

**REQUEST FOR AMENDMENT BY THE GREECE-ITALY  
REGULATORY AUTHORITIES**

**OF**

**THE GREECE-ITALY TSOs PROPOSAL OF COMMON  
CAPACITY CALCULATION METHODOLOGY FOR LONG  
TERM TIMEFRAME IN ACCORDANCE WITH ARTICLE 10  
OF COMMISSION REGULATION (EU) 2016/1719 OF 26  
SEPTEMBER 2016 ESTABLISHING A GUIDELINE ON  
FORWARD CAPACITY ALLOCATION**

**29 July 2019**

## I. Introduction and legal context

This document elaborates an agreement of the Greece-Italy Regulatory Authorities (in the following: GRIT NRAs), agreed on 29 July 2019 at Greece-Italy Energy Regulators' Regional forum, on the Greece-Italy TSOs (in the following: GRIT TSOs) proposal of common capacity calculation methodology for long term timeframe (in the following: GRIT FCA CCM), submitted as required by Article 10(1) of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation (in the following: FCA).

This agreement of the GRIT NRAs shall provide evidence that a decision on the GRIT FCA CCM does not, at this stage, need to be adopted by ACER pursuant to Article 4(10) of FCA. It is intended to constitute the basis on which the GRIT NRAs will each subsequently request an amendment to the GRIT FCA CCM pursuant to Article 4(11) of FCA.

The legal provisions that lie at the basis of the GRIT FCA CCM, and this GRIT NRAs agreement on the above mentioned methodology, can be found in Articles 3, 4, 9, 10, 11, 12, 13, 14, 15, 23, 24 and 30 of FCA and in Article 5 of Commission Regulation (EU) 2019/942 of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators (recast) (in the following: ACER Regulation (recast)). They are set out here for reference.

### Article 3 of FCA

#### **Objectives of forward capacity allocation**

*This Regulation aims at:*

- (a) promoting effective long-term cross-zonal trade with long-term cross-zonal hedging opportunities for market participants;*
- (b) optimising the calculation and allocation of long-term cross-zonal capacity;*
- (c) providing non-discriminatory access to long-term cross-zonal capacity;*
- (d) (...)*
- (e) (...)*
- (f) ensuring and enhancing the transparency and reliability of information on forward capacity allocation;*
- (g) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union.*

### Article 4 of FCA

#### **Adoption of terms and conditions or methodologies**

- 1. TSOs shall develop the terms and conditions or methodologies required by this Regulation and submit them for approval to the competent regulatory authorities within the respective deadlines set out in this Regulation. Where a proposal for terms and conditions or methodologies pursuant to this Regulation needs to be developed and agreed by more than one TSO, the participating TSOs shall closely cooperate. TSOs, with the assistance of ENTSO for Electricity, shall regularly inform the competent regulatory authorities and the Agency about the progress of the development of these terms and conditions or methodologies.  
[...]*
- 5. Each regulatory authority shall be responsible for approving the terms and conditions or methodologies referred to in paragraphs 6 and 7.*
- 6. (...)*
- 7. The proposals for the following terms and conditions or methodologies shall be subject to approval by all regulatory authorities of the concerned region:  
a. the capacity calculation methodology pursuant to Article 10;  
[...]*

8. *The proposal for terms and conditions or methodologies shall include a proposed timescale for their implementation and a description of their expected impact on the objectives of this Regulation. Proposals on terms and conditions or methodologies subject to the approval by several or all regulatory authorities shall be submitted to the Agency at the same time that they are submitted to regulatory authorities. Upon request by the competent regulatory authorities, the Agency shall issue an opinion within three months on the proposals for terms and conditions or methodologies..*
9. *Where the approval of the terms and conditions or methodologies requires a decision by more than one regulatory authority, the competent regulatory authorities shall consult and closely cooperate and coordinate with each other in order reach an agreement. Where applicable, the competent regulatory authorities shall take into account the opinion of the Agency. Regulatory authorities shall take decisions concerning the submitted terms and conditions or methodologies in accordance with paragraphs 6 and 7, within six months following the receipt of the terms and conditions or methodologies by the regulatory authority or, where applicable, by the last regulatory authority concerned.*
10. *Where the regulatory authorities have not been able to reach an agreement within the period referred to in paragraph 9, or upon their joint request, the Agency shall adopt a decision concerning the submitted proposals for terms and conditions or methodologies within six months, in accordance with Article 8(1) of Regulation (EC) No 713/2009.*
11. *In the event that one or several regulatory authorities request an amendment to approve the terms and conditions or methodologies submitted in accordance with paragraphs 6 and 7, the relevant TSOs shall submit a proposal for amended terms and conditions or methodologies for approval within two months following the requirement from the regulatory authorities. The competent regulatory authorities shall decide on the amended terms and conditions or methodologies within two months following their submission. Where the competent regulatory authorities have not been able to reach an agreement on terms and conditions or methodologies pursuant to paragraphs 6 and 7 within the two-month deadline, or upon their joint request, the Agency shall adopt a decision concerning the amended terms and conditions or methodologies within six months, in accordance with Article 8(1) of Regulation (EC) No 713/2009. (...)*
12. (...)
13. *TSOs responsible for establishing the terms and conditions or methodologies in accordance with this Regulation shall publish them on the internet after approval by the competent regulatory authorities or, if no such approval is required, after their establishment, except where such information is considered as confidential in accordance with Article 7.*

## **Article 9 of FCA**

### **Capacity calculation time frames**

*All TSOs in each capacity calculation region shall ensure that long-term cross-zonal capacity is calculated for each forward capacity allocation and at least on annual and monthly time frames.*

## **Article 10 of FCA**

### **Capacity calculation methodology**

1. *No later than six months after the approval of the common coordinated capacity calculation methodology referred to in Article 9(7) of Regulation (EU) 2015/1222, all TSOs in each capacity calculation region shall submit a proposal for a common capacity calculation methodology for long-term time frames within the respective region. The proposal shall be subject to consultation in accordance with Article 6.*
2. *The approach used in the common capacity calculation methodology shall be either a coordinated net transmission capacity approach or a flow-based approach.*
3. *The capacity calculation methodology shall be compatible with the capacity calculation methodology established for the day-ahead and intraday time frames pursuant to Article 21(1) of Regulation (EU) 2015/1222.*

4. *The uncertainty associated with long-term capacity calculation time frames shall be taken into account when applying:*
  - a. *a security analysis based on multiple scenarios and using the capacity calculation inputs, the capacity calculation approach referred to in Article 21(1)(b) and the validation of cross-zonal capacity referred to in Article 21(1)(c) of Regulation (EU) 2015/1222; or*
  - b. *a statistical approach based on historical cross-zonal capacity for day-ahead or intraday time frames if it can be demonstrated that this approach may:*
    - (i) *increase the efficiency of the capacity calculation methodology;*
    - (ii) *better take into account the uncertainties in long-term cross-zonal capacity calculation than the security analysis in accordance with paragraph 4(a);*
    - (iii) *increase economic efficiency with the same level of system security.*
5. *All TSOs in each capacity calculation region may jointly apply the flow-based approach for long-term capacity calculation time frames on the following conditions:*
  - a. *the flow-based approach leads to an increase of economic efficiency in the capacity calculation region with the same level of system security;*
  - b. *the transparency and accuracy of the flow-based results have been confirmed in the capacity calculation region;*
  - c. *the TSOs provide market participants with six months to adapt their processes.*
6. *Where a security analysis based on multiple scenarios is applied for developing the capacity calculation methodology in a capacity calculation region, the requirements for the capacity calculation inputs, the capacity calculation approach and the validation of cross-zonal capacity as provided for in Article 21(1) of Regulation (EU) 2015/1222, except Article 21(1)(a)(iv) where relevant, shall apply.*
7. *When developing the capacity calculation methodology, the requirements for the fallback procedures and the requirement provided for in Article 21(3) of Regulation (EU) 2015/1222 shall be taken into account.*

#### **Article 11 of FCA**

##### **Reliability margin methodology**

*The proposal for a common capacity calculation methodology shall include a reliability margin methodology which shall meet the requirements set out in Article 22 of Regulation (EU) 2015/1222.*

#### **Article 12 of FCA**

##### **Methodologies for operational security limits and contingencies**

*The proposal for a common capacity calculation methodology shall include methodologies for operational security limits and contingencies which shall meet the requirements set out in Article 23(1) and (2) of Regulation (EU) 2015/1222.*

#### **Article 13 of FCA**

##### **Generation shift keys methodology**

*The proposal for a common capacity calculation methodology shall include a methodology to determine generation shift keys which shall meet the requirements set out in Article 24 of Regulation (EU) 2015/1222.*

#### **Article 14 of FCA**

##### **Methodology for remedial actions**

*If remedial actions are taken into account in the long-term capacity calculation, each TSO shall ensure that those remedial actions are technically available in real time operation and meet the requirements set out in Article 25 of Regulation (EU) 2015/1222.*

#### **Article 15 of FCA**

##### **Cross-zonal capacity validation methodology**

*The proposal for a common capacity calculation methodology shall include a cross-zonal validation methodology which shall meet the requirements set out in Article 26 of Regulation (EU) 2015/1222.*

## **Article 23 of FCA**

### **Regional calculations of long-term cross-zonal capacity**

1. *Where TSOs apply the statistical approach pursuant to Article 10, the process for the calculation of long-term cross-zonal capacity shall include at least:*
  - a. *a selection of historical day-ahead or intraday cross-zonal capacity data sets from a single period or a set of periods and order the data into a duration curve;*
  - b. *a calculation of capacity corresponding to the risk level for the selected data set;*
  - c. *a calculation of long-term cross-zonal capacity to be offered to forward capacity allocation taking into account a margin to reflect the difference between historical cross-zonal capacity values and forecasted long-term cross-zonal capacity values;*
  - d. *common rules to take into account available information about planned outages, new infrastructure and generation and load pattern for the long-term capacity calculation time frames.*
2. *Where TSOs apply the security analysis based on multiple scenarios pursuant to Article 10, the requirements set in Article 29 of Regulation (EU) 2015/1222, except Article 29(4) where relevant, shall apply to long-term capacity calculation time frames in capacity calculation regions.*
3. (...)
4. *Each coordinated capacity calculator shall submit the calculated long-term cross-zonal capacity (...) for validation to each TSO within the relevant capacity calculation region pursuant to Article 24.*

## **Article 24 of FCA**

### **Validation and delivery of cross-zonal capacity and split cross-zonal capacity**

1. *Each TSO shall validate the results of the calculation for long-term cross-zonal capacity on its bidding zone borders or critical network elements for each long-term capacity calculation time frame pursuant to Article 15.*
2. (...)
3. *Each TSO shall send its capacity validation (...) for each forward capacity allocation to the relevant coordinated capacity calculators and to the other TSOs of the relevant capacity calculation regions.*

[...]

## **Article 30 of FCA**

### **Decision on cross-zonal risk hedging opportunities**

[...]

7. *Where regulatory authorities decide that long-term transmission rights shall not be issued by the respective TSOs or that other long-term cross-zonal hedging products shall be made available by the respective TSOs, Articles 16, 28, 29, 31 to 57, 59 and 61 shall not apply to the TSOs of the bidding zone borders.*

## **Article 5 of ACER Regulation (recast)**

### **Tasks of ACER as regards the development and implementation of network codes and guidelines**

[...]

1. *Where one of the following legal acts provides for the development of proposals for terms and conditions or methodologies for the implementation of network codes and guidelines which require the approval of all the regulatory authorities of the region concerned, those regulatory authorities shall agree unanimously on the common terms and conditions or methodologies to be approved by each of those regulatory authorities:*
  - (a) *a legislative act of the Union adopted under the ordinary legislative procedure;*
  - (b) *network codes and guidelines that were adopted before 4 July 2019 and subsequent revisions of those network codes and guidelines; or*

(c) network codes and guidelines adopted as implementing acts pursuant to Article 5 of Regulation (EU) No 182/2011.

*The proposals referred to in the first subparagraph shall be notified to ACER within one week of their submission to those regulatory authorities. The regulatory authorities may refer the proposals to ACER for approval pursuant to point (b) of the second subparagraph of Article 6(10) and shall do so pursuant to point (a) of the second subparagraph of Article 6(10) where there is no unanimous agreement as referred to in the first subparagraph.*

*The Director or the Board of Regulators, acting on its own initiative or on a proposal from one or more of its members, may require the regulatory authorities of the region concerned to refer the proposal to ACER for approval. Such a request shall be limited to cases in which the regionally agreed proposal would have a tangible impact on the internal energy market or on security of supply beyond the region.*

[...]

## II. The Greece-Italy TSOs proposals

The GRIT FCA CCM was consulted by the GRIT TSOs through ENTSO-E for one month from 18 December 2018 to 17 January 2019, in line with Article 10 and Article 6 of FCA<sup>1</sup>. The GRIT FCA CCM proposal was received by the last Regulatory Authority of the Greece-Italy Capacity Calculation Region on 29 January 2019.

Article 4(9) of FCA requires GRIT NRAs to consult and closely cooperate and coordinate with each other in order to reach an agreement and make decisions within six months following receipt of submissions of the last Regulatory Authority concerned. A decision is therefore required by 29 July 2019.

For the long-term capacity calculation timeframes, CNTC is adopted in the Greece-Italy Capacity Calculation Region due to its radial grid structure. The GRIT FCA CCM applies a statistical approach based on historical cross-zonal capacity for day-ahead or intraday timeframes of the last two years calculated in a coordinated manner in the Greece-Italy Capacity Calculation Region in order to properly take into account all sources of uncertainty related to the long-term capacity calculation timeframes.

In case a relevant reduction (due to a planned outage) or a relevant increase (due to new investments) of the cross zonal capacity is expected with respect to the historical values, GRIT TSOs are entitled to activate an ad hoc capacity calculation process based on multiple scenarios.

Regarding the yearly capacity calculation, two yearly values for each border and direction are computed, peak and off-peak. Each value is in principle assumed equal to the 50<sup>th</sup> percentile of the historical curve (filtered to take into account either peak or off-peak hours): a floor value is nonetheless introduced to grant a minimum value of yearly capacity in case the 50<sup>th</sup> percentile turns to be too low due to significant and persistent outages affecting the historical data set. This floor value is assumed equal to 10% of the maximum expected capacity<sup>2</sup>: if the ad hoc capacity calculation process is activated, the floor value is increased to take into account the positive effect of new investments (no reduction occurs in case of relevant planned outages, because the floor value is quite low yet).

Regarding the monthly capacity calculation, it provides two different values (peak and off peak) for each day of the considered month.

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<sup>1</sup> The public consultation is available on the ENTSO-e website:  
[https://consultations.entsoe.eu/markets/fca\\_art\\_10\\_ccr\\_grit/](https://consultations.entsoe.eu/markets/fca_art_10_ccr_grit/)

<sup>2</sup> Maximum expected capacity is estimated as the 95<sup>th</sup> percentile of the historical curve.

In case no outages are expected for the given day, monthly capacity is in principle equal to the 95<sup>o</sup> percentile of the historical data set related to the same season: if the ad hoc capacity calculation process is activated to take into account new investments, the monthly capacity is assumed equal to the ad hoc computed capacity.

In case an outage is planned for the given day, the monthly capacity is assumed equal to the 50<sup>o</sup> percentile of the historical data set considering only the relevant hours where the same element was out of service: this value may be further reduced in case the TSOs activate the ad hoc capacity calculation process and the resulting capacity value is lower than the 50<sup>o</sup> percentile.

Yearly values are provided by the 15<sup>th</sup> of December of Y-1 while monthly values are provided by the 10<sup>th</sup> day of M-1. The TSOs may activate the ad hoc capacity calculation process at least 30 days before the relevant deadlines for capacity reduction and at least 20 days before the relevant deadlines for capacity increase: all the computations (including the definition of the relevant scenarios) shall be concluded at least 5 days before the relevant deadlines.

The TSOs shall validate the long-term cross-zonal capacity values: in case a reduction is requested, the relevant TSO shall provide the updated amount of cross-zonal capacities for the border considered and the reasons for the reduction.

In case the capacity calculation process fails, Y-1 values are adopted as fallback for yearly capacity, while yearly values are considered as fallback for monthly capacity.

The proposal includes a timescale for the implementation (S2 2020 for yearly capacity and S1 2021 for monthly capacity) and a description of the expected impact on the objectives of FCA, in line with Article 4(8) of FCA.

### **III. The Greece-Italy Regulatory Authorities position**

Greece-Italy CCR, as amended by ACER Decision 04/2019, includes the Greece-Italy SUD border (DC border composed by a single DC interconnector) plus all the Italian internal bidding zone borders that can be further divided into:

- a) AC bidding zone borders (Italy NORD – Italy CNOR; Italy CNOR – Italy CSUD; Italy CSUD – Italy SUD; Italy SUD – Italy ROSN; Italy SICI – Italy ROSN);
- b) DC bidding zone borders based on a single DC line (Italy SARD – Italy CSUD; Italy SARD – Italy CNOR);

Long term transmission rights pursuant to FCA are auctioned only on the Greece – Italy SUD border; for all the Italian internal bidding zone borders, instead, a specific hedging product is preferred, as stated by Arera in the Resolution 333/2017.

As stated by Article 30(7) of FCA, TSOs offering specific hedging products shall not apply a number of provisions included in FCA: nonetheless this exemption does not include the capacity calculation, thus long-term cross-zonal capacity shall be computed by GRIT TSOs on all the bidding zone borders included in the Greece-Italy CCR.

GRIT NRAs have identified a number of issues with respect to the GRIT FCA CCM proposal. They are illustrated in the following, distinguishing by issues applicable to all borders, to Greece-Italy SUD border and to Italian internal bidding zone borders.

## All bidding zone borders

### General

GRIT NRAs consider that several explanations regarding the details of the methodology and its parameters' definition (for example the reasons why the reliability margin is set to zero, why the yearly and monthly capacity is calculated using these specific percentiles of the historical series etc) as well as the transparency section, that exist in the Explanatory note, should be instead included in GRIT FCA CCM.

### Ad hoc calculation process

GRIT FCA CCM mentions an ad hoc calculation process to be adopted in case a significant modification of capacity is expected due to a relevant outage or relevant new investments. GRIT NRAs understand that this ad-hoc process is based on multiple scenarios and that a specific security analysis is carried on. Unfortunately, very few details are included in the proposal. GRIT NRAs required GRIT TSOs to further elaborate on this ad-hoc process, by specifying which inputs are used in capacity calculation process: GRIT NRAs are quite confident that the same data as CACM CCM apply, but this shall be clearly stated in the methodology: in particular at least some considerations about reliability margin, operational security limits and contingencies, shift keys and remedial actions are expected.

## Greece-Italy SUD border

### Implementation timeline

The GRIT FCA CCM for the yearly capacity calculation timeframe is expected to be implemented by S2 2020, thus in time to be used to compute the long-term cross-zonal capacity relevant to define the volume of the products for 2021 yearly auction.

The GRIT FCA CCM for the monthly capacity calculation timeframe is expected to be implemented no later than S1 2021: thus, it's reasonable to expect that the volume of the products for 2021 monthly auction will be defined with the old criteria for the first months of the year and with the GRIT FCA CCM for the remaining months.

Given what above, 2021 product volumes will be identified by a hybrid approach, with GRIT FCA CCM applied for yearly auction and most of the monthly auctions and the old criteria for the other monthly auctions.

GRIT NRAs are quite concerned by this hybrid approach: they would prefer that all the product volumes for a given year are computed using the same approach (either the GRIT FCA CCM or the old criteria). GRIT TSOs are thus requested to review the implementation timeline in order to apply the same approach for all 2021 yearly and monthly auctions: ideally GRIT FCA CCM should be used, but if some implementation delays are expected, GRIT NRAs would suggest to keep in force the old criteria for all 2021 auctions and to apply the new methodology from 2022 onwards.

### Capacity calculation

Capacity available on Greece-Italy SUD border in day-ahead and intraday timeframes is in principle equal to 500 MW (when the Italy Greece DC cable is in operation) or to 0 MW (when the DC cable is out of service); in very seldom cases an intermediate value is offered to take into account some limitations due to faults in some equipment.



Neglecting these very rare intermediate values, the 50° percentile thus results equal to 500 MW (when the cable was in operation for at least 50% of the hours of the two years before) or 0 MW (if an outage occurred in the past two years for more than 50% of the time). The floor value, being related to the 95° percentile, is instead expected to be 50 MW<sup>3</sup>. As a consequence, yearly capacity may be either 500 MW (when 50° percentile is 500 MW) or 50 MW (when 50° percentile is 0 MW and floor value applies). Monthly capacity, instead, may be either 0 MW (when a planned outage is expected for a given day<sup>4</sup>) or 500 MW.

GRIT NRAs understand the reasons behind the TSOs' choice, nonetheless they wonder whether a full statistical analysis is the best approach to compute the long-term cross-zonal capacity for a single line DC border as the Greece-Italy SUD one, where the full thermal capacity is usually offered to the market if the cable is in operation.

For such borders, in fact, according to a security analysis, yearly capacity should be assumed equal to the cable thermal capacity (there is usually no need to limit cross-zonal exchanges because of local issues in Italian and Greek networks): prolonged planned unavailability of the cable shall be taken into account by auctioning products with reduction periods (i.e. not available during the planned outages). Monthly capacity should be assumed instead equal to the cable thermal capacity if the cable is expected to be in operation for the given day or 0 MW if the cable is planned to be out of service.

GRIT TSOs are invited to elaborate on this topic and to evaluate whether it's possible to overcome the statistical approach for the Greece-Italy SUD border in favor of the security analysis approach as suggested above. The conclusions of the analysis and the reasons behind the adopted choice shall be cited in the methodology and, if needed, properly detailed in a technical annex to the methodology itself.

## Italian internal bidding zone borders

### Capacity calculation

GRIT TSOs propose the same statistical approach for AC and DC bidding zone borders: GRIT NRAs consider the statistical approach suitable to compute long-term cross-zonal capacity on AC borders.

GRIT NRAs understand that a statistical approach may be suitable also for DC borders since the capacity on such borders may assume intermediate values between 0 and the thermal capacity due to other network constraints related to system stability. Nonetheless GRIT TSOs are invited to provide more justifications on this choice.

### Publication of the results

For Italian internal bidding zone borders yearly and monthly capacity acts as a reference values, since they have no relevance in allocating the specific hedging products. Nonetheless the publication of such values may induce expectations on market participants and may create confusion with respect to the effective limits that will be used to allocate the hedging rights according to Arera Resolution 205/04.

For this reason, GRIT NRAs ask GRIT TSOs to publish only the entire statistical curve to provide market participants with a range of values, marking the points associated to 5°, 50° and 95° percentile for each border and direction. the publication shall be accompanied by a specific clause clarifying that the range values are given for reference only without any link with the transit limits defined according to Arera Resolution 205/04.

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<sup>3</sup> It's reasonable to expect that the cable was in operation for at least 5% of the hours during the past two years.

<sup>4</sup> If a planned outage is expected, this means that the cable is out of service. The entire statistical data set is thus equal to 0.

## IV. Conclusions

The GRIT NRAs have consulted and closely cooperated and coordinated to reach agreement that **they request an amendment to the GRIT FCA CCM proposal submitted by GRIT TSOs pursuant to Article 10 of FCA**. The amended proposal shall take into account the GRIT NRAs position stated above, and it shall be submitted by TSOs no later than 2 months after the last national decision to request an amendment has been made, in accordance with Article 4(11) of FCA.

The GRIT NRAs must make their national decisions to request an amendment to the capacity calculation methodology, on the basis of this agreement.

## Action points

- 1) Include reasoning of parameters' definition and transparency in the GRIT FCA CCM proposal instead of the Explanatory note;
- 2) Elaborate on the ad-hoc process, by specifying which inputs are used in capacity calculation process;
- 3) Align the implementation of monthly and yearly capacity calculation;
- 4) Evaluate the possibility to adopt a security analysis approach for Greece – Italy Sud border;
- 5) Justify the adoption of a statistical approach for Italian internal DC bidding zone borders.
- 6) Publish the entire statistical curve for Italian internal bidding zone borders along with a clause stating the non-relevance of these values for the specific hedging product offered according to Arera Resolution 205/04.