Stakeholder Webinar | Cross-zonal Capacity Allocation (CZCA) Harmonised Methodology

5 July 2022

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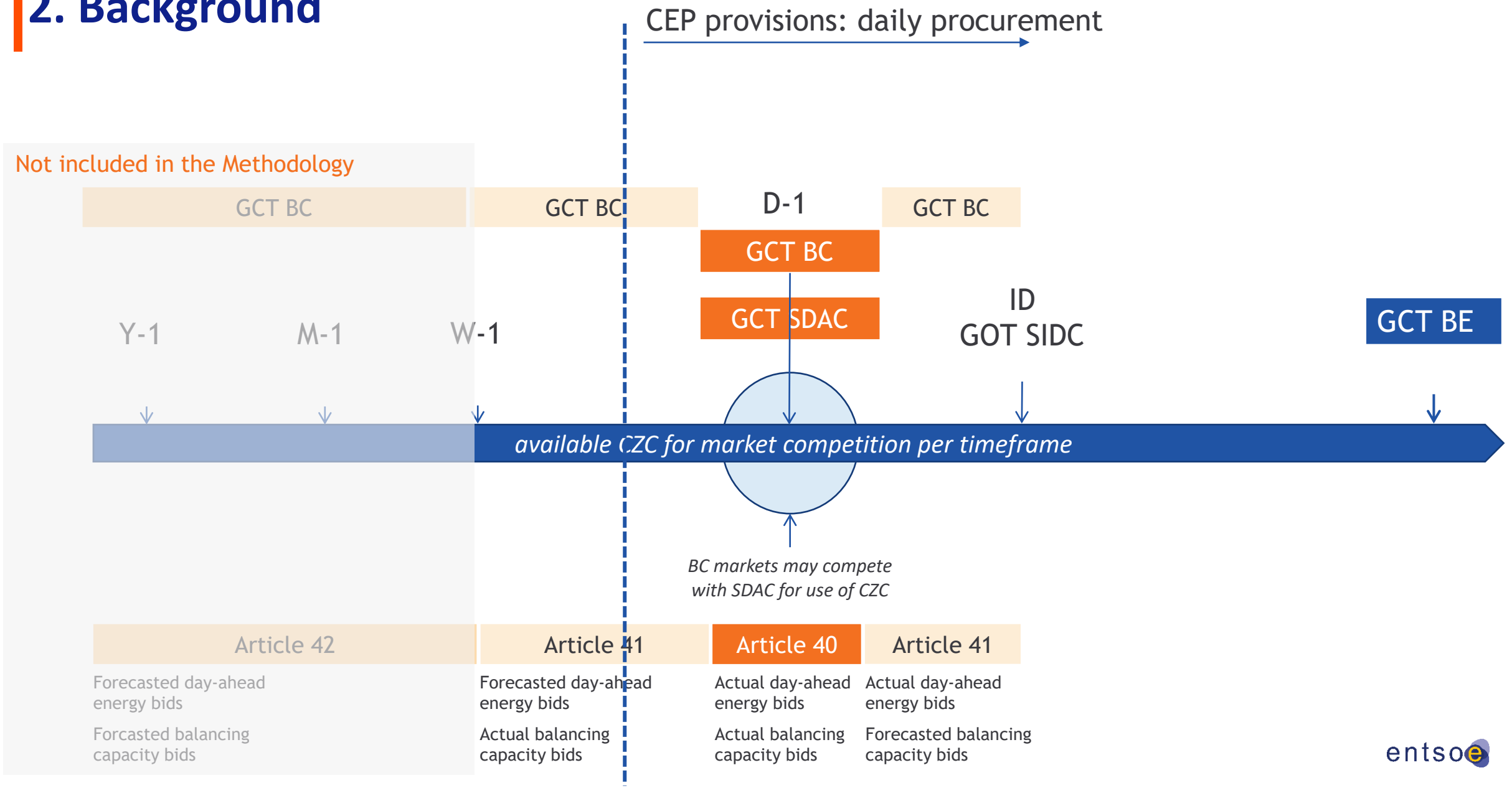
Outline

1. Introduction
2. Background
3. Relation to the CCR methodologies
4. Structure of the CZCA Harmonised Methodology
5. General principles for applications
6. Detailed processes
   a. Co-optimised allocation
   b. Inverted market-based
   c. Market-based
7. Next steps

1. Introduction

- Pursuant to EB Regulation Art. 38(3), by five years after entry into force of the EB Regulation, **All TSOs shall develop** a proposal to harmonise the methodology for the allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves per timeframe pursuant to Article 40 and, where relevant, pursuant to Articles 41 and 42.
- All TSOs have prepared the Cross-Zonal Capacity Allocation Harmonised Methodology and Explanatory Document for public consultation.
- All TSOs are **seeking input from all stakeholders** and market on the proposed methodology pursuant to EB Regulation Art. 38(3) and have prepared the Cross-Zonal Capacity Allocation (CZCA) Harmonised Methodology and Explanatory Document.
- As the proposal is subject to consultation in accordance with Article 10(2) of EB Regulation, the All TSOs are initiating this **open on-line consultation for a period of two months**.

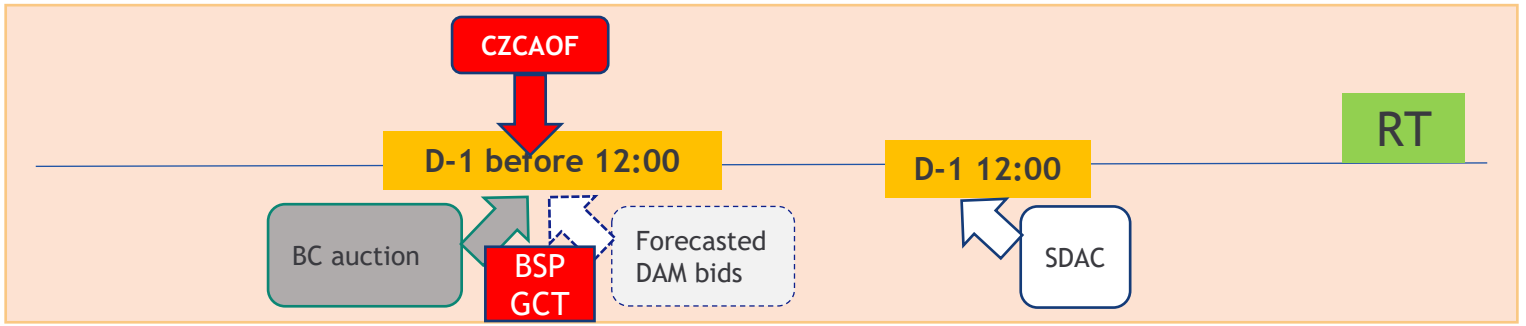
2. Background



2. Background

Market – based
(≤W-1 and >D-1)

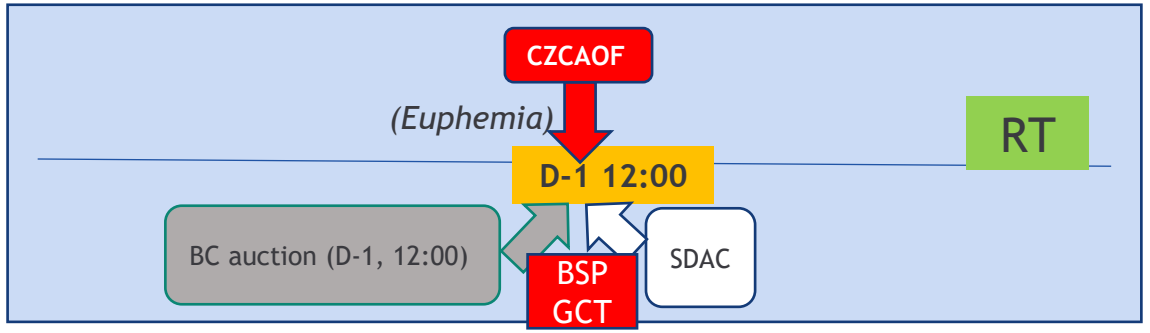
- **Forecasted** DAM bids
- **Real** balancing capacity (BC) bids



Market-Based approach: EB Regulation Article 41(3) requires the comparison of forecasted CZC market values for day-ahead energy exchange purposes, but actual CZC market values as based on firm BC bids and TSO BC demand. The GCT of the market-based is before GCT of DAM and the choice of allocation of CZC by the CZCAOF is performed at the different moment in time than SDAC EUPHEMIA.

Co-optimization
(D-1, 12:00)

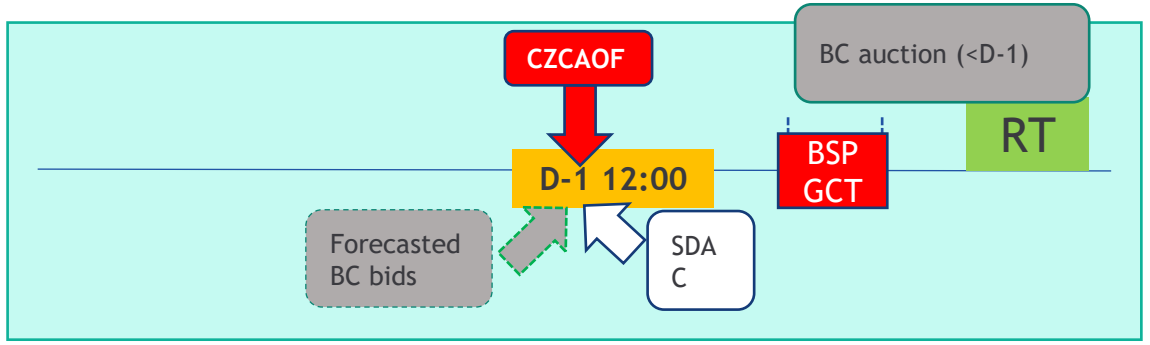
- **Real** DAM bids
- **Real** BC bids



Co-optimization apparoch: EB Regulation Article 40(2) requires the comparison of actual CZC market values based on firm day-ahead energy bids and firm BC bids and TSO BC demand. There is one gate closure time for both BCM and DAM: 1) SDAC EUPHEMIA: to maximize the social welfare DAM, 2) Capacity procurement optimization functions: to minimize BCM procurement cost, 3) CZCAOF: to splits the CZC while maximizing the total social welfare.

Inverted market – based
(after D-1, 12:00)

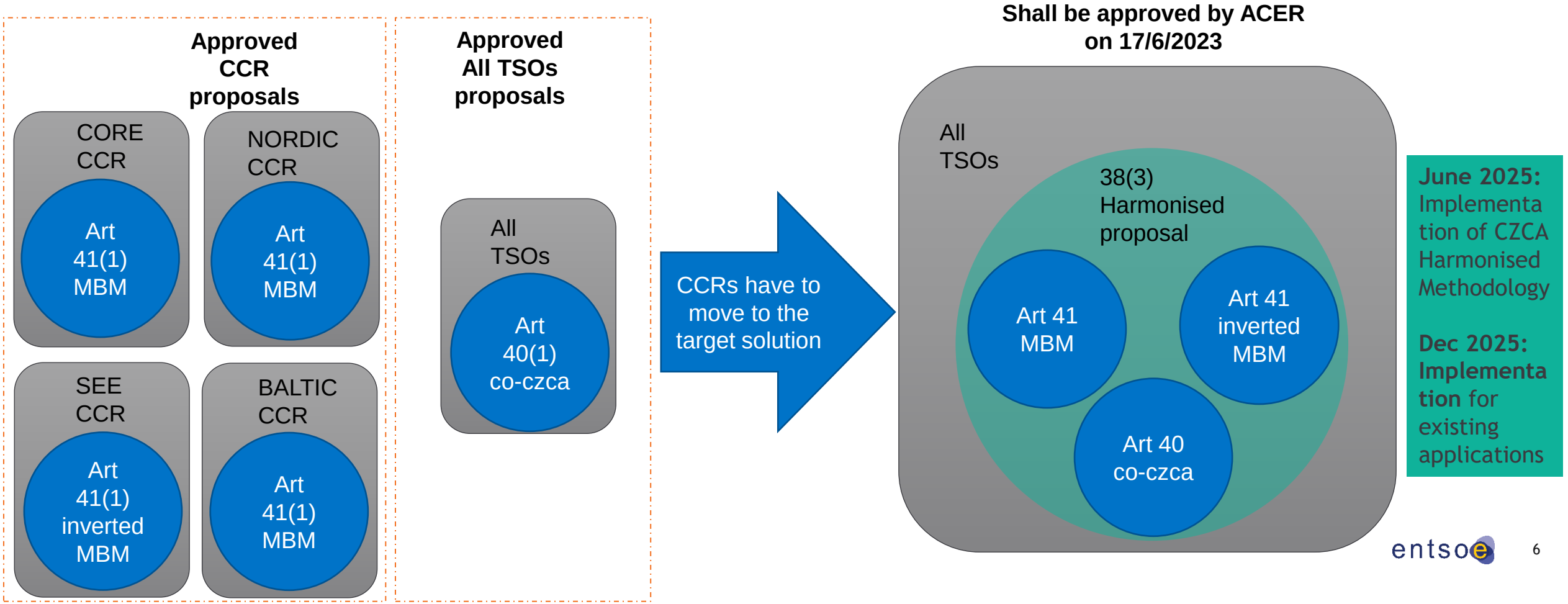
- **Real** DAM bids
- **Forecasted** BC bids



Inverted Market-Based approach: EB Regulation Article 41(3) requires the comparison of actual CZC market values based on firm day-ahead energy bids but forecasted CZC market values and actual TSO BC demand for BC exchange or sharing of reserves purposes. Cross-zonal capacity allocation optimization function (CZCAOF) splits the CZC between DAM and BCM while maximizing the total social welfare.

3. Relation of the harmonised methodology to the CCR methodologies

- The harmonised methodology will replace the current methodologies of the capacity calculation regions concerning the allocation of cross-zonal-capacity for balancing capacity / reserve sharing



3. Relation of the harmonised methodology to the CCR methodologies

Timeline of submission implementation and application

- The harmonised methodology will be **submitted** by all TSOs to ACER on 17th December 2022
- It is expected to be **approved** by ACER on 17 June 2023, and consequently replacing the current CCR methodologies (Ar.t 41(1)) and the co-optimised methodology from Art. 40(1)

- TSOs propose a **2 years implementation** timeline for the implementation of the tools required for the market-based allocation.
- In order to guarantee a smooth transition, already **existing applications** of CCR methodologies will have an additional **6 months** after the implementation deadline of the market-based allocation process of the harmonised methodology before these existing applications have to follow all new rules.
- CCRs that do not have an Art. 41(1) in place will be able to start **new applications** as soon as the harmonised methodology is implemented.

4. Structure of the CZC harmonised methodology

Whereas

TITLE 1: General provisions
Article 1: Subject matter and scope
Article 2: Definitions
Article 3: Economic Surplus
Article 4: Principles on the processes of allocating cross-zonal capacity for the exchange of balancing capacity or sharing of reserves
Article 5: Notification process for applying cross-zonal capacity allocation for the exchange of balancing capacity or sharing of reserves

TITLE 2: Methodology for the co-optimised allocation process
Article 6: The market timeframes of the co-optimised allocation process
Article 7: The process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves
Article 8: Determination of the actual market value of cross-zonal capacity for the exchange of energy in SDAC
Article 9: Determination of the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves
Article 10: Determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

Applicable to all timeframes

Timeframe of the co-optimized process

4. Structure of the CZC harmonised methodology

TITLE 3: Methodology for the inverted market-based approach

Article 11: Governance Structure of inverted market-based allocation
Article 12: The market timeframes of the market-based allocation
Article 13: The process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves
Article 14: Determination of the actual market value of cross-zonal capacity for the exchange of energy in SDAC
Article 15: Determination of the forecasted market value of cross-zonal capacity for the exchange o balancing capacity and sharing of reserves
Article 16: Determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves
Article 17: Determination of the allocated volume of cross-zonal capacity for the exchange of energy

Inverted Market-based Timeframe

4. Structure of the CZC harmonised methodology

TITLE 4: Methodology for the market-based allocation process

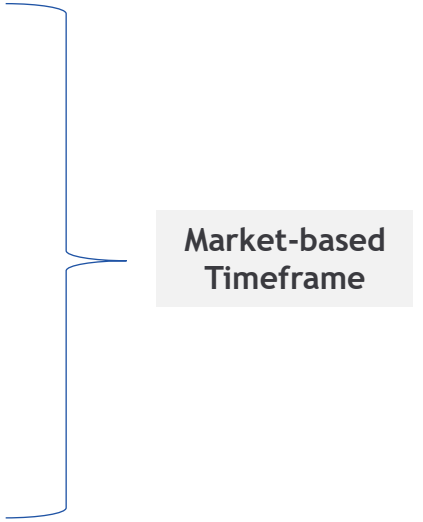
Article 18: The market timeframes of the market-based allocation

Article 19: The process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

Article 20: Determination of the forecasted market value of cross-zonal capacity for the exchange of energy

Article 21: Determination of the actual market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves

Article 22: Determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves



4. Structure of the CZC harmonised methodology

TITLE 5: Provisions of cross-zonal capacity
Article 23: Firmness regime for the allocation of cross-zonal capacity
Article 24: Pricing of cross-zonal capacity
Article 25: Sharing of congestion income from cross-zonal capacity

TITLE 6: Final provisions
Article 26: Implementation timeline
Article 27: Publication
Article 28: Language

Applicable to all timeframes

5. General principles for applications

1. Art. 38(1) in combination with Art 33 EB Reg.: One or more TSOs may apply together a CZC allocation process as part of the Harmonised Methodology at their own initiative or the request of their relevant NRA(s); and shall use a common and harmonised set of rules.
2. The Harmonised Methodology establishes a harmonised process for each application for the allocation of CZC for the exchange of BC or the sharing of reserves while optimising the total economic surplus of both SDAC and BC procurement.
3. Each application shall apply/use
    a. Only Standard Balancing Capacity Products (ACER Decision on SPBC: Annex I) ;
    b. Maximum price of SBCP = maximum DAM price for SDAC;
    c. One BSP-TSO gate closure time (GCT) for all SBCPs of a certain area;
    d. The contracting period of bids of SBCP shall be equal to or a multiple of DA MTU and not more than one day. (D-1 procurement)
4. Since the co-optimised and the inverted market-based allocation processes shall use the Euphemia algorithm and it was the intention to minimise the impact on this algorithm as much as possible, the requirements of SBCP were adapted to the maximum extent possible to the SDAC market rules:
    a. The settlement of the bids of SBCP shall be based on cross-zonal marginal pricing (pay-as-cleared);
    b. The validity period of the bids of SBCP shall be equal to the day-ahead MTU.

5. General principles for applications

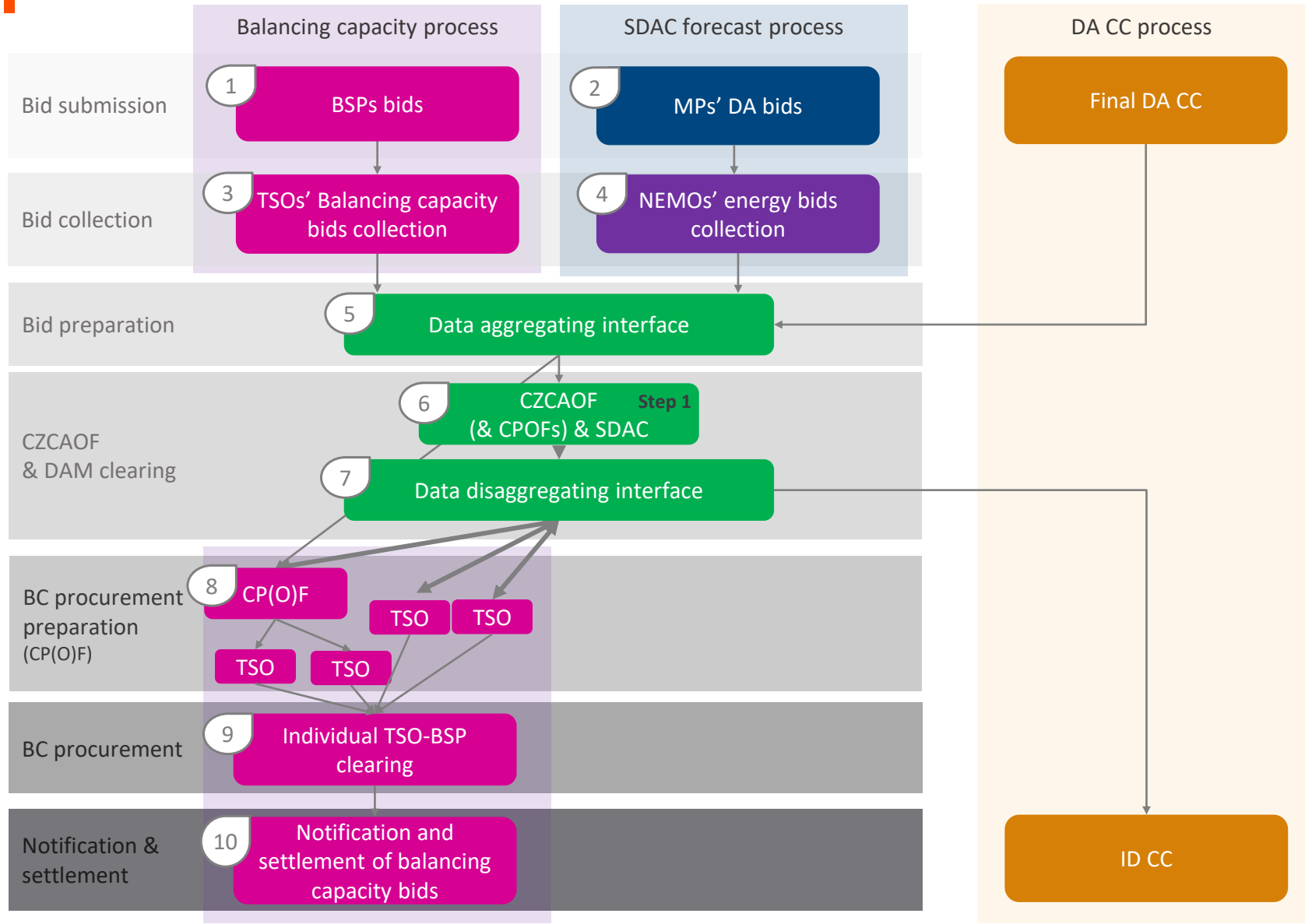
For market-based allocation, all TSOs propose:

1. to develop together a transparent IT solution of the Cross Zonal Capacity Allocation Optimisation Function (CZCAOF)
2. each application shall use this IT solution
3. Each application or set of applications can implement this IT solution themselves and build their ‘platform’ to operate the market-based allocation process;
4. As further explained on the next slides, DAM order books need to be forecasted in the market-based allocation approach. The forecast is an input to the CZCAOF.

6. Detailed processes

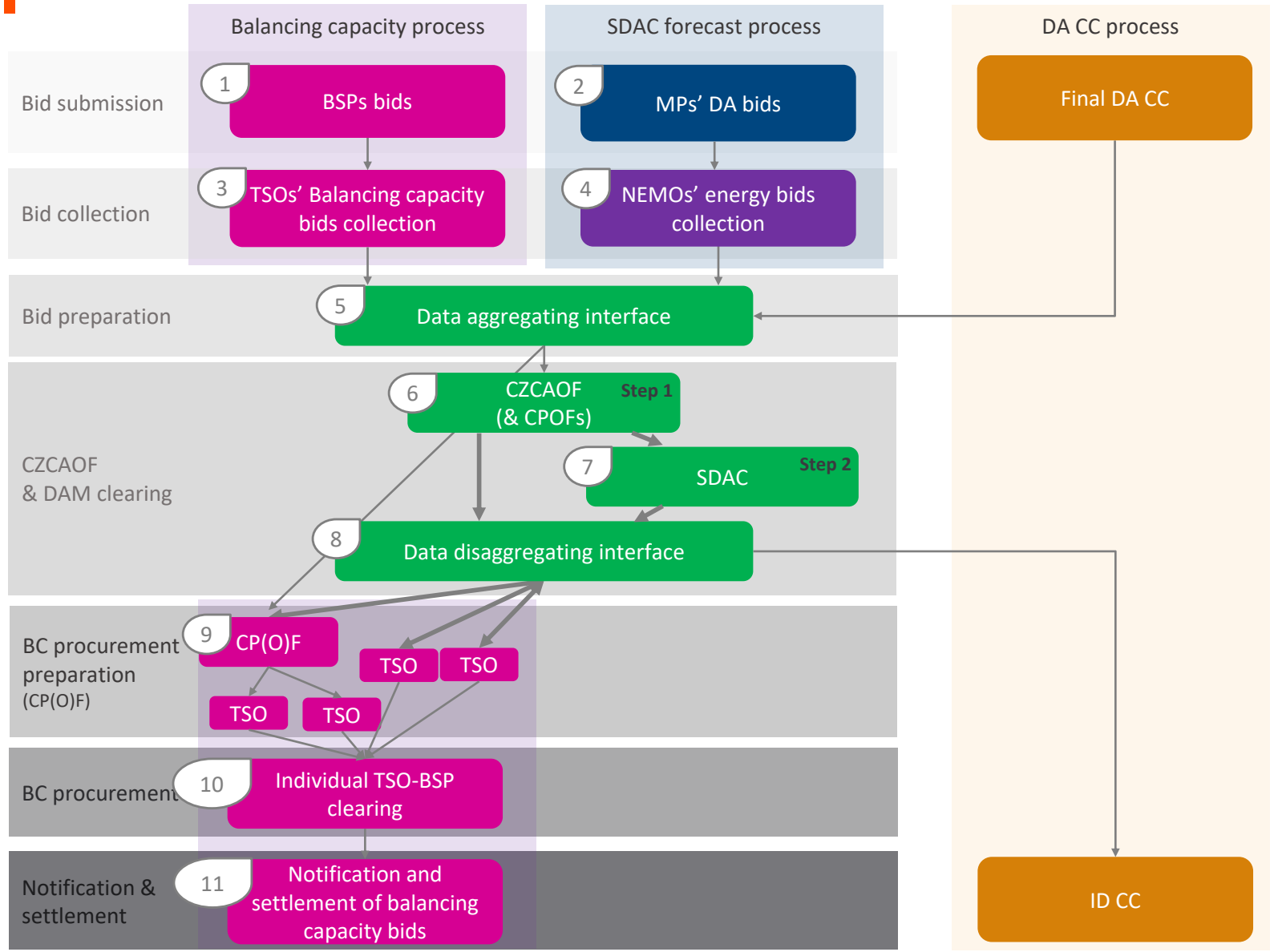
- The following slides provide a detailed process overview of the following processes:
  - co-optimised allocation
  - inverted market-based allocation
  - market-based allocation
- The three processes differ in the firmness of bids (c.f. slide 5):
  - The co-optimised allocation conducts the CZC allocation when both Balancing Capacity Market (BCM) bids and Day Ahead Market (DAM) bids are firm.
  - The inverted market-based allocation conducts the CZC allocation when Day Ahead Market (DAM) bids are firm but Balancing Capacity Market (BCM) bids are not yet firm.
  - The market-based allocation conducts the CZC allocation when Balancing Capacity Market (BCM) bids are firm but Day Ahead Market (DAM) bids are not yet firm.
- Forecasting:
  - In the inverted market-based allocation approach the balancing capacity offers need to be forecasted.
  - In the market-based allocation approach the DAM order books need to be forecasted.
- The inverted market-based allocation process is almost the same as the co-optimised allocation process and uses all of these functionalities except for the application of forecasted BCM bids.

6. Detailed processes – Co-optimised allocation (1-step)



1. BSPs submit BC bids to TSOs
2. NEMOs share order books
3. TSOs collect BC bids and TSO demand
4. NEMOs collect energy bids
5. Data aggregating interface collects all data from TSOs and NEMOs and sends the anonymised set of BCM/DAM bids to the CZCAOF and the CPOF.
6. CZCAOF optimises CZC allocation and determines binding prices and volumes of BC markets
7. Data disaggregating interface provides accepted and matched BCM/DAM bids to TSOs, NEMOs and to the forecast process
8. Individual TSOs or applications (CP(O)F) receive the procurement conditions and prepare procurement.
9. Each TSO procures in its own area the BCM bids
10. TSOs publish the results and settle the matched bids.

6. Detailed processes – Co-optimised allocation (2-step)



1. BSPs submit BC bids to TSOs
2. NEMOs share order books
3. TSOs collect BC bids and TSO demand
4. NEMOs collect energy bids
5. Data aggregating interface collects all data from TSOs and NEMOs and sends the anonymised set of BCM/DAM bids to the CZCAOF and the CPOF.
6. CZCAOF optimises CZC allocation and determines binding prices and volumes of BC markets
7. SDAC optimises DAM bids based on CZCAOF outcome.
8. Data disaggregating interface provides accepted and matched BCM/DAM bids to TSOs, NEMOs and to the forecast process
9. Individual TSOs or applications (CP(O)F) receive the procurement conditions and prepare procurement.
10. Each TSO procures in its own area the BCM bids
11. TSOs publish the results and settle the matched bids.

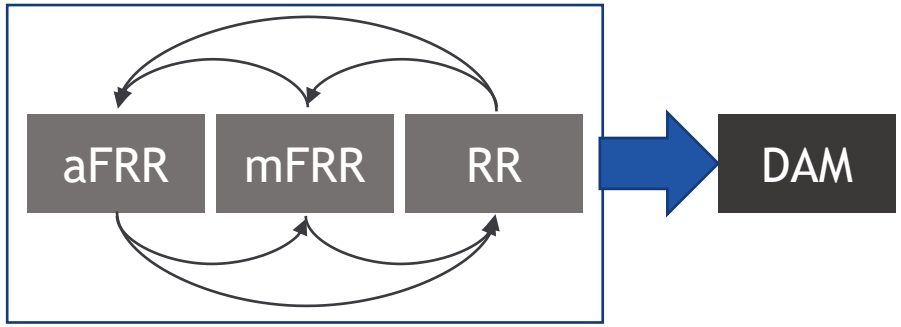
6. Detailed processes – Unilateral Linking (1/2)

General Background

- Cross-product linking is a linking-of-bids type by which the execution is related to different products (aFRR, mFRR, RR in each direction and Day Ahead Market).
- The aim of cross-product linking of bids is to prevent the sole choice to be made by BSPs or MPs to engage in only one market (out of six Balancing Capacity Markets (BCMs) and the Day Ahead Market (DAM)).*
  - → BSPs/MPs do not know if and where their bids are accepted before (all) market results are firm.
- Although generation units would have been offered if BSPs/ MPs knew that their bids were not accepted in the offered market, they are bound to one market without cross-product linking of bids.
  - → Co-optimised allocation approach without cross-product linking of bids would result in a most inefficient market bidding and market liquidity issues due to BSPs/MPs' ex-ante uncertainty.

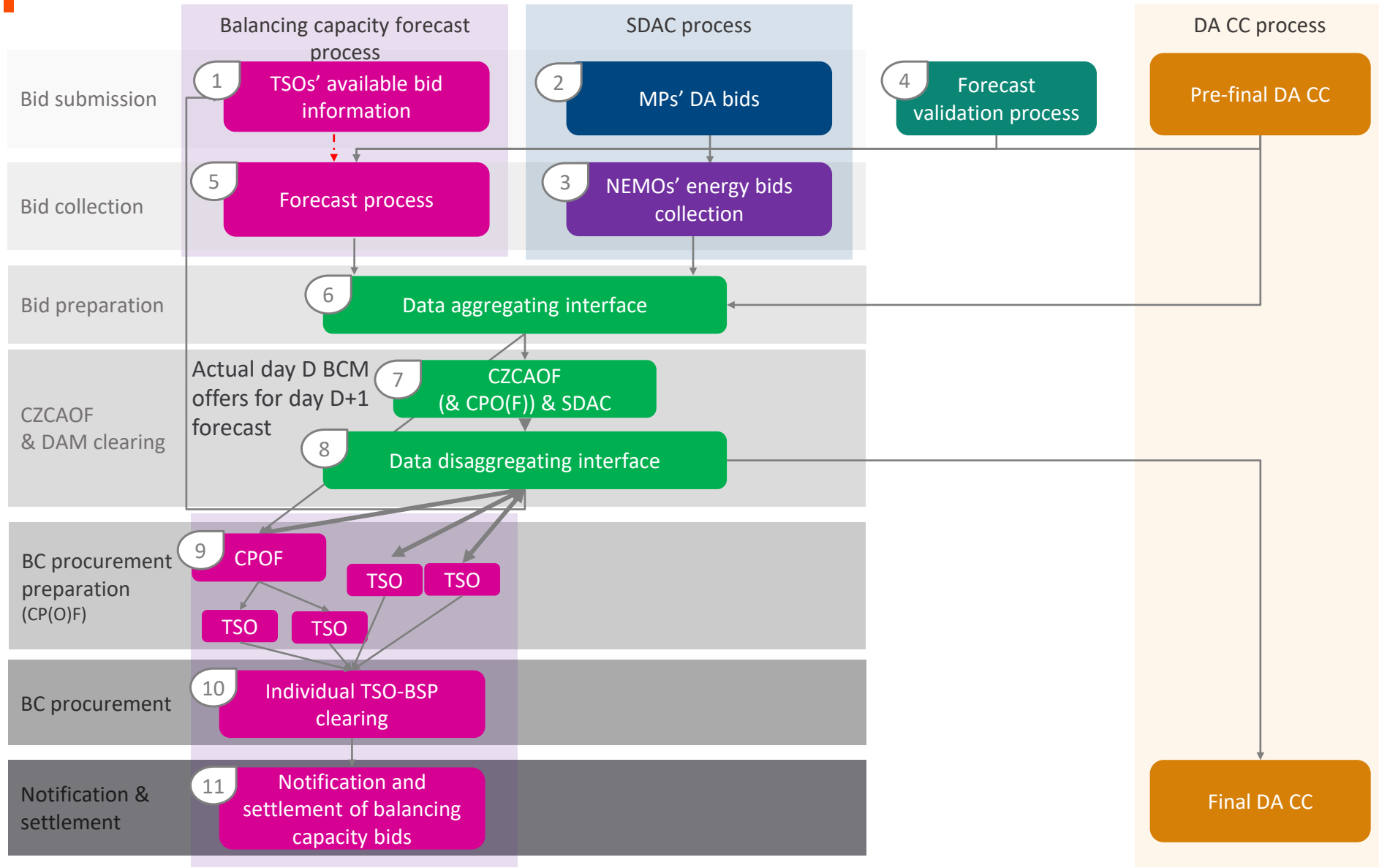
* One GCT for all products within the co-optimised allocation approach without cross-product linking of bids disables to resubmit liquidity by bids for other markets in case the bid is not taken in the market it was placed in.

6. Detailed processes – Unilateral Linking (2/2)



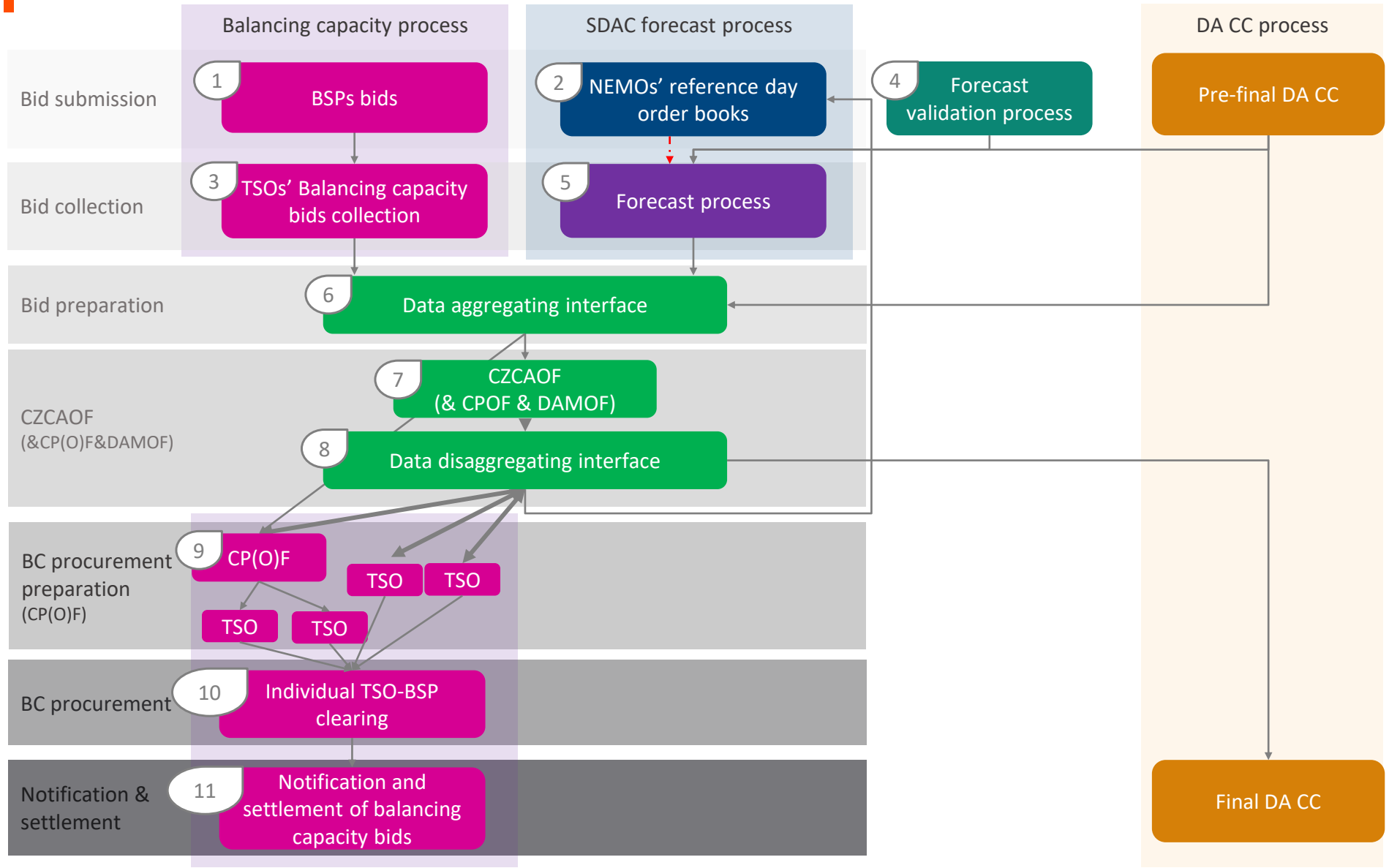
- Unilaterally linked bids can be transferred from the BCMs to the DAM in case the bids were not accepted due to a higher absolute bid price than the marginal price of the prior market (bid is not in the money).
- This requires a predefined prioritisation of the different market clearings.
- Linked bids which were accepted in a BCM of higher quality (aFRR>mFRR>RR) cannot be further considered in lower-quality BCMs.
- Not accepted bids that are linked to lower-quality bids shall be forwarded and enter the merit order with their price and volume for the lower-quality market as indicated by the BSP during provision of all of the bids.
- Linked bids not accepted in balancing markets can be transferred to the DAM in case this was indicated by the BSP/ MPs that offered the (linked) bids.
- Unilateral cross-product linking of bids can be applied in a one-step and in a two-step co-optimised allocation approach.

6. Detailed processes – Inverted market-based allocation



1. Forecasting entity uses reference day offers
2. TSOs provide BCM demand
   MPs submit DAM bids to TSOs
3. NEMOs collect DAM bids
4. RCCs validate the forecast and provide hints for improvement
5. Forecast entity prepares Balancing capacity offers and applies adjustment/mark-ups.
6. Data aggregating interface collects all data from TSOs, NEMOs and forecast entity and sends the anonymised set of BCM offers, BCM demand and DAM bids to the CZCAOF and the CPOF.
7. CZCAOF optimises CZC allocation
   And SDAC optimises DAM bids
8. Data disaggregating interface provides accepted and matched BCM/ DAM bids to TSOs, NEMOs and to the forecast process of D+1
9. Individual TSOs or applications (CP(O)F) receive the procurement conditions and prepare procurement.
10. Each TSO procures in its own area the BCM bids
11. TSOs publish the results and settle the matched bids.

6. Detailed processes – Market-based allocation



1. BSPs submit BCM bids to TSOs
2. Forecasting entity uses reference day order books
3. TSOs collect BC bids and TSO demand
4. RCCs validate the forecast and provide hints for improvement
5. Forecast entity prepares day ahead bids and applies adjustment/mark-ups.
6. Data aggregating interface collects all data from TSOs and forecast entity and sends the anonymised set of BC/DA bids to the CZCAOF and the CPOF.
7. CZCAOF optimises CZC allocation and determines binding prices and volumes of BC markets
8. Data disaggregating interface provides accepted and matched BCM/ DAM bids to TSOs, NEMOs and to the forecast process of D+1
9. Individual TSOs or applications (CP(O)F) receive the procurement conditions and prepare procurement.
10. Each TSO procures in its own area the BCM bids
11. TSOs publish the results and settle the matched bids.

7. Next steps

- **29 June - 29 August 2022**: public consultation
- **17 December 2022:** submission of the CZCA Harmonised Methodology by all TSOs to ACER
- **17 June 2023:** expected approval of the methodology of EB Regulation Art. 38(3) by ACER

Questions to Market Participants:

Slide added after the stakeholder webinar

Along with the general feedback to the Methodology and Explanatory document, the market participants are asked to provide specific feedback to the following questions:

1. Do you see the need for one unique BSP-TSO gate closure time (GCT) for all different applications of the market-based process, even if there is no interdependency?
2. Views on the timing overlap and interaction of the FCR co-operation and the BSP-TSO GCT of the market-based process
3. Views on the proposed cross-product unilateral linking design between balancing capacity bids towards day-ahead bids for the co-optimised process
4. Views on the pricing regime for balancing capacity (marginal pricing vs. pay-as-bid) for the market-based process