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**All TSOs' proposal for a Congestion Income  
Distribution (CID) methodology in accordance with  
Article 73 of the Commission Regulation (EU)  
2015/1222 of 24 July 2015 establishing a guideline on  
Capacity Allocation and Congestion Management**

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### Whereas

- (1) This document establishes the methodology for congestion income distribution (hereafter referred to as “CID methodology”) in accordance with Article 73 of Commission Regulation (EU) 2015/1222 establishing a guideline on Capacity Allocation and Congestion Management (hereafter referred to as the “CACM Regulation”).
- (2) This CID methodology takes into account the general principles, goals and other methodologies set in the CACM Regulation. The goal of the CACM Regulation is the coordination and harmonisation of capacity calculation and capacity allocation in the day-ahead and intraday cross-border markets, and it sets requirements for the Transmission System Operators (hereafter referred to as “TSOs”) to co-operate on the level of capacity calculation regions (hereinafter referred to as “CCRs”), on a pan-European level and across bidding zone borders. The CACM Regulation sets also rules for establishing capacity calculation methodologies based either on the flow-based approach (“FB approach”) or, subject to conditions specified therein, the coordinated net transmission capacity approach (“coordinated NTC approach”).
- (3) In accordance with Article 73 of the CACM Regulation, the CID methodology should cover the congestion income distribution in both the day-ahead and the intraday timeframe. Intraday timeframe is operated in a hybrid solution combining a continuous market with implicit auctions. Intraday congestion income to be distributed under the CID methodology is not created during the continuous trading and is originating only from the Intraday Capacity Pricing Auctions (hereinafter referred to as “IDA”). IDA references can be in some cases also understood as references to Single Intraday Coupling, however only IDA will be used in the document as it refers to a specific part of the coupling.
- (4) The CID methodology is designed in three layers. First, for each CCR the congestion income generated by exchanges within a CCR is calculated based on the results of the single day-ahead coupling (hereinafter referred to as “SDAC”) or IDA and collected. Second, the congestion income of a CCR is distributed among the bidding zone borders of a CCR. This is done using a harmonised approach based on the absolute value of the product between the commercial flow and the market spread on the bidding zone border. Third, the congestion income attributed to the bidding zone border is distributed among TSOs having interconnectors on that bidding zone border.
- (5) Regional application of congestion income distribution is needed for two main reasons. First, the congestion income from SDAC includes also the congestion income resulting from reallocated long-term transmission rights (“LTTR”), for which TSOs need to coordinate in capacity calculation and allocation, as well as guaranteeing their firmness and remuneration including sharing of related costs in accordance with Article 61 of the Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation (hereinafter referred to as the “FCA Regulation”). All these requirements are defined at CCR level and therefore sharing of congestion income must be kept at the same level in order to ensure revenue adequacy. Second, the definition of commercial flow is not harmonised across EU mainly because CCRs with coordinated NTC and FB approach allocate cross-zonal capacity in a fundamentally different way. In CCRs with a coordinated NTC approach, the commercial flows can be set to equal allocated cross-zonal capacities, which are directly resulting from SDAC or IDA algorithm. In CCRs with a FB approach, where SDAC or IDA algorithm does not calculate allocated capacities on

bidding zone borders, the commercial flows need to be calculated additionally. This is done by first calculating, for each bidding zone, the net position resulting from exchanges within a CCR (i.e. the regional net positions) and then the physical flows resulting from the regional net positions are calculated for each bidding zone border of a CCR.<sup>1</sup> For those bidding zones, where part of the regional net position is physically realised through borders outside of its CCR, the external flow is calculated such that the sum of calculated physical flows on internal borders and the external flow is equal to the regional net position of a bidding zone.

- (6) The congestion income from SDAC also contains the congestion income generated by non-nominated LTTRs (i.e. non-nominated PTRs or FTRs), which TSOs have the obligation to remunerate in accordance with the FCA Regulation. While the remuneration of LTTRs is outside the scope of this CID methodology, it is important to maintain the revenue adequacy of each TSO. Thus, in a situation where LTTRs have been issued in a CCR, the costs for the remuneration of those LTTRs should be borne by the same TSOs, which receive the congestion income in the day-ahead timeframe that is generated by the capacity corresponding to these non-nominated LTTRs. This principle is reflected in the methodology for sharing costs incurred to ensure firmness and remuneration of long-term transmission rights in accordance with Article 61(3) of the FCA Regulation.
- (7) According to Article 9 (9) of the CACM Regulation, the expected impact of the proposed CID methodology on the objectives of the CACM Regulation has to be described and is presented below.
- (8) The proposed CID methodology generally contributes to the achievement of the objectives of Article 3 of CACM Regulation or the usage principles for congestion income set in Regulation (EU) 2019/943. In particular, the CID methodology serves the objective of promoting effective competition in the trading and supply of electricity, non-discriminatory access to cross-zonal capacity as it lays down the exact methodology for the distribution of congestion income to be applied by all involved TSOs, thus, creating a solid basis for congestion income distribution at European level.
- (9) Congestion income indicates how much market participants value the possibility for cross-border trade, how interconnections are used and where capacity should be increased. Via the possibility to consider investment costs in the sharing key, more certainty can be achieved for a more optimal sharing key for future investments and thus, long-term operation and development of the electricity transmission system and electricity sector in the European Union is supported.
- (10) Furthermore, the CID methodology ensures non-discriminatory treatment of all affected parties, as it sets rules to be applied by all parties. Further, the methodology takes into account congestion income derived by interconnections on bidding zone borders owned by legal entities other than TSOs, preventing exclusion of such congestion income from the application of the CID methodology as long as these interconnections are operated by TSOs.

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<sup>1</sup> These flows are calculated based on power transfer distribution factors, which are calculated based on common grid model.

- (11) Regarding the objective of transparency and reliability of information, the CID methodology provides clear rules and a solid basis for congestion income distribution in a transparent and reliable way.
- (12) In conclusion, the proposed CID methodology contributes to the general objectives of the CACM Regulation to the benefit of all market participants and electricity end consumers.
- (13) Article 73 of the CACM Regulation requires all TSOs to develop the CID methodology. The TSOs who are responsible for the development of the proposal and for its submission to ACER are the following: APG - Austrian Power Grid AG, VÜEN-Vorarlberger Übertragungsnetz GmbH, Elia - Elia System Operator S.A., ESO – Electroenergien Systemen Operator EAD, HOPS - Croatian Transmission System Operator Ltd, ČEPS - ČEPS, a.s., Energinet - Energinet, Elering - Elering AS, Fingrid - Fingrid OyJ, Kraftnät Åland Ab, RTE - Réseau de Transport d'Electricité, S.A, Amprion - Amprion GmbH, TransnetBW -TransnetBW GmbH, TenneT GER - TenneT TSO GmbH, 50Hertz - 50Hertz Transmission GmbH, IPTO - Independent Power Transmission Operator S.A., MAVIR ZRt. - MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság ZRt., EirGrid - EirGrid plc, Terna - Terna SpA, Augstsprieguma tīkls - AS Augstsprieguma tīkls, LITGRID - LITGRID AB, CREOS Luxembourg - CREOS Luxembourg S.A., TenneT TSO - TenneT TSO B.V., PSE - PSE S.A., REN - Rede Eléctrica Nacional, S.A., Tranelectrica - C.N. Tranelectrica S.A., SEPS - Slovenská elektrizačná prenosová sústava, a.s., ELES - ELES,d.o.o, REE - Red Eléctrica de España S.A.U, Svenska Kraftnät - Affärsverket Svenska Kraftnät, SONI System Operator for Northern Ireland Ltd

## **TITLE 1**

### **General provisions**

#### **Article 1**

#### **Subject matter and scope**

1. The CID methodology is established in accordance with Article 73 of the CACM Regulation and shall cover the congestion income distribution for:
  - a. all existing and future bidding zone borders and interconnectors within and between Member States, to which the CACM Regulation applies and where congestion income is collected;
  - b. Interconnectors which are owned by TSOs or by other legal entities;
  - c. Congestion income derived from capacity allocation based on coordinated NTC approach and FB approach;
  - d. Congestion income derived from capacity allocation based on NTC approach only used in a first stage of IDA for some CCRs before FB approach is applied and
  - e. Congestion income derived from capacity allocation in the day-ahead and the intraday timeframe.
2. Where congestion income derives from transmission assets owned by legal entities other than TSOs, these parties shall be treated in a transparent and non-discriminatory way. The TSOs operating these assets shall conclude the necessary agreements compliant with this CID

methodology with the relevant transmission asset owners to remunerate them for the transmission assets they operate on their behalf.

## **Article 2**

### **Definitions and interpretation**

1. For the purpose of the CID methodology, terms used in this document shall have the meaning of the definitions included in Article 2 of the CACM Regulation, of the FCA Regulation, of Regulation (EU) 2019/943, Directive 2009/72/EC and Commission Regulation (EU) 543/2013.
2. In addition, in this CID methodology the following terms shall apply:
  - a. “Commercial Flow” means the flow over a bidding zone border resulting from SDAC or IDA where it is distinguished as follows:
    - i. for CCRs applying the FB approach it is the additional aggregated flow (AAF) and if applicable the external flow as specified in Article 4; and
    - ii. for CCRs applying a coordinated NTC or NTC approach it means the allocated capacities on the bidding zone border.
  - b. “External flow” means the calculated physical flow resulting from exchanges within a CCR from the SDAC or IDA that cannot be directly assigned to a bidding zone border of that CCR and therefore represents exchanges within a CCR, which are physically realised through borders outside of a CCR;
  - c. “Slack hub” represents a common virtual sink or source for all external flows originating from a bidding zone assigned to it. Each bidding zone may only be assigned to one slack hub. In a CCR where external flows are present, one but also multiple slack hubs are possible. There shall be no direct flows between slack hubs meaning that the sum of all external flows towards a slack hub is zero. A slack hub is defined only in case the external flow can re-enter the relevant CCR via a different external border, but within the same slack hub.
  - d. “Virtual hub” is only used as an enabler for increased exchanges between real bidding zones to enable consideration of HVDC (High Voltage Direct Current) interconnectors. In contrast to real bidding zones, there do not exist any bids at the virtual hubs in the market coupling algorithm and therefore there is also no CI generated for virtual hubs.
  - e. “Net border income” means the congestion income allocated per bidding zone border as defined in Article 5 of this CID methodology.
3. In addition, in this CID methodology, unless the context requires otherwise:
  - a. a bidding zone border may consist of one or more interconnector(s) for the purposes of the congestion income distribution;
  - b. unless specified otherwise, the terms used apply in the context of the SDAC and IDA;
  - c. the singular indicates the plural and vice versa;
  - d. the table of contents and headings are inserted for convenience only and do not affect the interpretation of this CID methodology; and
  - e. 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.

## TITLE 2

### Calculation of congestion income and distribution to the bidding zone borders

#### Article 3

##### Process and calculation of congestion income

1. In accordance with Article 68(7) and (8) of the CACM Regulation, the relevant central counter parties or shipping agents shall collect the congestion income arising from the SDAC or the IDA and shall ensure that collected congestion income is transferred to the TSOs or entities appointed by TSOs no later than two weeks after the date of the settlement.
2. The congestion income generated within a CCR ( $CI_{CCR}$ ) shall be calculated by using the results of SDAC or IDA according to one of the following formulas:

- a. To be used in CCRs using FB approach

$$CI_{CCR} = - \sum_{i=1}^{NBZ} NP_i \times P_i$$

where:

$NP_i$  is the regional net position of bidding zone i resulting from the SDAC or IDA

$P_i$  is the clearing price of bidding zone i resulting from the SDAC or IDA

$NBZ$  is the number of bidding zones in the CCR

or

- b. to be used in a CCR using cNTC/NTC approach if deemed more appropriate

$$CI_{CCR} = \sum_{(i,k) \in BRC} S_{i-k} \times PD_{i-k}$$

where:

$S_{i-k}$  is the allocated capacity between bidding zones i and k resulting from the SDAC or IDA

$PD_{i-k}$  is the price difference between bidding zones i and k resulting from the SDAC or IDA

$BRC$  is the set of borders in the CCR

3. The calculation of  $CI_{CCR}$ , including the subsequent step described in Article 5(2), may be omitted during regional implementation of CCRs, in which non-intuitive flows and network losses according to Article 5(1) do not occur.
4. The regional implementation can also reflect allocation constraints within one CCR and adapt the scope of the  $CI_{CCR}$  calculation and the subsequent step described in Article 5(2) in case of NTC based or coordinated NTC approach.
5. In general, the generated CI from SDAC or IDA for a CCR shall always be positive or zero in case of price convergence. However, under very rare circumstances it can occur for individual MTUs that overall CI generated for a CCR could become negative and for these MTUs the calculated  $CI_{CCR}$  according to this Article 3 would not be equal to the CI resulting from SDAC or IDA optimisation algorithm as it would be negative. Rules for sharing such negative CI per MTU are described in Article 5(3).



## Article 4 Calculation of commercial flows in FB approach

1. For CCRs applying the FB approach, the commercial flow shall be based on calculated physical flow on internal and external bidding zone borders of a CCR, which result from regional net positions of bidding zones in a CCR. These regional net positions shall be derived from the total net positions resulting from SDAC or IDA and subtracting the exchanges with bidding zones outside of a CCR.
2. On the internal bidding zone borders of a CCR the commercial flow shall be equal to AAF, which is the calculated physical flow on internal bidding zone borders of a CCR resulting from the electricity exchanges within a CCR. AAF shall be calculated with the following formula:

$$AAF_i = \sum_{j,k \in i} NP_j \cdot PTDF_{j,k}$$

where:

$AAF_i$  is the AAF on the bidding zone border  $i$ ;

$NP_j$  is the regional net position of the bidding zone  $j$  (the position of virtual hubs – if any – is added to derive the net position of the bidding zone);

$PTDF_{j,k}$  is the power transfer distribution factor for the bidding zone  $j$  on the interconnector  $k$  located on the bidding zone border  $i$ .

3. For each bidding zone, which has the regional net position not equal to the sum of all commercial flows calculated on the internal borders of such bidding zone pursuant to paragraph 2, the external flow is needed as additional commercial flow in order to balance the regional net position of such bidding zone. The external flow of such bidding zone shall be calculated using the following formula:

$$EF_j = NP_j - \sum_{i \in M} AAF_i$$

where:

$EF_j$  is the external flow for the bidding zone  $j$ ;

$NP_j$  is the regional net position of the bidding zone  $j$ ;

$AAF_i$  is the additional aggregated flow on the bidding zone border  $i$ ;

$M$  is the subset of bidding zone borders within a CCR that are part of a bidding zone  $j$ .

4. For bidding zones, where additional commercial flow is calculated based on external flow pursuant to paragraph 3, the market spread of such commercial flow used in accordance with Article 5(1) shall be calculated as:

$$EMS_j = P_j - P_{SH,n}$$

and  $P_{SH,n}$  is(are) the price(s) that minimises the sum of congestion income from external flows over all bidding zones connected to the relevant slack hub (where each external flow for one



bidding zone is calculated in accordance with paragraph 3 of this Article 4) using the following optimisation:

$$P_{SH,n} = \arg \min_{P_{SZ,n}} \sum_{j=1}^{NOH,n} |(P_j - P_{SZ,n}) \times EF_j|$$

where:

$EMS_j$  is the market spread for the external flow of a bidding zone  $j$ , which is connected to slack hub  $n$ ;

$P_j$  is the clearing price of a bidding zone  $j$  resulting from SDAC or IDA which is connected to slack hub  $n$ ;

$P_{SH,n}$  is the price of a slack hub  $n$ ;

$NOH,n$  is the number of bidding zones having external flows towards slack hub  $n$ .

If there is no unique solution for  $P_{SH,n}$ , then  $P_{SH,n}$  shall be calculated as the average of the maximum and the minimum value from a set of  $P_{SH,n}$  satisfying the formula above.

## Article 5

### Distribution of congestion income to the bidding zone borders

1. For both the day-ahead and intraday timeframes, the congestion income attributed to a bidding zone border shall be calculated as the absolute values of the product of the commercial flow multiplied by the market spread. The relevant market spread shall be reduced to reflect the costs of network losses in case these are considered in capacity calculation and allocation on the given bidding zone border or interconnector.
2. In case the sum of congestion income attributed to all bidding zone borders within a CCR (and external borders where relevant) pursuant to paragraph 1 of this Article 5 is not equal to the total congestion income generated by electricity exchanges within a CCR according to Article 3, the congestion income attributed to the bidding zone borders within a CCR (and external borders where relevant) shall be adjusted proportionally in order to match the total congestion income generated by electricity exchanges within a CCR.
3. The application of curtailment mitigation / curtailment sharing in optimisation algorithm, as well as specific outcomes in relation to acceptance of bids and application of rounding, can lead to an overall negative congestion income for a CCR. For these rare cases, the negative congestion income shall be shared on an equal share basis among all bidding zones of the CCR.

## TITLE 3

### Congestion income distribution on the bidding zone border

## Article 6

### Sharing keys

1. For the bidding zone borders where congestion income was calculated based on allocated capacities or AAF, the TSOs on each side of the bidding zone border shall receive their share of net border income based on a 50%-50% sharing key. In specific cases, the concerned TSOs may also use a sharing key different from a 50% - 50% split. The sharing keys different from

50% - 50% may be based on different ownership shares between TSOs, different shares of investments costs between TSOs, exemption decisions<sup>2</sup> or decisions on cross-border cost allocation<sup>3</sup> by competent NRAs or the Agency. The sharing keys for these specific cases shall be published in a common document by ENTSO-E on its web page for information purposes only. This document shall list all these specific cases with the name of the interconnector, the bidding zone border, the involved TSOs/Parties, the specific sharing key applied and the motivation / reasons for the deviation from the 50%-50% sharing key. The document shall be updated and published promptly as soon as any changes occur. Each publication shall be announced in an ENTSO-E's newsletter.

2. The congestion income calculated based on external flow shall be attributed to TSO(s) of a bidding zone for which the associated external flow was calculated and have interconnectors through which the external flows are realised.
3. For bidding zone borders consisting of several interconnectors where the capacity is auctioned separately for interconnectors, the congestion income associated with each interconnector is directly allocated to the TSO(s) of that interconnector based on relevant auctions.
4. In case the bidding zone border consists of several interconnectors with different sharing keys, or which are owned by different TSOs and where the capacity is allocated jointly, the net border income shall be assigned first to the respective interconnectors on that bidding zone border based on each interconnector's contribution to the allocated capacity. The interconnector's contribution to capacity allocation is determined according to the agreement between all relevant TSOs on the bidding zone border based on the technical evaluation of the capacity contribution of each interconnector to the capacity allocation or the availability of each interconnector. The principles of the technical evaluation for these specific cases shall be published in a common document by ENTSO-E on its web page for information purposes only. The document shall be updated and published promptly as soon as any changes occur. Each publication shall be announced in an ENTSO-E's newsletter.
5. The final congestion income attributed to each TSO shall consist of congestion income calculated pursuant to paragraphs 1 to 4 of this Article 6. In the case of SDAC, the remuneration of LTTRs to be paid in accordance with Article 61 of the FCA Regulation also needs to be applied. Only the costs for remuneration of those LTTRs, which have been offered for re-allocation at the day-ahead timeframe shall be covered.
6. In case specific interconnectors are owned by entities other than TSOs or entities other than TSOs have a share in the investment costs of an interconnector, the reference to TSOs in this article shall be understood as referring to those entities. Where applicable, the sharing keys are calculated according to the exemption decision granted to these entities by relevant competent Authorities in accordance with article 63 of Regulation (EU) 2019/943.

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<sup>2</sup> Exemption decision granted to these entities by relevant competent Authorities in accordance with article 63 of Regulation (EU) 2019/943.

<sup>3</sup> Decisions on cross-border cost allocation granted to these entities by relevant competent Authorities or the Agency in accordance with article 12(4) or 12(6) of Regulation (EC) 347/2013.

## **TITLE 4**

### **Transparency of information**

#### **Article 7**

##### **Publication of data**

1. No later than at the time of the time of implementation of this methodology, all TSOs shall publish the following information required for the transparency of congestion income distribution:
  - a) for CCRs applying the FB approach:
    - power transfer distribution factors showing the influence of the change in the net position of each bidding zone on the physical flows on each interconnector on each bidding zone border within a CCR;
    - regional net position of each bidding zone within a CCR;
    - price(s) of the slack hub(s); and
    - price for each bidding zone within a CCR.
  - b) for all CCRs:
    - commercial flows and the corresponding market prices used for the purpose of congestion income distribution in accordance with this methodology.
2. The information pursuant to paragraph 1 shall be published with market time unit resolution and at least on a monthly basis.

## **TITLE 5**

### **Final provisions**

#### **Article 8**

##### **Publication and implementation of the CID methodology**

1. The TSOs shall publish the CID methodology without undue delay after a decision has been taken by the Agency in accordance with Article 9(6) or Article 9(12) of the CACM Regulation as amended by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021 amending Regulations (EU) 2015/1222, (EU) 2016/1719, (EU) 2017/2195 and (EU) 2017/1485 in order to align them with Regulation (EU) 2019/943.
2. The TSOs of each capacity calculation region shall implement the methodology at the date of implementation of the capacity calculation methodology within their respective CCR in accordance with Articles 20 and 21 of the CACM Regulation or at the date of implementation of the IDA for intraday timeframe.

#### **Article 9**

##### **Language**

The reference language for this CID methodology shall be English. For the avoidance of doubt, where TSOs need to translate this CID methodology into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 9 (14) of the CACM Regulation and any version in another language the relevant TSOs shall, in accordance with national legislation, provide the relevant NRAs with an updated translation of the CID Methodology.