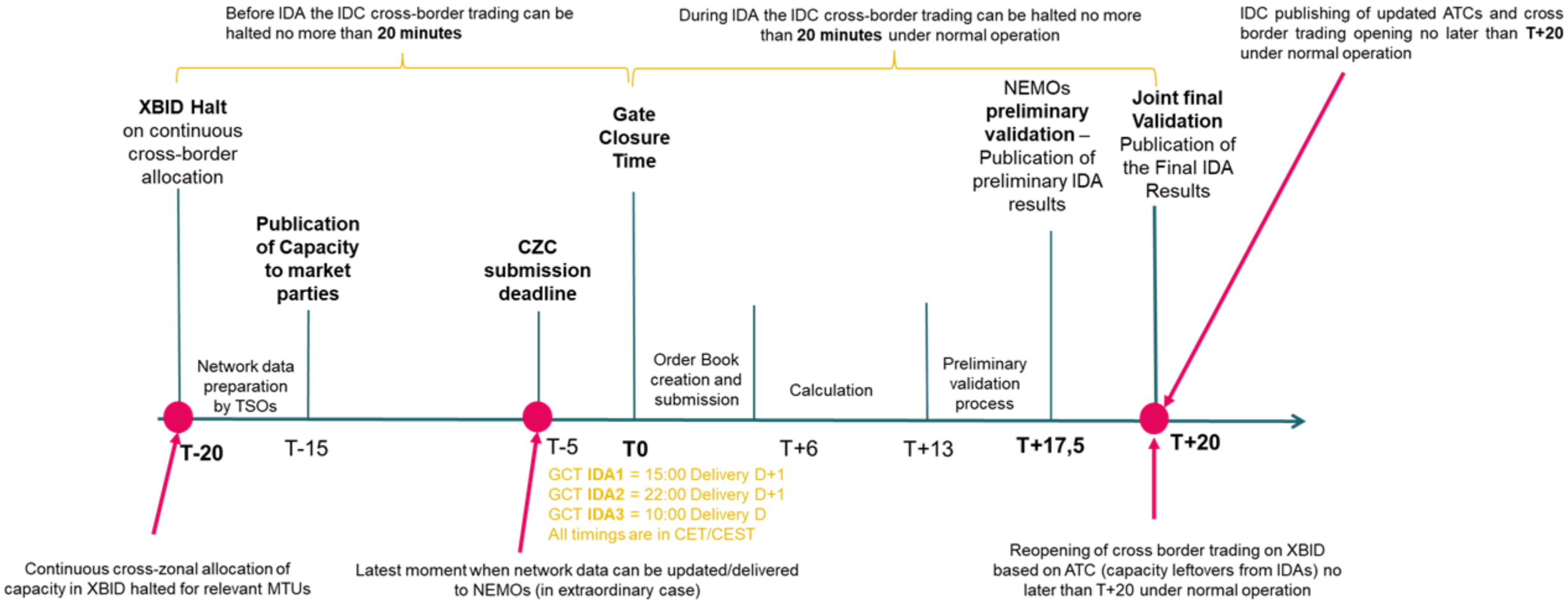
- The IDA overall solution should be able to support the 3 mandatory IDAs required by Algorithm Methodology (will be configurable)
  - IDA1: Gate Closure Time for market parties at D-1 15h. Allocated period D [0h-24h]
  - IDA2: Gate Closure Time for market parties at D-1 22h. Allocated period D [0h-24h]
  - IDA3: Gate Closure Time for market parties at D 10h. Allocated period D [12h-24h]

- Capacity data
  - In the period where Flow Based allocation is not supported by Intraday continuous trading (IDC - XBID platform), IDA will run in ATC-mode. As soon as IDC could support Flow-based allocation in production, IDA should also support FB allocation.

- Losses
  - It may be allowed to apply loss factor in IDA prior to losses being implemented in continuous trading it is however not expected as of IDA go-live

Auction process timing (for any of the three IDAs)

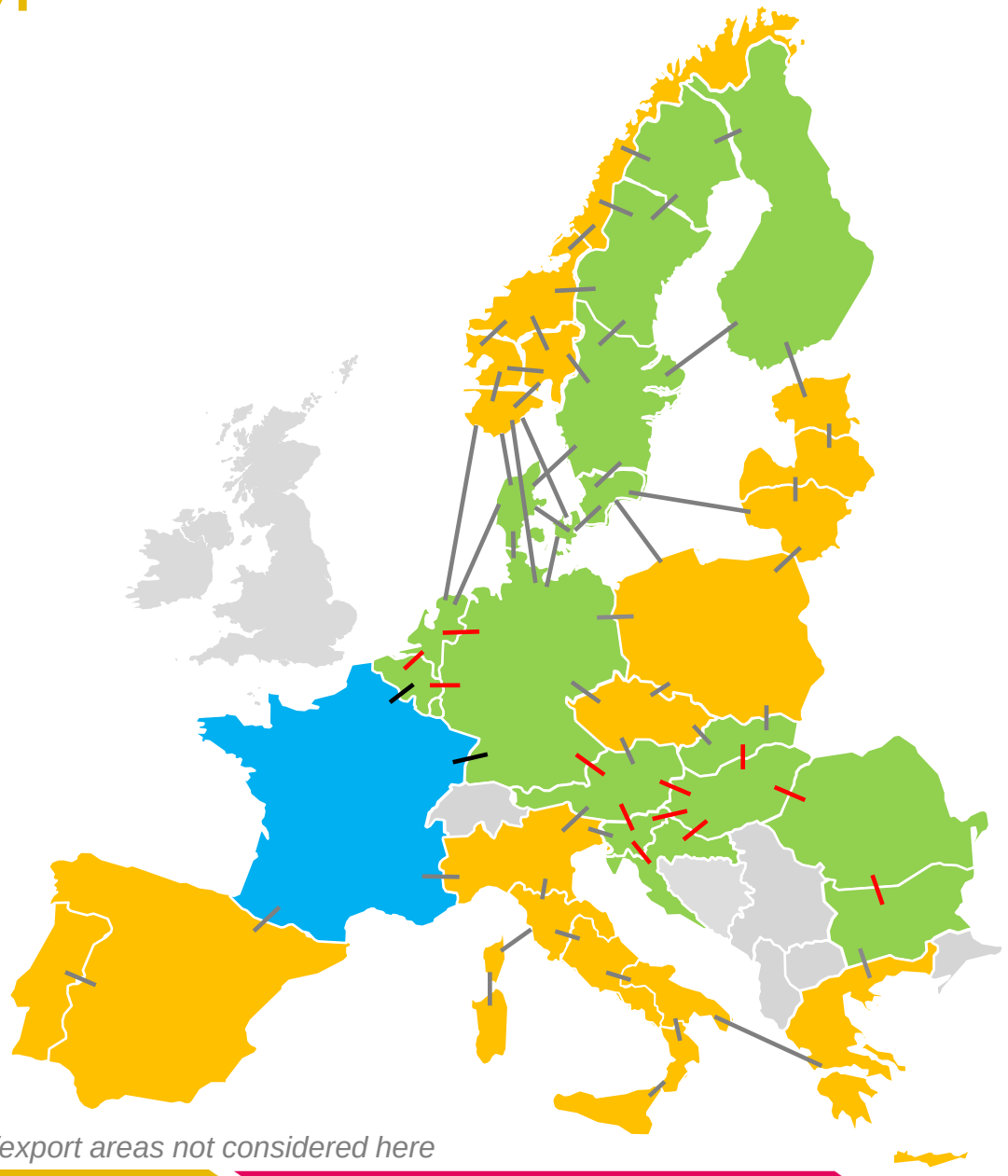
Market Coupling Steering Committee



Products & Order Types

Q2 2024 (working assumption)

Market Coupling Steering Committee



- 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

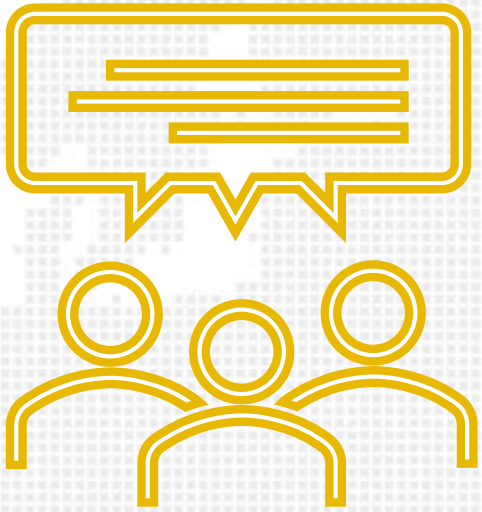
AT, BE, BG, FR, DE, NL, SI, SK areas will have to manage several BZB resolutions

note: import/export areas not considered here

Products & Order Types

- Solution supports hourly, half-hourly and quarter-hourly products
- Simple orders of **only one time resolution will be allowed in each BZ** for IDAs Go-Live
- Additional order types to be supported as of Go-Live by NEMOs are simple block order and Merit Order (PUN excluded)
  - **Merit Order**: Merit orders are individual step orders defined at a given period for which is associated a so-called merit order number. A merit order number is unique per period and order type (Demand; Supply) and is used for ranking merit orders in the bidding zones containing this order type. The lower the merit order number, the higher the priority for acceptance. More precisely, when, within an uncongested set of adjacent bidding zones, several merit orders have a price that is equal to the market clearing price, the merit order with the lowest merit order number should be accepted first unless constrained by other network conditions.
- Order types to be supported upon NEMO individual readiness are
  - **Linked block order**: Block orders can be linked together, i.e. the acceptance of individual block orders can be made dependent on the acceptance of other block orders. The block which acceptance depends on the acceptance of another block is called “child block”, whereas the block which conditions the acceptance of other blocks is called “parent block”.
  - **Exclusive group block order**: An Exclusive group is a set of block orders for which the sum of the accepted ratios cannot exceed 1. In the particular case of blocks that have a minimum acceptance ratio of 1 it means that at most one of the blocks of the exclusive group can be accepted. Between the different valid combinations of accepted blocks the algorithm chooses the one which maximizes the optimization criterion (social welfare)
  - **Scalable complex orders**: A Scalable complex order is a set of stepwise hourly orders (which are referred to as hourly sub-orders) belonging to a single market participant, spreading out along different periods and are subject to an economic condition that affects the set of hourly sub-orders as a whole

9. QUESTIONS AND ANSWERS



CLOSURE