
~~All TSOs' proposal for a methodology for a co-optimised allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves in accordance with Article 40(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing~~

~~18 December 2019~~

~~ACER Decision on methodology for co-optimised allocation: Annex I~~

Methodology for a co-optimised allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

in accordance with Article 40(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

17 June 2020

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~~ALL TRANSMISSION SYSTEM OPERATORS, TAKING INTO ACCOUNT THE FOLLOWING:~~

Whereas

- (1) This ~~document is a common proposal developed by all Transmission System Operators (hereafter referred to as “TSOs”).~~ The document provides a methodology for a co-optimised allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing reserves (hereafter referred to as “~~CO CZCA methodology for co-optimised allocation~~”) in accordance with Article 40 of Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (hereafter referred to as “EB Regulation”).
- (2) The ~~CO CZCA methodology~~methodology for co-optimised allocation takes into account the general principles and goals set in the EB ~~Regulation~~GL, the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the “SO Regulation”), Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereafter referred to as the “CACM Regulation”) as well as Regulation (EU) 2019/943 of the European Parliament and of Council of 5 June 2019 on the Internal Market for Electricity (recast) (hereafter referred to as the “Electricity Regulation”) as well as Commission Regulation (EC) No 543/2013 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 the Council (hereafter referred to as the “Transparency Regulation”).
- (3) The ~~CO CZCA methodology~~ for co-optimised allocation takes into account the general principles, goals and other methodologies set out in the EB Regulation. The goal of the EB Regulation is the integration of balancing markets while contributing to operational security. To facilitate this goal, ~~while contributing to operational security,~~ it is necessary to integrate balancing markets and to promote the possibilities for exchanges of balancing services. Additionally, Article 40 of the EB Regulation formulates the requirements for a methodology for a co-optimised allocation process of cross-zonal capacity~~CZC~~ for the exchange of balancing capacity or sharing of reserves.

~~(4) Article 40 of the EB Regulation constitutes the legal basis for this CO CZCA methodology:~~

~~1. “By two years after entry into force of this Regulation, all TSOs shall develop a proposal for a methodology for a co-optimised allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves. This methodology shall apply for the exchange of balancing capacity or sharing of reserves with a contracting period of not more than one day and where the contracting is done not more than one day in advance of the provision of the balancing capacity. The methodology shall include:~~

~~(a) the notification process for the use of the co-optimised allocation process;~~

~~(b) a detailed description of how cross-zonal capacity shall be allocated to bids for the exchange of energy and bids for the exchange of balancing capacity or sharing of reserves in a single optimisation process performed for both implicit and explicit auctions;~~

~~(c) a detailed description of the pricing method, the firmness regime and the sharing of congestion income for the cross-zonal capacity that has been allocated to bids for the exchange of balancing capacity or sharing of reserves via the co-optimised allocation process;~~

- ~~(d) the process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves.~~
- ~~2. This methodology shall be based on a comparison of the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves and the actual market value of cross-zonal capacity for the exchange of energy.~~
- ~~3. The pricing method, the firmness regime and the sharing of congestion income for the cross-zonal capacity that has been allocated to bids for the exchange of balancing capacity or sharing of reserves via the co-optimised allocation process shall ensure equal treatment with the cross-zonal capacity allocated to bids for the exchange of energy.~~
- ~~4. Cross-zonal capacity allocated to bids for the exchange of balancing capacity or sharing of reserves via the co-optimised allocation process shall be used only for the exchange of balancing capacity or sharing of reserves and associated exchange of balancing energy.”~~
- ~~(5)(4) The CO-CZCA methodology for co-optimised allocation generally contributes to the achievement of the objectives stated in Article 3 of the EB Regulation. In particular, this CO-CZCA methodology serves the following objectives of the EB Regulation:~~
- ~~(a) The CO-CZCA methodology answers the requirements set out in Article 40 of the EB Regulation;~~
- ~~(b)(a) The CO-CZCA methodology for co-optimised allocation serves the objective of fostering effective competition, non-discrimination and transparency in balancing markets as stated in Article 3(1)(a) of the EB Regulation by defining the principles to establish a balancing capacity cooperation, on using the co-optimisation allocation process and how to notify it as described in Articles 3 and 4, 14 of this CO-CZCA methodology;~~
- ~~(e)(b) The CO-CZCA methodology for co-optimised allocation facilitates the objective for the integration of the balancing markets and promoting the possibilities for the exchanges of balancing services while using market-based mechanisms and contributing to operational security as stated in Article 3(1)(c) and Article 3(2)(d) of the EB Regulation, by means of defining the rules for the procurement of the balancing capacity, through the allocation for the balancing capacity market, together with and at the same time as the allocation of cross-zonal capacity of the day-ahead energy market, as detailed in Articles 6 and 8 of this CO-CZCA methodology for co-optimised allocation;~~
- ~~(d)(c) The CO-CZCA methodology for co-optimised allocation ensures that the development of the day-ahead market is not compromised in accordance with Article 3(2)(e) of the EB Regulation as it is specified in Articles 5 and 10 of this CO-CZCA methodology for co-optimised allocation specifies in Articles 5 to 9 how co-optimisation shall be effectively integrated in the single day-ahead coupling (hereafter referred to as “SDAC”) process. Additionally, Article 13 introduces an implementation impact assessment which takes into account impacts on the SDAC and provides information and sufficient time for the future implementation of the co-optimised cross-zonal capacity allocation process within the SDAC algorithm; ~~the CZC cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves that is not used, shall be released for the exchange of balancing energy processes with shorter timeframes;~~~~

- ~~(e)~~(d) The ~~CO-CZCA~~ methodology for co-optimised allocation ensures that the procurement of balancing services is done in a fair, objective, transparent way and uses the market-based mechanisms as stated in Article 3(1)(e) of the EB Regulation. This ~~CO-CZCA~~ methodology for co-optimised allocation sets in Articles 8, 9 and 14 how the market value and volume, as well as the offered volumes and prices, are determined;
- ~~(f)~~(e) The ~~CO-CZCA~~ methodology for co-optimised allocation aims at respecting the responsibility assigned to the relevant Transmission System Operators (hereafter referred to as “TSOs”)~~TSOs~~ in order to ensure system security, including as required by national legislation in accordance with Article 3(2)(f) of the EB Regulation by establishing the maximum limitations for the application of co-optimised cross-zonal allocation to be applied by the balancing capacity cooperation as is defined in Article 6 of this ~~CO-CZCA~~ methodology for co-optimised allocation;
- (f) The ~~CO-CZCA~~ methodology for co-optimised allocation takes into consideration agreed European standards in accordance with Article 3(2)(h) of this methodology based on the single day-ahead market time unit defined within the CACM Regulation and uses the optimisation resolution from the market coupling operator function, as specified in Articles 3, 5, 7, 8 and 9 of this ~~CO-CZCA~~ methodology for co-optimised allocation;
- (g) The methodology for co-optimised allocation enhances efficiency of balancing as well as efficiency of European and national balancing markets in accordance with Article 3(1)(b) of the EB Regulation by allowing an allocation of cross-zonal capacities which aims to optimise the total economic surplus of both, SDAC and balancing capacity procurement, leading to a more efficient procurement of balancing capacities in the day-ahead timeframe;
- (h) The methodology for co-optimised allocation is contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union, while facilitating the efficient and consistent functioning of day-ahead, intraday and balancing markets in accordance with Article 3(1)(d) of the EB Regulation by allowing a more efficient use of available day-ahead cross-zonal capacities. This will be provided by taking into account the economic surplus of SDAC and balancing capacity procurement at a day-ahead timeframe, as specified in Article 7, 8 and 9 of this methodology for co-optimised allocation;
- ~~(g)~~(i) The methodology for co-optimised allocation does not negatively impact the objectives in accordance with Article 3(1)(f) and (g) and (2)(a), (b), (c) and (g) of the EB Regulation.

In conclusion, the ~~CO-CZCA~~ methodology for co-optimised allocation meets the objectives of the EB Regulation.

SUBMIT THE FOLLOWING CO-CZCA METHODOLOGY TO THE AGENCY FOR THE COOPERATION OF ENERGY REGULATORS:

Article 1

Subject matter and scope

- (1) ~~All TSOs lay down in t~~This ~~CO-CZCA methodology~~ for co-optimised allocation specifies how to allocate cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves, which is based on the actual market values of CZC cross-zonal capacity for the exchange of energy and for the exchange of balancing capacity or sharing of reserves.
- ~~(2) The scope of the CO-CZCA methodology does not extend to the assignment of roles and responsibilities to specific parties. Besides, the governance framework for specific roles or responsibilities and TSO-TSO settlement rules are out of the scope, in accordance with Article 13 of the CO-CZCA methodology.~~
- ~~(3) The allocation of CZC applying the of co-optimised cross-zonal allocation methodology is a voluntary initiative subject to a proposal for application, which may be developed by two or more TSOs at their own initiative or at the request of their relevant regulatory authorities in accordance with Article 38(1) of the EB Regulation and subject to approval by the competent regulatory authorities is therefore not mandatory.~~
- ~~(4)(2) The allocation of CZC applying the co-optimisation methodology by two or more TSOs shall be subject to the TSO notification pursuant to Article 150 of the SO Regulation.~~
- ~~(5)(3) The methodology for the application of co-optimised cross-zonal allocation the allocation of CZC using the co-optimisation methodology shall include the bidding zone borders, the market timeframe, the duration of application and the detailed description of a methodology to be applied in accordance with Article 38(2)(a) of the EB Regulation.~~
- ~~(6)(4) All Two or more TSOs within balancing capacity cooperation exchanging balancing capacity by applying the co-optimised cross-zonal allocation CO-CZCA methodology shall establish use a common and harmonised set of rules and processes for the exchange and procurement of balancing capacity pursuant to in accordance with Article 33 of the EB Regulation, and respecting the requirements set out in Article 32 of the EB Regulation.~~
- ~~(7) According to Article 38(4) of the EB Regulation, CZC allocated for the exchange of balancing capacity or sharing of reserves shall be used by the TSOs within balancing capacity cooperation, exclusively for the product where it was allocated for, being these: aFRR, mFRR or RR. If the CZC is not used for the exchange of balancing energy for the product it was allocated to; the CZC shall be used by the all TSOs process for the exchange of balancing energy with shorter activation times or for operating the imbalance netting process taking into account potential cross-border transmission capacity updates. The reliability margin calculated pursuant to CACM Regulation shall be used only for operating and exchanging frequency containment reserves, except on Direct Current (hereafter referred to as the 'DC') interconnectors for which CZC for operating and exchanging frequency containment reserves may also be allocated in accordance with Article 38(1) of the EB Regulation.~~
- ~~(8)(5) The proposal for a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves is subject to the methodology pursuant to Article 25(2) of the EB Regulation is and out of the scope of this CO-CZCA methodology for co-optimised allocation and will be treated in a separate document.~~

Article 2 Definitions

- (1) For the purposes of this ~~CO-CZCA~~ methodology for co-optimised allocation, the terms used shall have the meaning given to them in Article 2 of the Electricity Regulation, Article 2 of the Transparency Regulation, Article 2 of the CACM Regulation, Article 3 of the SO Regulation and Article 2 of the EB Regulation.
- (2) The following definitions shall also apply:
 - (a) ~~'Balancing capacity validity period' means the period for which the single standard product for balancing capacity bid (i.e. each submitted capacity volume has one single bid price) is offered and for which the accepted standard product for balancing capacity bid could be activated as standard balancing energy bid where all the characteristics of the standard balancing energy product are respected. The balancing capacity validity period is defined by a start time and an end time.~~ 'Bid aggregating interface' means a tool which collects balancing capacity bids, balancing capacity demand and possible limitations for the exchange of balancing capacity and sharing of reserves from balancing service providers and TSOs, aggregates data and forwards the relevant information to the market coupling operator function. The bid aggregating interface can either be operated by a TSO or an entity to which a TSO delegated such tasks.
 - (b) ~~'Contracting period' means the period for which balancing capacity is procured by the capacity procurement optimisation function and which may extend over multiple balancing capacity validity periods.~~
 - (b) 'Cross-zonal capacity allocation optimisation function' means the price coupling algorithm's functionality that optimises the allocation of cross-zonal capacity CZC between SDAC and balancing capacity markets applied for the allocation of CZC for the exchange of balancing capacity or sharing of reserves.
 - (c) 'Economic surplus from the exchange of balancing capacity or sharing of reserves' means the sum for the relevant time period of (i) the TSOs' surplus for the exchange of balancing capacity or sharing of reserves, (ii) the balancing service providers' surplus for the exchange of balancing capacity or sharing of reserves and (iii) the congestion income. Surplus for balancing service providers being the difference between the price of the accepted bids and the clearing price per capacity unit multiplied by the accepted capacity volume of the bid. Surplus for TSOs being the difference between the technical price limit and the clearing price per capacity unit multiplied by the volume of balancing capacity demand.
 - (d) ~~'Cross-zonal capacity allocation optimisation resolution' means the time interval for which the allocation of CZC for the exchange of energy and for the exchange of balancing capacity and/or sharing of reserves is determined.~~
 - (e) ~~'Duration of application' means the period for which balancing capacity cooperation applies the co-optimisation methodology over one or more bidding zone borders to allocate CZC for the exchange of balancing capacity or sharing of reserves according to Article 38(2) of the EB Regulation.~~
 - (f) ~~'Use of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves' means the physical use of CZC with an actual transfer of balancing energy.~~

- (3) In this ~~CO-CZCA~~ methodology for co-optimised allocation, unless the context requires otherwise:
- (a) the singular indicates the plural and vice versa;
 - (b) the table of contents and headings are inserted for convenience only and do not affect the interpretation of this ~~CO-CZCA~~ methodology for co-optimised allocation;
 - (c) any reference to legislation, regulations, directives, orders, instruments, codes or any other enactment shall include any modification, extension or re-enactment of it when in force;
 - (d) any reference to an Article without an indication of the document shall mean a reference to this ~~CO-CZCA~~ methodology for co-optimised allocation.

Article 3

Principles of each balancing capacity cooperation for applying this co-optimised cross-zonal capacity allocation CO-CZCA methodology

- ~~(1) Balancing capacity cooperation in the context of co-optimisation consists of two or more TSOs that apply the exchange of balancing capacity or sharing of reserves in a geographical area sharing common bidding zone border(s).~~
- ~~(1) The co-optimised allocation process shall be integrated within the SDAC algorithm and shall allocate cross-zonal capacities for the exchange of standard balancing capacity products or sharing of reserves following the objective in Article 9(2).~~
- ~~(2) In case relevant regulatory authorities approve an exemption to separate procurement of upward and downward standard balancing capacity pursuant to Article 5(4)(f) of the EB Regulation, the cross-zonal capacity allocation optimisation function will still allocate CZC cross-zonal capacity for the exchange of balancing capacity or sharing of reserves for each direction (upward and downward) separately. The TSO(s) which apply co-optimised cross-zonal allocation applying such exemption shall specify within the balancing capacity cooperation how the integrated product should be taken into account in the calculation of the market value of cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves separately in for the upward direction and downward direction pursuant to Article 33(1) of the EB Regulation.~~
- ~~(3)(2)~~ (2) The contracting period of standard balancing capacity bids exchanged with the application of co-optimisation shall be equal to or a multiple of the day-ahead market time unit and shall be less or equal to the total amount of day-ahead market time units of the concerned day~~24 hours~~.
- ~~(4)(3)~~ (3) The ~~balancing capacity~~ validity period of bids from standard balancing capacity ~~bids~~ products exchanged with the concept of used for co-optimised allocation cross-zonal allocation shall be equal to the day-ahead market time unit.
- ~~(5)(4)~~ (4) The settlement of the standard balancing capacity bids with the balancing service provider BSPs for where co-optimised cross-zonal allocation is applied ~~each balancing capacity cooperation applying this CO-CZCA methodology~~ shall be based on cross-border marginal pricing (pay-as-cleared).
- ~~(6) The CZC allocated for the exchange of balancing capacity or sharing of reserves per product (either RR, mFRR or aFRR) that has not been used by the TSOs who allocated the CZC in the relevant timeframe it was allocated for, shall be released taking into account potential cross-border transmission capacity updates to all TSOs process for the exchange of balancing energy for the same activation time if possible~~

~~or to all TSOs processes for the exchange of balancing energy with shorter activation times or for operating the imbalance netting process.~~

(5) Cross-zonal capacities for the exchange of standard balancing capacity products or sharing of reserves from co-optimised cross-zonal allocation shall be exclusively provided to the respective platform, pursuant to Articles 19 to 21 of the EB Regulation, of the product they were allocated for.

~~(7)~~(6) The process of releasing allocated cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves in accordance with Article 10(2) shall be coordinated between the balancing energy platforms pursuant to Articles 19 to 21 of the EB Regulation.

Article 4

Notification process for the use of the co-optimised allocation process

Each ~~balancing capacity cooperation~~TSO intending to applying this co-optimised cross-zonal allocation CO-CZCA methodology shall notify TSOs of the same synchronous area three (3) months prior to entering into operation before the application in accordance with Article 150 of the SO Regulation and inform all stakeholders and all TSOs through an announcement on the ENTSO-E website, at least ~~one-three~~ months prior to entering into operation. This announcement on the ENTSO-E website shall include a detailed description of the specifications in accordance with EB Article 38(2) as well as balancing capacity cooperation specifications: the type of product for standard balancing capacity product which will be exchanged or shared; the bidding zone borders; the market timeframe; the duration of application for the allocation of CZC; and foreseen date of entry into operation.

Article 5

The timeframe of the co-optimised allocation process

- (1) The co-optimised cross-zonal allocation process ~~to for allocating~~ cross-zonal capacity CZC for the exchange of balancing capacity and sharing of reserves shall include the following consecutive timings:
 - (a) The gate closure time for the submission of all standard ~~and integrated~~ balancing capacity bids ~~and energy trading bids by market participants and balancing service providers and TSOs to the respective market operators and the balancing capacity demand~~ shall be equal to the single day-ahead coupling gate closure time pursuant Article 47(2) of the CACM Regulation.
 - (b) For TSOs ~~of balancing capacity cooperation~~ applying a central dispatching model and applying co-optimised cross-zonal allocation, the gate closure time for the submission of the integrated scheduling process bids that are converted to the standard balancing capacity bids shall be defined in the national terms and conditions pursuant to Articles 24(5) and 24(6) of the ~~EBGL~~ Regulation.
 - (c) Notification to balancing service providers of selected standard balancing capacity bids shall be ~~done made~~ no later than one hour after the publication of SDAC results.
- (2) The co-optimised cross-zonal allocation process ~~to for allocate~~ing cross-zonal capacity CZC for the exchange of balancing capacity and for sharing of reserves shall include the following consecutive steps:
 - (a) Standard ~~and integrated~~ balancing capacity bids and the balancing capacity demand shall be submitted to the respective bid aggregating interface market operator(s) until by the gate closure

- time of balancing capacity bids in accordance with Article 5(1)(a) ~~of this CO-CZCA methodology.~~
- (b) For TSOs ~~of a balancing capacity cooperation~~ applying a central dispatching model and applying co-optimised cross-zonal allocation, balancing service provider BSPs may submit only integrated scheduling process bids (instead of standard balancing capacity bids), which ~~may shall~~ be converted, ~~where as far as~~ possible, into standard upward and/or standard downward balancing capacity bids by the ~~connecting respective~~ TSO, in accordance with Article 27 of the EB Regulation. These converted bids shall be submitted in accordance with paragraph (a).
- (c) After the gate closure time ~~of all submitted bids~~, the ~~market operators~~ respective -bid aggregating interface shall convert the bids into ~~seller, a supply, buyer and demand~~ curves per bidding zone for the exchange of balancing capacity or sharing of reserves.
- (d) The ~~balancing capacity market operators~~ respective -bid aggregating interface shall send to the market coupling operator function per product, per direction and per bidding zone:
- i. the aggregated ~~seller supply~~ curves for the ~~exchange of respective standard~~ balancing capacity ~~or sharing of reserves~~ products;
 - ii. the ~~aggregated buyer curves of the TSOs' demand~~ balancing capacity demand based for the ~~exchange of~~ respective standard balancing capacity product;
 - iii. the ~~aggregated buyer trajectories~~ tolerance band for curves of the reduced TSO balancing capacity demand dependent on the available cross-zonal capacities, based on sharing of reserves agreement of two or more TSOs to be applied with the co-optimised allocation process;
 - iii-iv. , including the minimum local reserve requirements; and
 - iv-v. and if necessary additional ~~CZC~~ cross-zonal capacity allocation limitations in accordance with Article 6.
- (e) The deadline for sending the data of Article 5(2)(d) ~~of this CO-CZCA methodology~~ equals the deadline for sending the aggregated supply and demand curves of the day-ahead market bids.
- ~~(f) The market coupling operator runs the SDAC and takes into account the data according to Article 5(2)(d) of this CO-CZCA methodology.~~
- ~~(g) The market coupling operator shall:~~
- i. ~~determine the allocated CZC for exchange of energy per bidding zone border;~~
 - ii. ~~clear the single day ahead market; and~~
 - iii. ~~determine the allocated CZC for the exchange of balancing capacity or sharing of reserves to be used by the TSOs of each balancing capacity cooperation.~~
- ~~(h)~~ (f) The market coupling operator function shall send the allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves ~~CZC in accordance with Article 5(2)(g)(iii) of this CO-CZCA methodology~~ to each TSO applying co-optimised cross-zonal allocation without undue delay ~~balancing capacity cooperation.~~

- ~~(g) The TSOs applying co-optimised cross-zonal allocation~~ ~~Each balancing capacity cooperation shall clear the respective balancing capacity market, using the capacity procurement optimisation function pursuant to Article 33(3) of the EB Regulation, respecting the allocated CZC cross-zonal capacity for the exchange of balancing capacity or sharing of reserves. ~~The TSOs of each balancing capacity cooperation shall update the CZC available for the SIDC, based on the allocation of CZC for the exchange of balancing capacity and/or sharing of reserves.~~~~
- ~~(h) Each TSO applying co-optimised cross-zonal allocation~~ ~~The TSOs of each balancing capacity cooperation shall~~ notify the respective balancing energy platforms, pursuant to Articles 19, 20 and 21 of the EB Regulation, send to the capacity management module about the allocated CZC cross-zonal capacity volumes of each bidding zone border, for each balancing capacity product in each direction, to be available for the respective balancing energy platforms, pursuant to Articles 19, 20 and 21 of EB Regulation.

Article 6

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

- ~~(1) This CO CZCA methodology imposes no further limitations on the maximum volume of CZC to be allocated for the exchange of balancing capacity or sharing of reserves, pursuant to Article 40 of the EB Regulation.~~
- ~~(2) The maximum volume of allocated CZC for the exchange of balancing capacity or sharing of reserves as an output of the cross-zonal capacity allocation optimisation function shall, however, respect the rules for the exchange of FRR and RR within a synchronous area, in accordance with Articles 167 and 169 of the SO Regulation.~~
- ~~(3) TSOs and relevant regulatory authorities of each balancing capacity cooperation may apply additional limits for the maximum volume of allocated CZC for the exchange of balancing capacity or sharing of reserves as an input for the cross-zonal capacity allocation optimisation function, according to Article 5(2)(d)(iv) of this CO CZCA methodology.~~
- (1) The use of additional limits by each balancing capacity cooperation for the maximum volume of allocated CZC for the exchange of balancing capacity or sharing of reserves shall be set out in the proposal according to Article 33(1) of the EB Regulation. In accordance with Article 40(1)(d) of the EB Regulation, the process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves for the cross-zonal capacity allocation optimisation function shall be as follows:
- (a) by default, the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves for the cross-zonal capacity allocation optimisation function shall be equal to the cross-zonal capacity available for SDAC; and
- (b) within the proposals in accordance with Article 38(1)(a) of the EB Regulation, TSOs may propose to apply additional limits for the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves. These additional limits shall be justified with respect to the objectives set out in Article 3 of the EB Regulation, and in particular ensure effective competition, non-discrimination and transparency in balancing markets.

~~(4)(2)~~ The exchange of balancing capacity or sharing of reserves as determined by the cross-zonal capacity allocation optimisation function shall, in addition to the limits defined in accordance with paragraph 1, be limited also by the rules for the exchange of FRR and RR in accordance with Article 157(2)(g), Article 167 and Article 169 of the SO Regulation.

Article 7

Determination of the actual market value of cross-zonal capacity for the exchange of energy in SDAC

- (1) The actual market value of cross-zonal capacity ~~CZC~~ for the exchange of energy shall be:
 - (a) ~~consider~~ the change of economic surplus ~~across all the bidding zones of~~ the SDAC;
 - (b) ~~be~~ defined per day-ahead market time unit; and
 - (c) ~~be~~ calculated based on the actual bids for the exchange of energy submitted to the SDAC.
- (2) In accordance with paragraph 1(a), ~~T~~the actual market value of cross-zonal capacity ~~CZC~~ for the exchange of energy between all bidding zones of the SDAC shall be calculated based on the incremental change of economic surplus ~~of~~ the SDAC consisting of the sum of producer surplus, consumer surplus, and congestion income depending on the availability of cross-zonal capacity.
- ~~(3) The calculation of the available CZC shall be in accordance with Article 38(5) of the EB Regulation.~~

Article 8

Determination of the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

- (1) The actual market value of cross-zonal capacity ~~CZC~~ for the exchange of balancing capacity or sharing of reserves between all bidding zones where co-optimised cross-zonal allocation is applied of the balancing capacity cooperation shall be:
 - (a) the change of economic surplus from the exchange of balancing capacity or sharing of reserves of the entire balancing capacity cooperation region;
 - (b) defined per the day-ahead market time unit;
 - (c) calculated per product and per direction, separately; ~~and~~
 - (d) calculated based on the standard upward balancing capacity bids or standard downward balancing capacity bids submitted to the capacity procurement optimisation function pursuant to Article 33(3) of the EB Regulation; ~~and~~
 - ~~(d)~~ (e) calculated based on TSOs' demand;
- (2) In accordance with paragraph (1)(a), ~~T~~the actual market value of cross-zonal capacity ~~CZC~~ for the exchange of balancing capacity or sharing of reserves between all the bidding zones where co-optimised cross-zonal allocation is applied of the balancing capacity cooperation shall be calculated as based on the change in the total of economic surplus from the exchange of balancing capacity or sharing of reserves of the balancing capacity cooperation, resulting from the incremental increase change of available CZC cross-zonal capacities allocated for the exchange of balancing capacity or sharing of reserves. ~~The~~

calculation of the change of economic surplus consists of the change of buyer surplus, congestion income and the seller surplus.

- (3) ~~The TSO demand of balancing capacity per product, per direction and per bidding zone may be price-sensitive for the purposes of possible substitutions between different types of reserve capacity with the aim to minimise the cost of procurement of balancing capacity. The TSOs shall not put a price on their demand used for co-optimised cross-zonal allocation. TSOs may increase their demand to include the capacity from an indivisible bid, if such an increase would decrease the overall procurement costs for the respective standard balancing capacity product.~~
- (4) ~~If the demand for a standard balancing capacity product of TSOs in a region where co-optimised cross-zonal capacity allocation is applied exceeds the available amount of bids for the relevant standard balancing capacity product, while taking into account the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves in accordance with Article 6, a fallback procedure shall apply. Such fallback procedure shall be described in the proposal pursuant to Article 33(1) of the EB Regulation. A-If a TSO demand of for a standard balancing capacity product per bidding zone that exceeds the available amount of locally submitted balancing capacity bids in the bidding zone for the respective standard balancing capacity product shall be a price sensitive demand, and in case the total available BC bids in the balancing capacity cooperation are sufficient but the fallback procedure is not required, the co-optimised cross-zonal allocation CZCA optimisation is still shall be performed. To calculate the change of economic surplus from the exchange of balancing capacity or sharing of reserves in such a case, the technical price limit shall be used as a fictional clearing price in case of insufficient local bids.~~

Article 9

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

- (1) The allocation of cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves is determined simultaneously with the cross-zonal capacity CZC allocation for the exchange of energy by the cross-zonal capacity allocation optimisation function ~~of the SDAC~~.
- (2) The objective ~~function~~ of the cross-zonal capacity allocation optimisation function SDAC ~~with the implementation of CO-CZCA methodology~~ shall be the maximisation of the ~~total economic surplus for the~~ sum of economic surplus for SDAC ~~the exchange of energy~~ and the economic surplus from the exchange of balancing capacity or sharing of reserves per trading day.
- (3) The ~~cross-zonal capacity allocation optimisation resolution~~ time interval for the determination of the allocation of cross-zonal capacity CZC for the exchange of balancing capacity and sharing of reserves ~~equals the cross-zonal capacity allocation optimisation resolution~~ is the same the time interval as for the resolution of the SDAC day-ahead market coupling function.
- (4) Each marginal volume of cross-zonal capacity CZC shall be allocated to the exchange of energy in case the market value of cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves pursuant to Article 8 is lower or equal to the market value of cross-zonal capacity CZC for the exchange of energy pursuant to Article 7.

- (5) Netting for cross-zonal capacity CZC allocated to the exchange of balancing capacity or sharing of reserves is not possible between:
- (a) standard upward and downward balancing capacity bids;
 - (b) standard balancing capacity bids from different balancing capacity products;
 - (c) a standard balancing capacity bid and a day-ahead market bid; and
 - (e)(d) bidding zone border directions in case of sharing of reserves.
- ~~(6) For applying co-optimised cross-zonal capacity allocation, the MCO function requires the additional inputs listed under Article 5(2)(d) of the cross-zonal capacity allocation optimisation function are:~~
- ~~(7) available network capacities;~~
 - ~~(8) balancing capacity bids and offers;~~
 - ~~(9) potential sharing of reserves volumes per product and per direction;~~
 - ~~(10)(6) additional constraints and limitations related to the procurement of balancing capacity;~~
 - ~~(a) the energy trading bids and offers.~~
- ~~(11)(7) When applying co-optimised~~The outputs of the cross-zonal capacity allocation optimisation function are, the MCO function shall produce the following additional outputs:
- ~~(a) clearing prices of the day-ahead market;~~
 - ~~(b) matched trades;~~
 - ~~(c) scheduled exchanges;~~
 - ~~(d) the net position of bidding areas;~~
 - (e)(a) allocated volumes of cross-zonal capacity CZC for the exchange of the relevant standard balancing capacity product per bidding zone border in each direction;
 - (f)(b) allocated volumes of cross-zonal capacity CZC for sharing of reserves per standard balancing capacity product and bidding zone border in each direction.

Article 10 Firmness regime for the allocation of cross-zonal capacity

- (1) The allocated cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves shall be firm at the publication of the SDAC results.
- (2) According to Article 38(4) of the EB Regulation, cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves shall be used exclusively for the product where it was allocated for, being frequency restoration reserves with automatic activation, frequency restoration reserves with manual activation or replacement reserves. In accordance with Article 38(9) of the EB Regulation, if the CZC-cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves has not been used for the associated exchange of balancing energy by the respective TSOs, it shall be released for the exchange of balancing energy with shorter activation times or for operating the imbalance

~~netting to all TSOs process taking into account potential cross border transmission capacity updates, in accordance with Articles 1(7) and 3(6) of this CO-CZCA methodology.~~

- (3) The procured balancing capacity bids, pursuant to Article 33(3) of the EB Regulation, shall be firm after the capacity procurement optimisation function operated ~~by TSOs by each balancing capacity cooperation.~~
- (4) ~~In the event of force majeure or emergency situations, curtailment of cross-zonal capacities which were allocated using the cross-zonal capacity allocation optimisation function shall be proportionally distributed between the affected cross-zonal capacities allocated for the exchange of energy and for the exchange of balancing capacity or sharing of reserves in accordance with Article 40(3) of the EB Regulation. TSOs can deviate from this principle by proposing a more cost efficient, non-discriminatory solution in the proposal pursuant to Article 33(1) of the EB Regulation.~~
- (5) ~~Costs of ensuring firmness of cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves shall include follow up costs of ensuring firmness of procured balancing capacity bids in accordance with paragraph 3, which are caused by the curtailment of firm cross-zonal capacity in the event of force majeure or emergency situations. These costs also include the additional costs from the procurement of balancing capacity due to the non-availability of the balancing capacity given the curtailment of cross-zonal capacity.~~
- ~~(4)(6) The costs of ensuring firmness shall be shared in accordance with the regional methodologies developed in accordance with Article 74 of CACM Regulation and Article 76 of the SO Regulation for cases which are within the scope of these methodologies. EC Regulation 2015/1222.~~
- ~~(5)(7) Costs or benefits associated with mitigating effects in the case of curtailment of firm CZC in the event of force majeure or emergency situations, in accordance with paragraph 3 of this Article, Any costs of ensuring firmness which are outside the scope of the methodologies referred to in paragraph 6, shall be borne by the relevant TSOs infringed in requesting their curtailment. These costs include the additional costs from the procurement of balancing capacity due to the non-availability of the balancing capacity given the curtailment of CZC. Each TSO shall be entitled to set a cost compensation cap.~~

Article 11 Pricing of cross-zonal capacity

- (1) ~~Each balancing capacity cooperation~~ TSOs allocating ~~CZC cross-zonal capacity~~ for the exchange of balancing capacity or sharing of reserves applying the ~~CO-CZCA methodology for co-optimised allocation~~ shall calculate the ~~cross-zonal capacity CZC~~ price for the volume of ~~cross-zonal capacity CZC~~ that is allocated for the exchange of balancing capacity or sharing of reserves.
- (2) ~~In case of coordinated net transmission capacity (cNTC) allocation, the CZC cross-zonal capacity price resulting from the allocation of cross-zonal capacity CZC for the exchange of balancing capacity or sharing of reserves applying the CO-CZCA methodology for co-optimised allocation shall correspond for each direction to the difference between the marginal prices of the procured standard product balancing capacity product in each direction on each side of the bidding zone border.~~
- ~~(2)(3) In case of flow-based allocation, the cross-zonal capacity price resulting from the allocation of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves applying the methodology~~

for co-optimised allocation shall be based on shadow prices of critical network elements for each direction of the procured standard balancing capacity product.

Article 12 Sharing of congestion income from cross-zonal capacity

The congestion income coming from the application of this ~~CO-CZCA~~ methodology for co-optimised allocation will be considered as day-ahead congestion income and as such shall be shared in accordance with the methodology of Articles 73 of the CACM Regulation and in accordance with Article 40(3) of the EB Regulation.

Article 13 Implementation timeline

- (1) By ~~one year~~ eighteen (18) months after approval of this ~~CO-CZCA~~ methodology for co-optimised allocation, all TSOs shall publish on the ENTSO-E website an implementation impact assessment and notify ACER and regulatory authorities. The implementation impact assessment shall be prepared in cooperation with all nominated electricity market operators and its progress and content shall be regularly reported to ACER and regulatory authorities until publication.
- (2) The implementation impact assessment shall ~~at least include~~ address:
 - (a) ~~g~~ Governance of the ~~CZC~~ cross-zonal capacity allocation optimisation function;
 - (b) ~~t~~ Technical feasibility of the implementation of the ~~CZCA~~ cross-zonal capacity allocation optimisation function;
 - (c) ~~f~~ Flow-based compatibility;
 - (d) ~~c~~ Compatibility with the methodology for the price coupling algorithm and the continuous trading matching algorithm pursuant to Article 37 of the CACM Regulation;
 - (e) ~~i~~ Impact analysis on the operational security of the interconnected transmission system;
 - (f) ~~l~~ Level of linkage between standard balancing capacity bids in time and between products and between standard balancing capacity bids and day-ahead market bids;
 - (g) ~~The~~ the reasoning for the separate procurement step performed by TSOs to clear the balancing capacity market, after the co-optimised allocation of cross-zonal capacities ~~two-steps approach~~; and
 - (h) ~~c~~ Costs estimation, categorisation and sharing.
- (3) By ~~one~~ two years after the approval of this methodology for co-optimised allocation ~~publication of the implementation impact assessment in accordance with paragraph 1 of this Article, and provided the positive outcome of the impact assessment with respect to letters (2)(b), (2)(c), (2)(d), 2(e), 2(f), 2(g) and (2)(h) of paragraph 2 of this Article~~, all TSOs shall send the ~~common~~ new set of requirements ~~of~~ for the price coupling algorithm ~~for co-optimisation~~ pursuant to Article ~~58(3) of EB Regulation to ACER and~~ 8(2)(a) of the CACM Regulation to all nominated electricity market operators ~~designated in accordance with Article 4(1) of the CACM Regulation~~. All TSOs shall publish ~~on the ENTSO-E website~~

the ~~common~~ newly submitted set of requirements ~~on the ENTSO-E website~~ of the algorithm for co-optimisation.

Article 14 Publication

- (1) All TSOs shall publish the ~~CO-CZCA~~ methodology for co-optimised allocation without undue delay after a decision has been adopted by the ~~Agency for the Cooperation of Energy Regulators~~ ACER in accordance with Article 5(2) of ~~the ACER Regulation (EU) 2019/942 of the European Parliament and of Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators (recast)~~ or after all TSOs submit an amended proposal under request of one or several regulatory authorities, in accordance with Article 6(1) of the EB Regulation, or on their own initiative, in accordance with Article 6(3) of the EB Regulation.
- (2) Each TSO applying co-optimised cross-zonal allocation part of a balancing capacity cooperation shall publish information on offered volumes as well as offered prices of procured balancing capacity, anonymised where necessary, as soon as possible but no later than one hour after the results of the procurement have been notified to the bidders, pursuant to Article 12(3)(f) of the EB Regulation.
- (3) Each TSO applying co-optimised cross-zonal allocation part of a balancing capacity cooperation shall publish information in accordance with Article 12(3)(h) of the EB Regulation on the allocation of ~~CZC~~ cross-zonal capacity for the exchange of balancing capacity or sharing of reserves pursuant to Article 38(1)(a) of the EB Regulation, as defined in Article 5(1)(a) ~~of this CO-CZCA methodology~~ without undue delay and no later than 6 hours before the use of the allocated cross-zonal capacity ~~CZC~~, including the:
 - (a) date and time when the decision on allocation was made;
 - (b) period of the allocation;
 - (c) volumes allocated; and
 - (d) market values used as a basis for the allocation process, in accordance with Article 39 of the EB Regulation.
- (4) Each TSO applying co-optimised cross-zonal allocation part of a balancing capacity cooperation shall inform on the use of allocated cross-zonal capacity ~~CZC~~ for the exchange of balancing capacity or sharing of reserves pursuant to Article 38 of the EB Regulation without undue delay and at the latest one week after the use of allocated cross-zonal capacity ~~CZC~~, pursuant to Article 12(3)(i) of the EB Regulation, including the:
 - (a) volume of allocated and used cross-zonal capacity per market time unit;
 - (b) volume of released cross-zonal capacity for subsequent timeframes per market time unit; and
 - (c) estimated realised costs and benefits of the allocation process.
- (5) Each TSO intending to apply co-optimised cross-zonal allocation part of balancing capacity cooperation shall publish the approved methodologies in accordance with Article 38(1) of the EB Regulation at least one-three months before its application, ~~pursuant to Article 12(3)(j) of the EB Regulation~~.
- (6) Subject to the approval of relevant regulatory authorities, pursuant to Article 18 of the EB Regulation, a TSO may withhold the publication of information on offered prices and volumes of balancing capacity

or balancing energy bids, if justified for concerns of market abuse and if not detrimental to the effective functioning of the electricity markets. A TSO shall report such withholdings at least once a year to the relevant regulatory authority, in accordance with Article 59~~37~~ of Directive (EU) 2019/944 of the European Parliament and of Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast) Directive 2009/72/EC and pursuant to Article 12(5) of the EB Regulation.

Article 15 Language

The reference language for this ~~CO-CZCA~~ methodology for co-optimised allocation shall be English. For the avoidance of doubt, where TSOs need to translate this ~~CO-CZCA~~ methodology for co-optimised allocation into their national language(s), in the event of inconsistencies between the English version published by all TSOs in accordance with Article 7 of the EB Regulation and any version in another language, the relevant TSOs shall be obliged to dispel any inconsistencies by providing a revised translation of this ~~CO-CZCA~~ methodology for co-optimised allocation to their relevant regulatory authorities.