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# Cross-zonal Intraday Capacity Pricing Methodology - Explanatory note

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10 August 2017

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## **Disclaimer**

This explanatory document is submitted by all TSOs to all NRAs for information and clarification purposes only accompanying the “All TSOs’ proposal for cross-zonal intraday capacity pricing methodology in accordance with Article 55 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management”.

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## I. Introduction

### 1. Purpose and Structure of the Methodology

Article 55 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereinafter referred to as “CACM Regulation”) requires that by 24 months after the entry into force of CACM Regulation, all Transmission System Operators (“TSOs”) propose a single methodology for pricing intraday cross-zonal capacity (hereinafter referred to as the “CZIDCP Methodology” or “Methodology”) to all National Regulatory Authorities (“NRAs”) for approval pursuant to Article 9(6)(j) of CACM Regulation. According to Article 9(9) of CACM Regulation the CZIDCP Methodology proposal needs to be submitted to ACER as well, who may issue an opinion on the proposal only if requested by the NRAs. According to Article 12 of CACM Regulation the CZIDCP Methodology proposal shall be submitted to consultation by the stakeholders, including the relevant authorities of each Member State, at Union level. The consultation shall last for a period of not less than one month.

This document is an explanatory note accompanying the CZIDCP Methodology and describing the technical background which forms the basis for the all TSOs CZIDCP Methodology. The document includes also the process of creating the CZIDCP Methodology and thus includes the initial all TSO concept. The conclusions and amendments made due to the consultation are then presented in chapter VII - Summary of stakeholders’ comments and assessments. The document is structured as follows:

The legal requirements for the CZIDCP Methodology and their implications are presented in Chapter 2. Chapter 3 provides an explanation of some definitions introduced in the proposal. Chapter 4 describes the ID continuous market. Chapter 5 reflects on the methodology for intraday cross-zonal capacity pricing. Chapter 6 gives the design topics for the Hybrid Model. Chapter 7 provides the detailed process of the proposed Intra Day Auction (hereinafter referred to as ”IDA”). Chapter 8 stresses the implementation prerequisites and Chapter 9 gives the implementation plan. Where relevant, examples are provided to better illustrate the application of the methodology.

The CZIDCP Methodology applies solely to the single methodology for pricing intraday cross-zonal capacity (“IDCZC”) applied by all TSOs. Intraday trading and pricing within a bidding zone is outside the scope of this proposal, as is complementary regional auctions in line with Article 63 of the CACM Regulation, or any intraday cross-zonal capacity allocation mechanism with reliable pricing that may be proposed by some TSOs prior to the approval of the CZIDCP Methodology pursuant to Article 55 (2) of CACM Regulation. This proposal does not reflect on possible implications regarding the impact on the intraday cross-zonal capacity calculation methodology for relevant capacity calculation regions (hereinafter referred to as “CCRs”). These aspects are regulated and defined by other legal provisions and methodologies.

Capitalized terms used in this document are understood as defined in CACM Regulation, Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity (hereafter referred to as “Regulation (EC) No 714/2009”), Commission Regulation (EU) 543/2013 and the CZIDCP Methodology proposal (hereinafter referred to as the “Proposal”).

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## 2. Challenges for the pricing of the intraday cross-zonal capacity

Following challenges and risks have been identified during the drafting of the Proposal:

- CACM Regulation defines requirements for CZIDCP Methodology which seem sometimes conflicting with the principles of the Single Intraday Coupling (hereinafter “SIDC”). For example, pursuant to Article 55 (1) of the CACM Regulation, CZIDCP Methodology shall reflect scarcity (“shall reflect market congestion”), which may be challenging in a continuous allocation (see further details in §V.4.a) “Difficulties to price the intraday capacity with continuous allocation”);
- There is no harmonized intraday cross-zonal capacity calculation/recalculation timing across Europe at the time of preparing the present methodology. Each CCR has indeed to perform intraday cross-zonal capacity calculation according to its methodology based on relevant inputs, which can lead to specific timing issues during day ahead and intraday: as intraday cross-zonal capacity is an input of the intraday capacity pricing (see further details in §VI.2 “Intraday cross-zonal capacity made available to the IDA”), the use of different timings across the different CCR makes it challenging to determine common timing of the CZIDCP process. Furthermore these methodologies have not been finalised at the time of the drafting of this CZIDCP Methodology;
- The definition of CZIDCP Methodology timings (especially IDA timing) reveals potential conflicts between market interests (related to market operation timing) and operational timing constraints for TSOs (e.g. related to calculation of intraday cross-zonal capacity). This issue is further detailed in §VI.7 “Elements affecting the timing of the IDA processes”;
- The development of CZIDCP Methodology is conditioned by several intraday related methodologies, such as: intraday cross-zonal gate opening and intraday cross-zonal gate closure times proposal as well as capacity calculation methodologies, which have not been approved or developed at the time of the drafting of the CZIDCP Methodology. This means that the Methodology relies on the content of the relevant methodologies in their current stage of the development, and not on an approved versions;
- The incompleteness of execution of the prerequisites underpinning the Methodology (i.e. of the related methodologies referred to above and /or lack of full knowledge) do not free TSOs from their responsibilities stemming from Article 55 of CACM.

### 3. Reference documents

This explanatory note makes use of the following documents:

#	Name	Description
1	All TSOs' proposal for IDCZGOT and IDCZGCT	All TSOs' proposal for intraday cross-zonal gate opening and gate closure times in accordance with Article 59 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, dated 16.12.2016
2	Outcome of ENTSO-E Intraday capacity pricing workshop, 20.05.2015	Outcome from ENTSO-E Intraday capacity pricing workshop, 20.05.2015 (shared with NRAs and NEMOs)
3	ENTSO-E Intraday capacity stakeholder Workshop, 22.02.2016	Material from ENTSO-E Intraday capacity stakeholder Workshop, 22.02.2016 (slideshows, and other supporting documents, minutes)
4	Requirements for the continuous trading matching algorithm	Proposal for a common set of requirements for the continuous trading matching algorithm by NEMOs pursuant to CACM Regulation, dated 14.02.2017
5	Proposal for harmonised maximum and minimum prices for SIDC	Proposal for harmonised maximum and minimum clearing prices for Single Intra Day Coupling by NEMOs pursuant to CACM Regulation, dated 14.02.2017
6	Proposal for products for SIDC	Proposal for products that can be taken into account by NEMOs in single day ahead and intraday coupling process pursuant to CACM Regulation, dated 14.02.2017
7	Proposal for back-up methodology	Proposal for the back-up methodology by NEMOs pursuant to CACM Regulation, dated 14.02.2017
8	CGM Methodology	All TSOs' proposal for a common grid model methodology pursuant to CACM Regulation, dated 27.05.2016

*Table 1: Reference documents*

## II. Requirements and Common Criteria for Intraday Capacity Pricing

### 1. Legal framework

#### a) CACM Regulation

The legal requirements for the CZIDCP Methodology are set out by **Article 55** of CACM Regulation as follows:

- “1. Once applied, the single methodology for pricing intraday cross-zonal capacity developed in accordance with Article 55 (3) shall reflect market congestion and shall be based on actual orders.*
- 2. Prior to the approval of the single methodology for pricing intraday cross-zonal capacity set out in paragraph 3, TSOs may propose an intraday cross-zonal capacity allocation mechanism with reliable pricing consistent with the requirements of paragraph 1 for approval by the regulatory authorities of the relevant Member States. This mechanism shall ensure that the price of intraday cross-zonal capacity is available to the market participants at the time of matching the orders.*
- 3. By 24 months after the entry into force of this Regulation, all TSOs shall develop a proposal for a single methodology for pricing intraday cross-zonal capacity. The proposal shall be subject to consultation in accordance with Article 12.*
- 4. No charges, such as imbalance fees or additional fees, shall be applied to intraday cross-zonal capacity except for the pricing in accordance with paragraphs 1, 2 and 3.”*

These requirements are completed by the **Recital 22** of CACM Regulation, which states:

*“Reliable pricing of transmission capacity should be introduced for the intraday market time-frame, reflecting congestion if capacity is scarce.”*

The **Recital 13** of CACM Regulation sets general requirements for allocation of capacity in the day-ahead and intraday timeframes:

*“Capacity should be allocated in the day-ahead and intraday market time-frames using implicit allocation methods, in particular methods which allocate electricity and capacity together. In the case of single day-ahead coupling, this method should be implicit auction and in the case of single intraday coupling it should be continuous implicit allocation. The method of implicit auction should rely on effective and timely interfaces between TSOs, power exchanges and a series of other parties to ensure capacity is allocated and congestion managed in an efficient manner.”*

Moreover, **Article 14** of CACM Regulation defines the Capacity calculation time-frames:

*“1. All TSOs shall calculate cross-zonal capacity for at least the following time-frames:*

*(a) day-ahead, for the day-ahead market;*

*(b) intraday, for the intraday market.*

*2. For the day-ahead market time-frame, individual values for cross-zonal capacity for each day-ahead market time unit shall be calculated. For the intraday market time-frame, individual values for cross-zonal capacity for each remaining intraday market time unit shall be calculated.*

*3. For the day-ahead market time-frame, the capacity calculation shall be based on the latest available information. The information update for the day-ahead market time-frame shall not start before 15:00 market time two days before the day of delivery.*

*4. All TSOs in each capacity calculation region shall ensure that cross-zonal capacity is recalculated within the intraday market time-frame based on the latest available information. The frequency of this recalculation shall take into consideration efficiency and operational security.”*



The **Article 20 (2)** defines the modalities for definition of the intraday capacity calculation methodologies:

*“No later than 10 months after the approval of the proposal for a capacity calculation region in accordance with Article 15(1), all TSOs in each capacity calculation region shall submit a proposal for a common coordinated capacity calculation methodology within the respective region. The proposal shall be subject to consultation in accordance with Article 12. The proposal for the capacity calculation methodology within regions pursuant to this paragraph in capacity calculation regions based on the ‘North-West Europe’ (‘NWE’) and ‘Central Eastern Europe’ (‘CEE’) as defined in points (b), and (d) of point 3.2 of Annex I to Regulation (EC) No 714/2009 as well as in regions referred to in paragraph 3 and 4, shall be complemented with a common framework for coordination.”*

The **Article 21 (2)** of CACM Regulation refines the requirements for the intraday capacity calculation methodologies:

*“For the intraday capacity calculation time-frame, the capacity calculation methodology shall also state the frequency at which capacity will be reassessed in accordance with Article 14(4), giving reasons for the chosen frequency.”*

The **Article 58 (1)** of CACM Regulation defines the timing for provision of input data for the single intraday coupling process:

*“Each coordinated capacity calculator shall ensure that cross-zonal capacity and allocation constraints are provided to the relevant NEMOs no later than 15 minutes before the intraday cross-zonal gate opening time.”*

#### **b) Other Regulations**

The **Article 11 (1)** and **Article 11 (2)** of Commission Regulation (EU) 2015/543 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council (hereinafter the “Transparency Regulation”) provide with requirements on information relating to the estimation and offer of cross zonal capacities:

*“1. For their control areas TSOs or, if applicable, transmission capacity allocators, shall calculate and provide the following information to the ENTSO for Electricity sufficiently in advance of the allocation process:*

*(a) the forecasted and offered capacity (MW) per direction between bidding zones in case of coordinated net transmission capacity based capacity allocation; or*

*(b) the relevant flow based parameters in case of flow based capacity allocation.*

*TSOs or, if applicable, transmission capacity allocators shall be considered as the primary owners of the information they calculate and provide.*

*2. The information laid down in paragraph 1(a) shall be published as set out in the Annex.”*

The Annex of Transparency Regulation refines the publication of the information referred to in Article 11 (2) of Transparency Regulation for intraday timeframe:

*“One hour before the first intra-day allocation and then real-time, for each market time unit”*

## 2. Interpretation

The CZIDCP Methodology complies with the requirements set out in Article 55 of CACM Regulation and also serves the general objectives of the CACM Regulation.

In particular, the mechanism proposed in the CZIDCP Methodology allows for the calculation of a price for the intraday cross-zonal capacity which:

- is compliant with the concepts of the single intraday coupling;
- reflects congestion if capacity is scarce at the moment of auction;
- is based on actual orders; this point is interpreted to mean that the CZIDCP Methodology shall be based on orders that have been submitted for intraday trade by market participants to the MCOs in line with their function according to Article 7 of the CACM Regulation ;
- is made available to the market participants at the time of matching the orders; this point is interpreted to mean that the market participants should know the price of the intraday cross-zonal capacity at the moment of the matching of their orders during the execution of continuous matching session of the single intraday coupling;
- is not complemented by additional charges or fees in accordance with Article 55 (4) of CACM Regulation.

With regards to the general requirements of CACM Regulation for allocation of capacity in the intraday timeframes, the IDA defined by the CZIDCP Methodology uses an implicit allocation mechanism.

## III. Definitions

Article 2 of the CZIDCP Methodology introduces a number of definitions. Below some newly introduced definitions are explained.

### 1. First Auction Hour (FAH)

The definition of FAH is introduced in order to refer to the first hour for which market time units (hereinafter referred to as “MTUs”) get allocated within the respective IDA.

For a given delivery day, IDA are performing an allocation on a delivery period covering MTUs from FAH until end of the day.

### 2. Intraday Auction (IDA)

The term “IDA” refers to implicit intraday auction trading sessions held at pan-European level to allocate the available intraday cross-zonal capacity at all bidding zone borders by applying a market coupling mechanism between the bidding zones, which means that a price for the intraday cross-zonal capacity can be determined.

IDAs form the basis of the proposed CZIDCP Methodology, as further described in Chapter §VI “Elements of methodology for intraday cross-zonal capacity pricing”).

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## IV. Description of the intraday continuous market

### 1. Functioning of the intraday continuous market

#### a) General principles

The intraday continuous market is operated by NEMOs and allows a participant at any point in time during the trading session to buy and sell energy in any open MTU, by submitting orders.

The matching of the orders submitted by the participants consists of creating a trade, based on purchase and a sale orders with compatible execution characteristics.

The execution of orders is based on the so called “First Come First Served” (hereinafter referred to as the “FCFS”) principle: the NEMOs process the orders in the order of their receipt. Trade occurs whenever a new order—that is either a purchase order with a price that is equal or greater than the best sale order at the time or a sale order with a price that is equal or smaller than the best purchase order at the time—is submitted.

Orders are first executed according to their price. Then, for identical prices, the order matched first is the one that has been submitted earlier. The price of matched trades depends on prices of the last matched orders for each trade (or each group of trades which are matched simultaneously). This results in a non-uniform price for each MTU, which implies a set of matched trades with individual prices for each MTU. After a matching of trades, other matching prices will result from the remaining orders that are still not matched.

Intraday continuous markets can run locally (i.e. on a single bidding zone), or coupled (i.e. by matching orders from different bidding zones until the cross zonal capacity defined between these bidding zones is exhausted).

Furthermore, the intraday allocation mechanisms are executed based on different MTU resolution depending on the product that is being accommodated.

#### b) Single intraday coupling solution (XBID solution)

NEMOs proposed and NRAs approved by 26<sup>th</sup> June 2017 in the Market Coupling Operator (MCO) Plan” that the delivery of the intraday market coupling MCO Function, in accordance with Article 36 (4) of the CACM Regulation, shall be based on the XBID solution. Adoption by NEMOs of the XBID solution as the basis for the intraday MCO Function shall be contingent on agreement with TSOs (and NRAs where relevant).

The XBID solution means the solution (system, procedures, contract, etc.) to be implemented by the NEMOs and TSOs within the XBID Project for the single intraday coupling according to the principles set forth in the CACM Regulation.

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## 2. Allocation of cross-border capacity in intraday continuous market

### a) Implicit continuous allocation

In order to allow for the implicit continuous allocation under the SIDC, a capacity management module has to be implemented to continually allocate intraday cross-zonal capacity for trades between orders from different bidding zones.

Implicit allocation allows part of the set of bids from one bidding zone to become visible to traders in other bidding zones, which make these bids tradable, up to the volume of intraday cross-zonal capacity made available on the capacity management module platform by the TSOs (or when capacity is netted due to a trade in the opposite direction):

- If no capacity is available between two neighboring bidding zones (or insufficient capacity), no orders are visible from one bidding zone to the other;
- When capacity is made available between two neighboring bidding zones, a trade may be defined from the source bidding zone to the sink bidding zone, depending on the prices of the orders: for this trade, the cheapest sell orders in source bidding zone are traded (or “matched”) with the most expensive buy orders in sink bidding zone for each direction (“cross-border matching”). Cross-border matching happens if no better trade is possible in the same bidding zone given the prices of available orders in this bidding zone (i.e. cross-border matching is not prioritized over local matching, but only happens depending on prices and available cross-border capacity), and stops when all available capacity is used (or if there is still capacity but all tradable orders have been matched).

Orders of all NEMOs are collected in a shared order book and matched locally or at cross-border level without any discrimination and in continuous manner (this applies irrespective of the number of NEMOs per bidding zone). In case of a cross-border matching, the interface between the shared order book and the capacity management module allows for automatic allocation of the corresponding cross-border capacity to the cross-border trades according to the FCFS principle.

The implicit continuous allocation mechanisms are executed based on different MTU resolution (60 min, 30 min, 15 min) depending on the arrangements on the relevant bidding zone borders.

### b) Explicit allocation

In addition to implicit allocation under SIDC, and according to the modalities defined in Article 64 of CACM Regulation, the intraday cross-zonal capacity may be allocated on an explicit basis if the relevant NRAs approve a derogation from the European target model.

In this case, the capacity management module shall allow allocating the intraday cross-zonal capacity both in an implicit and explicit way without discrimination and still according to the FCFS principle.

## V. Background of the methodology for intraday cross-zonal capacity pricing

This section explains the background of pricing intraday cross-zonal capacity in accordance with the Methodology: the goals underpinning the Methodology as well justification for the chosen pricing model used in the Methodology, the so-called “hybrid model” and its elements.

### 1. Objectives of the CZIDCP Methodology

The CZIDCP Methodology is a methodology to be implemented at the European level that should fulfill following objectives:

#### a) Reveal scarcity

Efficient intraday cross-zonal capacity pricing is needed in order to reveal the value of cross-zonal capacity when it is scarce.

This might happen when new intraday cross-zonal capacity becomes available due to the initial intraday cross-zonal capacity calculation, or because of changes, like significant grid outages, outages of large power plants or consumption units having an impact on the intraday market.

Especially, intraday cross-zonal capacity can be calculated more accurately, based on assumptions closer to real-time, where uncertainties and margins are reduced compared with the day-ahead capacity calculations. The new assumptions taken into account in the intraday timeframe might be results from the day-ahead market, updated wind/solar/temperature forecasts and adjustments due to unscheduled outages.

Thus, the main idea of the Methodology is to price capacity released by the CZIDCP Methodology, being either before the start of the continuous intraday market, or during its execution. The intraday cross-zonal pricing only reflects a situation at a specific moment in time and gives a price for each MTU.

Thus, intraday cross-zonal capacity pricing needs to be as consistent as possible with timings of recalculation of cross-zonal capacities as set in the different CCRs within the intraday timeframe to work most effectively.

Finally, additional operational complexity due to the intraday cross-zonal capacity pricing should be kept low in order to ensure smooth operation of the intraday market and foster liquidity.

#### b) Signal for investment

As intraday cross-zonal capacity pricing reveals scarcity at a particular moment in time, it will give a signal on how valuable the cross-zonal capacity is for the electric system. A high price of the intraday cross-zonal capacity could indicate a need to invest in additional cross-zonal capacity if this high price difference between two market areas is structural and will be maintained in the future taking into account changes in load, generation and grid topology.

#### c) Efficient functioning of the intraday market

In a single intraday market running only with free cross-zonal capacity allocated in a continuous FCFS manner, the cross-border capacity is allocated to the quickest market participants with the highest price at that moment, but not necessary the ones which value it the most during the timeframe of the ID market. The economic goal to bring together supply and demand in an optimal manner for the intraday cross-zonal capacity would then be jeopardized.

In addition, the pricing of cross zonal capacity in the intraday timeframe also allows creating a remuneration of the offered cross border capacity across all timeframes (it is currently priced in long term and day ahead timeframes).

Therefore, the implementation of an intraday cross-zonal capacity pricing methodology shall contribute to a fair and non-discriminatory competition between market participants in the single intraday market.

## 2. Challenges linked to pricing cross-zonal capacity in the continuous markets

The single intraday coupling which precedes the pricing, is based on continuous matching. The continuous matching mechanism poses a challenge in terms of finding a good pricing model, however. Determination of an intraday cross-zonal capacity price, reflecting scarcity, is very difficult in continuous markets since intraday cross-zonal capacity could be subject to a price<sup>1</sup> mainly when cross-zonal capacity is no longer available ;

- While intraday cross-zonal capacity remains available: there is no bottleneck, and the use of remaining intraday cross-zonal capacity does not yield any economic benefit (the price of the capacity is theoretically zero);
- When intraday cross-zonal capacity has been fully used by the trades and is no more available: the execution of an additional trade using marginal capacity would yield an economic benefit; but no cross-zonal trade is possible any longer, so that the pricing of the capacity is not possible.

In continuous markets, the potential scarcity value of intraday cross-zonal capacity is captured by the first trade using the capacity with the highest/lowest price at that moment (i.e. the quickest market participants and not the ones which value the capacity the most) because of the FCFS principle.

## 3. Possible models

To find the best possible model to price intraday cross-zonal capacity, several pricing models were contemplated. Their suitability for the Methodology is briefly discussed below as well as additional clarifications provided for the chosen one, the so-called “hybrid model”. The following subsection 3. further elaborates on the justification of the chosen model.

### a) Implicit continuous trading only

The continuous trading, being understood to be the XBID solution in its current status does not embed any feature related to intraday cross-zonal capacity pricing: in essence, this model always sets the intraday cross-zonal capacity price to zero and therefore cannot be considered with its current features as a possible model to be evaluated.

This doesn't ensure an efficient pricing of the intraday market (as outlined in §V.2 “Challenges linked to pricing cross-zonal capacity in the continuous markets”) and doesn't take into account the “willingness to pay” for the intraday cross-zonal capacity of all market participant interested to acquire cross-zonal capacity for a specific MTU. Moreover, no information is given about the value of the scarcity of the intraday cross-zonal capacity in this case. Cross-zonal capacity is available or not but no price is given for the commodity.

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<sup>1</sup> More details are given in the “Report on intraday capacity pricing” from PMI consulting assigned by Ofgem, dated 17.10.2014.

## b) Implicit continuous trading with pricing

### Key features

This model consists in embedding the pricing of intraday cross-zonal capacity within the intraday continuous allocation, depending on the allocation time. This can be done through different main variants, such as<sup>2</sup>:

- “Price scaling” based on share of allocated cross-zonal capacity compared to maximum available intraday cross-zonal capacity, with a price profile that is fixed in advance (with fixed boundaries<sup>3</sup> based on outcome of day-ahead market for example). The price determination follows the profile, which consists of a “dead band” where the price is zero up to a given value, and then followed by a linear increase of the capacity price depending on the increase of the allocated capacity up to the available intraday cross-zonal capacity,
  - A first variant consists in decreasing the price (eventually to zero) if there is unused capacity prior to Gate Closure (“Move to zero price”);
  - Another variant consists in making the price profile dynamic (including the definition of its boundaries) so that it can adjust based on the rate at which capacity is allocated (“Dynamic pricing”);
- “Congestion forecast during trading session” also uses a price profile, which depends both on the share of allocated capacity compared to the available intraday cross-zonal capacity and on the time before gate closure time;
- “Ex-post calculation” of capacity price: the scarcity is assessed once the intraday trading session is closed. If all the available intraday cross-zonal capacity has been allocated, then the capacity price is calculated as the difference between the two bidding zones prices. Several possible choices exist to define the price in each bidding zone, which is derived from the price of matched orders. In such cases, the possibility to define a price through the matching of actual orders in a discrete fixing performed ex-post remains to be further analyzed.

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<sup>2</sup> Further details about such models can be found in the “Report on intraday capacity pricing” from PMI consulting assigned by Ofgem, dated 17.10.2014, “Options for Intraday Capacity Pricing” from Baringa assigned by Ofgem, dated 21.10.2014, report from Universität Duisburg Essen assigned by Ofgem, dated July 2014, and “Preliminary report on intraday capacity pricing by Yves Langer and Olaf Islei”, dated September 2014.

<sup>3</sup> The boundaries of the profile are the prices when intraday cross-zonal capacity is fully used in a given direction. Fixed boundaries therefore mean fixed price boundaries.



## General assessment

Pros	Cons
<p><b><u>Price scaling</u></b></p> <ul style="list-style-type: none"> <li>• Pricing is done during the execution of continuous allocation</li> <li>• Market participants know the pricing scheme ex ante</li> </ul>	<ul style="list-style-type: none"> <li>• Inefficient allocation in cases where the “boundary” prices differentiate from the bidding zone price differential (as capacity would remain unused in case of too high price boundary, or not allocated to those who value it the most in case of too low price boundary)</li> <li>• Parameters used can only approximate the value of the intraday cross-zonal capacity</li> <li>• Complex process to set the parameters (price boundary) and to review at regular moments</li> <li>• New complexity on the continuous allocation algorithm</li> <li>• Compatibility with different capacity calculation methodologies (e.g. flow-based to be assessed)</li> </ul>
<p><b><u>Congestion forecast during trading session</u></b></p> <ul style="list-style-type: none"> <li>• Same as for price scaling</li> </ul>	<ul style="list-style-type: none"> <li>• Cases where capacity has been priced although the interconnection is not congested</li> </ul>
<p><b><u>Ex-post calculation</u></b></p> <ul style="list-style-type: none"> <li>• No need to change the continuous matching algorithm being currently developed by XBID project</li> </ul>	<ul style="list-style-type: none"> <li>• Price is not known ex-ante as such market parties cannot take it into account in their bidding.</li> <li>• Necessity to define a price in each bidding zone based on matched orders.</li> <li>• It needs to be defined how the price can be defined given the different types of products that can be traded in continuous trading.</li> </ul>

Table 2: General assessment of continuous trading with pricing

## Fulfilment of CACM requirements

The assessment of continuous trading with pricing model types shows that it is not possible to fulfill criteria of CACM Regulation, as shown in the table below:

Requirement	Assessment
Compatibility with continuous matching	This model implies that the matching algorithm being currently developed for the first GO-LIVE of SIDC implementation by XBID project has to be significantly changed
Reflects congestion if capacity is scarce	Only with “ex-post calculation of capacity price” Not in all cases with other types of model
Is based on actual orders	Only with “ex-post calculation of capacity price” Not in all cases with other types of model
Capacity price is made available at the time of matching the orders	No with “ex-post calculation of capacity price” variant Yes in the other variants but the price does not reflect the real willingness to pay of market parties
Isn't complemented by additional charges or fees	Yes
<b>Conclusion</b>	<b>Not compliant with CACM requirements for CZIDCP</b>

Table 3: Fulfilment of CACM requirements by continuous trading with pricing



### c) Implicit auction only model

#### **Key features**

During certain periods throughout the day, implicit auction trading sessions are held at European level to allocate the available intraday cross-zonal capacity at all bidding zone borders by applying a market coupling mechanism between the bidding zones, which means that:

- The same price is obtained in adjacent bidding zones when there is still free cross-zonal capacity after the implicit auction has been run (null capacity price)<sup>4</sup>;
- Or two different prices are obtained in adjacent bidding zones in the event of congestion on the corresponding bidding zone border (capacity price is then equal to the difference in prices between the two zones)<sup>5</sup>.

These implicit auction trading sessions allow therefore to determine a price for the intraday cross-zonal capacity that reflects scarcity and are referred to as IDA.

Several IDA can be held for a given delivery day but each IDA will reflect scarcity at the moment of the auction.

The determination of the results is done in a different way for an implicit auction compared to implicit continuous matching: IDA apply the pay-as-cleared mechanism while pay-as-bid is used in implicit continuous matching.

Under a pay-as-cleared pricing scheme each seller receives the market clearing price and each buyer pays the market clearing price. Under pay-as-bid, sellers (resp. buyers) receive (resp. pay) the price of their bid.

Pay-as-cleared incentivizes participants to reveal their actual preferences in terms of prices and volumes, contrary to continuous market in which the activity of a trader is visible to everyone (anonymously) in the shared order book, meaning that the traders may use/reveal dynamically the information in a way that suits their interests given the other visible orders.

The results of IDA, and thus the resulting intraday cross-zonal capacity pricing, are therefore based on actual orders of market participants, which reveals an actual price at the moment of the auction.

#### **General assessment**

IDAs allows for determining a unique price for a particular moment in each bidding zone and thus a clear and unique intraday cross-zonal capacity price. However, there is no guarantee that this scarcity is maintained nor that the same intraday cross-zonal capacity price is obtained if further IDAs are held for the same delivery period.

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<sup>4</sup> Under flow-based approach, bidding zones will have the same price if no critical network element is congested.

<sup>5</sup> Under flow-based approach, bidding zones might get different prices when one or more critical network element are congested.

However, the intrinsic drawback of implicit auction only model is that it is not a continuous allocation method and as such not in line with European target model nor the SIDC solution indicated in CACM:

Pros	Cons
<ul style="list-style-type: none"> <li>• Efficient pricing of intraday cross-zonal capacity through IDAs at a particular moment in time</li> <li>• Pooling of Liquidity in IDAs</li> <li>• IDAs are beneficial for smaller market participants (e.g. resources, market power)</li> </ul>	<ul style="list-style-type: none"> <li>• Not in line with the continuous allocation model set forth as the European target model in CACM or the SIDC model</li> </ul>

Table 4: General assessment of implicit only model

### **Fulfilment of CACM requirements**

The implicit auction only model is not considered as compliant with CACM Regulation, as it does not allow implementing the SIDC as defined in the CACM Regulation.

However, the assessment of implicit auction only model shows that most of the criteria of CACM Regulation applicable to the CZIDCP Methodology are fulfilled, as shown in the table below:

Requirement	Assessment
Compatibility with continuous matching	No, as SIDC requires continuous matching sessions
Reflects congestion if capacity is scarce	Yes, but only at the moment of the auction
Is based on actual orders	Yes The market participants have to submit their actual orders which reveals an actual price of the intraday cross-zonal capacity (cf. “pay-as-clear” approach)
Capacity price is made available at the time of matching the orders	Yes Even if there would be no continuous allocation, the capacity price is revealed at the time of running the auction (i.e. when orders are matched)
Isn't complemented by additional charges or fees	Yes The price of the intraday cross-zonal capacity is entirely based on the market outcome
<b>Conclusion</b>	<b>Not compliant with CACM requirements for CZIDCP</b>

Table 5: Fulfilment of CACM requirements by implicit only model

This implies that, ideally, the implicit auction only model should be complemented by continuous matching sessions so that it does not contradict the implementation of the SIDC as outlined in the CACM Regulation.

### **d) Hybrid model**

#### **Key features**

- Intraday cross-zonal capacity is priced through IDAs;
- Initial IDA is executed in day ahead timeframe and covers all the MTUs of the delivery day;
- Further IDAs are executed in intraday timeframe and cover each a subset of all the MTUs of the delivery day: different options can then be introduced, depending whether
  - there is an overlap between the MTUs covered by each IDA (i.e. all IDAs cover all MTUs until the end of the day);
  - or there is no overlap between the MTUs covered by each IDA;

- Continuous matching sessions are run between the IDAs, with different options :
  - Either a continuous matching session opens after the publication of the each IDA results and covers the MTUs not traded in the forthcoming IDA;
  - Or one single continuous matching session is executed; it opens after the publication of the first IDA results and covers all the MTUs until the end of the delivery day;
- Given the fact that bids are pay-as-cleared under implicit auction and pay-as-bid under implicit continuous market participants need to enter their bids for both types of markets separately. This implies a different bidding strategy for market participants as such bids entered in one system cannot be transposed to the other.

### General assessment

The differences with the implicit auction only model are indicated in bold in the table below:

Pros	Cons
<ul style="list-style-type: none"> <li>• <b>In line with implementation of SIDC</b></li> <li>• Efficient pricing of intraday cross-zonal capacity through IDAs</li> <li>• Pooling of Liquidity in IDAs</li> <li>• IDAs are beneficial for smaller market participants (e.g. resources, market power)</li> <li>• <b>Can be implemented without fundamental review of the algorithm of the XBID solution</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>No continuous intraday cross-zonal capacities pricing scheme</b> (i.e. during continuous matching sessions) but scarcity is priced during auctions</li> <li>• <b>Continuous matching is not open to trade all MTU at all times; the tradable MTU can be split into different sessions limited to a sub set of MTU; or if all MTU are open to continuous matching trade must be halted prior to an IDA as capacity cannot be given to both trading platforms simultaneously</b></li> </ul>

*Table 6: General assessment of hybrid model*

### Fulfilment of CACM requirements

The assessment against criteria of CACM Regulation applicable to the CZIDCP Methodology is the same as for implicit auction only model, except that it now complies with continuous matching:

Requirement	Assessment
Compatibility with continuous matching	Yes
Reflects congestion if capacity is scarce	Yes but only at the moment of the auction.
Is based on actual orders	Yes The market participants have to submit their actual orders which reveals an actual price of the intraday cross-zonal capacity (cf. “pay-as-clear” approach)
Capacity price is made available at the time of matching the orders	Yes
Isn't complemented by additional charges or fees	Yes The price of the intraday cross-zonal capacity is entirely based on the market outcome
<b>Conclusion</b>	<b>Compliant with CACM requirements for CZIDCP</b>

*Table 7: Fulfilment of CACM requirements by hybrid model*

## 4. Choice of Hybrid Model for intraday capacity pricing

### a) Difficulties to price the intraday capacity with continuous allocation

As outlined in the previous section, implementation of a CZIDCP Methodology in continuous allocation raises several issues, mainly the impossibility to reflect properly the congestion and to contribute to the efficient functioning of the intraday market. Finally, a pricing mechanism within the continuous matching sessions might negatively affect speed/cost of implementation and overall robustness of the EU-wide solution (XBID).

### b) Hybrid Model as an efficient capacity pricing mechanism

The choice of the present CZIDCP Methodology has focused on the best combination of the compatibility against the following requirements:

- “Implicit continuous allocation”;
- CACM Regulation requirements on capacity pricing: establishing efficient pricing and reflecting market congestion, based on actual orders.

This leads to the conclusions that only the hybrid model satisfies all the constraints and requirements, and especially CACM compliance. Neither continuous trading nor implicit auctions can alone fulfil all CACM requirements.

The hybrid model is the most suitable intraday cross zonal capacity pricing method to ensure compliance with CACM Regulation, while allowing also the execution of continuous trading and respecting an IDCZCT of 60 minutes before delivery (pursuant to the version of the IDCZCT proposal from TSOs at the time of this CZIDCP Methodology). Additionally, no major objection was raised as the hybrid model was presented by the TSOs to the stakeholders at the different workshops (cf. reminder of previous works in §V.5 “Previous work from all TSOs and stakeholders’ involvement”).

Benefits of the hybrid model in pricing intraday cross-zonal capacity are listed below with regards to the following topics:

#### **Compliance with CACM Regulation**

- Allows for implementation of SIDC as continuous matching;
- Pricing based on orders submitted from market participants (“actual orders” requirement from CACM);
- Capacity pricing made available to the market participants at the time of matching the orders;
- Pricing reflects market congestion at the moment of the auction;
- Maximization of economic surplus (implicit allocation).

#### **Ease of Implementation**

- Straightforward (implicit auctions independent from continuous matching, and no need to significantly review the algorithm of the continuous matching algorithm);
- Practical and feasible (use of an existing and proven concept);
- Cost-efficiency (possibility to take advantage of existing systems for implicit auctions);
- Reasonable time to make familiar to the market participants.

#### **Efficient intraday cross-zonal capacity pricing**

- Efficient pricing of capacity through auctions:  
By introducing IDA before starting the continuous trading, intraday cross-zonal capacity can be allocated to the market participants that values it most and not just on a first-come first-served basis (cf. pay-as-cleared bidding).  
The IDAs yield a reference intraday cross-zonal capacity price for the MTUs traded in the upcoming continuous matching session, with the assumption that the intraday cross-zonal capacity assessed by TSOs is first offered through IDAs (see §VI.2 “Intraday cross-zonal capacity made available to the IDA”).  
This reference price reflects the situation at the time of execution of the IDA.
- Uniform pricing methodology:  
An intraday auction price applies uniformly to all parties. Thus, all market actors receive/pay the same uniform price on their sales/purchases. This allows market participants to express their “willingness to pay” (this depends in practice on the effective pricing/bidding strategy for each market participant).
- Fair and transparent price formation thanks to a unique price in each bidding zone, no distortions under the condition that all available intraday cross-zonal capacity is made available at each IDA;
- Pooling of liquidity (implicit auction) which contributes to a relevant pricing;
- Optimal matching of supply and demand.

#### **Robust and future-proof European solution**

- High performance and reliability: IDA exists as a robust solution. Computation of a continuous matching algorithm embedding additional complex pricing rules has to be developed, and has thus an element of unknown added complexity and vulnerability. This is why the introduction of IDA is not seen as a threat to the overall reliability of operation of the intraday market;
- The combination implicit auction and continuous matching sessions is repeatable and scalable;
- Can be combined with XBID Solution (can be developed as a complement that doesn’t have to be included directly in the continuous implicit coupling algorithm);
- Remuneration of the offered cross border capacity allocation across long term and day ahead timeframes.

#### **Fulfilment of market parties’ needs**

- Intraday cross-zonal capacity is not priced if not scarce at the moment of the auction;
- Possibility to adjust positions close to real time during continuous matching sessions;
- Pricing of intraday cross-zonal capacity is known by market participants at the time of continuous matching;
- Simplicity and ease of use (implicit auction) although it requires market participant to enter their bids in the two systems taking into account different allocation algorithms paid as bid for continuous trading and paid as cleared for IDA ;
- Transparency.

### **Level playing field**

Accessibility for all market participants (small generators, RES, demand side): IDAs are beneficial for smaller market participants as well (standardized trading times are beneficial to small players without sophisticated trading departments operating 24/7 and easier to monitor).

#### **c) Characteristics of the hybrid model selected as the best compromise by TSOs**

Characteristics of the hybrid model can be refined regarding the MTUs covered by each IDA, and the continuous matching sessions.

Firstly, TSOs consider that MTUs allocated by each IDA shall always cover remaining period until the end of the delivery day: each IDA allows for pricing of all remaining MTUs, which means that each IDA covers MTUs from a given FAH until the end of the delivery day. This allows market participants to adjust their position for all the remaining MTUs of the delivery day at each IDA (including for block bids since no split of the blocks is needed). This feature is of benefit especially for smaller market participants who not necessarily need to have a 24/7 desk.

It is also possible to have a pricing of the intraday cross-zonal capacity for a given MTU at different points in time:

- Initial IDA defines the initial price reflecting the scarcity situation at the moment of the auction;
- Depending on the outcome of the next capacity calculations during intraday timeframe, if any, additional intraday cross-zonal capacity can be offered, and thus priced, for this MTU; this applies especially for MTUs close to the end of the delivery day.

Secondly, TSOs consider that a continuous matching session shall open after the publication of the each IDA results and cover the MTUs not traded in the forthcoming IDA: as a consequence, there is no need to stop the continuous matching during each IDA; but simply start continuous matching for the MTUs of the latest IDA when IDA results are ready. This choice is seen as a good balance between pricing updated intraday cross-zonal capacity and having the possibility of performing continuous matching. On the other hand in a design with only one single continuous matching session spanning all MTUs until the end of the day, new additional cross-zonal capacity might be used in the continuous matching before being priced in an IDA, and there would be a need to stop this continuous matching session to hold an IDA, which would bring an additional complexity on the processes, from TSOs', NEMOs' and market participants' point of view.

The characteristic of the hybrid model selected by the TSOs as the best compromise are summarized in the following table:

Choice	Rationale
MTUs allocated by each IDA shall always cover remaining period until the end of the delivery day	<ul style="list-style-type: none"> <li>• Allows market participants are able for adjusting their position for all the remaining MTUs</li> <li>• “Incremental” pricing of the intraday cross-zonal capacity for a given MTU</li> </ul>
A continuous matching session shall open after the publication of each IDA results and cover the MTUs not traded in the forthcoming IDA	<ul style="list-style-type: none"> <li>• No need to stop the continuous matching during each IDA</li> <li>• Intraday cross-zonal capacity is first priced through an IDA</li> </ul>

*Table 8: Characteristics of the hybrid model*

## 5. Previous work from all TSOs and stakeholders' involvement

The different models considered in this document and the choice of hybrid model for pricing the intraday cross-zonal capacity are in line with the previous work done by all TSOs and shared with stakeholders through several ENTSO-E workshops:

### **Outcome of ENTSO-E Intraday capacity pricing workshop, 20.05.2015 [2]**

- Recommendation to develop a hybrid solution which combines both implicit auctions and implicit continuous matching sessions;
- Presentation of eight different hybrid models;

### **ENTSO-E Intraday capacity stakeholder Workshop, 22.02.2016 [3]**

- Neither continuous matching nor implicit auctions can fulfil alone all CACM requirements;
- Recommendation to develop hybrid models;
- Design features of hybrid models.

## VI. Elements of methodology for intraday cross-zonal capacity pricing

This section provides explanation on the key elements of the pricing intraday cross-zonal capacity as in the Proposal for CZIDCP Methodology (Articles 3, 4, 5 and 6) that is based on the hybrid model.

### 1. Steps of the IDA

The execution of each IDA a key element of the Methodology consists of following steps:

1. All TSOs in the relevant Capacity Calculation Regions calculate the intraday cross-zonal capacity pursuant to relevant capacity calculation methodology;
2. All TSOs make available to NEMOs and publish the intraday cross-zonal capacity to be used in the IDA;
3. The bidding period for the IDA opens (this step can be executed before the two previous ones but no later than the next one);
4. All TSOs make available and publish the final value of intraday cross-zonal capacity to be used in the IDA, along with possible allocation constraints, this value is transferred to the NEMOs;
5. The bidding period for the IDA closes, which launch the calculation of the IDA results;
6. After the calculation of the IDA results, the IDA results are first to be validated by TSOs (against the intraday cross-zonal capacity and allocation constraints they submitted) and NEMOs (against the orders they submitted) before they can be published (including intraday cross-zonal capacity price) and post-processed;
7. The remaining intraday cross-zonal capacity is made available for the subsequent continuous matching (or "CM") session for the MTUs covered in the IDPA.

When relevant, continuous trading needs to be suspended prior to step 2 above (as further described in VI.5 "Interactions with the single intraday coupling").

The different steps are summarized below, and further discussed in the next chapters:





Figure 1: Steps of the IDA

## 2. Intraday cross-zonal capacity made available to the IDA

### a) Initial intraday cross-zonal capacity

Each IDA will allocate cross-zonal capacity based on the latest intraday cross-zonal capacity calculation. When relevant (as further described in VI.5 “Interactions with the single intraday coupling”), this cross-zonal capacity shall take into account the outcome of continuous trading suspended prior to step 2 of IDA process.

In order to efficiently reflect its level of congestion, all the available intraday cross-zonal capacity for a given MTU at the moment when the final value of capacity is transmitted to IDA (see below) shall be offered through this IDA. If some volume of intraday cross-zonal capacity was not allocated at borders where a price difference exists, this would induce a reduction of the total social welfare.

This means that the initial intraday cross-zonal capacity calculated for a given MTU shall first be allocated at one initial IDA in day ahead timeframe so that it can be priced in a feasible manner. The calculation of initial intraday cross-zonal capacity should be based on the Common Grid Model (or “CGM”) prepared for the intraday capacity calculation time-frame, pursuant to CGM Methodology (see document [8]).

The remaining intraday cross-zonal capacity that is left after the execution of this IDA shall then be allocated in the continuous matching session for this MTU.

This principle is illustrated by the figure below:

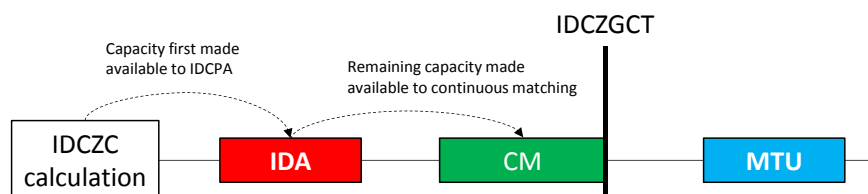


Figure 2: Use of intraday cross-zonal capacity by IDA and continuous matching

The initial IDA will therefore price the initial intraday cross-zonal capacity calculated by the TSOs, and before it is made available to the continuous matching session, if feasible. The intraday cross-zonal capacity is only allocated through continuous matching for the MTU which are not allocated anymore in a subsequent IDA. This ensures that a relevant intraday cross-zonal capacity price is determined for this MTU before the start of CM session.

### b) Update of intraday cross-zonal capacity

Moreover, with regards to the intraday cross-zonal capacity calculation, Articles 14 (1), (2) and (4) of CACM Regulation require the TSOs to assess intraday cross-zonal capacities not only in day ahead timeframe (before the start of Intraday Cross Zonal Gate Opening), but also within the intraday timeframe where relevant. It is also explicitly required to take into account the latest available information for these calculations. Since the capacity calculation is dependent on the forecast of net positions taken into account in the base case, there is an opportunity for the TSOs to refine the capacity calculation for the remaining MTUs that are still not made available for continuous matching and lower the level of uncertainties, with therefore a higher probability of determining additional cross-zonal capacities with a new recalculation.



As for the initial intraday cross-zonal capacity, any additional intraday cross-zonal capacity for a given MTU (obtained by a capacity reassessment, when relevant) shall first be allocated by an IDA so that it can be priced if feasible.

Concretely, for late MTUs, intraday cross-zonal capacity can be calculated several times, which may lead to a new capacity pricing through an IDA if feasible. Since the frequency of intraday cross-zonal capacity calculation is entirely dependent of the corresponding methodologies that are established at the different CCRs, the feasibility of this principle for which coherence of the timings of recalculation in the different CCRs is essential is still to be confirmed at an EU level. Such a procedure is illustrated by the figure below:

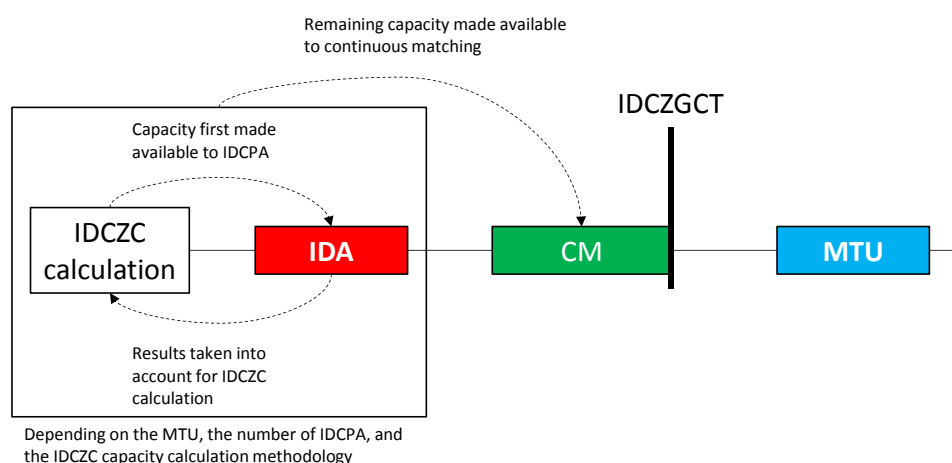


Figure 3: Intraday cross-zonal capacity recalculations between IDA

However, situations can occur where the intraday cross-zonal capacity of a given MTU is updated, where this MTU is no longer traded in any upcoming IDA, but still be available during the execution of the continuous matching session. This can happen due to:

- Real time events impacting the intraday cross-zonal capacity (typically on a HVDC interconnector, or any other relevant grid element limiting the cross-zonal capacity, or new input information for grid security reasons). These events can lead to a decrease or an increase of the intraday cross-zonal capacity;
- Discrepancies between the timing of European IDA, and the timing of intraday cross-zonal capacity calculation, which is determined by the different CCRs. This point constitutes a real challenge for implementation of CZIDCP Methodology and each intraday cross-zonal capacity calculation methodology.

In such cases leading to additional intraday cross-zonal capacity becoming available for MTUs which will no longer be traded in subsequent IDA, this additional capacity should not be withheld from the continuous matching session. In cases where new capacity calculations result in a reduced capacity, the new capacity information should likewise be uploaded to the continuous trading session.

The IDA results will thus reflect the market situation at the moment IDA is executed, including the bidding strategy of market participants at this point in time. This means that market participants should be aware that intraday cross zonal capacity and IDA prices might vary between different IDAs. Recalculation of cross-zonal intraday capacity can result in more (or less) intraday cross-zonal capacity being available in the subsequent IDAs made for a given MTU.

### **c) Transmission of final value for each IDA**

Finally, the final value of intraday cross-zonal capacity (as well as possible allocation constraints associated) for each IDA shall be transferred to the NEMOs no later than a minimum duration before the start of the calculation of the results of this IDA.

## **3. Bidding to the IDA**

### **a) Tradable MTUs**

The MTUs that are covered in each IDA are always comprised in a time interval which:

- Starts at the FAH of this IDA;
- Ends at the last hour of the delivery day (i.e. 24:00).

For each bidding zone border, resolution of MTUs to be allocated in the IDA shall be consistent with the resolution of the MTUs that are usually traded cross-border in intraday timeframe for these bidding zones.

### **b) Products and liquidity**

A lack of liquidity in IDA might lead to wrong intraday cross-zonal capacity price signals. This point is linked to:

- Timing of IDA: moment where the concentration of the liquidity can be maximized;
- Bidding zone borders included: from this perspective, defining specific timing per bidding zone border or regions seems less relevant in order to implement a uniform CZIDCP Methodology across Europe maximizing the liquidity;
- Intraday cross-zonal capacity available for IDA: all available intraday cross-zonal capacity shall be allocated in the IDAs if feasible;
- Products included: to be determined by NEMOs in an amendment of the Proposal for products for SIDC (see document [6]).

## **4. Price of intraday cross-zonal capacity**

### **a) Calculation**

The IDA determines a single clearing price for each bidding zone in a following way:

- a) If all intraday cross-zonal capacity has been allocated by the IDA, the intraday cross-zonal capacity is priced at the value corresponding to the difference between the clearing price of each bidding zone. To establish the clearing price for each bidding zone, available bids and orders shall be matched within the IDA mechanism and the price shall be established by using a pay-as-cleared approach;
- b) If not all intraday cross-zonal capacity has been allocated by the IDA, the intraday cross-zonal capacity is priced at zero.

The previous statements are made with the assumption that the intraday cross-zonal capacities to be allocated in the IDA are modelled in a coordinated net transmission capacity approach. With a flow-based approach, the statement needs to be slightly adapted, in the sense that the availability of the cross-zonal capacity is conditioned by one or several critical network elements at a CCR level (instead of a cross-zonal capacity at a bidding zone border level):

1. If the power flow capabilities of one critical network element are fully used by the allocation performed in the IDA, then differences exist between the clearing price of the bidding zones of the CCR;
2. If not, then the clearing price of the bidding zones of the CCR are the same.

Another refinement to be made is related to the possible allocation constraints defined by TSOs to be taken into account in the calculation of IDA results, in the sense that such constraints can limit the amount of intraday cross-zonal capacity that is allocated in an IDA (before the intraday cross-zonal capacity itself).

The price of intraday cross-zonal capacity shall be calculated shortly after the bidding period of the IDA closes so that, for a given MTU, it is available to the market participants before the start of continuous matching session, i.e. the time of matching the orders.

#### **b) Robustness**

The intraday cross-zonal capacity price determined by a given IDA will reflect the market situation at the moment of this IDA is executed.

This means, in certain cases, that a price may be assessed for intraday cross-zonal capacity (since it is congested at the moment of the IDA execution), while in a later moment this cross zonal capacity can be priced at a different value, for example it may be zero (if not congested anymore when more ID capacity is made available and not used).

## **5. Interactions with the single intraday coupling**

### **a) Processes**

Continuous trading needs to be suspended prior to each IDA, when relevant: this case applies to the regions where IDCZGOT is set prior to the closing time of the bidding period for the IDA. The duration of the suspension should not be more than:

- The timing specified in the capacity calculation methodology submitted by CCR according to Article 20 of CACM Regulation, necessary in order to take into account the capacity allocated during the previous continuous trading session in the capacity calculation process for intraday. Further to the above mentioned timing, the suspension of continuous trading is necessary 15 minutes prior to the deadline for bid submission to the IDA (in line with Article 58.1 of CACM Regulation);

30 minutes after the deadline for bid submission to the IDA After each IDA, the remaining intraday cross-zonal capacity shall be determined for each MTU of the subsequent continuous matching session: this remaining intraday cross-zonal capacity shall be transferred from the systems in charge of IDA to the systems in charge of executing the continuous matching sessions.

It has to be noted that same systems could be in charge of the execution of IDA and continuous matching, but this does not have to be necessary as such: this point is to be further assessed during the implementation phase. However, if the systems are different the transfer from one system towards the other will become more complex and automation may be not possible.

This operation shall be run as smooth as possible in the most efficient way in order to avoid any delay of the continuous matching session: the intraday cross-zonal capacity to be allocated in the continuous matching session is indeed a prerequisite to start this continuous matching session. Following topics have to be managed:

- Systems used for IDA and continuous matching: different systems can bring additional complexity to transfer data from IDA to continuous matching;
- Operational processes needed between IDA and continuous matching, among which:
  - Validation of the results of IDA, that needs to be performed by TSOs and NEMOs (cf. execution of the day ahead implicit allocation);
  - Post-processing of results of IDA;
  - Determination of intraday cross-zonal capacity made available to the continuous matching.

The intraday cross-zonal capacity made available to the continuous matching shall be based on the outcome of the IDA. It should also be noted that regarding to those capacity calculation regions, where the intraday cross-zonal gate opening time is set up to be before the pan-European IDA at 22:00 laid down in the Methodology, the opening auction at the intraday cross-zonal capacity gate opening time can start before commencing of continuous trading (“Opening Auction prior to pan-European IDA”) or have continuous trading only in this period.

Continuous trading needs to be suspended in those regions where intraday cross-zonal gate opening time is set to be prior to the pan-European auction. The duration of the suspension should not be more than:

- The timing specified in the capacity calculation methodology submitted by capacity calculation regions according to Article 20 of CACM Regulation, necessary in order to take into account the capacity allocated during the previous continuous trading session in the capacity calculation process for intraday.

Further to the above mentioned timing, the suspension should not be more than:

- 15 minutes prior to the deadline for bid submission to the IDA (in line with Article 58.1 of CACM Regulation) or a longer timing in line with Capacity Calculation Methodology according to Article 20 of CACM Regulation;
- 30 minutes after the deadline for bid submission to the IDA.

### b) Bidding and products

There is no any automatic transfer of bids/offer from market participants from IDA (pay-as-cleared mechanism) towards continuous matching (pay-as-bid mechanism). This means that the type of products to be traded within IDA are not necessary linked with the ones traded during continuous matching session.

Market participants should be aware that it is their responsibility to place their offers separately in the IDA and the continuous matching sessions, as summarized below:

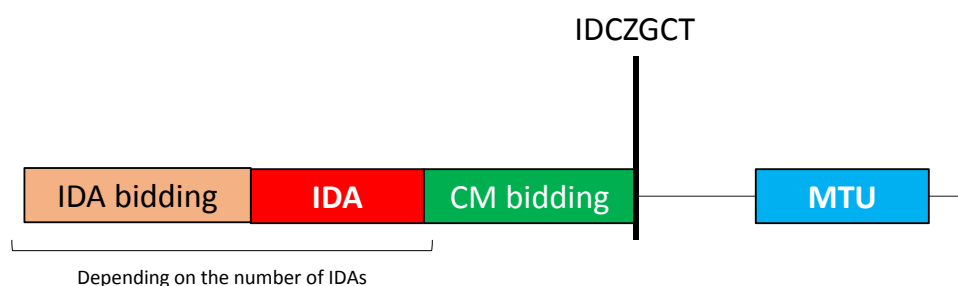


Figure 4: Bidding periods for IDA and continuous matching

Finally, it is underlined that there is no obligation for the market participants to submit offers in both mechanisms (IDA and continuous matching) for a given MTU.

### **c) Pricing**

The IDA price results are used to price the intraday cross-zonal capacity, but are not reused in the subsequent continuous matching sessions: this means that the remaining intraday cross-zonal capacity will be allocated without capacity pricing in the subsequent continuous matching sessions.

## **6. Interaction with explicit allocation**

There is no interaction between CZIDCP Methodology and explicit allocations that could be introduced pursuant to CACM Regulation on relevant borders in the sense that an explicit allocation is performed, when relevant, in parallel of implicit allocation during the execution of continuous matching sessions but no explicit auction is included in the CZIDCP Methodology.

Moreover, IDAs are implicit only auctions allocating all available intraday cross-zonal capacity, and only the remaining intraday cross-zonal capacity is offered in the SIDC continuous trading session (including continuous explicit allocation, when relevant).

## **7. Elements affecting the timing of the IDA processes**

When designing the CZIDCP Methodology, a number of elements impact the timing of the IDA processes.

### **a) Operational processes from TSOs**

The definition of the timing of IDA is impacted by several operational processes from TSOs, which outputs condition the start of each IDA.

Before the start of IDA, TSOs need to perform following tasks:

- For the initial IDA, security analysis and intraday cross-zonal capacity calculations following the results of the day ahead market. These security analyses may make use of the Common Grid Model established in the day ahead timeframe which is made available at the end of the afternoon;
- For later IDAs, intraday cross-zonal capacity calculation, which is performed according to the methodology defined per capacity calculation region. This calculation will depend on the output of security analysis that makes use of the Common Grid Model established in the day ahead timeframe.

This means that the determination of the timing of the first IDA shall be such that all TSOs can perform the above-mentioned tasks. However, this may be difficult since:

- The timing of the IDAs shall be uniformly defined across Europe in order to provide for a market coupling mechanism across capacity calculation regions, which means that the first IDA shall be set so that all TSOs can execute their processes;
- The timing of each ex-ante process from TSOs is defined at a capacity calculation region level or at a lower level.

Additionally, the number of intraday cross-zonal capacity reassessment can also have an impact on the number of IDAs, knowing that intraday cross-zonal capacity shall first be allocated by an IDA if feasible so that it can be priced. However, it is intrinsically not possible to guarantee that all intraday cross-zonal capacity methodologies offer the same timing and number of intraday reassessments.

## **b) Stakes for the market participants**

From market participants' perspective, the stakes considered by TSOs when defining the time and number of IDA are the following:

- Same time across Europe: each proposed IDA shall be executed according to the same timing in order to price the intraday cross-zonal capacity at the same time across Europe, in the same way that each MTU should be allocated in a continuous way during a minimum common continuous matching session window where orders across Europe can be matched;
- Required minimum duration for continuous matching sessions: the implementation of CZIDCP Methodology shall be compliant with SIDC and shall thus allow for at least a minimum continuous matching session window for each MTU (once the results from IDA are known).

Besides this, the number of IDAs may be considered: a good balance should be found between a high number of IDA (high complexity, too much discretization of the continuous matching, cost efficiency) and very few IDA (no possibility to update the pricing, inefficient allocation).

## **c) SIDC**

Each IDA shall be executed so that its results are determined before the bidding period for the continuous matching starts.

Links exist therefore between timing of IDA and intraday cross-zonal gate opening and closing times (see next paragraph).

## **d) Regulation**

### **CACM Regulation**

Article 59 (1) of CACM Regulation defines intraday cross-zonal gate opening time (hereafter referred to as "IDCZGOT") and intraday cross-zonal gate closure time (hereafter referred to as "IDCZGCT").

The CACM Regulation defines the IDCZGOT as "the point in time when cross-zonal capacity between bidding zones is released for a given market time unit and a given bidding zone border". As further detailed in [1], IDCZGOT is the point in time when cross-zonal capacity allocation for the intraday timeframe is possible for the first time. All TSOs had originally proposed to set a single IDCZGOT at 22:00 market time day ahead, with the option to choose an earlier intraday cross-zonal gate opening time at a CCR level. NRAs have in the meantime however requested the possibility to set IDCZGOTs individually per CCR.

Requirements of the CACM Regulation related to the SIDC also state that the final value of intraday cross-zonal capacity shall be transferred to NEMOs no later than 15 minutes before the IDCZGOT.

Thus, the final value of intraday cross-zonal capacity (as well as possible allocation constraints associated) for each IDA shall be transferred to the NEMOs no later than 15 minutes before the start of the calculation of the results of this IDA, as shown in the figure below:

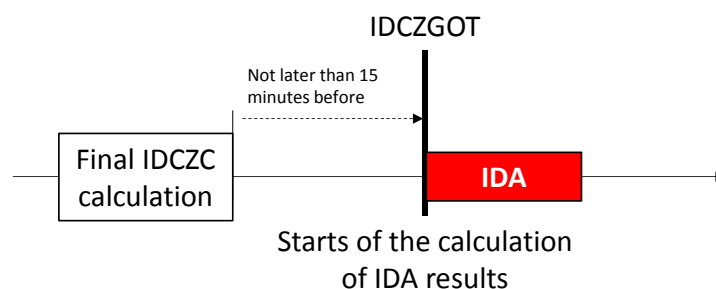


Figure 5: transmission of the final value of intraday cross-zonal capacity to the NEMOs

On the other hand, the CACM Regulation defines the IDCZGCT as “the point in time when cross-zonal capacity allocation is no longer permitted”. As further detailed in [1], all TSOs have currently proposed to set a single IDCZGCT at 60 minutes before the start of the relevant MTU.

This therefore means that both intraday cross-zonal capacity pricing and start of continuous allocation shall start at the latest at IDCZGOT and end before IDCZGCT.

### **Transparency Regulation**

According to the Transparency Regulation, all TSOs shall make available the calculated offered capacity for publication no later than 60 minutes prior to the execution of this IDA. This is not understood as a requirement for a fixed value, meaning that it could be updated also after this 60 minutes lead time when relevant. Thus, the only requirement for a fixed value is the one coming from the CACM Regulation regarding the transmission of the final value to be allocated both in IDA and continuous matching sessions.

## **8. Bidding zone borders included/geographical scope (pan-European/regional)**

The CZIDCP Methodology applies to all European bidding zone borders.

However, there might be situations that require addressing intraday capacity pricing at the regional level. The IDCZGT Methodology does this by allowing individual capacity calculation region gate opening times. The CZIDCP Methodology incorporates a possibility to price intraday capacity at the capacity calculation region level with the introduction of Article 6. Certain capacity calculation regions have set up a gate opening time to be before the pan-European IDA and are allowed to introduce an opening auction before commencing of continuous trading. There might be several considerations such as the capacity calculation region gate opening time, complexity and impact on the pan-European auction, which will determine the position of each CCR in this matter. Nevertheless, all capacity calculation regions that open for trade prior to the time of pan-European IDA will need to pause cross-zonal trade when cross-zonal capacity will need to be allocated to the pan-European IDA.

For the sake of clarity, it is stated that allowing capacity calculation region level specific gate opening times is an inherent part of the Methodology and involves no intention of invoking the special regional situations described in Articles 63 or 55(2) of the CACM Regulation, which fall outside the Scope of the Methodology.



## 9. Fallback

In line with CACM Regulation<sup>6</sup>, no fallback procedure for IDA is defined.

The case where the calculation of the intraday cross-zonal capacity is delayed only in some capacity calculation regions should not lead to postponement of the IDA. Procedures to deal with such cases shall be further defined in the implementation phase.

In case an IDA cannot be executed for given MTUs, the corresponding intraday cross-zonal capacity will be allocated in the continuous matching session and not priced.

## 10. Systems and Algorithm

The concept of IDA is quite different from the implicit continuous allocation. This raises the question whether same systems should necessarily be used for IDA and continuous matching. This question shall be closed during the implementation of the CZIDCP Methodology. However, a first assessment is given below when opting for different systems for IDA and continuous matching:

- As for pros, there is the possibility to reuse PCR&XBID systems, without needing to change them in depth since only an interface would be needed (to be assessed during the implementation phase);
- As for cons, this solution might lead to additional complexity when switching from IDA to continuous matching.

Opting for same systems for IDA and continuous matching might have the advantage of simplifying the transfers of information from IDA to continuous matching but would never allow full automation since market participants would still need to enter their bids in both systems since the clearing algorithm is different in an auction versus continuous matching. If this one system should be XBID, it would imply a significant amount of development on the current solution, which is currently not prepared for CZIDCP (it has been agreed to not be in scope for the first go-live). In such an option, it would be thus important to establish a formal involvement of XBID project in the implementation of CZIDCP Methodology.

NEMO's input is needed in order to assess this point further.

It can be noted that the implementation of the intraday cross-zonal capacity pricing is part of the future requirements for the continuous trading matching algorithm in their current version (see [7]), pursuant to Article 37 of CACM Regulation.

## 11. Detailed process of the initially proposed IDAs

The following chapter details the initial proposal made by all TSOs prior to the public consultation. Due to feedback received within this consultation significant changes were introduced. These changes can be found in chapter VII - Summary of stakeholders comments and assessments.

### a) Timing and number

The introduction of two IDA, one in day ahead timeframe and one in intraday timeframe, is seen as a compromise between sufficient frequency and implementation challenges, especially due to timing constraints (see §VI.7 “Elements affecting the timing of the IDA processes”).

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<sup>6</sup> Contrary to the single day ahead coupling, for which the CACM Regulation requires the establishment for fallback procedures according to Article 44, no requirements of this kind are given to the SIDC.



The number of IDA could be changed in the future based on approved capacity calculation region methodologies regarding intraday cross-zonal capacity calculation methodologies – including recalculation moments, initial feedback from stakeholders on the consultation of CZIDCP Methodology, implementation of CACM Regulation methodologies, experience from TSOs, market participants’ needs, or NRAs guidance (scalable solution).

The first IDA shall perform the pricing of the initial intraday cross-zonal capacity assessed before the start of continuous intraday market. Therefore, it shall be executed at the IDCZGOT at the latest and its timing shall allow all TSOs to perform their intraday cross-zonal capacity calculations (cf. §VI.7.a) “Operational processes from TSOs”). However, the timing of this process is not known at the time of this present CZIDCP Methodology and depends on the future methodologies regarding ID capacity calculations to be established at a CCR level.

As a first indicative proposal, it is therefore suggested that the IDA1 is executed at the latest possible time which is 22.00, market time day ahead (i.e. the calculation of its results starts at 22.00, market time day ahead). The results of the IDA1 shall be available at the latest at 22.30, market time day ahead, which grants that at least 30 min is available for the continuous matching for market participants before the IDCZGCT of the first tradable MTU. This is shown below:

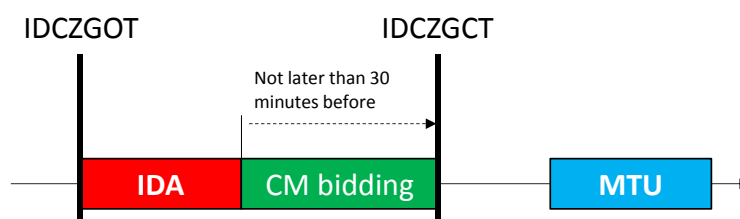


Figure 6: minimum duration of continuous matching after IDA

It has to be noted that in the current proposal for IDCZGOT it is technically possible to define optionally IDCZGOT before 22:00 market time day ahead (cf. §VI.7.d) “Regulation”).

The number of IDA after the IDA1 shall be based on a compromise between sufficient frequency and implementation challenges: frequent IDA are conditioned by frequent intraday cross-zonal capacity assessment: as stated above, this depends on the future methodologies to be established at a CCR level which are still not known. On the other hand, there shall be at least one IDA to allow for updating the information impacting the intraday market (i.e. update of intraday cross-zonal capacity).

As a first indicative proposal, it is therefore suggested that one IDA is also executed within the intraday timeframe. As the unique IDA within the intraday timeframe, IDA2 shall cover at least half of the total tradable hours, which means that the FAH for IDA2 shall be 12:00, intraday market time. Moreover, the IDA2 is executed at 10.00, market time intraday (i.e. the calculation of its results starts at 10.00, market time intraday). As for IDA1, the results of the IDA2 shall be determined at the latest at 10.30, market time intraday, which grants that at least 30 min is available for the continuous matching before the IDCZGCT of the first tradable MTU.

This means that each IDA shall be executed within 30 minutes: this is the maximum duration between the moment when bidding period is closed, and the moment when remaining capacity is made available to continuous matching.

The characteristics of the two suggested IDA are summarized below:

IDA	Execution time	Delivery period	Publication of results Remaining capacity available to CM
IDA1	22.00, market time day ahead	from 00:00 to 24:00 of the day D (FAH is 00:00)	no later than 22.30, market time day ahead
IDA2	10.00, market time intraday	from 12:00 to 24:00 of the day D (FAH is 12:00)	and no later than 10.30, market time intraday

Table 9: Indicative IDA timings

After the IDA1 is operated and its results are published, the hours 00:00 to 12:00 of the day D become tradable in the first continuous matching (CM1), while the hours from 12:00 to 24:00 of the day D become tradable in the second continuous matching (CM2) after the publication of the results of IDA2.

The following graph represents the process sequence of CZIDCP Methodology with IDA1 and IDA2 during day ahead and intraday timeframes:

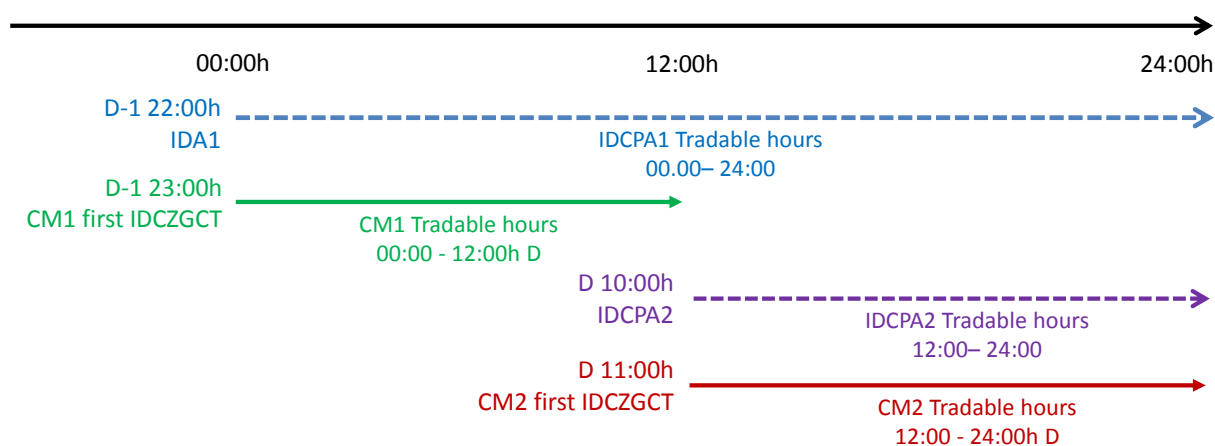


Figure 7: Process sequence of CZIDCP through day ahead and intraday timeframes

The table below details the timings and tradable hours of each IDA and the subsequent session of continuous matching of the SIDC:

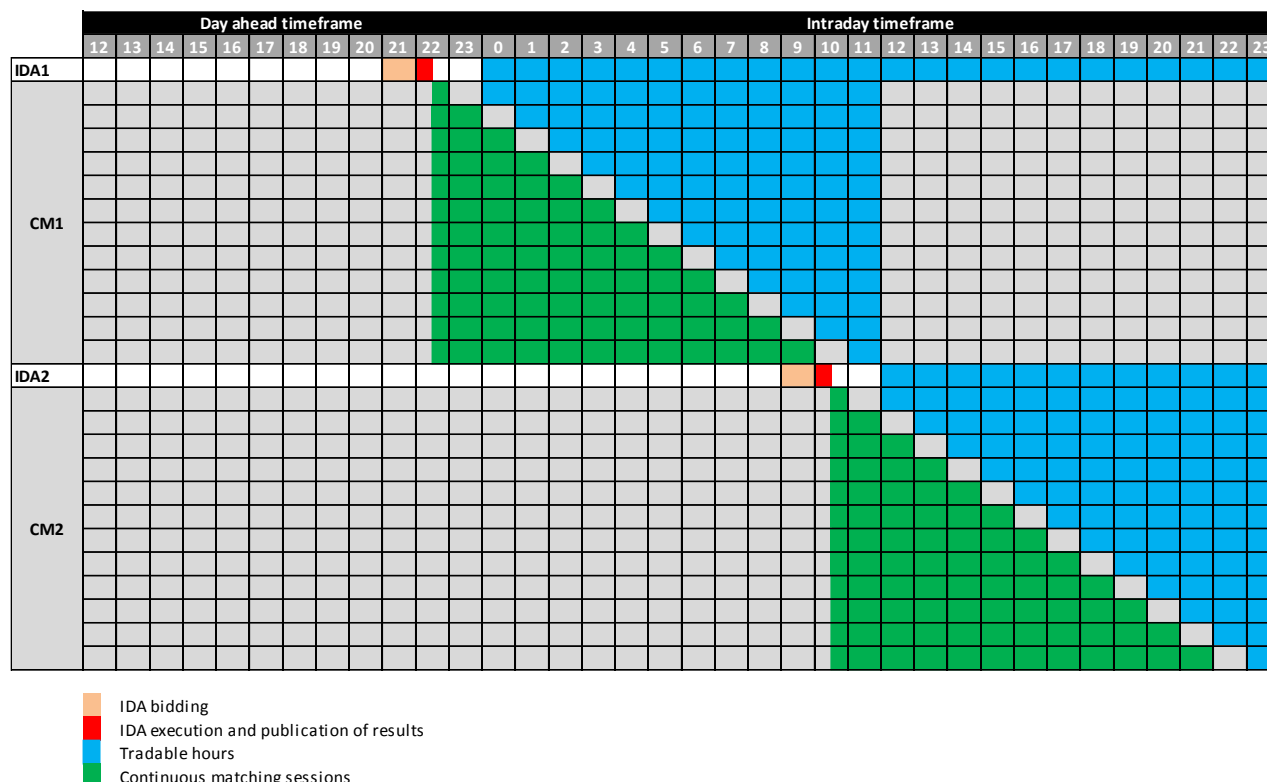


Figure 8: Timings of CZIDCP and continuous matching sessions

### b) Bidding time

The bids of market participants can be submitted to the IDA until the closing of the bidding period of this IDA (calculation of IDA results are then performed and take time during which bidding is no more possible). A distinction can be made between:

- The moments when the bidding period of an IDA is opened and closed;
- The moment when the initial value of intraday cross-zonal capacity to be allocated to this IDA is published. This depends on the intraday cross-zonal capacity calculation methodologies designed in each relevant CCR, however an indicative timing is proposed below;
- The moment when the final value of intraday cross-zonal capacity to be allocated to this IDA is firm. This moment corresponds to the latest moment when the value of intraday cross-zonal capacity to be allocated to this IDA can be changed. This moment has to be set uniformly in order to grant a uniform execution of the IDA (it is not possible that this moment is different for some borders).

The indicative timings for bidding of each IDA are the following:

IDA	Bidding opening/closing	Initial value of intraday cross-zonal capacity	Final value of intraday cross-zonal capacity
IDA1	No later than 21.00, market time day ahead 22.00, market time day ahead	21.00, market time day ahead	21.45, market time day ahead
IDA2	No later than 09.00, market time intraday 10.00, market time intraday	09.00, market time intraday	09.45, market time intraday

*Table 10: Indicative IDA bidding timings*

## 12. Implementation prerequisites

The effective implementation of the CZIDCP Methodology is conditioned by following prerequisites:

### a) Compatibility with CACM Regulation

#### Implementation of SIDC

XBID Solution is currently not prepared for implementation of CZIDCP Methodology for the initial go-live, since it has been agreed to not be in scope of the initial XBID solution.

ICDP Methodology and other functionalities required by CACM Regulation are in the process of being designed and will be implemented only after initial go-live of XBID Solution.

Given that future requirements like CZIDCP Methodology<sup>7</sup> can have a considerable impact on the current systems, it is important to establish a formal involvement of XBID Solution in the ongoing discussions with external stakeholders.

#### Definition of products

Current Proposal for products for SIDC (see document [6]) only defines the products to be accommodated during continuous matching. This Proposal shall then be reviewed so that products that are taken into account in IDAs are defined.

#### Definition of intraday cross-zonal gate opening time

The definition of IDCZGOT pursuant to Art. 59 (1) of CACM Regulation will impact the possible timing of IDA. Especially, different IDCZGOT represent a significant challenge when trying to define a uniform timing of IDAs (cf. §VI.7.d) “Regulation”).

#### Definition of intraday cross-zonal gate closing time

The definition of IDCZGCT pursuant to Art. 59 (1) of CACM Regulation will impact the possible timing of IDA (cf. §VI.7.d) “Regulation”).

#### Implementation of intraday cross-zonal capacity calculation methodologies per Capacity Calculation Region

Timing of IDAs ought to be aligned with intraday cross-zonal capacity recalculations, which depend on CCR methodologies still to be developed and implemented, pursuant to Article 21 of CACM Regulation.

<sup>7</sup> The possibility for the algorithm to allow for pricing of intraday capacity is identified as a “future requirement” of the continuous trading matching algorithm, see [4].

This represents a challenge as the timing of CCR methodologies development and implantation is not necessary uniformed (in addition to the fact that the process timing may also be different, as outlined in §VI.7.a) “Operational processes from TSOs”).

In addition, CZIDCP Methodology may have to be reassessed as part of the flow-based development of intraday cross-zonal capacity calculation methodologies. This shall include the possibility to have different intraday cross-zonal capacity modeling (i.e. CNTC or flow-based) between IDA and continuous matching.

### **Definition of back-up methodology**

Current Proposal for back-up methodology (see document [7]) doesn’t take into account the arrangements regarding operation of IDAs. This Proposal shall then be reviewed once the operation of IDAs is defined.

#### **b) Process and technical issues regarding practical implementation of the CZIDCP Methodology**

Once the CZIDCP Methodology has been approved and its implementation has begun the following topics have to be further detailed in practice (list is not exhaustive):

- Definition of processes, among which:
  - Validation of IDA results by TSOs and NEMOs;
  - Determination of intraday cross-zonal capacity made available to the continuous matching by TSOs, pursuant to IDA results. This topic shall deal with the possibility to have different intraday cross-zonal capacity modeling (i.e. CNTC or flow-based) between IDA and continuous matching;
  - Fallback/backup procedures regarding the transmission of cross-zonal capacity to be priced in IDA: for example, a default value of zero could be defined so that the IDA can still be executed in case of fallback for the capacity calculation of concerned CCRs, this point is associated with the question of cases leading to cancellation of IDAs;
- Specification of systems and algorithms used for CZIDCP implementation, in coordination with NEMOs:
  - Finalization of SIDC algorithm requirements (see [4]), as the case may be;
  - Choice of a system/algorithm, especially assessment if existing systems (PCR, XBID) can be reused and updated, or if new systems are needed;
- Post-processing of IDA results have to be designed with NEMOs.

#### **c) Summary**

The table below details the prerequisites needed to implement each step of the IDA process given the elements presented in the previous chapters:

IDA Step	Prerequisites
Publish IDCZC	Intraday cross-zonal capacity calculation methodology per CCR
Bidding opening	Definition of products Definition of intraday cross-zonal gate opening time Intraday cross-zonal capacity calculation methodology per CCR
Final IDCZC	Intraday cross-zonal capacity calculation methodology per CCR
Bidding closing	Definition of intraday cross-zonal gate closing time
IDA results	Choice of systems, algorithm involved in IDA
Post-processing	Definition of procedures for operation of the IDA
Remaining IDCZC for	Implementation of SIDC

IDA Step	Prerequisites
CM	Update of SIDC systems and procedures

Table 11: Implementation prerequisite for each step of the IDA

### 13. Implementation plan

Following main phases are identified towards implementation of the CZIDCP Methodology:

Implementation phase	Description
Adoption of CZIDCP Methodology	Following initial submission of CZIDCP Methodology, NRAs have to approve it pursuant to CACM Regulation
Final review of CZIDCP Methodology	A final review of the CZIDCP Methodology is needed when all methodologies that serve as prerequisite are approved (e.g. capacity calculation methodologies, IDCZGOT/IDCZGCT). The review of the CZIDCP Methodology shall include a review of its implementation plan to better evaluate its duration.
Elaboration of an implementation plan for CZIDCP Methodology by TSOs and NEMOs	NEMOs and TSOs shall together elaborate a common implementation plan upon approval of the CZIDCP Methodology and once the preconditions are met. The planning of the implementation shall also be coordinated with regards to deployment and updates of the XBID Solution.
Review of methodologies impacted by adoption of CZIDCP Methodology	Impacted methodologies shall be assessed by TSOs and NEMOs following the final review of CZIDCP Methodology and the elaboration of an implementation plan for CZIDCP Methodology. At least following methodologies shall be assessed, and, where required, amended: <ul style="list-style-type: none"> <li>- Proposal for products for SIDC</li> <li>- Proposal for back-up methodology</li> </ul>
Implementation of CZIDCP Methodology with the NEMOs	Specify the design with the NEMOs regarding especially: <ul style="list-style-type: none"> <li>• System/algorithm;</li> <li>• IDA Processes.</li> </ul> Then the specified design shall be implemented
Further review of CZIDCP Methodology against flow-based	CZIDCP Methodology will have to be reassessed as part of the flow-based development of intraday cross-zonal capacity calculation methodologies.

Table 12: Implementation phases for CZIDCP Methodology

The implementation plan shall be reviewed upon completion of all prerequisites identified for CZIDCP Methodology.

## VII. Summary of stakeholders comments and assessments

In line with Article 12 of the CACM Regulation, a public consultation lasting four weeks (from 11 April to 12 May 2017) was organised for the CZIDCP Methodology. During this period, all interested parties were able to submit comments on the proposal. ENTSO-E also organised a public workshop complemented by a webinar on 19 April 2017 with the intention to provide further insights on the proposal and to answer questions from stakeholders. Through the public consultation comments were received from 16 different respondents. In accordance with Article 12, all TSOs duly considered the comments received and examined the need for changes to the proposal.

The following chapter provides a summary of the replies received during the consultation, all TSOs' responses to the comments raised and how the relevant parts of the CZIDCP Methodology have been changed where appropriate. The full stakeholder comments are provided in the Annex.

### 1. Assessment of the comments received in the public consultation

#### a) Legal comments

Legal comments referred to the relation between single intraday coupling and the CZIDCP Methodology. The stakeholders' explicit understanding was that the intraday auctions were proposed as a component of the single intraday coupling. If the NRAs were to accept the proposal and requested it to be implemented, the stakeholders expected and were ready to develop the pan-European auctions and implement them as part of the SIDC MCO Function in line with CACM principle.

Other issue of legal relevance raised by stakeholders was the recognition of intraday auctions as a new market within the scope of the single intraday coupling. According to stakeholders the model was not included in CACM and they questioned whether the methodology could introduce a new market.

Assessment of comments:

Pursuant to Article 55 of the CACM Regulation, the TSOs acknowledge that the IDA proposed in the Methodology is an addition to continuous trading, but see nothing in the CACM Regulation preventing introducing such a mechanism. The Proposal introduces the cross-zonal intraday capacity pricing mechanism that will be mostly relevant to the operations of market participants. Although it is possible that the NEMOs and TSOs incur some costs from the pricing process under the Proposal, the Proposal does not address the cost sharing as the relevant provisions. The cost sharing relevance and implications shall be readdressed further at the implementation phase of the Methodology.

#### b) Auction timing and number of auctions

The Methodology proposal submitted to consultation suggested to perform two IDAs, one in the day ahead timeframe and the other in the intraday timeframe. In order to price the intraday cross-zonal capacity assessed before the start of continuous intraday market in the day ahead timeframe, the IDA1 was suggested to be performed at 22.00, market time day ahead (i.e. the calculation of its results starts at 22.00, market time day ahead). The results of the IDA1 shall be available at the latest at 22.30, market time day ahead, which grants that at least 30 min is available for the continuous matching for market participants before the IDCZGCT of the first tradable MTU. Furthermore, as a compromise between sufficient frequency and implementation challenges, it was proposed to perform one IDA within the intraday timeframe: the IDA2 would cover at least half of the total tradable hours, which would mean that the FAH for IDA2 would be 12:00, intraday market time. Moreover, the IDA2 would be executed at 10.00, market time intraday (i.e. the calculation of its results starts at 10.00, market time intraday). As for IDA1, the



results of the IDA2 would be determined at the latest at 10.30, market time intraday, which would enable at least 30 min for the continuous matching before the IDCZGCT of the first tradable MTU. After the IDA1 is operated and its results are published, the hours 00:00 to 12:00 of the day D become tradable in the first continuous matching (CM1), while the hours from 12:00 to 24:00 of the day D become tradable in the second continuous matching (CM2) after the publication of the results of IDA2.

With regard to the **auctions timing**, one general comment received referred to the need to ensure that ID auctions did not interfere with the DA market coupling. In particular, according to some respondents, this would be the case for the IDA2 proposed at 10:00, market time intraday: in order to participate in this auction, the proposed timing would require market parties to perform some activities which would overlap with those related to the preparation of bids for the participation to the day ahead auction whose gate closure is at 12:00.

With reference to the IDA1 in general the comments received stated that the timing proposed, 22:00 day ahead market time, was late and should be anticipated. In particular, such timing was considered a challenge for smaller traders without a 24h desk. Furthermore, the timing proposed was considered a deterioration compared to current arrangements where cross-border capacity is released earlier; for this reason some respondent proposed to introduce an auction early in the afternoon. Moreover, some respondents believed that the performance of the first auction in the evening was the most reasonable in consideration of the fact that the first auction should be performed after the capacity recalculation process had taken place and sufficiently late after the market coupling auction.

In addition, given the timing of the auctions proposed and Article 59 of CACM Regulation, according to which trade in the SIDC shall be allowed at most one hour before the start of the relevant market time, some respondents highlighted that securing the results of the auction in 30 minutes from the gate closure of the auction might be challenging.

With regard to the **number of auctions**, some respondent stated that the introduction of intraday auctions would interrupt continuous trading, making it impossible for market parties the optimization of their position, which is a continuous running process; in this respect, most of these respondents proposed not to introduce auctions in the intraday market. Other respondents stated that the introduction of Pan-European auctions in the intraday timeframe would be beneficial for the overall intraday market also in consideration of the fact that the auctions give market parties the opportunity to adjust their position having the certainty of the results at the end of the auctions. This second group of respondents found the number of auction proposed acceptable.

With particular reference to the second auction, it was highlighted by some stakeholders that the introduction of IDA2, market time intraday, according to the proposal would not allow to trade in the first continuous matching (CM1) the market time unit from 12:00 to 24:00 of the day D, which would become tradable in the second continuous matching (CM2) after the publication of the results of IDA2. In consideration of the above, some respondents propose to run continuous trading sessions for all market time units until the end of the day, without removing the second auction, while other respondents propose not to introduce the IDA2 in the market time intraday.

Assessment of comments: The intraday capacity to be priced is the capacity defined by TSOs of each capacity calculation region as a result of the capacity calculation process which will be established at regional level for the intraday timeframe according to the CACM Regulation; according to the Methodology, the intraday capacity would be priced by releasing it to the market in the Pan-European intraday auctions.



Therefore, in the scope of the Methodology, in order to price the intraday capacity in an efficient way and to guarantee a level playing field for market parties, it is essential that the capacity calculation process for intraday timeframe has been completed in all CCR regions and that the auction timings are harmonized at European level.

The aim of the first auction in the evening of the day ahead is to price the intraday capacity resulting from the first calculation of the capacity for the intraday timeframe done by TSOs after the day ahead market timeframe; the auction should therefore be performed after the calculation process has been completed.

The timing proposed for this auction – i.e. 22:00, market time day ahead, is based on a best estimation and on information all TSOs currently have with regard to the time needed for the new process of capacity calculation. The process will be performed by new entities – the coordinated capacity calculator - and shall be based, inter alia, on the Common Grid Model validated for the upcoming intraday timeframe. In consideration of the above, the timing of the first auction cannot be proposed earlier than 22:00 at the moment. It is worth clarifying that the local intraday markets (within the bidding zone) are not bound by the timing of the auction proposed. In addition, this proposal, which refer to a methodology for pricing the intraday capacity, does not impact on the definition of the gate opening time of the intraday market and therefore does not assess the possibility - for some borders - to allow cross border intraday trading before the first auction is performed, being understood that in such intraday trading sessions only residual capacity from day ahead market may be allocated.

Furthermore, participation of market participants either in auctions or in continuous matching – or even in both–is fully voluntary: in this sense the model proposed offers market participants different options for adjusting their positions, while respecting the requisite set in the CACM Regulation to allow market parties to trade energy at most till one hour before the start of the relevant market time.

With regard to the second auction, in consideration of the comments received by stakeholder, all TSOs propose not to include it in the final proposal of the Methodology to be submitted to NRAs for their approval. The introduction of a second auction in day D may be reassessed in the future after further experience on the combination of implicit auctions and continuous matching is gained. Furthermore the overall complexity of the model expected by most of the market parties will be tested and when there will be more certainty on the capacity calculation processes implemented across the CCRs within day D.

In consideration of the above, all TSOs propose to introduce only one IDA in the day ahead timeframe aimed at pricing the intraday capacity assessed by all TSOs of each CCR after the day ahead market timeframe. The main characteristics of this IDA are as follows:

IDA	Execution time	Delivery period	Publication of results Remaining capacity available to CM
IDA1	22.00, market time day ahead	from 00:00 to 24:00 of the day D (FAH is 00:00)	no later than 22.30, market time day ahead

*Table 13: Indicative IDA timings*

After the IDA1 is operated and its results are published, the hours 00:00 to 24:00 of the day D become tradable in the continuous matching.

The following graph represents the process sequence of the CZIDCP Methodology with one IDA as per the updated all TSO proposal:



IDA	Bidding opening/closing	Initial value of intraday cross-zonal capacity	Final value of intraday cross-zonal capacity
IDA1	No later than 21.00, market time day ahead 22.00, market time day ahead	21.00, market time day ahead	21.45, market time day ahead

*Table 14: Indicative IDA bidding timings*

In consideration of the processing time of the auction, which should be limited to 30 minutes in order to allow to trade in the continuous matching the first market time unit of day D for at least 30 minutes, when defining the set of products to be offered in the intraday auction it is necessary to take into account the total operation time of 30 minutes.

Lastly, all TSOs are committed to further review and improve the cross-zonal intraday capacity pricing Methodology in the future when there will be more certainty with regard to all the processes that will be established, in particular capacity calculation processes, and to methodologies not yet approved.

### **e) Liquidity splitting due to auctions**

In this section the main comments related to the impact on liquidity of intraday markets are summarised and assessed by all TSOs.

The main general comment received was that the introduction of IDAs would not be beneficial to the liquidity in the intraday continuous market, which could as a consequence prevent market participants to balance their position.

According to stakeholder feedback the first IDA could even reduce liquidity on the day ahead market coupling, as market participants might decide to bid in IDAs, which are closer to real time (for example in the last IDA).

On the other hand, some stakeholders recognized that auctions can pool liquidity, but that the number of auctions should be reduced in order for the auctions to only complement the continuous trading and not to hamper it.

Stakeholders also noted that this expected impact of the hybrid solution is not in line with the provisions of Article 63 of the CACM Regulation on complementary “regional” auctions, and in particular with paragraph 4 (a) of this article which foresees that “regional auctions shall not have an adverse impact on the liquidity of the single intraday coupling”.

Assessment of comments:

Combining both continuous trading and IDAs allow for covering all requirement for intraday market defined in CACM Regulation in a complementary way. Moreover, IDAs allow for an efficient and complementary allocation of intraday capacity in association with continuous allocation:

- **Efficient:** Increasingly companies trading on the intraday power market are using robots to execute trades and/or access the cross-border capacity. This replicates developments in financial markets and results in thousands of orders flooding into the order books in a race for speed rewarding the ones capturing margins between bid-ask spreads or being the first to reserve cross-border capacity. In contrary, auctions can be performed under pay-as-clear pricing which allows suppliers to bid/reveal marginal costs and flexibility volumes and be rewarded at the true system value reflected by the last bid accepted in the auction.

Compared to continuous trading, that effectively implements pay-as-bid pricing, auctions don't lead participants to try forecasting the marginal price which leads to market inefficiency, but on the contrary to express their "willingness to pay" in a "no regret" bidding strategy.

- Complementarity: Liquidity around opening of the intraday market, or more generally at the moment where the cross-border capacity is made available or updated, will be pooled by the auctions, which make the most economically efficient allocation of the cross-border capacity, as mentioned previously. On the other hand, liquidity for trading close to closing time of the market will remain on the continuous market, and is valuable as well for the traders because it allows them to adjust their portfolio till one hour before real time.

These principles can be summarized as follows:

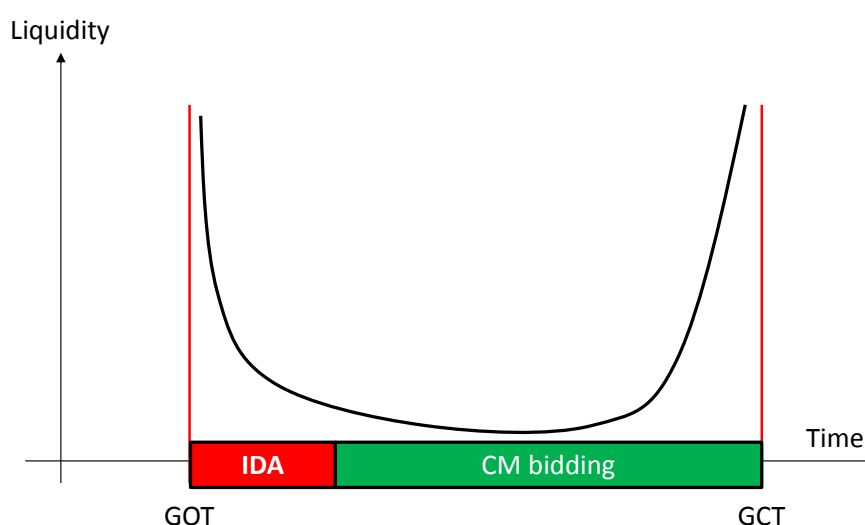


Figure 11: liquidity splitting

It has to be noted that the concentration of liquidity also happens more generally at the moment additional capacity is released. This means that there would also be in theory an interest to hold IDAs whenever capacity calculation is performed during the intraday timeframe. However, as explained further in the CZIDCP Methodology and this explanatory note, first implementation step will consist in one opening IDA, with a possible refinement or new IDAs depending on the further progress of capacity calculation implementation in the different CCRs. This adaptation takes into account the feedback received during the public consultation, where stakeholders indicated that they would prefer that the continuous trading session would allow trading of all remaining trading hours. In order to avoid introducing operational complexities by pausing continuous trading for the trading hours that will be offered in the upcoming auction while not doing this for trading hours that are no longer up for auction in order to respect Article 59 (3) regarding intraday cross-zonal gate closure which shall be at most one hour before the start of the relevant market time, the proposal was adapted to have only one IDA at day ahead stage.

Finally, the requirement on impact on liquidity expressed for complementary regional auctions (as stated in Article 63 of CACM Regulation) doesn't apply to the CZIDCP Methodology.

In the following, it is considered that only one opening IDA is implemented (see feedback regarding number and timing of auctions). This allows addressing the concerns expressed about a high number of auctions hampering the continuous market.

When it comes to the question of the possibilities of a market party to hedge its imbalance of its portfolio for the remaining day, the following cases can be distinguished when considering the introduction of IDA:

1. Not all cross-zonal capacity was allocated on the relevant bidding zone borders during opening IDA:  
Then, the market party can buy till the end of the day on the continuous market (trade will be possible given that not all cross-zonal capacity was allocated in the opening IDA so if it sets his bid price high enough it will obtain the needed energy);
2. All cross-zonal capacity was allocated during opening IDA on the relevant bidding zone border, but additional cross-zonal capacity is made available during continuous market session:  
This situation indicates that the TSOs have released additional cross-zonal capacity for the relevant bidding zone border after opening IDA.  
Market party can buy till the end of the day on the continuous market (trade will be possible given that additional cross-zonal capacity is made available).
3. All cross-zonal capacity was allocated during opening IDA on the relevant bidding zone border and no additional cross-zonal capacity is made available during continuous market session:  
Market party need to solve the issue in the local continuous market.

#### **d) Insufficient capacity allocation process**

Some comments received stated that the current intraday capacity allocation as proposed by the TSOs according to the CACM Regulation is not sufficient and prevents market parties to get the full value of intraday trading since most part of the cross-zonal capacity is supposed to be allocated at the day-ahead timeframe.

Assessment of comments:

The CZIDCP Methodology only covers the pricing of the intraday cross-zonal capacity. Its scope therefore begins at the moment this intraday cross-zonal capacity is known, and any consideration about the splitting between day ahead and intraday cross-zonal capacities is out of scope.

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## 2. Conclusions of Stakeholder consultation

Taking into account the feedback received during the public consultation (both written responses submitted via the web-based consultation tool and the positions communicated by stakeholders during the public hearing on the 19 of April 2017) of the CZIDCP Methodology, and the uncertainty in connection with the benefits of a within-day auction (mainly due to the lack of detailed information regarding the timing of the intraday capacity recalculation in different CCRs) the proposed within-day auction, the IDA2, has been removed from the final version of the proposal submitted to all NRAs. The removal of IDA2 also means that continuous trading taking place after IDA1 will no longer be divided into two discrete sessions. However, once further details of the intraday capacity recalculation become available, the introduction of the within-day auction(s) shall be reassessed.

With regard to the timing of the opening auction (IDA1) in day-ahead, it was decided that the 22:00 market time day-ahead—as proposed in the draft Methodology submitted for public consultation—would be maintained. As explained in section 2.b, this decision was taken on the basis of the need to ensure sufficient time to calculate the intraday cross-zonal capacities in most CCRs based on coordinated capacity calculation and the Common Grid Model on pan European level. Furthermore, the timing of IDA1 is set with the IDCZGOT of the majority of the CCRs in mind to ensure the upmost pooling of liquidity within IDA1.

All TSOs acknowledge the numerous implementation challenges that have been conveyed by stakeholders both during, and prior to, the public consultation and will continue to work closely with all NEMOs and affected stakeholders to ensure an effective and efficient implementation (in particular during the drafting of the detailed implementation plan as stated in Article 7(2) of the CZIDCP methodology).

## Annex I. Comments received in the public consultation

In the framework of the public consultation, stakeholders were asked to respond to a set of questions on the Cross-Zonal Intraday Capacity Pricing Methodology. The list of questions was as follows:

1. Do you consider the proposed model as beneficial and the overall complexity related to the number of auctions as acceptable?
2. What kind of key implementation challenges would you foresee for the model?
3. Do you agree with the proposed number and timings of the auctions and Continuous Trading sessions ? If alternate timings or numbers are preferred please state them and explain why?
4. Will the proposed interaction of auctions and Continuous Trading sessions enable market participants to optimize their positions in the intraday timeframe? Which advantages and disadvantages you would foresee. Please explain.
5. Which type of products would you consider beneficial for the auctions in the proposed model? Do you expect this proposed setup to create any issues for the tradable product range? If so, please explain why.
6. General comments

The table below groups the responses to the aforementioned questions by respondent.

Question number	Response/Comments	Respondent's organization
1	The NEMOs consider the pros and cons of Pan-European auctions in the ID timeframe should be evaluated within a proper market design assessment. We do not perceive the overall complexity of the proposal as being an issue as such.	NEMO Committee
1	OTE consider the introduction of Pan-European auctions in the ID timeframe as not beneficial to the liquidity in the ID continuous market. Smaller markets (where only few market participants are active) in particular may face a material decrease of liquidity in continuous trading. We also consider the proposed ID auctions as a new market defined within the scope of the Single ID Coupling. This model is not included in CACM and the question is whether the methodology can modify number of the markets as an alternative to the CACM.	OTE, a.s
1	We recognize that the TSOs are obliged to develop a model to price intraday capacity and we recognize that the proposed hybrid model has been chosen as a compromise that can be relatively easily implemented based on current algorithms, contrary to the other discussed models, which are briefly introduced in the explanatory note (p13).  We agree with the explanatory note that pricing of intraday cross-zonal capacity is not the objective as such, but that introducing pricing should help the intraday market to meet certain objectives. These objectives are listed on pages 10 - 11. In our view, the suggested hybrid model for intraday capacity pricing meets the objectives only partly:	Swedenergy



Question number	Response/Comments	Respondent's organization
	<p>Revealing scarcity: yes, auctions reveal scarcity at the time of the auction event.</p> <p>Signal for investment: no, the described auctions alone do not reveal precisely, where grid investments is needed, if there is not a simultaneous use of flow based capacity allocation. The investment signal from the day ahead auction is therefore more precise and useful than the signal from the proposed intraday auction.</p> <p>Efficient functioning of the intraday market: partly and very dependent on how auctions are implemented:</p> <p>First: contrary to stated in the explanatory note, market participants believe that purely continuous trading can lead to efficient market outcomes, especially if liquidity is high. "First-come-first-served" does not mean that a market participant with a high need will not be served, if he comes second or third. If the first market participant sees a bid from the second or third market participant with a higher need and a higher price, the first market participant can resell its position. An efficiently functioning intraday market can therefore be achieved by other means than by introducing auctions. 15 min products, regular releases of (cross border) capacity, trading closer to the operational hour, stronger incentives to trade yourself into balance through improved imbalance pricing are examples of how efficiency could be improved without introducing auctions.</p> <p>Second: we recognize that auctions can pool liquidity. However, the currently proposed auctions (number and timings) are not suited to pooling liquidity. 10 pm is only suitable for big market parties with 24 hour desks, 10 am is right when market parties prepare their day-ahead bids again favouring big market parties over smaller actors with less resources. In addition, it is a step back for many borders, which have earlier gate opening today. More below.</p> <p>Third: one of the main benefits of intraday trading is the flexibility it can give to market participants to react to unforeseen events and readjust their positions close to the operational hour. Continuous trading has been chosen as the target model for intraday trading because of the flexibility it offers to market participants. If a power plant trips 10 am and you foresee it coming back 6 pm the same day, continuous trading should allow you to adjust your position. However, the current proposal does not make it possible to trade all 24 hours of the operational day continuously, instead you have to wait until (after) the second auction to (continuously) trade the second half of the day. This leads to a loss of flexibility and efficiency for intraday trading, which is one of the main needs of market parties closer to the operational hour. Instead of complementing continuous intraday trading, the suggested second auction risks to harm it, which in our view runs counter CACM Article 59 and 63.</p> <p>Fourth: Adding a mechanism that requires market participants to change bidding behavior for the same intraday time frame from auctions with "pay-as-cleared" to continuous trading with "pay-as-bid", back to an auction and back to continuous trading, is adding complexity and reducing the efficiency of the proposed intraday solution for market participants. Will they be able to use the same trading interfaces, if different algorithms are running? Even if market participants will "just" have to change their behavior, but can trade on the same interface, there is added complexity back</p>	

Question number	Response/Comments	Respondent's organization
	<p>the interface for TSOs and NEMOs that have to change between different algorithms.</p> <p>To conclude, we do not see benefits in the currently proposed model. On the contrary: for the Nordic countries, it could be a huge step backwards. In order for it not to be harmful, it needs major adjustments.</p>	
1	<p>OMIE considers the introduction of Pan-European auctions in the ID timeframe as beneficial to the overall intraday market. In our view it will provide traders with an additional opportunity to trade energy, using a different mechanism than CT, having price references in the ID timeframe, which allows different bidding strategies. We do not perceive the overall complexity of the proposal as being an issue as such.</p>	OMIE
1	<p>If we evaluate the proposed model through the scope of optimization we should emphasize that the optimization is provided only for certain participants of the market and not for the overall market. From that point of view we believe the concept is not suitable for implementation, because the market risk is higher (and the price will go up). We see the intraday concept as a tool for balancing between production and consumption. By our opinion, the proposed model is not suitable for regulating the trading part to which we think it is oriented.</p>	HSE d.o.o.
1	<p>We recognize that the TSO's are obliged to develop a model to price intraday capacity. We agree with the explanatory note that pricing of intraday cross-zonal capacity is not the objective as such. According to this note the methodology should fulfil the three objectives: reveal scarcity, signal for investments and efficient functioning of the intraday market. We believe that these objectives are only partly met.</p> <p>We do not see benefits in the currently proposed model. On the contrary: we are afraid that the late opening auction, 10 pm, and reduced possibilities for continuous trading, will reduce flexibility and liquidity in the intraday market; this is more detailed accounted below.</p> <p>In addition, we would like to stress that the issue of intraday capacity pricing should also be dealt within the scope of an optimal cross-border (or cross-zonal) capacity allocation over the different time frames. An optimal allocation of resources (generation, storage and demand-side) across borders and therefore a maximisation of welfare can only be obtained if cross-border trading is possible on equal terms over all these time frames. The issue is, that cross-border intraday is currently seriously hindered as most capacity is allocated at the day-ahead stage, with an obligation to nominate (either through nomination or by selling the capacity through the day-ahead market coupling). This means that the value of keeping cross-border capacity open, with the objective to use it in the intraday stage is lost. This results in a suboptimal use of flexibility capacity across borders. This issue is described in a report “Revealing the value of flexibility”:</p> <p><a href="http://www.poyry.com/sites/default/files/imce/files/revealing_the_value_of_flexibility_public_report_v1_0.pdf">http://www.poyry.com/sites/default/files/imce/files/revealing_the_value_of_flexibility_public_report_v1_0.pdf</a></p> <p>As a result of this current, suboptimal situation, too little intraday capacity is allocated to the market. This issue needs</p>	Statkraft Energi AS

Question number	Response/Comments	Respondent's organization
	<p>to be addressed with priority, also because of the increasing importance of intraday markets (and therefore also of cross-border intraday trading) because of the growing share of intermittent generation. As soon as this issue is tackled, more cross-border intraday capacity will be made available, which also means that market-based allocation of that capacity becomes increasingly important. Capacity pricing should be based on a proper and thus market-based allocation of capacity. As long the current, suboptimal allocation of cross-zonal capacity is not changed, the capacity pricing will not be right.</p>	
1	<p>EPEX SPOT considers the introduction of Pan-European auctions in the ID timeframe should be beneficial. It will allow to:</p> <ul style="list-style-type: none"> <li>• Give incentives for TSOs to recalculate capacity in the intraday timeframe and offer more capacity to the market</li> <li>• Price the additional intraday capacity through implicit market coupling which will give signals to the market on the scarcity of interconnection capacity.</li> <li>• It should allow addressing some additional requirements such as the possibility to introduce complex products (i.e. smart blocks/complex orders), flow based market coupling, losses and ramping in the Intraday timeframe,</li> <li>• Provide a robust price reference for the Intraday market.</li> </ul> <p>EPEX SPOT does not perceive the overall complexity of the proposal as being an issue as such.</p>	EPEX SPOT
1	<p>EURELECTRIC acknowledges that the TSOs have to develop a methodology for intraday capacity (ID) pricing and we acknowledge that today's well-functioning system of continuous trading can be further improved.</p> <p>From this perspective, EURELECTRIC recognizes that a common methodology should be developed to manage both: capacity releases (for example intraday capacity calculation results in additional capacity, "left-over" capacity from the day ahead market coupling, additional capacity through reduced ramping restrictions), and capacity buybacks (intraday capacity calculation results in less capacity than previously allocated).</p> <p>In EURELECTRIC's view, the intraday capacity allocation process should be flexible enough to accommodate any delay or exceptional event that may justify a capacity release/buyback to occur at any time in the intraday time frame (and not only at 22.00 DA or 10.00 on day D). The proposed methodology fails to address this challenge and is in contradiction to the principle of pricing scarcity when it occurs.</p> <p>To highlight the fact that introducing ID auctions is not the only possible solution to price capacity in the ID time frame, EURELECTRIC proposes hereafter an alternative approach. Given the short consultation period, EURELECTRIC could</p>	EURELECTRIC

Question number	Response/Comments	Respondent's organization
	<p>not complete a full assessment of the respective advantages and drawbacks of this approach. Nevertheless, EURELECTRIC believes that ENTSO-E should consider this proposal (or any other that would be in line with the specifications of the CACM guideline) with the same care as its own proposal.</p> <p>In this respect, EURELECTRIC recommends to consider alternative designs for hybrid approaches. In particular, EURELECTRIC would propose the following approach:</p> <p>NEMOs open cross-zonal ID continuous market for all ISP as early as possible, conforming to the CACM recommendations in terms of IDCZGOTT. The gate opening should be harmonised within and between regions, and by no way later that the IDCZGOT in force as of today for each border. As opposed to harmonizing a late IDCZGOT at 10 pm and allowing national/regional exemptions, EURELECTRIC proposes to harmonize an early IDCZGOT at 3 pm and allow for national/regional exemptions.</p> <p>TSOs may decide at any time in the intraday time frame to release/buy back cross-zonal exchange capacities. In addition, TSOs could organize capacity calculation so as to perform releases/buybacks subsequently to capacity calculation at CCR level, i.e. around 22.00 and 10.00. We suggest however, to address the capacity calculation process in order to determine, how that process could be speeded up to allow an earlier model to run in and between CCRs. If some TSOs struggle to provide updated information, for example day ahead results, could be used in the model instead ?</p> <p>When a release/buyback is decided:</p> <ol style="list-style-type: none"> <li>a. TSOs notify market participants of the direction/volume/timing of the upcoming release/buyback within the cross-zonal ID continuous market. The timing should allow market participants to adapt their bidding strategy considering the new context, e.g. a notification delay between 15 min and 1h15 min could be relevant.</li> <li>b. Market participants can update their bids on the ID continuous market before the effective release/buyback.</li> <li>c. At the specified time, the ID MCO implements all capacity releases/buybacks requested by TSOs. We recommend relying on the same methodologies as TSOs can use to manage countertrading actions in the ID timeframe.</li> </ol> <p>Alternatively, the ID MCO could manage the process on behalf of the demanding TSOs:</p> <ol style="list-style-type: none"> <li>i. For a buyback: aggress the most economical offers in each bidding zone related with the countertrading action. For example, if a TSO aims to buy back 500MW of capacity previously allocated from BZ A to BZ B, the MCO takes the highest buy bids in A (or connected areas if corresponding capacities allow) for 500MW and the lowest sell offers in B (or connected areas) for 500MW. Simultaneously, it reduces the cross-zonal exchange capacity of the corresponding amount.</li> <li>ii. For a capacity release: aggress the most economical bids (as long as the price spread remains positive) in each bidding</li> </ol>	

Question number	Response/Comments	Respondent's organization
	<p>zone related with the capacity release. For example, if two TSOs aim to release 500MW of capacity from BZ A to BZ B, the MCO takes (as long as the price spread remains positive) the lowest sell bids in A (or connected areas if corresponding capacities allow) for up to 500MW and the highest buy offers in B (or connected areas) for up to 500MW. Simultaneously, it increases the cross-zonal exchange capacity of the corresponding amount (500MW even if only part of it is allocated at the release).</p> <p>iii. The “price” of intraday capacity corresponds then to the energy price spread consecutive to the capacity release/buyback implementation. TSOs may however face a revenue/cost corresponding to the average spread between the selected bids.</p> <p>In our view, this kind of hybrid approach could:</p> <ul style="list-style-type: none"> <li>• Be more flexible than relying mainly on ID auctions;</li> <li>• Introduce a single process for intraday trading instead of a combination of auctions and continuous trading, which is easier to handle for all involved actors;</li> <li>• Maximize liquidity on the continuous ID market;</li> <li>• Lead to appropriate remuneration of TSOs (or payment by TSOs, respectively) for any increase/decrease of capacity in the ID timeframe regardless of its timing;</li> <li>• Foster price formation reflecting the situation foreseen for the full ID timeframe very quickly after new information on cross-zonal capacities are available.</li> </ul> <p>EURELECTRIC is aware that the proposed model would encompass an evolution of the continuous trading algorithm which could take some time to be implemented. However, the absence of deadline for the implementation of the intraday capacity pricing methodology should lead TSOs to take in due account EURELECTRIC’s proposal, given the expected benefits of this option and its compliance with the CACM Regulation.</p> <p>Finally, EURELECTRIC believes that, irrespective of the model chosen for capacity pricing, priority should be given to the implementation and the successful go-live of the XBID platform. This does not exclude possible future evolutions of the XBID platform and algorithm. As it has been experienced for the single day-ahead coupling, an upgrade after the go-live of the XBID platform, by implementing the proposed hybrid solution, is an alternative that should be assessed.</p> <p>As of the proposal by ENTSOE, EURELECTRIC is concerned that introducing the auctions in the ID timeframe is likely to:</p> <ul style="list-style-type: none"> <li>• Reduce significantly liquidity on the continuous ID market, hampering market participants to balance their</li> </ul>	

Question number	Response/Comments	Respondent's organization
	<p>position as soon as possible. We note that this expected impact should lead to disregarding of the introduction of “regional” complementary auction, as foreseen in Article 63.4.a of the CACM guideline.</p> <ul style="list-style-type: none"> <li>• Introduce new uncertainties regarding "pricing" of capacity between the auctions in the different timeframes since some capacity can be auctioned three times (once in the day ahead, twice in the intraday). This challenge, together with the fact that final “pricing” is performed in the latest auction, may introduce significant uncertainties in DA generation dispatch scheduling, affecting subsequently the DA CGM and the ID capacity calculation processes )</li> <li>• Introducing ID auctions would impose TSOs to make a trade-off between waiting for the next auction or releasing/buybacking capacities through the continuous market as soon as possible/necessary.</li> <li>• The proposed additional auction at 10 a.m would lead to additional efforts for market parties. Market parties use the morning to prepare their bids for the day ahead auction at noon.</li> </ul>	
1	<p>IFIEC Europe welcomes the consultation by ENTSO-e on the proposal for the single methodology for cross zonal intraday capacity pricing in accordance with Article 55 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM). This single methodology for pricing cross zonal intraday capacity is based on implicit auctions complementing continuous trading mechanism on European level. However, from a conceptual and market perspective, IFIEC Europe does not see any added value in creating a mechanism for auctioning intraday capacity (as opposed to forward capacity) and proposes to keep only a mechanism of implicit capacity allocation, as is also the case in the day-ahead market, which has proven a very good way of allocating capacity to the cross-border electricity trade in that timeframe. According to IFIEC Europe, interrupting the continuous intraday trading mechanism (with implicit cross-border capacity allocation) has the potential to create important and non-beneficial disturbances in the functioning of the intraday market, and would certainly create distortions, e.g. related to the determination of the ex ante split of the available intraday cross-border capacity between explicit auctions and implicit allocation, which can lead to sub-optimal market outcomes and thus reductions in the social welfare as compared to the current system.</p>	IFIEC Europe
1	<p>A solid market for continuous trading has been established in the past years and market participants could significantly raise the efficiency of their trading tools, e.g. automatic trading. An implicit auction market would shift volumes away from this well recognised market and dishonour the market participants’ efforts.</p> <p>Smaller trading houses, where many trading tools are in-house developments, are disadvantaged in this fast changing environment. The proposed changes are discriminating smaller market participants.</p>	TIWAG-Tirolerwasserkraft AG - Dispatching



Question number	Response/Comments	Respondent's organization
1	<p>We recognize that the TSOs are obliged to develop a model to price intraday capacity and we recognize that the proposed hybrid model has been chosen as a compromise that can be relatively easily implemented based on current algorithms, contrary to the other discussed models, which are briefly introduced in the explanatory note (p13).</p> <p>We agree with the explanatory note that pricing of intraday cross-zonal capacity is not the objective as such, but that introducing pricing should help the intraday market to meet certain objectives. These objectives are listed on pages 10 - 11. In our view, the suggested hybrid model for intraday capacity pricing meets the objectives only partly:</p> <p>Revealing scarcity: yes, auctions reveal scarcity at the time of the auction event.</p> <p>Signal for investment: no, the described auctions alone do not reveal precisely, where grid investments is needed, if there is not a simultaneous use of flow based capacity allocation. The investment signal from the day ahead auction is therefore more precise and useful than the signal from the proposed intraday auction.</p> <p>Efficient functioning of the intraday market: partly and very dependent on how auctions are implemented:</p> <p>First: contrary to stated in the explanatory note, market participants believe that purely continuous trading can lead to efficient market outcomes, especially if liquidity is high. "First-come-first-served" does not mean that a market participant with a high need will not be served, if he comes second or third. If the first market participant sees a bid from the second or third market participant with a higher need and a higher price, the first market participant can resell its position. An efficiently functioning intraday market can therefore be achieved by other means than by introducing auctions. 15 min products, regular releases of (cross border) capacity, trading closer to the operational hour, stronger incentives to trade yourself into balance through improved imbalance pricing are examples of how efficiency could be improved without introducing auctions.</p> <p>Second: we recognize that auctions can pool liquidity. However, the currently proposed auctions (number and timings) are not suited to pooling liquidity. 10 pm is only suitable for big market parties with 24 hour desks, 10 am is right when market parties prepare their day-ahead bids again favouring big market parties over smaller actors with less resources. In addition, it is a step back for many borders, which have earlier gate opening today. More below.</p> <p>Third: one of the main benefits of intraday trading is the flexibility it can give to market participants to react to unforeseen events and readjust their positions close to the operational hour. Continuous trading has been chosen as the target model for intraday trading because of the flexibility it offers to market participants. If a power plant trips 10 am and you foresee it coming back 6 pm the same day, continuous trading should allow you to adjust your position. However, the current proposal does not make it possible to trade all 24 hours of the operational day continuously, instead you have to wait until (after) the second auction to (continuously) trade the second half of the day. This leads to a loss of flexibility and efficiency for intraday trading, which is one of the main needs of market parties closer to the operational</p>	Nordenergi



Question number	Response/Comments	Respondent's organization
	<p>hour. Instead of complementing continuous intraday trading, the suggested second auction risks to harm it, which in our view runs counter CACM Article 59 and 63.</p> <p>Fourth: Adding a mechanism that requires market participants to change bidding behavior for the same intraday time frame from auctions with "pay-as-cleared" to continuous trading with "pay-as-bid", back to an auction and back to continuous trading, is adding complexity and reducing the efficiency of the proposed intraday solution for market participants. Will they be able to use the same trading interfaces, if different algorithms are running? Even if market participants will "just" have to change their behavior, but can trade on the same interface, there is added complexity back the interface for TSOs and NEMOs that have to change between different algorithms.</p> <p>To conclude, we do not see benefits in the currently proposed model. On the contrary: for the Nordic countries, it could be a huge step backwards. In order for it not to be harmful, it needs major adjustments. More below</p>	
1	<p>We are of the opinion that the methodology for cross-zonal intraday capacity pricing should keep the intraday trading model as simple as possible. Meaning, if auctioning is required for pricing intraday cross-zonal capacity then one auction for the whole intraday trading day should be enough for fulfilling the purpose and then continuous trading shall continue without any further auctioning arrangements. Hence, we do not support two or more intraday auctions.</p>	Eesti Energia AS
1	<p>Enel acknowledges that intraday markets are a fundamental tool for market participants to keep positions balanced as injections and/or withdrawals may change between the day-ahead timeframe and real-time operations. The growth of intermittent generation capacity is increasing the importance of efficient intraday markets.</p> <p>Primary objectives of the CACM regulation in the ID timeframe should be:</p> <ul style="list-style-type: none"> <li>• ensuring non-discriminatory access to cross-zonal capacity,</li> <li>• optimizing the availability of cross-border transmission capacity of the grid by maintaining high level of security of supply,</li> <li>• promoting a liquid ID market.</li> </ul> <p>We do not judge on the benefits of the proposed model: Enel recognizes that a cross-zonal ID capacity pricing has to be proposed by ENTSO-E as per article 55 of the CACM, but wants to underline that different models are possible and that one of these is a continuous trading only model, in which capacity is allocated at a price equal to zero.</p> <p>Even if consistent with the CACM provisions, the timing of the proposed methodology for a cross-zonal ID capacity pricing is not optimal, being many important terms and conditions of the CACM regulation still not finalized, the XBID project delayed and the progress of capacity calculation and recalculation not sufficiently advanced.</p>	Enel

Question number	Response/Comments	Respondent's organization
1	<p>In general, Edison believes that the model proposed in the consultation document constitutes an acceptable solution for pricing the cross-zonal capacity, since it implements implicit auctions for the simultaneous allocation of energy and capacity. However, the proposal will not be harmful for the system only if it respects a set of conditions that Edison holds to be fundamental, as explained below.</p> <p>In general, Edison reckons that the presence of complementary auctions is beneficial for Intraday Market on Italian borders, also considering the capacity issues that characterise transmission lines between different Italian market zones. In fact, complementary auctions in continuous trading give to the operators the opportunity of adjusting their positions in auctions, having the certainty of the results at the end of the auction. However the number of auctions which integrate the continuous trading, defined both as pricing or complementary auctions, should be maintained limited. First, because a large number of auctions could potentially limit liquidity of continuous trading and hamper the development of an efficient ID market coupling. Second, it risks to unnecessarily complicate the market, instead of keeping the participation rules as simple as possible in order to attract new participants and increase competitiveness and liquidity.</p> <p>We acknowledge that CACM Regulation foresees the possibility to implement regional auctions and requires to develop a single methodology for pricing intraday cross-zonal capacity, that the current consultation proposes to be accomplished through implicit auctions, as the complementary auctions shall be. Nevertheless, we wonder why these auctions shall be considered separately. Edison also believes that the same requirements applicable to complementary regional auctions (Article 63 of CACM) should apply to ID implicit auctions for capacity pricing.</p> <p>For these reasons, Edison strongly believes in the implementation of only two implicit auctions, one in D-1 and one in D, for both the allocation of energy and capacity and for pricing of ID CZ capacity, in order to combine the complementary and pricing auctions and minimize the amount of auctions.</p>	Edison S.p.A.
1	<p>EDF does not consider the hybrid model proposed by TSOs beneficial for the efficient functioning of the single intraday coupling. EDF is in favour of the integration of intraday markets through the implementation of the intraday (ID) continuous trading, believing it to be the best solution to allow market participants to balance their position close to real time with sufficient flexibility.</p> <p>The introduction of intraday implicit auctions may significantly affect the liquidity of both the continuous intraday market and the single day-ahead market coupling which seems contrary to the objectives of the Capacity Allocation and Congestion Management (CACM) Regulation and with the European target model for the electricity market.</p> <p>In particular, EDF is concerned about the following potential impacts of the current proposal:</p> <ul style="list-style-type: none"> <li>• A significant reduction of liquidity on the continuous ID market due to its division into two different sessions which would prevent market participants from efficiently balancing their position as soon as possible. For</li> </ul>	EDF SA

Question number	Response/Comments	Respondent's organization
	<p>example, with the proposed model, market participants may not be able to trade simultaneously in the continuous trading session a block of hours starting in the morning and ending in the afternoon of day D. Moreover, we note that this expected impact of the hybrid solution is not in line with the provisions of Article 63 of the CACM Regulation on complementary “regional” auctions, and in particular with paragraph 4 (a) of this article which foresees that “regional auctions shall not have an adverse impact on the liquidity of the single intraday coupling”.</p> <ul style="list-style-type: none"> <li>• The introduction of the first ID auction in D-1 can reduce liquidity on the Day Ahead (DA) auction, as market participants may decide to manage transactions in the auctions closer to real time (i.e. through the last ID auction rather than the DA auction). This challenge, together with the fact that final capacity “pricing” is performed in the final auction, may introduce significant uncertainties in day-ahead generation dispatch scheduling process, affecting subsequently the DA Common Grid Model and the ID capacity calculation processes.</li> </ul> <p>Thus, EDF believes that the additional complexity related to the introduction of the two ID auctions and the expected negative impacts on the efficient functioning of the Single Intraday Coupling (SIDC) should induce TSOs to exclude this solution and to carefully assess alternative solutions having a much lower impact on the SIDC.</p> <p>EDF acknowledges that intraday cross-zonal capacity allocation on a first-come-first-served basis without capacity pricing may not be in line with Article 55 of the CACM Regulation, especially when capacity allocated through the DA auction was not sufficient to allow for price convergence between the related price zones.</p> <p>Nevertheless, since the CACM Regulation does not set a specific deadline for the implementation of the methodology for the pricing of intraday cross-zonal capacity, TSOs should take due account of alternative solutions for capacity pricing which implementation may be more complex and take more time but with a limited impact on the efficiency of the continuous matching process.</p> <p>From this perspective, EDF recognizes that a common ID capacity pricing methodology should be developed to manage both:</p> <ul style="list-style-type: none"> <li>• capacity releases (intraday capacity calculation resulting in additional capacity), and</li> <li>• capacity buybacks (intraday capacity calculation resulting in less capacity than previously allocated).</li> </ul> <p>In EDF’s view, the intraday capacity allocation process should be flexible enough to accommodate any delay or exceptional event that may justify a capacity release/buyback to occur at short notice at any time in the intraday time frame (and not only at 22.00 DA or 10.00 on day D). The proposed methodology fails to address this challenge. In this respect, EDF recommends consideration of alternative designs for the hybrid model for intraday cross-zonal capacity pricing. In particular, EDF would propose the following approach:</p>	

Question number	Response/Comments	Respondent's organization
	<p>1.NEMOs open CZ ID continuous market for all ISPs as early as possible, according to the IDCZGOT proposal.</p> <p>2.TSOs may decide at any time in the intraday time frame to release/buy back CZ exchange capacities. Nevertheless, TSOs could organize capacity calculation so as to perform releases/buybacks after capacity calculation at CCR level, i.e. around 22.00 in day-ahead and 10.00.</p> <p>3.When a release/buyback is decided:</p> <p>a. TSOs notify market participants of the direction/volume/timing of the upcoming release/buyback within the CZ ID continuous market. The timing should allow market participants to adapt their bidding strategy on the continuous ID market considering the new context, e.g. a notification delay between 15 min and 1 h15 min before the effective release/buyback could be relevant.</p> <p>b. Market participants can update their bids on the ID continuous market platform before the effective release/buyback.</p> <p>c. At the specified time, the ID Market Coupling Operator (MCO) implements all capacity releases/buybacks requested by the TSOs. We recommend use of the same methodologies as those used by TSOs to manage countertrading actions in the ID timeframe.</p> <p>Alternatively, the ID MCO could manage the process on behalf of the TSOs, which would possibly require the development of a new functionality :</p> <p>i. For a buyback: selection of the most economical offers in each bidding zone related with the countertrading action. For example, if a TSO aims to buy 500MW of previously allocated capacity back from BZ A to BZ B, the MCO takes the highest buy bids in A (or connected areas if corresponding capacities allow) for 500MW and the lowest sell offers in B (or connected areas) for 500MW. Simultaneously, it updates the CZ exchange capacity of the corresponding amount. If the volume offered in each bidding zone does not allow the fulfilment of the TSO's request, only part of it is satisfied and additional volume can be procured through another buyback process.</p> <p>ii. For a capacity release: selection of the most economical bids (as long as the price spread remains positive) in each bidding zone related to the capacity release. For example, if two TSOs aim to release 500MW of capacity from BZ A to BZ B, the MCO takes (as long as the price spread remains positive) the lowest sell bids in A (or connected areas if corresponding capacities allow) for up to 500MW and the highest buy offers in B (or connected areas) for up to 500MW. Simultaneously, it increases the CZ exchange capacity of the corresponding amount (500MW even if only part of it is allocated at the release).</p> <p>In our view, this kind of hybrid approach could:</p>	

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	<ul style="list-style-type: none"> <li>• be more flexible than relying mainly on predefined ID auctions;</li> <li>• introduce a single process (easier to handle for market participants) for both capacity releases and capacity buybacks;</li> <li>• maximize liquidity on the continuous ID market;</li> <li>• lead to appropriate remuneration of TSOs (or payment by TSOs, respectively) for any increase/decrease of capacity in the ID timeframe regardless of its timing;</li> <li>• foster price formation reflecting the situation foreseen for the full ID timeframe very quickly after new information on cross-zonal capacities is available;</li> <li>• be compatible with the CACM requirements on capacity pricing: the proposed solution is compatible with continuous matching, reflects congestion if capacity is scarce, is based on actual orders, isn't complemented by additional charges or fees and capacity price is made available at the time of matching the order;</li> <li>• be compatible with the introduction of a first auction in D-1 to be held before the IDCZGOT (e.g. at 21:00).</li> </ul> <p>EDF is aware that the proposed model would encompass an evolution of the continuous trading algorithm which could take some time to be implemented. However, the absence of deadline for the implementation of the intraday capacity pricing methodology should lead TSOs to take in due account EDF's proposal, given the expected benefits of this option and its compliance with the CACM Regulation.</p> <p>Finally, EDF believes that, irrespective of the model chosen for capacity pricing, priority should be given to the implementation and the successful go-live of the XBID platform. This does not exclude possible future evolutions of the XBID platform and algorithm. As it has been experienced for the single day-ahead coupling, an upgrade after the go-live of the XBID platform, for instance the implementation of the proposed hybrid solution, is an alternative that should be assessed.</p>	
1	<p>No.</p> <p>One of the key objectives of the CACM Regulation is the establishment of a liquid continuous intraday (ID) market. Such a market will enable market participants to adjust their positions at any moment of the day for all the remaining hours. It is a tool that will allow dynamic capacity calculation and efficient, close-to-real-time capacity allocation in ID. The continuous ID market e.g. in DE-AT-LU and in FR is already today a good example: in fact, most liquidity there is seen in the last hours before real time.</p> <p>Introducing ID capacity pricing through auctions as proposed in the model would have major impacts on continuous ID</p>	<p>VERBUND Trading GmbH</p>

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	<p>trading and undermine its efficiency. It will risk splitting and reducing liquidity on the continuous market (as we have seen by introducing 1/4h ID auction in DE-AT-LU), and a general shift in the bidding behaviour towards the first auction to secure scarce ID capacity. This is inefficient and contradicts the objective to move even closer to real time, which is also indispensable for a future flexible, RES driven market. Besides, the proposed model limits block bids to periods between two auctions and may suspend the ID continuous trading during the auctions. Generally we believe that the primary objective of intraday capacity allocation should be to ensure non-discriminatory access to the grid. A complicated pricing and auction mechanism introduces the risk that capacity is not being allocated in an optimal way to the market, which may imply even a welfare loss.</p>	
2	<p>We assume that PMB/Euphemia can be used for the ID auctions, but technical and contractual implications remain to be considered. A new PMB version granting the possibility to run multi-sessions for the same flow date should be adapted. Of course, overlap between different DA and ID sessions should be avoided. When designing the business process, attention should be paid to the fact that, if implicit auction running time should be limited, some aspects applied in the DA process should be simplified for the ID auctions. Assuming PMB/ Euphemia is used for the auctions, it will have to be ensured that the ID auctions do not interfere with the DA auctions (input, output, workflow must at all times be separate). An efficient, presumably automated, process will have to be implemented to provide the remaining capacity after the ID auction as input to the XBID continuous market. Securing the results of an auction in 30 minutes from the GCT might be challenging.</p>	NEMO Committee
2	<p>A new business process and corresponding workflow will have to be designed for the ID auctions. Assuming PMB is used for the auctions, it will have to be ensured that the ID auctions do not interfere with the DA auctions (input, output, workflow must at all times be separate). An efficient, presumably automated, process will have to be implemented to provide the remaining capacity after the ID auction as input to the XBID continuous market.</p> <p>Securing the results of an auction in 30 minutes from the GCT might be challenging.</p>	OTE, a.s.
2	<p>The first challenge we see is connected to the proposed timing. Besides not considering a closing auction, starting intraday trading as late as 10 pm is far too late. Continuous trading must be enabled immediately after DA-results and flows are available. In addition, 10 pm is well outside of today's business hours in the electricity sector and would necessitate restructuring of trading desks and connected back offices. It is of course possible for bigger market parties to make those investments. However, especially small – and medium sized market participants might not be able to participate in the first auction directly. They could choose to enter the market later the next day, which would put them at a disadvantage. Or they might wish to procure those services from third parties, which would allow them market access, but would lead at the same time to fewer actors being active directly on the market and higher concentration. Concerning</p>	Swedenergy



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	<p>the second auction, 10 am is within business hours, but at the same time market parties are active preparing their bids for the day ahead market. Again, bigger parties might have the resources to participate in both auctions simultaneously; smaller parties might outsource or choose not to participate. We see the timing as a risk that puts small and medium sized actors at a disadvantage, leading them to either exit the market altogether or to higher market concentration if they procure services from third parties. All reactions have negative implications for the efficient functioning of the intraday market and run thereby counter to one of the reasons to introduce auctions in the first place. Besides, given the proposed auction times in combination with the gate closure at 60 min before the operational hours the hours 0 and 12 can be only traded for 30 min in continues trading, which is a very short period for adjustment of auction results in trading, should adjustments be needed. In addition, 10 pm gate opening for intraday trading is a huge step backwards for all Nordic bidding zone borders, both within countries and across country borders.</p> <p>The second challenge is connected to the national or regional exemptions, which allow an earlier national/regional gate opening time if a TSO/the TSOs of the region and the NRAs agree. While an earlier auction in the day ahead would allow small – and medium sized participants to participate on an equal footing with bigger actors, there is a big risk, that - lacking pressure to harmonize - some countries would block an earlier gate opening, others would agree on a different regional gate openings, and connection between regions might be forgotten. The result of these national and regional exemptions from a too late harmonized gate opening at 10 pm could provoke a European patchwork, instead of the intended harmonized gate opening. This is unacceptable for the Nordic region, which currently has a harmonized gate opening within the region and on the connections to the Baltics and the CWE at 2 o'clock. Disharmonized gate opening times across the Nordic region or between the Nordics region and its neighbours could in addition lead to risks for market participants that need to decide if they offer their flexibility at an earlier gate opening to a purely national market or if they choose to wait for the harmonized gate opening at a later stage. And it would put market participants in a late opening region at disadvantage to those in a region with earlier gate opening. To conclude, a too late European harmonized gate opening could provoke different non-harmonized earlier gate openings at national and/or regional level, which would in effect lead to market splitting instead of the intended market integration.</p> <p>Third, the proposed split of the continuous trading in two blocks due to the inclusion of a second auction considerably reduces the flexibility that intraday trading is supposed to offer to market participants. That flexibility becomes more important closer to real time if unforeseen events happen such as an outage, a sudden change in wind strength etc. Currently market participants can go on the continuously traded intraday market and adjust their position, in the future, if the event happens in the first half of the day, market participants can trade the first hours but have to wait for the second auction to adjust their position for the rest of the event. This is a considerable reduction of flexibility, which is one of the main objectives of the intraday market. In addition, the split of the continuous trading into two blocks introduces added inefficiencies, since market participants need to change their bidding behavior repeatedly between auction, continuous trading and auction back to continuous trading for the intraday timeframe.</p>	



Question number	Response/Comments	Respondent's organization
2	<p>Since PMB/EUPHEMIA are already prepared ready for Intraday Auctions (multi-session), only reduced adaptations to the DA business process and corresponding workflow will would have to be done for the ID auctions. No relevant challenges are therefore envisaged in the implementation of the model.</p>	OMIE
2	<p>Mismatch of regulations should be solved. We think that for regulation of production we need a high flexibility of capacity. With this we face certain asymmetries which could lead to great losses for companies. An example is the announcement of loss of production block at 8.00 a.m. for 5.00 to 12 p.m. that day. Because you are in between CM1 and before IDA2 you cannot enter into a transaction to cover the loss before the REMIT announcement. But when you announce the information in accordance with REMIT, you than have to wait for the IDA2 auction for several hours, unable to enter into transaction prior to that, resulting in a much higher price to cover the loss, since your competitors try to push you into higher costs.</p>	HSE d. o.o.
2	<p>The proposed timing of the auctions represents a huge step backwards for the Nordic market participants.</p> <p>An opening auction at 10 PM implies an opening time for all cross zonal trading 8 hours later than in the current Nordic intraday market. As the bidding zones in the Nordics are small, access to cross zonal trading is crucial for trading liquidity. An opening auction should be as early as possible after spot, to enable continuous trading a soon as possible.</p> <p>The proposed split of continuous trading in two blocks reduces the flexibility that the intraday trading is supposed to offer the market participants. It is not beneficial that the participants should have to wait for the second auction to adjust positions for the second half of the day. As most of the intraday trading activity is event triggered, there is a need for an open market as the events occur.</p> <p>The time for continuous trading of the first hours after the auctions (hour 1 and hour 13) is reduced to 30-45 minutes, which is a very short period for adjustment of auction results, should adjustments be needed.</p> <p>The timing of the first auction is outside of normal working hours. The timing of the second auction corresponds with the most intensive work load for spot bid preparation. Both times favour large participants with 24 hour trading desk, which in turn may hurt the liquidity in the auctions.</p>	Statkraft Energi AS
2	<p>We assume that PMB/Euphemia can be used for the ID auctions, but technical and contractual implications remain to be considered.</p> <p>A new PMB version granting the possibility to run multi-sessions for the same flow date should be adapted. Of course, time overlapping between different session should be avoided. When designing the business process, attention should be paid to the fact that, should implicit auction running time need to be limited, the DA process will need to be simplified.</p> <p>Assuming PMB/ Euphemia is used for the auctions, it will have to be ensured that the ID auctions do not interfere with</p>	EPEX SPOT

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	<p>the DA auctions (input, output, workflow must at all times be separate). An efficient, presumably automated, process will have to be implemented to provide the remaining capacity after the ID auction as input to the XBID continuous market. Securing the results of an auction in 30 minutes from the GCT might be challenging.</p>	
2	<p>EURELECTRIC considers that ENTSO-E's proposal contradicts articles 59 and 63 of the CACM guideline. Implementing the proposed approach encompasses therefore legal challenges.</p> <p>Furthermore:</p> <ul style="list-style-type: none"> <li>• running additional auctions in the ID time frame is likely to reduce the significance of DA prices, leading to higher uncertainty in DA dispatch scheduling and thus increasing margin requirements in ID capacity calculation</li> <li>• If capacity is finally “priced” with the last auction, should FTR be valued against the prices resulting from this last auction? Also, could it not be possible to nominate PTRs until 2h before the ID gate closure (then UIOSI) – that would allow to develop a solution where capacity allocation is fully optimized between the different timeframes</li> </ul> <p>Running additional auctions at the same time frame as Day-Ahead auction might generate operational difficulties for market participants.</p>	EURELECTRIC
2	<p>For IFIEC Europe, the proposed hybrid model is a bad compromise with considerable downsides for market participants. The different options for the hybrid model have not been assessed in sufficient depth.</p>	IFIEC Europe
2	<p>The proposal of the hybrid model requires market participants to enter their auction orders into a parallel system while operating on the continuous market. The other choice is to stop the continuous trading and to focus on the auction for a certain while. The handling of two system would be rather inconvenient for an ID trader.</p>	TIWAG-Tirolerwasserkraft AG - Dispatching
2	<p>The first challenge we see is connected to the proposed timing. Starting intraday trading as late as 10 pm is far too late. Continuous trading must be enabled immediately after DA-results and flows are available. In addition, 10 pm is well outside of today's business hours in the electricity sector and would necessitate restructuring of trading desks and connected back offices. It is of course possible for bigger market parties to make those investments. However, especially small – and medium sized market participants might not be able to participate in the first auction directly. They could choose to enter the market later the next day, which would put them at a disadvantage. Or they might wish to procure those services from third parties, which would allow them market access, but would lead at the same time to fewer actors being active directly on the market and higher concentration. Concerning the second auction, 10 am is within business hours, but at the same time market parties are active preparing their bids for the day ahead market. Again, bigger parties might have the resources to participate in both auctions simultaneously; smaller parties might outsource or choose not to</p>	Nordenergi

Question number	Response/Comments	Respondent's organization
	<p>participate. We see the timing as a risk that puts small and medium sized actors at a disadvantage, leading them to either exit the market altogether or to higher market concentration if they procure services from third parties. All reactions have negative implications for the efficient functioning of the intraday market and run thereby counter to one of the reasons to introduce auctions in the first place. Besides, given the proposed auction times in combination with the gate closure at 60 min before the operational hours the hours 0 and 12 can be only traded for 30 min in continues trading, which is a very short period for adjustment of auction results in trading, should adjustments be needed. In addition, 10 pm gate opening for intraday trading is a huge step backwards for all Nordic bidding zone borders, both within countries and across country borders.</p> <p>The second challenge is connected to the national or regional exemptions, which allow an earlier national/regional gate opening time if a TSO/the TSOs of the region and the NRAs agree. While an earlier auction in the day ahead would allow small – and medium sized participants to participate on an equal footing with bigger actors, there is a big risk, that - lacking pressure to harmonize - some countries would block an earlier gate opening, others would agree on a different regional gate openings, and connection between regions might be forgotten. The result of these national and regional exemptions from a too late harmonized gate opening at 10 pm could provoke a European patchwork, instead of the intended harmonized gate opening. This is unacceptable for the Nordic region, which currently has a harmonized gate opening within the region and on the connections to the Baltics and the CWE at 2 o'clock. Disharmonized gate opening times across the Nordic region or between the Nordics region and its neighbours could in addition lead to risks for market participants that need to decide if they offer their flexibility at an earlier gate opening to a purely national market or if they choose to wait for the harmonized gate opening at a later stage. And it would put market participants in a late opening region at disadvantage to those in a region with earlier gate opening. To conclude, a too late European harmonized gate opening could provoke different non-harmonized earlier gate openings at national and/or regional level, which would in effect lead to market splitting instead of the intended market integration.</p> <p>Third, the proposed split of the continuous trading in two blocks due to the inclusion of a second auction considerably reduces the flexibility that intraday trading is supposed to offer to market participants. That flexibility becomes more important closer to real time if unforeseen events happen such as an outage, a sudden change in wind strength etc. Currently market participants can go on the continuously traded intraday market and adjust their position, in the future, if the event happens in the first half of the day, market participants can trade the first hours but have to wait for the second auction to adjust their position for the rest of the event. This is a considerable reduction of flexibility, which is one of the main objectives of the intraday market. In addition, the split of the continuous trading into two blocks introduces added inefficiencies, since market participants need to change their bidding behavior repeatedly between auction, continuous trading and auction back to continuous trading for the intraday timeframe.</p>	
2	Proposed methodology requires development of new trading tools.	Eesti Energia

Question number	Response/Comments	Respondent's organization
		AS
2	<p>One of the challenges of the model is the current lack of a clear timing and methodologies of the intraday cross-zonal capacity calculation and recalculations: in order to effectively make capacity available for cross-border trades, it is fundamental to calculate it close to the delivery period with updated information on the grid status, on previous allocations and on actual usage.</p> <p>Another challenge that should be tackled, on which Enel would ask for additional clarification, is the relationship between the proposed allocation of capacity through implicit auctions of this methodology under consultation, the one foreseen by complementary regional auction mechanisms as per article 63 of the CACM and the continuous trading mechanism itself: additional details should be provided on the exchange of information between TSOs, NEMOs and MCOs, the allocation and splitting of capacity on the different auction mechanisms and platforms (single European and regional one) and the level of information given to market participants</p>	Enel
2	<p>Edison expects a risk of reduced liquidity in ID continuous trading if the number of auctions is large and further separated complementary auctions are introduced locally in single CCR. The auctions are supposed to be introduced in order to complement the continuous trading and not hampering it. Moreover, it is important to make the mechanism not too complex in order to sustain a liquid and efficient continuous market.</p>	Edison S.p.A.
2	<p>As already underlined, the introduction of additional auctions in the ID time frame would introduce some implementation challenges when ensuring the compatibility of the proposed capacity pricing methodology with the implicit capacity allocation through continuous trading. In our view, the solution proposed by TSOs does not seem to ensure the preservation of a well-functioning intraday continuous trading market.</p> <p>The implementation challenges would be even harder if additional cross-zonal intraday auctions, besides IDA1 and IDA2, were introduced after each intraday cross-zonal capacity update, as foreseen in Article 5 of the proposed methodology. This evolution would encompass a further splitting of the continuous trading session in several sub-sessions with further limitations of the trading period for many Market Time Units (MTUs).</p> <p>Moreover, the implementation of intraday implicit auctions is likely to reduce the significance of day-ahead prices (due to a concentration of transactions towards new ID auctions), leading to higher uncertainty in daily dispatch scheduling process which may increase the margin requirements used by TSOs in intra-day capacity calculation.</p> <p>Finally, EDF considers that TSOs' proposal is not in line with articles 59 and 63 of the CACM regulation as detailed in the answer to question 3. Therefore, the implementation of the proposed hybrid model may pose some significant legal challenges which should not be neglected.</p>	EDF SA
3	<p>The NEMOs find the moment of the first auction (D-1, 22:00h) rather late. Today, XB capacity is being released before</p>	NEMO

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	<p>D-1 22:00h, whilst in the proposal this would not be done prior to the auction and XB trading in the ID timeframe would not be possible before the D-1 auction. Such a deterioration against current arrangements is considered undesirable. In addition, the timing of 22:00h poses a challenge to smaller traders without a 24h desk, whereas this auction would be the sole trading venue for the scarcest ID capacity. This would put smaller traders at a disadvantage. Also, there would be impact on key operational personnel of NEMOs in order to be available at 22:00h.</p> <p>To enable an earlier start of the cross-zonal ID market than at 22:00h of D-1 (this means an earlier first ID auction, followed by an earlier start of the continuous trading), the NEMOs find it important that the recalculation of capacities after DA is performed as efficiently and quickly as possible.</p>	Committee
3	<p>OTE finds the moment of the first auction (D-1, 22:00h) rather late. Today, XB capacity is being released before D-1 22:00h, whilst in the proposal this would not be done prior to the auction and XB trading in the ID timeframe would not be possible before the D-1 auction. Such deterioration against current arrangements is considered undesirable. In addition, the timing of 22:00h poses a challenge to smaller traders without a 24h desk, whereas this auction would be the sole trading venue for the scarcest ID capacity. This would put smaller traders at a disadvantage. Also, there would be impact on key operational personnel of OTE in order to be available at 22:00h.</p> <p>To enable an earlier start of the cross-zonal ID market than at 22:00h of D-1 (this means an earlier first ID auction, followed by an earlier start of the continuous trading), OTE finds it important that the recalculation of capacities after DA is performed as efficiently and quickly as possible.</p>	OTE, a.s.
3	<p>We disagree with the proposed number and timings of the auctions and the continuous trading sessions for the reasons described above as they are too late, increase the risk of non-harmonized solutions, and as the second auction reduces the flexibility of intraday trading and thereby harms its main purpose. Also we lack the option of a closing auction. If the TSOs want to price intraday capacity and in order to pool liquidity, we suggest to move the starting auction for the intraday to an earlier point in time, for example 2 pm. However, in order for any starting auction to make sense, there needs to be a commitment to make cross border capacity available.</p> <p>That move should happen in a harmonized way across the whole Nordic regions including the borders to neighbouring regions. Rather than proposing a common gate opening at 10 pm with exemptions possible, we propose to turn it around. We propose a harmonized gate opening at 2 pm, and TSOs can get border by border exemptions if they have good reasons. We propose to drop the second auction at 10 am, since it harms the flexibility of the intraday trading by delaying the gate opening of continuous trading of the second half of the day until 10.30 am. Simply pricing intraday capacity for the second half of the day a second time is not an objective as such (it has been priced once in the first intraday auction already!) and should not take precedence over continuous trading and the flexibility it offers. We would also like to know in this context, whether the TSOs have assessed the option of closing auctions at the end of every hour for the</p>	Swedenergy

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	<p>remainder of the capacity after gate closure of the continuous trading for pricing the capacity? A closing auction would not harm continuous trading since it requires neither a later gate opening of the second continuous session nor an interruption of the continuous trading session. In addition, a closing auction could also pool liquidity closer to real time, to the benefit of smaller market participants, intermittent power production, demand response and aggregators, besides allowing TSOs to price remaining capacity.</p>	
3	<p>The proposed number of auctions is acceptable for OMIE. In our understanding, even more auctions could be run if there would be possible to perform more capacity calculations in the ID timeframe. Increasing the number of auctions would result in a more efficient and reliable pricing mechanism, as the auctions would be closer to the delivery time, reflecting more properly the scarcity of the capacity.</p> <p>Related to the suggested ID auctions timings, we find the moment of the first auction (D-1, 22:00h) rather late. It would pose a challenge to smaller traders without a 24h desk. Any improvement in the capacity calculation process that would allow to move the first auction to the late afternoon or early evening hours would be appreciated. Furthermore, it would give more time for the NEMO's processes and would allow an earlier opening time of the continuous trading as well.</p>	OMIE
3	<p>As the auction model is proposed it crucially changes the concept of intraday. If we look only at IDA for all MTUs of day D there is no changes to today's concept. We can establish the same for IDA for all MTUs from 12.00 until the end of the day D. In the interim period, we have CM period where we can give dynamic bids, but the optimum of users of such system is questionable. The key difference is that IDA that we know today is crucially different, because the day is separated into two parts.</p>	HSE d.o.o.
3	<p>We disagree with the proposed number and timings of auctions.</p> <p>If the TSOs want to price intraday capacity and in order to pool liquidity, we suggest to move the starting auction for the intraday to an earlier point in time, for example 2 pm. That move should happen in a harmonized way across the whole Nordic regions including the borders to neighbouring regions. We propose a harmonized gate opening at 2 pm, and TSOs can get border by border exemptions if they have good reasons.</p> <p>We propose to drop the second auction at 10 am, since it harms the flexibility of the intraday trading. Simply pricing intraday capacity for the second half of the day a second time is not an objective as such (it has been priced once in the first intraday auction already) and should not take precedence over continuous trading and the flexibility it offers.</p>	Statkraft Energi AS
3	<p>There is a clear trade-off between the new capacity that can be released to the market and the frequency of the auction. If the additional capacity is limited the need for additional cross-border auctions is also limited as the additional auctions are also constraining the opening hours for trading on the continuous intraday market.</p> <p>On the number of the auctions EPEX SPOT recognizes and appreciates that the proposal of ENTSOE is parsimonious as</p>	EPEX SPOT



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	<p>the initial proposal contained a higher number of auctions. That said, the rationale of the second auction is to allow for a better recalculation of capacity closer to delivery with the prospect of releasing more capacity to the market. It is not guaranteed today that this capacity calculation process will allow to release a significant amount of additional capacity while the second intraday auction will constrain significantly the trading window for the products that are to be auctioned in this second auction. Our suggestion would be that the second auction in the morning of day D could be launched at a later stage. This means we would start with one auction in the evening of day D-1 that would cover all products of tomorrow's delivery. In the meantime, this would allow quantifying the need for a second intraday auction in light of the additional capacity that would be released.</p> <p>EPEX SPOT believes that the moment of the first auction (D-1, 22:00h) is rather late. We understand the constraints on the capacity recalculation process but any improvement that could allow releasing this capacity to the market at an earlier stage would be greatly appreciated (i.e. 9:00 pm). EPEX SPOT finds it important that the recalculation of capacities after DA is performed as efficiently and quickly as possible to enable an earlier start of the cross-zonal ID market than at 22:00h of D-1 (this means an earlier first ID auction, followed by an earlier start of the continuous trading). However, we believe that the first auction should in any case take place after the capacity recalculation process has taken place, and sufficiently late after the D-A auction, in order to secure sufficient liquidity in that first auction. Therefore, a timing of the first auction in the evening appears the most reasonable one.</p>	
3	<p>No, EURELECTRIC does not agree. EURELECTRIC believes that ENTSO-E's proposal is in opposition with rules set in Article 59 and 63 of the CACM guideline. Namely, Article 59.4 mandates that ID cross-zonal trading should be open at the latest at the IDCZGOT (i.e. 22 pm); on some borders (e.g. CCR Nordic, CWE) it opens earlier in the afternoon. Once open, it should not close before the IDCZGCT (i.e. 1 hour before the ISP). Between the opening and the closure of cross-zonal ID markets, there should be no interruption of trading, except in case of regional auction for which the continuous market can be places on hold for max 10 minutes (Art 63.2).</p> <p>The proposal by ENTSO-E foresees no cross-zonal trading before 22.00 DA, which would be a step back in many regions. Furthermore, it would introduce 30 minute cross-zonal trading interruptions for all ISP from 0.00 through 12.00 and even 12 hours (!) for all ISP from 12.00 through 24.00.</p>	EURELECTRIC
3	<p>The proposed auctions are not suited for pooling liquidity and will create major barriers for smaller market parties to participate (timing of auctions, very short auctioning periods, ...). The proposed split of the continuous trading in two blocks due to the inclusion of a second auction considerably reduces the flexibility that intraday trading is supposed to offer to market participants. That flexibility becomes more important closer to real time if unforeseen events happen such as an outage, a sudden change in wind power generation etc. Currently market participants can participate in the continuously traded intraday market and adjust their position, in the future, if the event happens in the first half of the</p>	IFIEC Europe



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	<p>day, market participants can trade the first hours but would have to wait for the second auction to adjust their position for the rest of the event. This is a considerable reduction of flexibility, which is one of the main objectives of the intraday market.</p> <p>We believe that purely continuous trading can lead to efficient market outcomes. An efficiently functioning intraday market can be achieved by other means than by introducing auctions (e.g. 15 min products, regular releases of (cross border) capacity, trading closer to the operational hour, improved imbalance pricing).</p>	
3	<p>We propose to execute auctions at 11:00 pm, 07:00 am, 11:00 am, 3:00 pm, 7:00 pm per delivery day in addition to a continuous ID-trading with 10 minutes interruption as a maximum. Each auction should cover the remaining delivery hours of the day. This would allow the market to use one system for regular operational challenges, channelling liquidity and serving as a robust financial underlying for capacity and power products.</p>	TIWAG-Tirolerwasserkraft AG - Dispatching
3	<p>We disagree with the proposed number and timings of the auctions and the continuous trading sessions for the reasons described above as they are too late, increase the risk of non-harmonized solutions, and as the second auction reduces the flexibility of intraday trading and thereby harms its main purpose.</p> <p>If the TSOs want to price intraday capacity and in order to pool liquidity, we suggest to move the starting auction for the intraday to an earlier point in time, for example 2 pm. However, in order for any starting auction to make sense, there needs to be a commitment to make cross border capacity available.</p> <p>That move should happen in a harmonized way across the whole Nordic regions including the borders to neighbouring regions. Rather than proposing a common gate opening at 10 pm with exemptions possible, we propose to turn it around. We propose a harmonized gate opening at 2 pm, and TSOs can get border by border exemptions if they have good reasons.</p> <p>We propose to drop the second auction at 10 am, since it harms the flexibility of the intraday trading by delaying the gate opening of continuous trading of the second half of the day until 10.30 am. Simply pricing intraday capacity for the second half of the day a second time is not an objective as such (it has been priced once in the first intraday auction already!) and should not take precedence over continuous trading and the flexibility it offers.</p> <p>We would also like to know in this context, whether the TSOs have assessed the option of closing auctions at the end of every hour for the remainder of the capacity after gate closure of the continuous trading for pricing the capacity? A closing auction would not harm continuous trading since it requires neither a later gate opening of the second continuous session nor an interruption of the continuous trading session. In addition, a closing auction could also pool liquidity and allow TSOs to price remaining capacity, although they could add complexity for market parties.</p>	Nordenergi

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3	<p>We propose one auction for intraday trading day followed by continuous trading. The timing of auction could be 22:00 in Day-1 for all MTUs of day D. We oppose the second auction for the sake of higher liquidity which could be undermined while more than one auction will be held.</p>	Eesti Energia AS
3	<p>If an auction mechanism has to be established, we agree with the proposal of two auctions, provided that portfolio bidding is allowed for all market participants. Capacity should be recalculated also in day D, even more than one time in order to have updated information close to the delivery period.</p> <p>An increased number of auctions would decrease the liquidity on the continuous intraday trading.</p> <p>If portfolio bidding is not allowed, an increased number of auctions would be preferred.</p>	Enel
3	<p>As previously stated, the currently proposed number of auctions is acceptable. However it should be limited in the local implementation to a certain maximum number, in order to avoid the risk of reducing liquidity in ID continuous trading and introducing unduly high market complexity.</p> <p>As for the auctions timing, from Edison's point of view it is quite stringent and could be improved. The consultation document proposes that the IDAs are performed only two hours before the start of their delivery period (i.e. at 22:00 for IDA1 and 10:00 for IDA2), and the IDAs results are available 30 minutes later, which means that only 30 minutes are left for the continuous matching process of the first relevant MTU (i.e. 00:00-1:00 and 12:00-13:00 respectively). As a consequence, we believe that it will affect the efficiency of capacity allocation and the possibility of market operator to optimize their position after the publication of IDAs results in these MTU. Furthermore, during the IDA2 results calculation, from 11:00 until 11:30, not only the ID continuous matching process but also the CZ trading might be interrupted for 30 minutes, which is more than the interruption time permitted by CACM Regulation in Art. 63.2 (i.e. 10 minutes). Nevertheless, it could have a negative impact on the negotiations and resources allocation in the subsequent continuous trading.</p> <p>For these reasons, Edison is in favour of having the two auctions in the late afternoon on D-1 and earlier in the morning of D respectively. In this way, the difficulties previously described could be solved, enough time would be provided to market operators to optimize their resources and the continuous trading would not need to be interrupted during the delivery day.</p> <p>In order to overcome the issue related to the forecast of available capacity to be priced in implicit auctions, especially in case they are run earlier than the proposed timing, it might be possible for TSOs to recalculate the cross-border capacity multiple times during the delivery day and reallocate the potentially additional capacity through the continuous trading in real time. Edison recommends to develop this kind of approach, which would consent the intraday trading negotiations to make use of cross-border capacity reflecting the actual interconnection network situation.</p>	Edison S.p.A.

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3	<p>EDF is opposed to the introduction of the two ID auctions which brings about a division of the continuous trading market in two separate sessions. As already underlined, this solution will have a detrimental impact on the liquidity of the SIDC, thus impacting the efficiency of the target model for intraday market.</p> <p>Moreover, EDF believes that TSOs' proposal is in opposition with the provisions set in Article 59 and 63 of the CACM Regulation. Namely, Article 59.4 provides that ID cross-zonal trading should be open at the latest at the IDCZGOT (i.e. 10 pm and on some borders, e.g. CCR Nordic and CWE, earlier in the afternoon) and once open, it should be allowed until IDCZGCT (i.e. 1 hour before the ISP). Therefore, the most straightforward interpretation of this provision would be that, between the opening and the closure of CZ ID markets, there should be no interruption of intraday trading. Hence, the division of continuous matching in two sessions covering different blocks of hours should be considered as a trading interruption since the IDCZGOT would correspond to the deadline for the submission of offers in the first ID auction, i.e. at 22:00 in D-1. This means that after the first ID auction in D-1 exchanges for the hours from 12:00 and 24:00 of day D are interrupted until the results of the second ID auction are available, i.e. at 10:30 of day D. A 30 minute interruption of cross-zonal intraday trading would also be introduced for all delivery periods from 0.00 through 12.00 of day D (between 22:00 and 22:30 in D-1). The only exception to the prohibition to interrupt intraday trading foreseen by the CACM Regulation is in case of complementary regional auctions taking place during the continuous market: in this case the continuous trading can be stopped for a maximum period of 10 minutes (according to Article 63.2) in order to hold the auction.</p> <p>Thus, if TSOs decide to confirm the proposed model, the second ID auction held in day D should be removed in order to avoid continuous trading interruptions. Furthermore, the possibility to introduce additional ID auctions should be excluded (Article 5 of TSOs' methodology proposal).</p> <p>Finally, current TSOs' proposal prevents cross-zonal trading before 22.00 in D-1, which would be a step back in many regions and, as already underlined, would significantly restrict the trading period for the first delivery hours of each continuous trading sub-session (only 30 minutes to trade hours from 00:00 to 01:00 and from 12:00 to 13:00).</p>	EDF SA
3	<p>No, we generally oppose the proposed hybrid model as explained above.</p> <p>We are in favour of a liquid continuous ID market as should be developed with XBID or as we experience in many ways already today in countries like DE-AT-LU and FR.</p> <p>Hybrid models – as we see it in countries like IT or ES - usually are only one step towards the target model, i.e. liquid continuous ID trading.</p>	VERBUND Trading GmbH
4	<p>OTE sees as the main disadvantage that ID liquidity will be split between auctions and continuous trading. This may pose problems to participants trying to optimize their positions, in particular in smaller markets when the grid is congested.</p>	OTE, a.s.

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4	<p>As described above, no. The proposal is a step backward for the Nordic market, it reduces flexibility and we currently see no benefits, just increased risks for market participants. Even the possibility of zonal or national gate opening at an earlier point does not outweigh the risks. Due to the Nordic structure with small bidding zones, we are dependent on cross border intraday trading if we want to have a liquid market.</p>	Swedenergy
4	<p>OMIE sees as an advantage in the combination of auctions and CT, with voluntary participation of the traders. This will provide them , what will gather with the benefits of both mechanisms to the participants, allowing them to choose which one suits them more, or even using the two of them.</p> <p>The auctions introduces a pricing system for allocating the capacity based on actual orders, known in advanced of determining the capacity scarcity. It , which also allows for the inclusion of complex orders and a welfare optimization process, not possible in the CT.</p>	OMIE
4	<p>No. The late gate opening combined with the reduced flexibility from splitting the day into two periods harms the possibility to optimize the intraday positions.</p>	Statkraft Energi AS
4	<p>Yes, it should enable market participants to optimize their positions in the Intraday. The advantage of running a XB auction in the Intraday will allow better trading opportunities to the market thanks to the additional XB capacity that will be released. It will allow a price reference for the Intraday energy/capacity to emerge which should be beneficial for the electrical system, producers/consumers and welfare, the continuous market and potentially for the development of hedging products.</p> <p>The main disadvantage should be the limited capacity that will be allocated in the intraday continuous market and the limited trading window for continuous trading, especially for the first product(s) after the auction(s) and for the products that will be covered in the second auction that takes place in the morning of day D.</p>	EPEX SPOT
4	<p>The optimization of positions is a continuous running process. The ability of market parties to adjust their positions at any moment is of utmost importance. This is the reason why the target model foresees continuous trading in the ID market. New and improved forecasts for actual consumption and production (especially of RES) are the key drivers for the trading activities on the ID market. The highest trading activity can be typically observed shortly before the gate closure of the ID market (see picture), when forecast of the actual consumption and production is the best. The establishment of an intraday auction would interrupt continues trading and it would be impossible to optimize their positions based on update forecast. Market parties should be able to freely trade any product of the remaining hours of the day.</p> <p>Considering that there might be no cross-zonal trading from 12.00 through 22.00 DA with potentially significant price change at 22.30, EURELECTRIC foresees significant challenge to optimize generation, storage, and DR schedules for</p>	EURELECTRIC

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	<p>the first hours of delivery of day D. The difficulty could even be leveraged, as the potential price changes will be known during night time, when operational staff availability might be reduced.</p> <p>The same difficulties could arise for delivery in the early afternoon, considering that no cross-zonal trading would be possible between 22.00 DA and 10.00 with potentially significant price update at 10.30.</p>	
4	<p>The proposed model will not meet the main objectives, i.e investment signals which are much more precise from the day ahead market.</p> <p>If the TSOs want to auction intraday capacity anyway and in order to pool liquidity, we suggest moving the starting auction for the intraday to an earlier point in time, for example 2 pm, and then drop the second auction at 10 am, since it harms the flexibility of the intraday trading. Simply pricing intraday capacity for the second half of the day a second time is not an objective as such and should not take precedence over continuous trading and the flexibility it offers.</p>	IFIEC Europe
4	<p>We do not see why the hybrid model offers an improved optimisation. A better optimisation would mean more chances to take positions and to strike deals. But we rather foresee a weakening of liquidity and trading action under the hybrid model due to 'dead' or inactive trading phases when traders switch between continuous and auction markets. Especially after the auctions take place the balance groups will have lost their 'appetite' for balancing the next hours. Therefore we suggest to have only continuous trading for the intraday XB market.</p>	TIWAG-Tirolerwasserkraft AG - Dispatching
4	<p>The proposal is a step backward for the Nordic market, it reduces flexibility and we currently see no benefits, just increased risks for market participants. Even the possibility of zonal or national gate opening at an earlier point does not outweigh the risks. Due to the Nordic structure with small bidding zones, we are dependent on cross border intraday trading if we want to have a liquid market.</p>	Nordenergi
4	<p>Continuous trading enables the market participants to optimize their positions in the best possible manner. The system with more than one auctioning arrangement may undermine the liquidity of trading.</p>	Eesti Energia AS
4	<p>As already answered to question 3, the optimization of the positions of market participants is strictly linked to the possibility of allowing portfolio bidding, both in the continuous trading sessions and in the previous auctions: this characteristic would give the right flexibility to market participants who could in this way leverage on a portfolio of assets.</p> <p>We agree on the limitation of the tradable hours in the continuous trading sessions only to hours that are not subject to a later auction.</p>	Enel
4	<p>EDF believes that the proposed hybrid solution will negatively affect the ability of market participants to optimize their position in the intraday timeframe. This impact is due both to the creation of two separate continuous trading sub-</p>	EDF SA

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	<p>sessions and to the restricted trading period for certain delivery hours in the continuous trading.</p> <p>In particular, considering that there might be no cross-zonal intraday trading from 12.00 through 22.00 in D-1 and that potentially significant cross-zonal capacity releases impacting prices which would be effective only at 22.30, EDF foresees significant challenges to optimize generation, storage, and DR schedules for the first hours of delivery of day D. In fact, for these delivery hours the trading period on the continuous matching session would be restricted, ranging from 30 minutes to few hours. These difficulties could even be aggravated by the fact that the potential price changes will be known during night time, when operational staff availability might be reduced. The same difficulties due to a restricted trading period could arise for MTUs in the early afternoon of day D, considering that no CZ trading would be possible between 22.00 DA and 10.00 with potentially significant price update at 10.30.</p>	
4	<p>We are convinced that introducing ID capacity pricing through auctions will undermine the efficiency of liquid continuous ID market.</p> <p>We are concerned that the TSOs' proposal may have a negative impact on the liquidity of the continuous trading, may fragment continuous trading and may evoke an inefficient bidding behaviour. Therefore, instead of enable market participants to optimize their positions in the intraday timeframe the model risks to jeopardize continuous trading and to decrease social welfare rather than increase it.</p>	VERBUND Trading GmbH
5	<p>The NEMOs would propose to trade the same products in the ID auctions that are currently traded in the DA market. Complex products, e.g. various block products, could be introduced if and when liquidity and processing time (30 minutes) allow for that. The product range could be extended to other ID requirements (for instance, 15/30 min periods). Trading in auctions allows for the utilization of different kinds of (complex) orders. In any case, even with only the DA market portfolio there could be an issue with the total operational time of 30 minutes.</p> <p>The NEMOs note that the introduction of two auctions according to the proposal would prohibit the XB trading in the continuous markets of any blocks spanning noon, be they predefined or user-defined. This could be remedied by running CT sessions for all MTUs until the end of the day, instead of until the next auction, without removing the second auction.</p>	NEMO Committee
5	<p>OTE would propose to trade the same products in the ID auctions that will be traded in the continuous market.</p> <p>OTE notes that the introduction of two auctions according to the proposal would prohibit the XB trading in the continuous markets of any blocks spanning noon or midnight, be they predefined or user-defined. This is considered a downside, which could be remedied by removing the 10:00h auction (for the noon blocks) and by moving the 22:00h auction to an earlier moment (for the midnight blocks).</p>	OTE, a.s.
5	<p>If an intraday starting auction is introduced, we propose to use that auction to increase the time resolution from hourly to quarterly products. That way ramping restrictions on the cables connecting the Nordic countries to the continent could be</p>	Swedenergy



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	<p>reduced, allowing more capacity to be made available to the markets and increasing their flexibility. In addition, market participants need to have a market close to real time to trade 15 min products, since the balancing settlement period is proposed to be adjusted to 15 min. Last but not least, the demand side could benefit from 15 min products.</p> <p>Auctions of hourly products would considerably reduce the potential benefit of a starting auction, since ramping restrictions would remain the same.</p>	
5	<p>Initially, the products to be traded in the ID auctions should be based on the products currently traded in the DA market, using the complex orders already existing in of Euphemia's current implementation. Some additional complex orders, specially suited for the ID timeframe, could also be added, if required.</p> <p>The introduction of two auctions according to the proposal, would prohibit the trading in the continuous markets of any blocks spanning noon, be they predefined or user-defined. A possible improvement to be assessed should be running CT sessions for all MTUs until the end of the day, instead of until the next auction.</p>	OMIE
5	<p>If an intraday starting auction is introduced, we propose to use that auction to increase the time resolution from hourly to quarterly products. That way ramping restrictions on the cables connecting the Nordic countries to the continent could be reduced, allowing more capacity to be made available to the markets and increasing their flexibility.</p>	Statkraft Energi AS
5	<p>EPEX SPOT would propose to trade the same products in the ID auctions that are currently traded in the DA market. However, complex products, e.g. various block products, could be introduced if and when liquidity and processing time allow for that. The product range could be extended to other ID requirements (for instance, 15/30 min periods). Trading in auctions allows for the utilization of different kinds of (complex) orders. In any case, even with only the DA market portfolio there could be an issue with the total operational time of 30 minutes.</p>	EPEX SPOT
5	<p>In case auctions would be introduced, EURELECTRIC considers that they should encompass the full range of products managed within the DA auction, with an ISP granularity. In any case, it would be highly detrimental for market efficiency that products that can be traded in XBID and DA auctions cannot be traded with the ID auctions proposed by ENTSO-E. It would equally be highly detrimental if the ID market does not switch to ISP granularity, since at least the market closest to balancing should reflect ISP granularity.</p> <p>EURELECTRIC considers by the way that, as all NEMOs agree to use portfolio-based trading within XBID, there is no reason to maintain unit-based trading in earlier DA or ID auctions targeting the same delivery period. Introducing portfolio-based trading in those auctions is most likely to reduce significantly computational complexity of the MCO function.</p>	EURELECTRIC
5	<p>IFIEC Europe remains a very strong proponent of strengthening the intraday cross-border trading by obliging TSOs to re-</p>	IFIEC Europe



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	<p>evaluate the available cross-border capacity as close as possible to the gates of the intraday market and in any case after the closing of the day-ahead market and the cross-border capacity calculation that has taken place for this day-ahead market. Moreover, IFIEC Europe also clearly wants to re-iterate its position that it does not accept that cross-border capacity would be withheld from the forward and/or day-ahead markets to reserve this for the intraday market. All cross-border capacity should as much as possible be made available in the earliest timeframes, with only the remaining non-allocated capacity of earlier timeframes allocated to shorter timeframes (taking into account the comment on recalculation of cross-border capacity closer to all relevant timeframes).</p>	
5	<p>Blockbits for balance of the ID, 4 hours, 08:00-20:00 h, each hour</p> <p>Please explain what is meant by “Do you expect this proposed setup to create any issues for the tradable product range?”</p>	TIWAG-Tirolerwasserkraft AG - Dispatching
5	<p>If an intraday starting auction is introduced, we propose to use that auction to increase the time resolution from hourly to quarterly products. That way ramping restrictions on the cables connecting the Nordic countries to the continent could be reduced, allowing more capacity to be made available to the markets and increasing their flexibility. In addition, market participants need to have a market close to real time to trade 15 min products, since the balancing settlement period is proposed to be adjusted to 15 min. Last but not least, the demand side could benefit from 15 min products.</p> <p>Auctions of hourly products would considerably reduce the potential benefit of a starting auction, since ramping restrictions would remain the same.</p>	Nordenergi
5	<p>We are of the opinion that all the same products which are used in day-ahead timeframe could also be used in intraday timeframe. The market participants themselves should be able to decide which products they chose to offer to the market.</p>	Eesti Energia AS
5	<p>Edison is convinced that the tradable products in the ID auctions shall include all the range of products tradable in DA auctions and ID continuous trading for sake of market's efficiency and for coherency with other spot markets.</p> <p>On this occasion we take the chance to underline an issue that from Edison point of view is essential to continuous trading implementation. In Italy, the national TSO centrally determines the dispatching values and orders directly to resources, which are able to bid per single unit (“unit bidding” approach). However, this approach does not fit to the structure of the continuous trading market due to the high computational complexity that would characterize ID trades and the difficulties that TSOs and MCOs would encounter in managing the network. For this reason, we support the introduction of “portfolio-based” trading, since it naturally facilitates the internal optimization of resources belonging to a single market unit thanks to aggregation. Edison considers the possibility to offer by “portfolio” would be more appropriate in continuous trading environment.</p>	Edison S.p.A.

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5	<p>In case implicit auctions are introduced, EDF considers that they should encompass the full range of products exchanged within the DA auction, with a time granularity corresponding to the applicable imbalance settlement period (ISP). It would be highly detrimental for market efficiency that products that can be traded in XBID and DA auctions cannot be traded in the ID auctions proposed by TSOs.</p> <p>By the way, EDF considers that, as all NEMOs agree to use portfolio-based trading within XBID, there is no reason to maintain unit-based trading in earlier DA or ID auctions targeting the same delivery period. Introducing portfolio-based trading in those auctions is likely to significantly reduce the computational complexity of the MCO function.</p>	EDF SA
5	We generally oppose the proposed hybrid model as explained above.	VERBUND Trading GmbH
6	NEMOs understand that the ID auctions are being proposed as a component of the Single ID Coupling. If the NRAs accept the proposal and request it to be implemented, the NEMOs expect and will be ready to develop the Pan-European auctions and implement them as part of the SIDC MCO Function in line with CACM principles.	NEMO Committee
6	OTE understands that the ID auctions are being proposed as a component of the Single ID Coupling. In case the NRAs accept the proposal and request it to be implemented, OTE expects and will be ready to collaborate on developing the Pan-European auctions and implement them as part of the SIDC MCO Function in line with CACM principles.	OTE, a.s.
6	<p>As described above, we think that the currently proposed hybrid model is a bad compromise with considerable downsides for market participants. If the proposed hybrid model is kept as a combination of auction and continuous trading, it should be adjusted to avoid negative consequences. The first auction should be moved in a harmonized way to 2 pm, the second auction should be dropped. Additional benefits could be gained by moving from hourly to quarterly products.</p> <p>We think generally, that the different options for the hybrid model have not been assessed in sufficient depth, as for example the option of closing auctions, which would not harm the continuous trading, has not been analyzed by the TSOs to our knowledge.</p> <p>In addition, the assessment of how intraday capacity can be allocated in an optimal way has not addressed all the relevant questions. The questions addressed were optimization of allocation between market parties and the generation of congestion rents, which is not an objective as such. An interesting additional question would have been the optimal allocation of capacity across timeframes. Currently all physical capacity is allocated to the day ahead, with intraday and balancing getting the remainder. Concerning balancing it has been recognized that it might be beneficial to develop models to co-optimize the allocation of balancing capacity and day ahead capacity. We think that it could make sense to analyze possibilities of how to co-optimize day-ahead, intraday and balancing capacity at the same time. The price signal</p>	Swedenergy

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	<p>would then not just serve to give access to those who need capacity most urgently, but it would allow to signal, when they need the capacity in the day ahead or in the intraday (or in the balancing timeframe).</p>	
6	<p>Proposed methodology is well prepared, but we believe the proposed concept merely increases the mismatch between rules and needs of the system, instead of properly targeting and resolving the key issues it is trying to solve.</p> <p>We are afraid that the proposed optimization model additionally prefers TSOs point of view. In the proposed model they will dynamically, during the day modulate N-1 criterion for capacity allocation. Intraday capacities will consequently crucially change (<math>NTC_{int} &gt; ATC_{int}</math>). Proposed model is quite risky from the point of capacity availability, comparing with the current situation where TSO leaves intraday announced capacities available (in majority of cases).</p>	HSE d.o.o.
6	<p>As described above, we think that the currently proposed hybrid model is a bad compromise with considerable downsides for market participants. If the hybrid model is kept as a combination of auction and continuous trading, it should be adjusted to avoid negative consequences. The first auction should be moved in a harmonized way to 2 pm, the second auction should be dropped. Additional benefits could be gained by moving from hourly to quarterly products.</p> <p>We think that generally, that the different options for the hybrid model have not been assessed in sufficient depth, as for example the option of closing auctions, which would not harm the continuous trading, has not been analyzed by the TSOs to our knowledge.</p> <p>In addition, the assessment of how intraday capacity can be allocated in an optimal way has not addressed all the relevant questions. We miss the issue of how to optimize capacity across timeframes and thus between different power products. Currently all physical capacity is allocated to the day ahead, with intraday and balancing getting the remainder. Concerning balancing it has been recognized that it might be beneficial to develop models to co-optimize the allocation of balancing capacity and day-ahead capacity. We think that it could make sense to co-optimize day-ahead, intraday and balancing capacity at the same time. The price signal would then not just serve to give access to those who need capacity most urgently, but it would although allow to signal, when they need the capacity in the day ahead or in the intraday.</p> <p>As an alternative approach to having auctions, one may suggest a model where the extra capacity is rewarded the corresponding spread between the areas. E.g. if area A has an asking price of 20 and area B a bid price of 30 and there is released capacity between A and B, the provider of the capacity (TSO) is rewarded at spread of 10.</p> <p>The advantage with such a model is that the capacity provider has the right incentives to release capacity. The market players at both sides get a new element to take into consideration, as extra capacity may be released, and have to adjust their bids accordingly. Since the spread between the areas may vary over time, the timing could be chosen by the capacity provider; however as the market participants need time to optimize their plans, one may argue that the capacity should be released as soon as possible. In such a model the grid loss of using the capacity can easily be taken into</p>	Statkraft Energi AS

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	consideration by using a minimum relative spread threshold.	
6	EPEX SPOT will be ready to develop the Pan-European auctions and implement them, subject to clarification of the contractual and regulatory framework of this initiative. EPEX SPOT would like to point out the materiality of the development and operational costs that such capacity allocation solution would entail, which is likely to be of the same order of magnitude than the Single Day-Ahead Market Coupling ones, and which would therefore require adequate financing to be delivered.	EPEX SPOT
6	EURELECTRIC regrets that this consultation was open for the minimum period of 31 days foreseen in the CACM guideline. When ENTSO-E proposes such a dramatic change in the organization of energy markets, EURELECTRIC would appreciate to be given a longer period of time for building positions and proposing alternative solutions that can be discussed and agreed with other stakeholders	EURELECTRIC
6	The Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM) stipulates that the TSOS have to propose a single methodology for pricing cross-zonal intraday capacity, but does not state that TSOs have to implement such methodology. As a result, IFIEC Europe expresses its preference towards not putting in place such mechanism.	IFIEC Europe
6	We think the best methodology for cross-boarder capacity using is to introduce a continuous trading of available capacities as it honours the existing market structure of floating prices.	TIWAG-Tirolerwasserkraft AG - Dispatching
6	<p>As described above, we think that the currently proposed hybrid model is a bad compromise with considerable downsides for market participants. If the proposed hybrid model is kept as a combination of auction and continuous trading, it should be adjusted to avoid negative consequences. The first auction should be moved in a harmonized way to 2 pm, the second auction should be dropped. Additional benefits could be gained by moving from hourly to quarterly products.</p> <p>We think generally, that the different options for the hybrid model have not been assessed in sufficient depth, as for example the option of closing auctions, which would not harm the continuous trading, has not been analyzed by the TSOs to our knowledge. In addition, the assessment of how intraday capacity can be allocated in an optimal way has not addressed all the relevant questions. The questions addressed were optimization of allocation between market parties and the generation of congestion rents, which is not an objective as such. An interesting additional question would have been the optimal allocation of capacity across timeframes. Currently all physical capacity is allocated to the day ahead, with intraday and balancing getting the remainder. Concerning balancing it has been recognized that it might be beneficial to develop models to co-optimize the allocation of balancing capacity and day ahead capacity. We think that it could make</p>	Nordenergi

Question number	Response/Comments	Respondent's organization
	<p>sense to analyze possibilities of how to co-optimize day-ahead, intraday and balancing capacity at the same time. The price signal would then not just serve to give access to those who need capacity most urgently, but it would allow to signal, when they need the capacity in the day ahead or in the intraday (or in the balancing timeframe).</p>	
6	<p>We remain firmly convinced that implementation of the proposed methodology should not result in splitting cross-zonal transfer capacity between day-ahead and intraday timeframes. TSOs should always offer maximum amount of available capacity to day-ahead market. Meaning, unused residual capacity from day-ahead market should be made available for intraday trading.</p>	Eesti Energia AS
6	<p>Edison, in general, endorses the proposal of the TSOs on the pricing methodology of ID CZ capacity pricing, with all the prerequisites that have been expressed until now.</p> <p>However, we hold that our opinion is not definitive, due to a lack of market's discipline details formalization and ongoing evolution. An example of this is the modality in which the ID market continuous trading will be related to balancing guidelines and balancing market, especially in a central dispatch balancing approach as it is in Italy. Moreover, the proposal itself settles some condition for the implementation and definition of the pricing methodology, e.g. the capacity calculation methodology or the ID market gate opening/closure times, together with the approval of NRAs.</p> <p>Since there are many aspects that shall be solved before the detailed definition will be valuable by market participants, Edison reserves its right to express again, and possibly modify, the opinion on the definitive TSO's proposal. Moreover, we are confident that when the definitive pricing methodology proposal will be available, market participants will be given the possibility to comment on it through a specific consultation process.</p>	Edison S.p.A.
6	<p>EDF regrets that this consultation was open only for the minimum time period of 31 days foreseen in the CACM guideline. When TSOs make proposals introducing dramatic changes in the organization of energy markets, stakeholders need a longer consultation period in order to have enough time to define their positions and to propose valuable alternative solutions that can be discussed and agreed with other stakeholders.</p> <p>EDF would welcome further exchanges between TSOs and stakeholders in the coming months for the finalisation of the methodology and before its submission to NRAs.</p>	EDF SA

Table 13: responses to the consultation questions