
Capacity calculation methodology for the day-ahead and intraday market timeframe for Greece-Italy CCR in accordance with Articles 20 and 21 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management

10 December 2020

Whereas

- (1) This document including its annex (hereinafter referred to as “GRIT CCM”) is the methodology for coordinated capacity calculation for the day-ahead and intraday market timeframes within the Greece-Italy Capacity Calculation Region (hereafter referred to as “GRIT CCR”) as defined in accordance with Article 15(1) of the Regulation (EU) 2015/1222 on Capacity Allocation and Congestion Management (hereinafter referred to as “CACM Regulation”). This methodology is required by Article 20(2) and developed in accordance with Article 21 of the CACM Regulation.
- (2) A first version of the GRIT CCM was approved by the regulatory authorities of GRIT CCR in July 2018 respecting the general principles and goals set in the CACM Regulation. A new version incorporating the principles set in Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (hereinafter referred to as “Regulation (EU) 2019/943”) is required.
- (3) The goal of the CACM Regulation is the coordination and harmonisation of capacity calculation and allocation in the day-ahead and intraday cross-border markets. To facilitate these aims and implement single day-ahead and intraday coupling, the TSOs in each Capacity Calculation Region shall calculate in a coordinated manner the available cross-border capacity.
- (4) Article 21(1) of the CACM Regulation constitutes the legal basis for the coordinated capacity calculation and defines several specific requirements that the GRIT CCM shall take into account:
 1. *The proposal for a common capacity calculation methodology for a capacity calculation region determined in accordance with Article 20(2) shall include at least the following items for each capacity calculation time-frame:*
 - (a) *methodologies for the calculation of the inputs to capacity calculation, which shall include the following parameters:*
 - (i) *a methodology for determining the reliability margin in accordance with Article 22;*
 - (ii) *the methodologies for determining operational security limits, contingencies relevant to capacity calculation and allocation constraints that may be applied in accordance with Article 23;*
 - (iii) *the methodology for determining the generation shift keys in accordance with Article 24;*
 - (iv) *the methodology for determining remedial actions to be considered in capacity calculation in accordance with Article 25.*
 - (b) *a detailed description of the capacity calculation approach which shall include the following:*
 - (i) *a mathematical description of the applied capacity calculation approach with different capacity calculation inputs;*
 - (ii) *rules for avoiding undue discrimination between internal and cross-zonal exchanges to ensure compliance with point 1.7 of Annex I to Regulation (EC) No 714/2009;*
 - (iii) *rules for taking into account, where appropriate, previously allocated cross-zonal capacity;*
 - (iv) *rules on the adjustment of power flows on critical network elements or of cross-zonal capacity due to remedial actions in accordance with Article 25;*
 - (v) *for the flow-based approach, a mathematical description of the calculation of power transfer distribution factors and of the calculation of available margins on critical network elements;*
 - (vi) *for the coordinated net transmission capacity approach, the rules for calculating cross-zonal capacity, including the rules for efficiently sharing the power flow capabilities of critical network elements among different bidding zone borders;*
 - (vii) *where the power flows on critical network elements are influenced by cross-zonal power exchanges in different capacity calculation regions, the rules for sharing the power flow*

capabilities of critical network elements among different capacity calculation regions in order to accommodate these flows.

(c) *a methodology for the validation of cross-zonal capacity in accordance with Article 26.*

- (5) Article 14 of the CACM Regulation, with reference to the day-ahead timeframe, defines the following:
1. (...) *TSOs shall calculate cross- zonal capacity for (...) (a) “day-ahead, for the day-ahead market”*
 2. *For the day-ahead market time-frame, individual values for cross-zonal capacity for each day-ahead market time unit shall be calculated.*
 3. *For the day-ahead market time-frame, the capacity calculation shall be based on the latest available information. The information update for the day-ahead market time-frame shall not start before 15:00 market time two days before the day of delivery.*
- (6) Article 14 of the CACM Regulation, with reference to the intraday ahead timeframe, defines the following:
1. 1. (...) *TSOs shall calculate cross- zonal capacity for (...) (b) intraday, for the intraday market*
 2. (...)
 3. *All TSOs in each capacity calculation region shall ensure that cross-zonal capacity is recalculated within the intraday market time-frame based on the latest available information. The frequency of this recalculation shall take into consideration efficiency and operational security*
- (7) Article 20 (1) of the CACM Regulation defines the approach to use in the common capacity calculation methodologies as *flow-based approach except where the requirements of paragraph 7 are met and (7) specifies that: “TSOs may jointly request the competent regulatory authorities to apply the coordinated net transmission capacity approach in regions and bidding zone borders other than those referred to in paragraphs 2 to 4, if the TSOs concerned are able to demonstrate that the application of the capacity calculation methodology using the flow-based approach would not yet be more efficient compared to the coordinated net transmission capacity approach and assuming the same level of operational security in the concerned region.”*
- (8) 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*”.
- (9) A coordinated net transmission capacity approach is selected for the GRIT CCR since a flow-based approach:
- i. *is equivalent to a coordinated net transmission capacity approach in a radial configuration like the GRIT CCR’s one, where bidding zones are radially connected (or connected by HVDC links);*
 - ii. *implies higher transition costs for its implementation.*
- (10) In the context of the GRIT CCM, the definition of “*Coordinated Capacity Calculator*” is important and is defined in Article 2(11) of the CACM Regulation as: “*the entity or entities with the task of calculating transmission capacity, at regional level or above*”.
- (11) Article 9(9) of the CACM Regulation requires that the proposed timescale for the implementation and the expected impact of the GRIT CCM on the objectives of the CACM Regulation is described. The impact is presented in point (16) of this Whereas Section, while the implementation timeline is reported in Article 15.
- (12) Article 16(8) of the Regulation (EU) 2019/943 complements the principles of the CACM Regulation, with the introduction of a requirement for a minimum level of capacity to be offered to the market:
- Transmission system operators shall not limit the volume of interconnection capacity to be made available to market participants as a means of solving congestion inside their own bidding zone or as a*

means of managing flows resulting from transactions internal to bidding zones. Without prejudice to the application of the derogations under paragraphs 3 and 9 of this Article and to the application of Article 15(2), this paragraph shall be considered to be complied with where the following minimum levels of available capacity for cross-zonal trade are reached:

- (a) for borders using a coordinated net transmission capacity approach, the minimum capacity shall be 70 % of the transmission capacity respecting operational security limits after deduction of contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009;*
- (b) for borders using a flow-based approach, the minimum capacity shall be a margin set in the capacity calculation process as available for flows induced by cross-zonal exchange. The margin shall be 70 % of the capacity respecting operational security limits of internal and cross-zonal critical network elements, taking into account contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009.*

The total amount of 30 % can be used for the reliability margins, loop flows and internal flows on each critical network element.

(13) Articles 15(1), 15(2) and 15(4), and Article 16(9) of the Regulation (EU) 2019/943 introduce possible temporary exemptions to comply with the minimum level of capacity set in the Article 16(8) of the Regulation (EU) 2019/943 through action plans and derogations.

(14) Article 16(3) of the Regulation (EU) 2019/943 describes the capacity calculation process and attributes the role of coordinated capacity calculator to the regional coordination centres:

Regional coordination centres shall carry out coordinated capacity calculation in accordance with paragraphs 4 and 8 of this Article, as provided for in point (a) of Article 37(1) and in Article 42(1). Regional coordination centres shall calculate cross-zonal capacities respecting operational security limits using data from transmission system operators including data on the technical availability of remedial actions, not including load shedding. Where regional coordination centres conclude that those available remedial actions in the capacity calculation region or between capacity calculation regions are not sufficient to reach the linear trajectory pursuant to Article 15(2) or the minimum capacities provided for in paragraph 8 of this Article while respecting operational security limits, they may, as a measure of last resort, set out coordinated actions reducing the cross-zonal capacities accordingly. Transmission system operators may deviate from coordinated actions in respect of coordinated capacity calculation and coordinated security analysis only in accordance with Article 42(2). By 3 months after the entry into operation of the regional coordination centres pursuant to Article 35(2) of this Regulation and every three months thereafter, the regional coordination centres shall submit a report to the relevant regulatory authorities and to ACER on any reduction of capacity or deviation from coordinated actions pursuant to the second subparagraph and shall assess the incidences and make recommendations, if necessary, on how to avoid such deviations in the future. If ACER concludes that the prerequisites for a deviation pursuant to this paragraph are not fulfilled or are of a structural nature, ACER shall submit an opinion to the relevant regulatory authorities and to the Commission. The competent regulatory authorities shall take appropriate action against transmission system operators or regional coordination centres pursuant to Article 59 or 62 of Directive (EU) 2019/944 if the prerequisites for a deviation pursuant to this paragraph were not fulfilled. Deviations of a structural nature shall be addressed in an action plan referred to in Article 14(7) or in an update of an existing action plan.”

(15) Article 16(4) of the Regulation (EU) 2019/943 gives a framework for the consideration of costly remedial actions in the capacity calculation:

The maximum level of capacity of the interconnections and the transmission networks affected by cross-border capacity shall be made available to market participants complying with the safety standards of secure network operation. Counter-trading and redispatch, including cross-border redispatch, shall be used to maximise available capacities to reach the minimum capacity provided for in paragraph 8. A coordinated and non-discriminatory process for cross-border remedial actions shall be applied to enable such maximisation, following the implementation of a redispatching and counter-trading cost-sharing methodology.”

- (16) The GRIT CCM contributes to and does not in any way hinder the achievement of the objectives of Article 3 of the CACM Regulation:
- Article 3(a) of the CACM Regulation aims at promoting effective competition in the generation, trading and supply of electricity. The GRIT CCM serves the objective of promoting effective competition in the generation, trading and supply of electricity by defining a set of harmonized rules for capacity calculation and congestion management, which contributes to the effectiveness of the single day-ahead and intraday coupling. Establishing common and coordinated processes for the capacity calculations within the day-ahead and intraday market timeframes contributes to achieve this objective.
 - Article 3(b) of the CACM Regulation aims at ensuring optimal use of the transmission infrastructure. The GRIT CCM contributes to achieve the objective of ensuring optimal use of the transmission infrastructure by using last available inputs based on the best possible forecast of transmission systems at the time of each capacity calculation, updated in a timely manner.
 - Article 3(c) of the CACM Regulation aims at ensuring operational security. The GRIT CCM contributes to achieve the objective of ensuring operational security by coordinating the capacity calculation with updated inputs for the day-ahead and intraday market timeframe at regional level to ensure its reliability.
 - Article 3(d) of the CACM Regulation aims at optimizing the calculation and allocation of cross-zonal capacity. By coordinating the timings for the delivery of inputs, calculation approach and validation requirements between TSOs and the Coordinated Capacity Calculator, the GRIT CCM contributes to achieve the objective of optimizing the calculation and allocation of cross-zonal capacity.
 - Article 3(g) of the CACM Regulation aims at contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union. By using the best possible forecast of the transmission systems at the time of each capacity calculation within GRIT CCR, the results of the coordinated capacity calculation contribute to determine the most limiting branches within this region, thus supporting TSOs for a more efficient development of the electricity transmission system.
 - Article 3(j) of the CACM Regulation aims at providing non-discriminatory access to cross-zonal capacity. The GRIT CCM contributes to achieve the objective of providing non-discriminatory access to cross-zonal capacity with the application of an adequate Critical Network Element and Contingencies (CNEC) identification process and the use of a proper Bidding Zones configuration.
- (17) In conclusion, the GRIT CCM contributes to the general objectives of the CACM Regulation and the Regulation (EU) 2019/943.

Article 1
Subject matter and scope

1. The common capacity calculation methodology as determined in this GRIT CCM is the methodology developed in accordance with Articles 20 and 21 of the CACM Regulation.

Article 2
Definitions and interpretation

1. For the purposes of the GRIT CCM, the terms used shall have the meaning set forth in Article 2 of the Regulation (EU) 543/2013, Article 2 of the CACM Regulation and Article 2 of the Regulation (EU) 2019/943.
2. In addition, the following definitions shall apply:
 - a. ‘ADMIE’ is the Greek Transmission System Operator;
 - b. ‘Terna’ is the Italian Transmission System Operator;
 - c. ‘CNTC’ means Coordinated Net Transfer Capacity approach for capacity calculation;
 - d. ‘CSA Methodology’ means the Methodology for coordinating operational security analysis in accordance with Article 75 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation;
 - e. ‘D’ means the day of delivery;
 - f. ‘D Common Grid Model’ means the common grid model built for each market time unit on the day of delivery for the intraday capacity calculation timeframe in accordance with Article 17 of the CACM Regulation;
 - g. ‘D-1’ means the day before the day of delivery;
 - h. ‘D-1 Common Grid Model’ means the common grid model built for each market time unit on the day before the day of delivery for the intraday capacity calculation timeframe in accordance with Article 17 of the CACM Regulation;
 - i. ‘D-2’ means two days before the day of delivery;
 - j. ‘D-2 Common Grid Model’ means the common grid model built for each market time unit two days before the day of delivery for the day-ahead capacity calculation timeframe in accordance with Article 17 of the CACM Regulation;
 - k. ‘DA CCC process’ is the day-ahead capacity calculation process started in D-2;
 - l. ‘GR-IT Border’ means the bidding zone border between Greece and the connecting Italian bidding zone;
 - m. ‘ID CCC process 1’ is the intraday capacity calculation process run in the end of D-1;
 - n. ‘ID CCC process 2’ is the intraday capacity calculation process run in D;
 - o. ‘ID Common Grid Model’ means the common grid model built for each relevant market time unit on during the day of delivery for the intraday capacity calculation timeframe in accordance with Article 17 of the CACM Regulation;

- p. ‘Internal Italian Borders’ means a border between two bidding zones belonging to the Italian Control Area;
 - q. ‘NTC’ means the net transfer capacity that amounts to the maximum total exchange program (MW) for commercial purposes between adjacent bidding zones for each market time unit in a specific direction. NTC is obtained by subtracting the reliability margin to the TTC;
 - r. ‘TTC’ means the total transfer capacity that amounts to the maximum total exchange program (MW) complying with the operational security limits between adjacent bidding zones for each market time unit in a specific direction.
3. In this GRIT 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 proposal;
 - c. references to an “Article” are, unless otherwise stated, references to an Article of this GRIT CCM;
 - d. references to a “paragraph” are, unless otherwise stated, references to a paragraph included in the same Article of this GRIT CCM where it is mentioned; 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.

Article 3

Application of this proposal

- 1. This GRIT CCM applies solely to the common capacity calculation methodology within GRIT CCR for day-ahead and intraday timeframes. Common capacity calculation methodologies within other Capacity Calculation Regions or other timeframes are outside the scope of this document.

Article 4

Cross-zonal capacities for the day-ahead market

- 1. For the day-ahead market timeframe, CNTC approach is adopted in GRIT CCR.
- 2. Individual TTC values for each day-ahead market time unit and each bidding zone border are calculated by the Coordinated Capacity Calculator of GRIT CCR adopting the TTC calculation process and D-2 grid models described in Annex 1 and respecting the deadlines established in Article 10 (DA CCC process).
- 3. Already allocated cross-zonal capacities do not affect the TTC values for bidding zone borders belonging to GRIT CCR and they are not considered in the framework of the day-ahead capacity calculation process.

Article 5

Cross-zonal capacities for the intraday market

- 1. For the intraday market timeframe, CNTC approach is adopted in GRIT CCR.

2. Individual TTC values for each remaining intraday market time unit and each bidding zone border are calculated by the Coordinated Capacity Calculator of GRIT CCR adopting the TTC calculation process described in Annex 1 and performed adopting the TTC calculation process and D-1 grid models described in Annex 1. According to the deadlines established in Article 11:
 - i. the ID CCC process 1 is executed entirely in D-1;
 - ii. the ID CCC process 2 starts on D-1 and ends on D.
3. Already allocated cross-zonal capacities do not affect the TTC values for bidding zone borders belonging to GRIT CCR and they are not considered in the framework of the intraday capacity calculation process.

Article 6

Reliability margin methodology

1. Reliability margin is equal to 0MW on each border of GRIT CCR.
2. Terna shall reassess the values of the reliability margin at least once every 36 months.

Article 7

Methodologies for operational security limits, contingencies and allocation constraints

1. The TSOs of GRIT CCR shall provide the Coordinated Capacity Calculator of GRIT CCR with the list of relevant contingencies, including the ordinary and exceptional contingencies, as defined according to the CSA Methodology. These contingencies represent an input to be considered in the capacity calculation process according to the TTC calculation process described in Annex 1.
2. Critical Network Element and Contingencies (CNECs) for each border of GRIT CCR shall be defined according to the TTC calculation process described in Annex 1.
3. The TSOs of GRIT CCR shall define the operational security limits of their own grid elements according to paragraph 2.4 “Operational Security Limits (OSL)” of Annex 1.
4. According to the TTC calculation process described in Annex 1, the Coordinated Capacity Calculator of GRIT CCR shall apply the operational security limits defined by the relevant TSOs of GRIT CCR according to paragraph 3.
5. Discriminations between internal and cross-zonal exchanges are avoided by the application of:
 - a proper configuration of bidding zones identified according to the principles reported in the CACM Regulation;
 - the CNEC identification methodology described in Annex 1.
6. Concerning the Internal Italian borders, Terna shall perform dynamic assessments in order to detect possible additional limitations to be applied (as upper limit) to TTC values. Where relevant, Terna shall perform these assessments at least once a year.
7. Terna shall inform the Italian regulatory authority about the results of the dynamic assessments mentioned in paragraph 6.
8. Terna shall inform in a timely manner the Coordinated Capacity Calculator of GRIT CCR on any

relevant upper limit to be applied in the capacity calculation process for the Internal Italian borders, according to the outcomes of the dynamic assessment mentioned in paragraph 6.

9. The Coordinated Capacity Calculator of GRIT CCR shall apply the upper limits provided by Terna according to paragraph 8 in the capacity calculation process for the Internal Italian borders.

Article 8

Generation and load shift keys methodology

1. The TSOs of GRIT CCR shall define the generation and load shift keys methodology in accordance with Article 24 of the CACM Regulation.
2. For the Italian bidding zones, Terna shall define generation and load shift keys based on a merit order list in order to take into account the high level of RES generation installed in general and close to the GR-IT Border link in particular. Those generators as well as the conventional generation are geographically located in different areas, thus for different generation profiles different power flows in the grid elements and consequently different stress areas in the systems with potential impact in the NTC calculations are obtained
3. For the Greek bidding zone, ADMIE shall define generation and load shift keys proportional to the remaining capacity available on generation in each base case.
4. The TSOs of GRIT CCR shall make ex-post analysis of the generation and load shift keys (including the ones used in the testing period according to Article 15) and, if necessary, change them accordingly. Any change in the general strategy depicted in paragraphs 2 and 3 shall lead to an amendment to this GRIT CCM in accordance with Article 9(13) of the CACM Regulation.

Article 9

Methodology for remedial actions in capacity calculation

1. The TSOs of GRIT CCR shall define the remedial actions in accordance with Article 25 of the CACM Regulation and the CSA Methodology.
2. Each TSO of GRIT CCR shall define individually the remedial actions of its responsibility area to be used in the capacity calculation within GRIT CCR at least on a yearly basis.
3. The TSOs of GRIT CCR shall coordinate, prior to the capacity calculation, the remedial actions that can be shared with each other to maximize the available cross-zonal capacities for the GR-IT Border.
4. Terna shall identify, prior to the capacity calculation, the remedial actions that can be applied in order to maximize the available cross-zonal capacities for the Internal Italian Borders.
5. Each TSO of GRIT CCR shall provide the list of available remedial actions, for each border of GRIT CCR and for each capacity calculation timeframe, to the Coordinated Capacity Calculator of GRIT CCR, according to List of Relevant Remedial Actions detailed in paragraph 2.3 of Annex 1.
6. Each TSO of GRIT CCR shall ensure that the remedial actions are taken into account in capacity calculation under the condition that the available remedial actions remaining after calculation are sufficient to ensure operational security.

7. In the capacity calculation process, the Coordinated Capacity Calculator of GRIT CCR shall optimize cross-zonal capacity and adjust maximum power exchange applying the list of available remedial actions provided by the TSOs of GRIT CCR according to paragraph 5.
8. Each TSO of GRIT CCR shall inform the Coordinated Capacity Calculator of GRIT CCR in a timely manner on any change in its remedial actions within GRIT CCR to ensure an efficient capacity calculation.
9. The TSOs of GRIT CCR can use costly curative remedial actions where technically and economically relevant and in accordance with national regulation, for the capacity calculation within GRIT CCR.

Article 10

Day-ahead capacity calculation

1. The TSOs of GRIT CCR shall provide the Coordinated Capacity Calculator of GRIT CCR with the last updated information on the transmission systems in a timely manner for the DA CCC process.
2. The capacity calculation process shall include the Remedial Action optimization according to the TTC calculation process detailed in Annex 1.
3. The Coordinated Capacity Calculator of GRIT CCR shall define the values of TTC for each market time unit by 03:00 of D-1. These values shall be provided to the TSOs of GRIT CCR for validation.
4. In accordance with the Article 16(8) of the Regulation (EU) 2019/943, the Coordinated Capacity Calculator of GRIT CCR shall ensure that the computed TTC on each bidding zone border is never below the minimum level pursuant to paragraph 5, except for the cases mentioned by Article 16(3) of the Regulation (EU) 2019/943.
5. The minimum level of capacity ensured by the Coordinated Capacity Calculator of GRIT CCR is 70% of the transmission capacity respecting operational security limits after deduction of contingencies, except for those for which a derogation has been granted or an action plan to address structural congestions has been set in accordance with the Articles 15 and 16 of the Regulation (EU) 2019/943. In case of such a derogation or action plan, the minimum capacity shall be defined by the decisions on derogations or action plans in accordance with the Regulation (EU) 2019/943. The TSOs of GRIT CCR affected by such derogations or action plans shall inform all the regulatory authorities of GRIT CCR about the values of minimum capacity applicable during the period covered by the derogation or the action plan.
6. The Coordinated Capacity Calculator of GRIT CCR shall cooperate with the neighbouring Coordinated Capacity Calculators when relevant. The TSOs of GRIT CCR shall ensure such cooperation by exchanging and confirming information on interdependency with the relevant regional Coordinated Capacity Calculators, for the purposes of capacity calculation and validation.
7. The TSOs of GRIT CCR shall provide information on interdependency to all the involved Coordinated Capacity Calculators before capacity calculation. An assessment of the accuracy of this information and corrective measures shall be included in the biennial report referred in Article 14(10).

Article 11

Intraday capacity calculation

1. The TSOs of GRIT CCR shall provide the Coordinated Capacity Calculator of GRIT CCR with the last updated information on the transmission systems in a timely manner for the ID CCC process 1 and ID CCC process 2.
2. The capacity calculation process shall take into account the Remedial Action optimization according to the TTC calculation process detailed in Annex 1.
3. The Coordinated Capacity Calculator of GRIT CCR shall perform the ID CCC process 1 by 18:00 of D-1, defining the values of TTC for each market time unit of the delivery day D. These values shall be provided to the TSOs of GRIT CCR for validation.
4. The Coordinated Capacity Calculator of GRIT CCR shall perform the ID CCC process 2 by 03:00 of D, defining the values of TTC for market time units starting from 12:00 pm of the delivery day D. These values shall be provided to the TSOs of GRIT CCR for validation.
5. The Coordinated Capacity Calculator of GRIT CCR shall cooperate with the neighbouring Coordinated Capacity Calculators when relevant. The TSOs of GRIT CCR shall ensure such cooperation by exchanging and confirming information on interdependency with the relevant regional Coordinated Capacity Calculators, for the purposes of capacity calculation and validation.
6. The TSOs of GRIT CCR shall provide information on interdependency to all the involved Coordinated Capacity Calculators before capacity calculation. An assessment of the accuracy of this information and corrective measures shall be included in the biennial report referred in Article 14(10).

Article 12

Cross-zonal capacity validation methodology

1. The TSOs of GRIT CCR shall validate the TTC values calculated by the Coordinated Capacity Calculator of GRIT CCR for the GR-IT Border:
 - a) By 06:30 of D-1 for DA CCC process;
 - b) By 20:00 of D-1 for ID CCC process 1;
 - c) By 07:00 of D for ID CCC process 2.
2. Terna shall validate the TTC values calculated by the Coordinated Capacity Calculator of GRIT CCR for the Internal Italian Borders:
 - a) By 07:00 of D-1 for DA CCC process;
 - b) By 20:00 of D-1 for ID CCC process 1;
 - c) By 07:00 of D for ID CCC process 2.
3. Each TSO of GRIT CCR shall send the results of its TTC validation to the Coordinated Capacity Calculator of GRIT CCR and, for the common borders, to the other TSO of the GRIT CCR.
4. Upon request, for each border/direction and for the relevant market time unit, the Coordinated Capacity Calculator of GRIT CCR shall make available to the TSOs of GRIT CCR the common grid model where the final TTC value is simulated.

5. Where required, the TSOs of GRIT CCR can validate the TTC values by performing security analysis with the grid model provided in accordance with paragraph 4.
6. Where the TSOs of GRIT CCR validate the TTC values, these are assumed as the provisional validated cross-zonal capacity.
7. Where one or more TSOs of GRIT CCR do not validate the TTC value, the concerned TSO(s) shall provide the Coordinated Capacity Calculator of GRIT CCR with the updated amount of cross-zonal capacities for the border considered and the reasons for the reduction. The provisional validated cross-zonal capacity is the minimum value sent by the TSOs of GRIT CCR of the border considered.
8. The Coordinated Capacity Calculator of GRIT CCR shall provide the TSOs of GRIT CCR with the validated cross-zonal capacity for each bidding-zone border of GRIT CCR after application of the reliability margin defined in accordance with Article 6 to the provisional validate cross-zonal capacity.
9. Upon validation, in accordance with Article 46 of the CACM regulation, the Coordinated Capacity Calculator and the TSOs of GRIT CCR shall ensure that validated cross-zonal capacity for day-ahead timeframe are provided to the relevant NEMOs before the day-ahead firmness deadline as defined in accordance with Article 69 of the CACM regulation.
10. Upon validation, in accordance with Article 58 of the CACM regulation, the Coordinated Capacity Calculator and the TSOs of GRIT CCR shall ensure that validated cross-zonal capacity for intraday timeframe are provided to the relevant NEMOs as soon as they become available.
11. Until at least one of the ID CCC processes is concluded, the cross-zonal capacity relevant for the Single Intraday Coupling is set between zero and the capacity calculated for the day-ahead timeframe.

Article 13

Fallback procedures

1. Prior to each DA CCC process, the TSOs of GRIT CCR shall ensure the Coordinated Capacity Calculator of GRIT CCR is provided with the last coordinated cross-zonal capacities defined according to the long-term capacity calculation processes (e.g. yearly, monthly) and the most updated information about planned and unplanned outages.
2. For DA CCC process, where an incident occurs in the capacity calculation process and the Coordinated Capacity Calculator of GRIT CCR is unable to produce results within the allotted time for the calculation process, the TSOs of GRIT CCR shall validate the last coordinated cross-zonal capacities calculated within the long term timeframe and review it where relevant. After this validation step, the Coordinated Capacity Calculator or TSOs of GRIT CCR where applicable, shall provide the relevant NEMOs with a coordinated value.
3. Prior to each ID CCC process 1, the TSOs of GRIT CCR shall ensure the Coordinated Capacity Calculator of GRIT CCR is provided with the last coordinated cross-zonal capacities calculated within the day-ahead timeframe on each border of the GRIT CCR.
4. For ID CCC process 1, where an incident occurs in the capacity calculation process and the Coordinated Capacity Calculator of GRIT CCR is unable to produce results, the TSOs of GRIT CCR shall validate the last cross-zonal capacities calculated within the day-ahead timeframe and

review it where relevant. The Coordinated Capacity Calculator or TSOs of GRIT CCR where applicable, shall provide the relevant NEMOs with a coordinated value.

5. Prior to each ID CCC process 2, the TSOs of GRIT CCR shall ensure the Coordinated Capacity Calculator of GRIT CCR is provided with the last coordinated cross-zonal capacities calculated for each market time unit on each border of the GRIT CCR.
6. For ID CCC process 2, where an incident occurs in the capacity calculation process and the Coordinated Capacity Calculator of GRIT CCR is unable to produce results, the TSOs of GRIT CCR shall validate the last cross-zonal capacities calculated for the market time unit considered and review it where relevant. The Coordinated Capacity Calculator or TSOs of GRIT CCR where applicable, shall provide the relevant NEMOs with a coordinated value.

Article 14

Publication of data and reporting

1. In accordance with Article 3 of the CACM Regulation aiming at ensuring and enhancing the transparency and reliability of information, at least the data items listed in paragraph 2 of this Article shall be published in addition to the data items and definitions of Commission Regulation (EU) No 543/2013 on submission and publication of data in electricity markets.
2. The Coordinated Capacity Calculator of GRIT CCR shall publish on its website or on JAO website:
 - i. by 07:30 (target) of D-1 for day-ahead timeframe, for the GR-IT Border:
 - a. the cross-zonal capacity values computed according to Article 10 and as validated according to Article 12;
 - b. the list of CNECs or other security limits that are limiting the cross-zonal capacity values computed according to Article 10. For each CNEC, the EIC code of the Critical Network Element and of the contingency shall be published;
 - c. reductions of capacity occurring in the validation phase, including the location and amount of any reductions, the TSO of GRIT CCR requesting the reduction and reasons for the reductions provided by the TSO itself (including, if relevant, the EIC code of the Critical Network Element and of the contingency);
 - d. the vertical load, the total generation and the resulting net position for each bidding zone of the GRIT CCR of the D-2 Common Grid Model adopted in the computations;
 - ii. by 10:30 (target) of D-1 for day-ahead timeframe, for each Internal Italian Borders:
 - a. the cross-zonal capacity values computed according to Article 10 and as validated according to Article 12;
 - b. the list of CNECs or other security limits that are limiting the cross-zonal capacity values computed according to Article 10. For each CNEC, the EIC code of the Critical Network Element and of the contingency shall be published;
 - c. reductions of capacity occurring in the validation phase, including the location and amount of any reductions, the reasons for the reductions provided by Terna (including, if relevant, the EIC code of the Critical Network Element and of the contingency);

- d. the vertical load, the total generation and the resulting net position for each bidding zone of the GRIT CCR of the D-2 Common Grid Model adopted in the computations;
 - iii. by 21:30 (target) of D-1 for intraday timeframe (ID CCC process 1) for each bidding-zone border of GRIT CCR:
 - a. the cross-zonal capacity values computed according to Article 11 and as validated according to Article 12;
 - b. the list of CNECs or other security limits that are limiting the cross-zonal capacity values computed according to Article 11. For each CNEC, the EIC code of the Critical Network Element and of the contingency shall be published;
 - c. reductions of capacity occurring in the validation phase, including the location and amount of any reductions, the TSO of GRIT CCR requesting the reduction and reasons for the reductions provided by the TSO itself;
 - d. the vertical load, the total generation and the resulting net position for each bidding zone of the GRITCCR of the D-1 Common Grid Model adopted in the computations;
 - iv. by 08:30 (target) of the delivery day D for the second intraday timeframe (ID CCC process 2), for each bidding-zone border of GRIT CCR:
 - a. the cross-zonal capacity values computed according to Article 11 and as validated according to Article 12;
 - b. the list of CNECs or other security limits that are limiting the cross-zonal capacity values computed according to Article 11. For each CNEC, the EIC code of the Critical Network Element and of the contingency shall be published;
 - c. reductions of capacity occurring in the validation phase, including the location and amount of any reductions, the TSO of GRIT CCR requesting the reduction and reasons for the reductions provided by the TSO itself (including, if relevant, the EIC code of the Critical Network Element and of the contingency);
 - d. The vertical load, the total generation and the resulting net position for each bidding zone of the GRITCCR of the D Common Grid Model adopted in the computations.
- 3. The Coordinated Capacity Calculator of GRIT CCR shall, every 3 months, send a detailed quarterly report on reductions of capacity occurring in the validation phase to all regulatory authorities of GRIT CCR. The report shall include the location and amount of any reductions, the TSO of GRIT CCR requesting the reduction and reasons for the reductions provided by the TSO itself (including, if relevant, the EIC code of the Critical Network Element and of the contingency).
- 4. The Coordinated Capacity Calculator of GRIT CCR shall, every 3 months, send a detailed quarterly report on any reduction of capacity or deviation from coordinated actions pursuant to Article 16(3) of the Regulation (EU) 2019/943 to all regulatory authorities of GRIT CCR and to ACER. The report shall include an assessment of the incidences and recommendations, if necessary, on how to avoid such deviations in the future.
- 5. The Coordinated Capacity Calculator of GRIT CCR shall provide the TSOs of GRIT CCR with a yearly report on the results of the DA CCC process including:
 - i. Cross-border capacities made available to the market for each market time unit of the previous

- solar year;
- ii. the list of CNECs or other security limits that are limiting the NTC values for each market time unit of the previous solar year.
6. The Coordinated Capacity Calculator of GRIT CCR shall provide the TSOs of GRIT CCR a yearly report on the results of the ID CCC processes including:
 - i. Cross-border capacities made available to the market for each market time unit of the previous solar year;
 - ii. the list of CNECs or other security limits that are limiting the cross-zonal capacity values for each market time unit of the previous solar year.
 7. The TSOs of GRIT CCR shall validate the reports referred in paragraphs 5 and 6.
 8. The TSOs of GRIT CCR shall send to the regulatory authorities of GRIT CCR the validated reports referred in paragraphs 5 and 6.
 9. All the regulatory authorities of GRIT CCR shall decide whether to publicly discuss all or part of the reports referred to in paragraphs 5 and 6 and, in such case, the Coordinated Capacity Calculator and the TSOs of GRIT CCR shall organize a dedicated public workshop, if necessary using webinar solutions.
 10. The TSOs of GRIT CCR shall participate in the elaboration of the ENTSO-E biennial report on capacity calculation and allocation, which will be provided each second year and updated under request of the relevant authorities, according to Article 31 of the CACM Regulation. For GRIT CCR, this report shall contain the capacity calculation approach used, statistical indicators on reliability margins where they are applied, statistical indicators of cross-zonal capacity, quality indicators for the information used for the capacity calculation and, if appropriate, proposed measures to improve capacity calculation.

Article 15

Publication and Implementation of the GRIT CCM

1. The TSOs of GRIT CCR shall publish the GRIT CCM without undue delay after the approval by the national regulatory authorities of GRIT CCR.
2. The TSOs of GRIT CCR shall test the capacity calculation processes foreseen in the GRIT CCM alongside the approach currently in place and involve market participants for at least four months before implementing the present CCC methodology.
3. During the testing period, the TSOs of GRIT CCR shall publish monthly reports on the results of the new approach.
4. During the testing period, the TSOs of GRIT CCR shall organize at least one public workshop for discussing the outcomes of the new approach, if necessary using webinar solutions.
5. The TSOs of GRIT CCR shall implement the GRIT CCM:
 - a) for the day-ahead timeframe no later than July 2021 (go live) (testing period to be started no later than March 2021 and progressively enlarging the scope of the tests in the following months)

- b) for the intraday timeframe performed in the end of D-1 no later than January 2023 (go live) (testing period to be started no later than September 2022);
- c) for the intraday timeframe performed in the morning of the delivery day D no later than August 2021 (go live) (test period to be started no later than April 2021 and progressively enlarging the scope of the tests in the following months).

Article 16

Language

1. The reference language for this GRIT CCM shall be English.
2. For the avoidance of doubt, where TSOs need to translate this GRIT CCM 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 be obliged to dispel any inconsistencies by providing a revised translation of the GRIT CCM to their relevant national regulatory authorities.