SEE CCR TSOs' proposal for the methodology for cross-zonal capacity calculation within the balancing timeframe in accordance with Article 37 of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing within SEE CCR

January 2024

TSOs of the SEE CCR, taking into account the following:

Whereas

(1) This document (hereafter referred to as "this methodology" or "BT CCM") is a common proposal developed by all Transmission System Operators (hereafter referred to as "TSOs") within the South East European Calculation Region (hereafter referred to as "SEE CCR") for the methodology for the common capacity calculation performed for the capacity allocation within the balancing timeframe for SEE CCR, as required by Article 37 of Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline Electricity Balancing (hereafter referred to as the "EB GL Regulation"). This BT CCM takes into account the general principles and objectives set in the EB GL Regulation, which are listed in Article 3, while also respecting the principles set in the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast) (hereafter referred to as "Regulation (EU) 2019/943"). This BT CCM is also consistent with the cross-zonal capacity calculation methodology applied in the intraday timeframe established under Regulation (EU) 2015/1222 (hereafter referred to as the "CACM Regulation") in accordance with Article 37(3) EB GL Regulation.

(2) The main objectives of EB GL Regulation that are listed in Article 3(1) of the EB GL Regulation and relevant to this BT CCM are the integration of balancing markets, the promotion of the possibilities for exchanges of balancing services while contributing to operational security and the facilitation of the efficient coordination and functioning of day-ahead, intraday and balancing markets. This BT CCM contributes to and does not in any way hinder the achievement of the abovementioned objectives.

(3) More precisely, Article 3(a) of the EB GL Regulation aims at fostering effective competition, non-discrimination and transparency in balancing markets. The BT CC methodology serves those objectives by defining and establishing a set of harmonized rules and a common coordinated process for capacity calculation which contributes to the effectiveness of the balancing market.

(4) Article 3(b) of the EB GL Regulation aims at enhancing efficiency of balancing as well as efficiency of European and national balancing markets. The BT CC methodology contributes to the objective of enhancing efficiency of balancing and both European and national balancing market by calculating capacity for the exchange of balancing energy or for operating the imbalance netting process as close as possible to real-time with the latest available inputs, in accordance with Article 24(2) of the EB GL.

(5) Article 3(c) of the EB GL Regulation aims at integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security. The BT CC methodology promotes the integration of balancing markets and the possibilities for the exchanges of balancing energy by offering capacity to the Capacity Management Module (CMM). The CMM project aims to develop a centralized solution for management of cross-zonal capacity (CZC) among all European balancing platforms (TERRE, MARI, PICASSO and IGCC)

for the exchange of balancing energy in context of EB GL Regulation and requirements of the European balancing platforms (respecting relevant implementation frameworks and their legal deadline), in accordance with the processes described in Articles 19, 20, 21 and 22 of the EB GL Regulation.

(6) Article 3(d) of the EB GL Regulation aims at 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. By ensuring consistency between day-ahead, intraday and balancing markets, BT CCM contributes to the long-term operation and development of the electricity transmission system and electricity sector.

(7) For these reasons, to facilitate the achievement of these aims and to offer capacity to the market in the balancing timeframe, it is necessary for TSOs to calculate in a coordinated manner the available cross-border capacity in a way which is consistent with capacity calculation applied in the intraday timeframe (see Article 37 EB GL Regulation). In line with the requirements of the EB GL Regulation, the TSOs of SEE CCR will strive to cooperate with Capacity Calculation Regions (hereafter referred to as "CCR") connected to SEE CCR in order to ensure that capacity calculation takes place in the most efficient and thorough way.

(8) Article 37 of the EB GL Regulation constitutes the legal basis for this methodology and defines several specific requirements that the BT CCM should take into account:

"1. After the intraday-cross-zonal gate closure time, TSOs shall continuously update the availability of cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting process. Cross-zonal capacity shall be updated every time a portion of cross-zonal capacity has been used or when cross-zonal capacity has been recalculated.

2. Before the implementation of the capacity calculation methodology pursuant to paragraph 3, TSOs shall use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time.

3. By five years after entry into force of this Regulation, all TSOs of a capacity calculation region shall develop a methodology for cross-zonal capacity calculation within the balancing timeframe for the exchange of balancing energy or for operating the imbalance netting process. Such methodology shall avoid market distortions and shall be consistent with the cross-zonal capacity calculation methodology applied in the intraday timeframe established under regulation (EU) 2015/1222".

(9) Article 2 of the EB GL regulation defines 'balancing' as "*all actions and processes, on all timelines, through which TSOs ensure, in a continuous way, the maintenance of system frequency within a predefined stability range as set out in Article 127 of Regulation (EU) 2017/1485, and compliance with the amount of reserves needed with respect to the required quality, as set out in Part IV Title V, Title VI and Title VII of Regulation (EU) 2017/1485".*

(10) Article 2 of the EB GL Regulation defines 'balancing market' as *"the entirety of institutional, commercial and operational arrangements that establish market-based management of balancing".*

(11) Article 36 of the EB GL Regulation identifies the use of cross-zonal capacity, such that *"all TSOs shall use the available cross-zonal capacity, computed according to paragraphs 2 and 3 of Article 37, for the exchange of balancing energy or for operating the imbalance netting process."*.

(12) Article 2(8) of the CACM Regulation defines the coordinated net transmission capacity approach as *"the capacity calculation method based on the principle of assessing and defining ex ante a maximum energy exchange between adjacent bidding zones".*

(13) TSOs of SEE CCR agreed on a first version of BT CCM proposing to apply a coordinated net transmission capacity methodology for capacity calculation within the SEE CCR, without prejudice to the future implementation of a flow-based approach as the target methodology for the SEE CCR as foreseen in Article 20(1) of the CACM Regulation.

(14) The balancing capacity calculation will be performed by the coordinated capacity calculators, as per the definition set in Article 2(11) of the CACM Regulation, which are mandated to perform transmission capacity calculation pursuant to the CACM and FCA Regulations.

(15) Coordinated capacity calculators will take into account the SEE TSOs remedial actions into coordinated remedial action preparation.

(16) In conclusion, the BT CC methodology contributes to the general objectives of the EB GL Regulation while being compatible with the principles of the EU Regulations mentioned above.

SUBMIT THE FOLLOWING COMMON METHODOLOGY FOR CROSS-ZONAL CAPACITY CALCULATION WITHIN THE BALANCING TIMEFRAME TO NATIONAL REGULATORY AUTHORITIES OF THE SEE CCR:

Article 1

Subject matter and scope

1. The BT CCM as determined in this document is the common methodology for the capacity calculation performed for the capacity allocation within the balancing timeframe for SEE CCR in accordance with Article 37 of the EB GL.

Article 2

Definitions, acronyms and interpretation

1. For the purposes of the BT CCM, the terms used shall have the meaning given to them in Article 2 of Regulation (EC) 2013/543, Article 2 of Regulation (EU) 2015/1222, Article 2 of Regulation (EU) 2017/2195 (EBGL Regulation) and Article 2 of Capacity Calculation Methodology within the day-ahead and intraday timeframe for SEE CCR.

2. In addition, the following definitions shall apply:

a. 'ESO' means Electroenergien Systemen Operator EAD, the Bulgarian system operator;

d. 'IPTO' means Independent Power Transmission Operator S.A., the Greek system operator;

f. 'Transelectrica' means Transelectrica S.A., the Romanian system operator;

b. 'BG-GR border' means bidding zone border between Bulgaria and Greece;

c. 'BG-RO border' means bidding zone border between Bulgaria and Romania;

3. Definition of Acronyms:

BT	Balancing Timeframe
CC	Common Capacity Calculation
CCC	Coordinated Capacity Calculator
EBGL	Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing
CGM	Common Grid Model
CGMES	Common Information Model (CIM) for Grid Model Exchanges
CNE	Critical Network Element

CNEC	Critical Network Element and Contingency. For the purpose of this BT CCM, the term CNEC also covers the case where a CNE is used in capacity calculation without a specified contingency.
CRA	Curative Remedial Action
PRA	Preventive Remedial Action
CROSA	Coordinated Regional Operational Security Assessment
D-2	Two Days-Ahead
DA	Day-Ahead
DACF	Day-Ahead Congestion Forecast
ID	Intraday
IDGCT	Intraday Gate Closure Time
IGM	Individual Grid Model
RAO	Remedial Action Optimization
NRA	National Regulatory Authority
PTDF	Power Transfer Distribution Factor
GSK	Generation Shift Key
DACF	Day-Ahead Congestion Forecast
IDCF	Intraday Congestion Forecast
NGR	North Greek
SRO	South Romanian
UN	Uncertainties
UD	Unintended Deviation

4. In this BT CCM, unless the context requires otherwise:

a. the singular indicates the plural and vice versa;

b. headings are inserted for convenience only and do not affect the interpretation of this methodology and

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.

Article 3

Application of this methodology

This methodology applies solely to the CC for the balancing timeframe based on the coordinated net transmission capacity approach adopted in the SEE CCR.

Article 4

Cross-zonal capacities for the balancing timeframe

1. For the balancing timeframe, individual values for cross-zonal capacity for each hour shall be calculated using the BT CCM.

2. Each TSO of the SEE CCR shall provide the *CCC* without undue delay the following initial inputs:

a. operational security limits and contingencies in accordance with Article 6;
b. RMs in accordance with Article 5;
c. *GSKs* in accordance with Article 7; and
d. *RAs* in accordance with Article 8.

3. SEE TSOs, or an entity delegated by the SEE TSOs, shall send for each market time unit the *AAC* and *ANC* to the coordinated capacity calculator, without undue delay.

4. When providing the inputs, the TSOs of the SEE CCR shall respect the formats commonly agreed between the TSOs and the CCC of the SEE CCR, while respecting the requirements and guidance defined in the CGMM.

5. For the balancing common capacity calculation in the SEE CCR, performed by the *CCC*, the high-level process flow includes five steps until the final *CNTC* domain for the balancing market time-frame is set:

a. first, for the capacity calculation inputs as defined in Article 4(2) and Article 4(4) a quality check process shall be performed by the *CCC*;

b. the second process step is to determine the relevant *CNECs* in accordance with Article 6a used during common capacity calculation;

c. the third step is to determine the *NTC* values for each direction and border of SEE CCR in accordance with Article 9;

d. after NTC values computation, the resulting cross-zonal capacities are validated by the TSOs of the SEE CCR;

e. finally, the *ATC* values are calculated for balancing market time-frame taking into account the *ANC* values.

5. For each SEE CCR border, direction and market time unit, the final available transmission capacity for the balancing market time-frame shall be defined as the difference between the computed NTC values and the already nominated capacities in the previous market time-frames.

Article 5

Reliability margin methodology

1. The balancing common capacity calculation methodology is based on forecast models of the transmission system. Therefore, the outcomes are subject to inaccuracies and uncertainties. The aim of the reliability margin is to cover a level of risk induced by these forecast errors.

2. In accordance with Article 22(2) and (4) of the CACM Regulation, the *RM*s cover the following forecast uncertainties:

a. cross-zonal exchanges on bidding zone borders outside SEE CCR;

b. generation pattern including specific wind and solar generation forecast;

c. generation shift key;

d. load forecast;

e. topology forecast;

f. unintentional flow deviation due to the operation of frequency containment reserves.

3. SEE TSOs shall aim at reducing uncertainties by studying and tackling the drivers of uncertainty.

4. For the capacity calculation performed for balancing market time-frame, the TSOs of SEE CCR shall compute the *RMs* for the SEE CCR borders in accordance with Article 22 of the CACM Regulation and based on the analysis of the following data:

- Unintended deviations of physical electricity flows within a MTU caused by the adjustment of electricity flows within and between control areas, to maintain a constant frequency;

- Uncertainties which could affect capacity calculation and which could occur between the respective capacity calculation time and real time, for the MTU being considered.

5. Regarding the *UD* for control-related reasons, deviations occur between the scheduled values and the actual values during the exchange of energy between neighboring control areas. This

implies that at any moment the exchange between two control areas can be significantly higher than the scheduled exchanged, endangering the security of supply.

6. Regarding the *UN* the CNTC methodology is based on different inputs provided by TSOs, they are based on best available forecast at the time of the capacity calculation for renewable energy sources, consumption, generation, or available network elements and those could differ from the real-time situation.

7. The *RMs* can be considered as an indirect input to the capacity calculation process since it refers to the difference when the TTC and the NTC limits are reached for the constraint under investigation.

8. The RMs determination is based on a probability distribution function of the deviations between the expected power flows at the time of the capacity calculation and realized power flows in real time.

9. The RMs on the north Greek borders and south Romanian borders are calculated in a three-step approach:

a. In a first step, for each MTU of the observatory period, the power flow on the north Greek borders and south Romanian borders, as expected at the time of capacity calculation is compared with the real time power flow observed on the same borders. All differences for all MTUs of a one-year observation period shall constitute the probability distribution function of deviations between the expected flows at the time of capacity calculation and realized flows in real time. The impact on the capacity shall be defined with the following equation:

$$F_{err} = F_{real} - F_{CGM}$$

With

F_{err}	Active power flow error due to *UD* and *UN*;
F_{real}	Active power flow through the border in real time;
F_{CGM}	Active power flow through the border in the relevant CGM;

b. in a second step and in accordance with Article 22(3) of the CACM Regulation the 95th percentiles of the probability distributions for the north Greek borders and south Romanian borders shall be calculated. This means that the TSOs apply a common risk level of 5% and thereby the RM values cover 95% of the historical forecast errors within the observation period.

c. a possible third step could be to undertake an operational adjustment on the values derived previously, by modifying the computed RM values to a value within the range which will retain system security between 1% and 20% of the TTC calculated under normal weather conditions.

10. The TSOs of the SEE CCR shall store for an unlimited period of time the differences between the realized and expected SEE CCR power flow in a database for statistical analyses. The probability distribution function and reliability margin values shall be stored for an unlimited period of time for further evaluation.

11. The RM values shall be updated every year (including the risk level), based upon an observatory period of one year such that seasonal effects can be reflected in the values. The *RMs* values remain fixed until the next update.

12. For the balancing common capacity calculation, the *RMs* for the north Greek borders and south Romanian borders shall be implemented 3 months after collecting 1 year of data since the balancing capacity calculation go-live.

13. Before the first operational calculation of the *RMs* values, SEE CCR TSOs shall use the RM values already in operation in the existing capacity calculation initiatives. The *RMs* before the first operational calculation for the north Greek borders shall be 400 MW for each direction and for the south Romanian borders shall be 200 MW for each direction.

Article 6

Methodologies for operational security limits, contingencies and allocation constraints

1. Each TSO of the SEE CCR shall provide the coordinated capacity calculator with its individual list of CNECs. The coordinated capacity calculator shall then define the merged list of CNECs to be considered during the CC, by merging the individual list of CNECs provided by all TSOs of the SEE CCR.

2. Subsequently, the coordinated capacity calculator shall use the merged list of CNECs pursuant to paragraph 1 to create the initial list of CNECs to be considered in the CC by selecting only network elements significantly influenced by cross-zonal power exchanges. The selection of these CNECs shall be based on a sensitivity analysis.

3., SEE TSOs shall respect the operational security limits used in operational security analysis carried out in line with Article 72 of the SO GL. The operational security limits used in the common capacity calculation are the same as those used in operational security analysis. In particular:

a. SEE TSOs shall respect the maximum admissible current limit ($Imax$) which is the physical limit of a CNE according to the operational security policy in accordance with Article 25 of the SO GL. The maximum admissible current can be defined with:

i. fixed limits for all MTUs of each of the four seasons;

ii. fixed limits for all MTUs in the case of transformers and certain types of conductors which are not sensitive to ambient conditions;

iii. fixed limits for all MTUs, in case of specific situations where the physical limit reflects the capability of substation equipment (such as circuit-breaker, current transformer, or disconnector).

b. when applicable, $Imax$ shall be defined as a temporary current limit of the CNE in accordance with Article 25 of the SO GL. A temporary current limit means that an overload is only allowed for a certain finite duration.

c. $Imax$ shall represent only real physical properties of the CNE and shall not be reduced by any security margin, as all uncertainties in the common capacity calculation are covered on each CNEC by the reliability margin (RM) in accordance with Article 5.

4. The TSOs of the SEE CCR shall review the list of CNECs monitored in the CC process at least once a year.

Article 6a

Rules for avoiding undue discrimination between internal and cross-zonal exchanges

1. In accordance with Article 21(1)(b)(iv) of the CACM Regulation, this balancing common capacity calculation methodology shall describe the rules to mitigate possible discrimination between the treatment of internal and cross-zonal transactions, in response to Article 21(1)(b)(ii) of the CACM Regulation and Article 1.7 of Annex I to the Regulation (EC) 714/2009 and in line with Article 3(a), 3(b) and 3(e) of the CACM Regulation.

2. The TSOs of SEE CCR shall monitor only the elements from initial list of CNECs significantly impacted by cross-zonal power exchange. The CCC shall calculate the sensitivity factors for selecting the CNECs that are significantly impacted by cross-zonal power exchange.

3. The sensitivity factors calculated as a percentage using the relevant CGM and GSK are defined as follow:

$$SEF_{CNEC} = \frac{P_f - P_i}{\Delta P} \times 100$$

With

SEF_{CNEC}	Sensitivity factor for CNEC;
P_f	CNEC active power flow after ΔP;
P_i	CNEC active power flow based on the relevant CGM;
ΔP	Increase of the exchange with 100 MW through the north Greek borders, respectively south Romanian borders.

4. SEE CCR cross-zonal network elements are by definition considered to be significantly impacted. The other CNECs from initial list shall have a sensitivity factor equal or higher than

5% to be taken into account in all of the steps of the common capacity calculation to determine the cross-zonal capacity.

5. The TSOs shall investigate whether a higher sensitivity threshold could be taken into account while guarantying security of supply, as a mid-term measure. A study shall be provided to the relevant regulatory authorities in 3 months after collecting 1 year of data since the day-ahead capacity calculation go-live.

Article 7

Generation shift keys methodology

1.Each SEE TSO shall define for its bidding zone and for each MTU a GSK, which translates a change in a bidding zone net position into a specific change of injection or withdrawal in the CGM. This expectation shall be based on the observed historical response of generation units to changes in net positions, clearing prices and other fundamental factors, and thereby contributing to minimizing the RM.

2. In accordance with Article 24 of the CACM Regulation, SEE TSOs developed the following methodology to determine the common generation shift key:

a. SEE TSOs shall take into account the available information on generation available in the common grid model for each scenario developed in accordance with Article 18 of the CACM Regulation in order to select the nodes that will contribute to the GSK;
b. SEE TSOs shall aim to apply a GSK that resembles the dispatch and the corresponding flow pattern, thereby contributing to minimizing the reliability margins;
c. SEE TSOs shall define a constant generation shift key per market time unit.

3. For the application of the methodology, SEE TSOs shall define, for the capacity calculation process, GSKs impacted by the actual generation present in the relevant CGM, for each MTU. SEE TSOs shall take into account the available information on generation available in the CGM in order to select the nodes that will contribute to the GSK.

4. SEE TSOs have harmonized their GSK determination methodologies:

a. In its GSK, each TSO shall use flexible and controllable production units which are available inside the TSO grid;
b. Units unavailable due to outage or maintenance are not included;
c. GSK is reviewed on a daily basis or whenever there are changes in the expectations referred to in paragraph (1).

5. For the Greek bidding zone a proportional representation of the generation variation to the remaining capacity, based on ADMIE's best estimate of the initial generation profile, ensure the best modeling of the Greek system.

6. For the Bulgarian bidding zone a proportional representation of the generation variation to the remaining capacity respecting the limits of the generating units, based on ESO EAD's best estimate of the initial generation profile, ensure the best modeling of the Bulgarian system. The nuclear units are not included in the list.

7. The Transelectrica GSK file contains dispatchable units which are available in the day of operation. The nuclear units are not included in the list. The fixed participation factors of GSK are impacted by the actual generation present in the relevant CGM.

8. With the above GSKs, the SEE TSOs consider that the prediction error, between the forecasted and observed flows for all production units in each bidding zone for the balancing time frame will be minimized. At the above GSKs, non-flexible production units, such as the nuclear production units are not included at the generation shift.

9.The GSKs shall be provided to the CCC to be used in the capacity calculation for each bidding zone and also the MTUs for which the GSKs shall be valid. The SEE TSOs shall make ex-post analysis of GSK regularly and if considered necessary request to change it.

10. SEE TSOs shall review and update the application of the generation shift keys methodology, on a yearly basis.

Article 8

Methodology for remedial actions in capacity calculation

1. The available remedial actions are those which can be activated within the BT in a coordinated way by the TSOs of SEE CCR to maximize the available cross-zonal capacities for the BG-GR and BG-RO borders while ensuring operational security, provided that the necessary tools are developed, and compatibility is ensured.

2. Remedial actions can be used in preventive and/or curative state. Different types of remedial actions used in the SEE CC process:

a. PRA: They correspond, in operation, to remedial actions to be implemented independently of the occurrence of any outage to relieve the grid. They are also implemented in the CGM.

b. CRA: Each CRA is associated with a given Outage and applied after the Outage happened.

3. The remedial actions to be considered in the BT CC are:

a. all preventive remedial actions as determined and validated during day-ahead and intraday Coordinated Regional Operational Security Assessment (CROSA) process;

b. all triggered curative remedial actions as determined and validated during day-ahead and intraday Coordinated Regional Operational Security Assessment (CROSA) process;

4. For the BT CC, each TSO from SEE CCR shall:

a. provide the list of RA to the CCC for each bidding zone border and each BT CC.
b. ensure that the RA are considered under the condition that the remaining RA after calculation are sufficient for enduring operational security.
c. inform CCC in case of any change in its list of RAs.

5. The coordinated capacity calculator shall consider the remedial actions that can be used to maximize the available cross-zonal capacities for the BG-GR and BG-RO borders while ensuring operational security, after the implementation of the day-ahead and intraday CROSA developed in accordance with Article 76 and 77 of the SO Regulation, provided that the necessary tools are developed, and compatibility is ensured.

Article 9

Balancing capacity calculation

1. In accordance with Article 37(1) of the EBGL Regulation, after the intraday-cross-zonal gate closure time, TSOs shall continuously update the availability of cross-zonal capacity for the exchange of balancing energy or for operating the imbalance netting process.

2. The TSOs of SEE CCR shall provide the coordinated capacity calculator of the SEE CCR with the last updated information on the transmission systems in a timely manner for the CC.

3. In the CC Remedial Actions agreed in the DA & ID CROSA process shall be applied. Due to the proximity to real time, it is not feasible to agree a new set of Remedial Actions and thus to perform a new RAO.

4. The CNTC computation is a centralized calculation based on AC load flow which delivers the main parameter needed for the definition of CNTC domain: TTC. The TTC represent the maximum power exchange on a bidding zone border and calculation shall according to the following procedure:

a. use the common grid model, generation shift keys, and list of CNECs defined in accordance with Article 6a to calculate maximum power exchange on bidding zone borders, which shall equal the maximum calculated exchange between two bidding zones on either side of the bidding zone border respecting operational security limits;
b. adjust maximum power exchange using remedial actions in accordance with Article 8.

5. The coordinated capacity calculator computes the total TTC for each of the NGR and SRO borders adopting the TTC calculation processes described below:

a. The Coordinated Capacity Calculator shall perform the BT CCC process 1 by 04:00 of D, defining the values of TTC for each market time unit from 06:00 till 12:00 of the delivery day D. These values shall be provided to the TSOs of SEE CCR for validation.

b. The Coordinated Capacity Calculator shall perform the BT CCC process 2 by 16:00 of D, defining the values of TTC for each market time unit from 18:00 till 24:00 of the delivery day D. These values shall be provided to the TSOs of SEE CCR for validation.

The aim of these processes is to increase the TTC computation frequency, in such a way that TTC values for MTUs having the higher lead time between the end of the last Intraday Capacity Calculation Process relevant for these MTUs and the start of the given MTU are updated by additional Capacity Calculation Processes based on updated input data (see figure below).

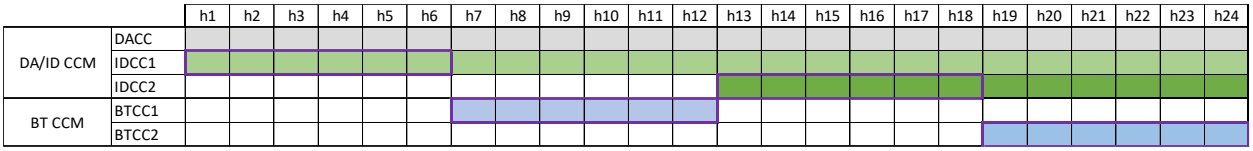

Figure 1. Capacity Calculation processes - Assessed MTUs

The proposed structure allows to:

- Maximize the coherency with the "DA/ID CCM" in terms of input data, TTC calculation procedures and expected results.
- Avoid any strong simplification necessary to cope with shorter timelines for the TTC calculation process.
- Ensure updated TTC values: a higher frequency in the occurrence of the TTC calculation process is not expected to improve the quality of the results, considering that significant simplifications would have been required to cope with stricter timelines.
- Update TTC values after any IDGT in case relevant changes occurred in the power system.

6. The resulting capacity pursuant to paragraph 5 is reduced by the total Reliability Margin of each SEE coordinated area (North Greek borders and South Romania borders). The NTC values for the north Greek borders and south Romanian borders are determined with the following equations:

$$NTC_{NORTH-GREEK-BORDERS} = TTC_{NORTH-GREEK-BORDERS} - RM_{NORTH-GREEK-BORDERS}$$

$$NTC_{SOUTH-ROMANIAN-BORDERS} = TTC_{SOUTH-ROMANIAN-BORDERS} - RM_{SOUTH-ROMANIAN-BORDERS}$$

7. The resulting total NTC values of NGR and SRO borders are distributed to each border of the relevant coordinated areas by using the splitting factors introduced in the amended SEE CCM for DA and ID timeframe. The splitting factor used for balancing capacity calculation will be the

same that is used in the relevant DA-ID processes. The NTC values per border and direction are determined with the following equations:

$$NTC_{BG-GR} = SF_{BG-GR} * NTC_{NORTH-GREEK-BORDERS}$$

$$NTC_{GR-BG} = SF_{GR-BG} * NTC_{NORTH-GREEK-BORDERS}$$

$$NTC_{BG-RO} = SF_{BG-RO} * NTC_{SOUTH-ROMANIAN-BORDERS}$$

$$NTC_{RO-BG} = SF_{RO-BG} * NTC_{SOUTH-ROMANIAN-BORDERS}$$

8. In accordance with Article 21(1)(b)(iii) of the CACM Regulation, SEE TSOs shall apply the rules for taking into account the previously allocated cross-zonal capacity. The objective of the rules is to verify that the *ATC* value of each border and direction of the SEE CCR remains non-negative in case of previously allocated commercial capacity.

9. The ATC per border and direction taking into consideration the AACs is determined with the following equations:

$$ATC_{BG-GR} = NTC_{BG-GR} - AAC_{BG-GR} + AAC_{GR-BG}$$

$$ATC_{GR-BG} = NTC_{GR-BG} - AAC_{GR-BG} + AAC_{BG-GR}$$

$$ATC_{BG-RO} = NTC_{BG-RO} - AAC_{BG-RO} + AAC_{RO-BG}$$

$$ATC_{RO-BG} = NTC_{RO-BG} - AAC_{RO-BG} + AAC_{BG-RO}$$

10. The ATC per border and direction taking into consideration the ANCs is determined with the following equations:

$$ATC_{BG-GR} = NTC_{BG-GR} - ANC_{BG-GR} + ANC_{GR-BG}$$

$$ATC_{GR-BG} = NTC_{GR-BG} - ANC_{GR-BG} + ANC_{BG-GR}$$

$$ATC_{BG-RO} = NTC_{BG-RO} - ANC_{BG-RO} + ANC_{RO-BG}$$

$$ATC_{RO-BG} = NTC_{RO-BG} - ANC_{RO-BG} + ANC_{BG-RO}$$

11. The coordinated capacity calculator shall provide the Cross-Zonal capacity for each Market Time Unit, bidding zone border and direction in SEE CCR.

Article 10

Cross-zonal capacity validation methodology

1. The TSOs of SEE CCR shall validate the cross-zonal capacities calculated by the coordinated capacity calculator of the SEE CCR. TSOs will perform only individual validation due to the very limited timing across the various timeframes. The TSOs of SEE CCR shall validate the cross-zonal capacities for each bidding zone border calculated by the Coordinated Capacity Calculator for the NGR Border and SRO Border:

a. By 05:00 of D for BT CCC process 1

b. By 17:00 of D for BT CCC process 2

2. Each TSO of the SEE CCR shall, in accordance with Article 26(1) and 26(3) of the CACM Regulation, validate and have the right to correct cross-zonal capacity relevant to the TSO's bidding zone borders for reasons of operational security during the validation process. In exceptional situations cross-zonal capacities can be decreased by TSOs. These situations are:

a. an occurrence of an exceptional contingency or forced outage pursuant to Article 3 of SO GL;
b. when all available preventive and curative RAs, that are needed to ensure the calculated capacity, are not sufficient to ensure operational security;
c. extremely low demand of a TSO which leads to low system inertia and high voltage conditions and so require a minimum number of power plants on the grid;
d. a mistake in input data, that leads to an overestimation of cross-zonal capacity from an operational security perspective.

3. When one or more TSOs of the SEE CCR do not validate the calculated cross-zonal capacity, the concerned TSO(s) shall provide the CCC the updated amount of cross-zonal capacities for the border considered and the reasons for the change. The final cross-zonal capacity is the minimum value sent by the SEE TSOs of the considered border.

4. Any increase or reduction of cross-zonal capacities during the validation process shall be communicated and justified to market participants and to the SEE national regulatory authorities. The CCC shall issue a quarterly report to regulatory authorities that shall include the amount of reduction in cross-zonal capacity and reason for reduction, pursuant to Article 26(5) of CACM. In cases of reduction the report shall include information for each bidding zone border and direction affected by a reduction and for each MTU (i.e. the identification of the border and direction; the volume of reduction; detailed reasons for reduction, including the security constraint violated, and under which circumstances it was violated; the before and after the contingency values for the NTC; the RAs included in CGM before capacity calculation; in case of reduction due to individual validation, the TSO invoking the reduction) and the proposed measures to avoid similar reductions in the future. SEE TSOs should also provide further clarification in case of increase of cross-zonal capacities due to individual validation. The report shall also include at least the following aggregate information: statistics on the number, causes, volume and estimated loss of economic surplus of applied of reductions by different TSOs and general measures to avoid capacity reduction in the future.

5. When a given SEE TSO reduced capacity for its border in more than 1% of MTUs of analyzed quarter, the concerned TSO shall provide to CCC a detailed report and action plan describing how such deviations are expected to be alleviated and solved in the future. This report and action plan shall be included as an annex to the quarterly report.

Article 11

TTC Update process

1. For each MTU, after the related IDGC, each TSO of the SEE CCR shall monitor any relevant deviation occurred due to an unplanned outage of grid elements with an impact on the border capacity on the assumptions adopted in the latest Capacity Calculation Process affecting this MTU, and possibly the following MTUs, and inform the Coordinated Capacity Calculator in case those deviations are deemed to significantly impact the use of the capacity in the upcoming balancing processes.

2. In such a case, a Coordinated Capacity Calculation is requested to update the calculations for the cross-zonal capacity for the affected MTU(s)

3. In case such a calculation is requested, at least 50 minutes before the start of the affected MTU for the affected border, TSOs shall provide the following list of relevant information (including but not limited to):

a. unplanned outage of grid elements with an impact on the border capacity;

b. the list of the Bidding Zone borders and directions which are deemed to be impacted and for which the new calculation is requested;

c. the updated input data necessary for the capacity calculation according to the TTC calculation process;

4. the Coordinated Capacity Calculator shall define updated NTC values on the impacted Bidding Zone border for the affected MTU(s) at least 25 minutes before the start of the affected MTU(s);

5. The TSOs of SEE CCR shall validate the NTC values calculated by the Coordinated Capacity Calculator at least 15 minutes before the start of the MTU(s). CCC and the SEE TSOs shall ensure that the validated cross-zonal capacity is provided to the balancing platforms;

Article 12

Fallback procedures

1. Prior to each CC performed in the BT, the TSOs of SEE CCR shall ensure the coordinated capacity calculator is provided with the last coordinated capacities within the intraday timeframe.

2. For the CC performed in the BT, where an incident occurs in the CC process and the coordinated capacity calculator is unable to produce results within the allotted time for the calculation process, the TSOs of the SEE CCR shall validate the last coordinated cross-zonal capacities calculated within the intraday timeframe. After this validation step, the coordinated capacity calculator or TSOs of the SEE CCR where applicable, shall submit the cross-zonal capacities in the balancing platforms and use this coordinated value for the exchange of balancing energy or for operating the imbalance netting process.

Article 13

Publication of data

1. SEE TSOs and CCC shall publish the following CC relevant data:

a. NTC values calculated by the CCC for the balancing market time-frame;

b. NTC values determined for the balancing market time-frame;

c. RMs for each direction of the SEE CCR borders;

d. RAs resulting from the RAC and for each RA it shall be published the type of RA, location of RA, whether the RA was curative or preventive, if the RA was curative, a list of CNEC identifiers describing the CNEC to which the RA was associated;

e. Limiting CNECs;

f. For each CNEC, it shall be published the methods for determining Imax;

g. For each CNEC the EIC code of CNE and Contingency;

h. Real names of CNECs;

i. The following forecast information contained in the CGM for each MTU and bidding zone of the SEE CCR:

i). Load;

ii). Production;

iii). Net position;

iv). exchange programs on non-SEE bidding zone borders;

2. All data listed in paragraph 1 shall be published after each BT CC process or TTC update process.

Individual SEE TSO may withhold the publication of information disclosing the locational information referred to in (1) c), d), e), f), g), h) if required by a competent regulatory authority or by relevant national legislation on the grounds of protecting the critical infrastructure. In such case, the information referred to in (1) f) shall be replaced with an anonymous identifier which shall be stable for each CNEC across all market time units. The anonymous identifier shall also be used in the other TSO communications related to the CNEC, including when communicating about an outage or an investment in infrastructure.

3. Any change in the identifiers used in (1) f) and (2) shall be publicly notified at least one month before its entry into force. The notification shall at least include the day of entry into force of the new identifiers and the correspondence between the old and the new identifier for each CNEC.

4. Regulatory authorities may request additional information to be published by the TSOs. The relevant TSOs shall publish this information if requested by their competent regulatory authority. All regulatory authorities shall coordinate their requests among themselves, the relevant stakeholders and the Agency.

Article 14

Reporting

1. The CCC, with the support of SEE CCR TSOs where relevant, shall draft and publish an annual report and a quarterly report satisfying the reporting obligations set in this methodology. The report should contain at least information on:

a. cross-border capacities made available to the market;
b. CNECs limiting the NTC values;

2. The coordinated capacity calculator shall include in the annual and quarterly report all reductions/increases during the validation of cross-zonal capacity including the reason of the reductions /increases.

Article 15

Publication and Implementation of the BT CCM

1. In accordance with article 3 (Point 2(b)) of the EB Regulation aiming at ensuring and enhancing the transparency and reliability of information to all regulatory authorities and market participants, SEE TSOs and the CCC shall regularly publish the data on the balancing capacity calculation process pursuant to this methodology on a dedicated online communication platform where capacity calculation data for the whole SEE CCR shall be published.

2. The TSOs of SEE CCR shall publish the BT CCM without undue delay after all NRAs of SEE CCR have approved it.

3. The TSOs of SEE CCR shall test the capacity calculation processes foreseen in the SEE BT CCM for at least six months before implementing the present BT CCM.

4. During the test period, the TSOs of SEE CCR shall report on the results of the test to the relevant NRAs.

5. The TSOs of SEE CCR shall implement the BT CCM no later than 12 months after the implementation of the second step of the ROSC methodology with test period to be started no later than 6 months after the implementation of the second step of the ROSC methodology.

6. TSOs of SEE CCR cannot match any of the deadlines set in this Article, they shall inform all the NRAs of SEE CCR at least six months before the affected deadline.

7. SEE TSOs commit to perform and send to SEE NRAs a post go-live study 12 months after entry into force of the BT CCM to assess the benefits of increasing the frequency of NTC computations based on more recent grid models forecast available. The analysis shall focus on the overall efficiency of such an implementation. The post go-live study will include a period of 6 months once experience and data from IDCC / ROSC processes is available.

8. Until the entry into force of this BT CCM, the TSOs of the SEE CCR shall use the cross-zonal capacity remaining after the intraday cross-zonal gate closure time, in line with Article 37(2) EB GL Regulation.

Article 16

Language

1. The reference language for this BT CCM shall be English.

2. For the avoidance of doubt, where TSOs of the SEE CCR need to translate this BT CCM into their national language(s), in the event of inconsistencies between the English version published by TSOs of the SEE CCR and any version in another language, the relevant TSOs of the SEE CCR shall be obliged to dispel any inconsistencies by providing a revised translation of this BT CCM to their relevant national regulatory authorities.