

ACER Decision on the long-term capacity calculation methodology of the Core capacity calculation region: Annex II

Evaluation of responses to the public consultation on the long-term capacity calculation methodology of the Core capacity calculation region

1. INTRODUCTION

- (1) This document provides a summary of responses to ACER's public consultation (PC 2021 E 06) on the Core TSOs' proposal for the long-term capacity calculation methodology for the Core capacity calculation region (Core LT CCR), together with an explanation how the points raised have been addressed by ACER in the amendments set out in Annex I to this Decision.
- (2) In particular, ACER asked stakeholders to comment on the following aspects of the Core LT CCM:
- (a) application of the flow-based approach;
- (b) selection of critical network elements;
- (c) application of minimum remaining available margin (minimum RAM);
- (d) application of allocation (external) constraints limiting total import or export of a bidding zone;
- (e) implementation timeline and revision of the methodology; and
- (f) other proposed amendments, such as the application of alternating current (AC) load flow, fallback procedure and data publication.

2. LIST OF RESPONDENTS

ACER has received 12 responses.¹ All responses are published on ACER's consultation page (<u>PC 2021 E 06</u>).

Organisation	Country	Туре
Österreichs Energie – Association of Austrian Electricity Companies	AT	Association
Energie AG Oberösterreich Trading GmbH	AT	Energy company
CRE	FR	Regulatory authority
TIWAG-Tiroler Wasserkraft AG	AT	Energy company

¹ EFET and Eurelectric provided a joint response.



Organisation	Country	Туре
EFET - European Federation of Energy Traders		Association
Eurelectric - Union of the Electricity Industry		Association
MAVIR Zrt.	HU	TSO
HEP d.d.	HR	Energy company
PSE s.a.	PL	TSO
HEP-Trade Ltd, member of HEP group	HR	Energy company
EdF Trading	FR	Energy company
Magnus Red - on behalf of the Core TSOs		Association
Market Parties Platform (MPP)		Association

3. SUMMARY OF VIEWS AND EVALUATION

ACER has carefully considered all stakeholders' comments in assessing the proposed Core LT CCM and finalising its positions. In some areas, this is explicit in the amendments made and reasoning presented in the Decision. In these instances, the table below refers to the relevant amendments and paragraphs of the Decision. This is complemented by additional observations in response to the main points raised by the stakeholders.

The structure of the table corresponds to the questions of the consultation. Respondents' views are summarised in the left side of the table, and ACER's views are provided in the right side of the table.



of Energy Regulators

4. STAKEHOLDER ANSWERS

Respondents' views

ACER views

Topic 1: Application of the flow-based approach

Context: The Core LT CCM applies a flow-based approach with multiple scenarios on a yearly and a monthly level for the calculation of flow-based parameters. ACER supports the application of a flow-based approach, as this approach is in line with the Commission Regulation (EU) 2016/1719 establishing a guideline on forward capacity allocation (FCA Regulation

² and the Commission Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion

management (CACM Regulation)³. In ACER's view, a flow-based approach is appropriate for meshed networks such as the Core CCR and consistent with the approach applied in Core Day-Ahead (DA) CCM. Most importantly, ACER understands that all efforts of the Core TSOs to implement the coordinated Net Transfer Capacities (cNTC) approach in Core CCR have failed, as the TSOs could not to agree how to split the interdependent cross-zonal capacities among different bidding zone borders. In case of flow-based approach, such a split is not necessary, since the flow-based allocation determines the volume of allocated capacities per each border based on maximisation of economic surplus.

Question 1: Do you agree with the application of the flow-based approach in the Core LT capacity calculation?

11 respondents provided an answer to this question.

8 respondents agreed with the proposed application of flow-based approach. 3 respondents expressed concerns about fulfilling the requirements set out in Article 10(5) of the FCA Regulation. In particular, one of the conditions to apply the flow-based approach for long-term capacity calculation time frames is that the flow-based approach leads to an increase of economic efficiency in the capacity calculation region with the same level of system security (Article 10(5)(a)). The respondents claimed that the TSOs and ACER support the implementation of flow-based approach in LT capacity calculation for the Core region but neither the TSOs, nor ACER have demonstrated that this condition is verified.	ACER welcomes these comments and agrees that the requirements of Article 10(5) of the FCA Regulation need to be verified before implementing the flow-based approach in the Core CCR in the long-term time frame. This verification has been explained in paragraph (55) of this Decision. ACER has conducted an experimentation which aimed to verify, among other aspects, whether the flow-based approach provides higher economic efficiency under the same level of network security, in line with Article 10(5)(a) requirement. ACER has simulated the flow-based capacity calculation and flow-based explicit auctions and applied the minRAM that corresponds to the level of RAM required to accommodate the flows originating from the NTC values in Core from the yearly auctions for 2020. These simulations show that the application of the flow-based approach increases economic efficiency in the Core CCR (characterised by highly meshed network and physically interdependent bidding zone borders) with the same level of system security. In such circumstances, the flow- based auctions provide 27% higher economic surplus than the realised yearly NTC auctions from 2020 at the Core borders. Thereby, ACER considers that the condition set out in Article 10(5)(a) of the FCA Regulation is met. Nevertheless, ACER recognises the risk that the actually offered cross- zonal capacities may be lower than the capacities offered today. To this end, ACER and the regulatory authorities will closely follow the implementation and request from the TSOs the level of cross-zonal capacities offered to the market similar to today's levels, keeping in mind the security constraints. Stakeholders will also be consulted on these levels before the implementation.
1 respondent stated that the Core TSO's proposal lacks details on the allocation process.	The Core LT CCM is related to capacity calculation, while the allocation process is subject to other methodologies adopted pursuant to the FCA Regulation. The proposed application of a flow-based approach implies that flow-based parameters will be used for allocating capacities (see

² OJ L 259, 27.9.2016, p. 42.

³ OJ L 197, 25.7.2015, p. 24.



ACER views
Article 29 and Article 30 of the CACM Regulation). As the auctions currently performed by the single allocation platform (SAP) do not support the use of flow-based parameters for capacity allocation, ACER has requested all TSOs to provide amendments to the following terms and conditions or methodologies in order to accommodate the long term flow-based capacity allocation approach:
• requirements for the single allocation platform pursuant to Article 49 of the FCA Regulation (SAP);
 harmonised allocation rules pursuant to Article 51 of the FCA Regulation (HAR);
• congestion income distribution methodology pursuant to Article 57 of the FCA Regulation (CiD); and
 methodology for sharing costs incurred to ensure firmness and remuneration of long-term transmission rights pursuant to Article 61 of the FCA Regulation (FRC).
ACER has provided the required level of details in the Core LT CCM related to capacity allocation, by defining the capacity calculation outputs (union of flow-based constraints by all observed scenarios).

Topic 2: Selection of critical network elements

Context: ACER is of the view that the list of Critical Network Elements and Contingencies (CNEC list) in the long-term time frame should be consistent with the CNEC list in the DA time frame. According to the Core DA CCM, day-ahead validation cannot lower the remaining available margin (RAM) values below the level required to accommodate the longterm allocation. As such, ACER sees no financial risk to the TSOs. ACER also considers it unlikely that alignment between the two CNEC lists would endanger network security since the LT CCM needs to ensure that LT capacities are always feasible with the application of remedial actions.

Question 2: Do you agree with the proposed CNEC selection principles?

11 respondents provided an answer to this question.

remedial actions (RA).

9 respondents agreed with the approach proposed by ACER, i.e. that the CNEC approach for long-term (LT) capacities should explicitly follow the principles of the day- ahead/intra-day approach.	ACER agrees that the level of uncertainty in the long-term time frame is higher than in the day-ahead time frame, and that the LT CC should be applicable while ensuring system security without using remedial actions. In this respect, the Core LT CCM does not apply the RA in the CC. ACER however disagrees that extending the CNEC list would address
2 respondents disagreed with ACER's proposal, stating that:	increased uncertainty in the long-term time frame. ACER explains in paragraph (74) of the Decision that over-allocation in the long-term time frames is highly unlikely due to the application of a conservative approach
 during the DA capacity calculation process, CNECs are defined on hourly level, which would not be relevant in LT, which implies a false consistency between DA and LT capacity calculation. In the respondent's view, the LT CCM, under a higher level of uncertainty than in DA, should be able to handle any possible status of the system regardless the direction of flows, therefore an extended list of CNECs would be needed. LT CC should be applicable with ensuring system operational security without the usage of 	 in the calculation and allocation of the long-term cross-zonal capacities. This approach assumes: simultaneous application of the union of constraints by all scenarios; the allocation of options, which means that the corresponding flows are calculated in a worst-case manner, i.e. without netting. This further implies that the flows assumed in long-term capacity calculation will less likely consume the available capacity in the form of RAM in the day-ahead time frame; The level of minimum RAM provided in the long-term time frames is in sum much lower than the minimum requirement for the day-ahead time frame (70% of Fmax);



Respondents' views	ACER views
 CNECs are not always same at long and short-term level. 	• The experimentation results show that the methodology might result in under-allocation of cross-zonal capacities, rather than their over-allocation;
	• Despite over-allocation is unlikely, the Core LT CCM provides the possibility to adjust (i.e. decrease) the corresponding RAM even below the minimum RAM value in the capacity validation phase if the TSOs' analysis shows that the calculated level of RAM is unable to ensure operational security.
3 respondents who agreed with the approach proposed by ACER, commented on the application of zone-to-zone PTDF threshold of 5%. They claimed that although this 5% criterion is apparently currently being applied, it has never been approved.	ACER disagrees. The 5% threshold reflects the requirement of Article 29(3)(b) of the CACM Regulation and has been approved in the Core day- ahead and intraday capacity calculation methodology. Article 29(3)(b) of the CACM Regulation requires removal of insignificant CNECs and 5% is s standard measure of insignificance in statistics. There is no legal obligation to make a cost benefit analysis on this level of insignificance. Further, it is not the PTDF threshold that counts. It is actually the flow, which means that very high exchange and very low PTDF can still impose very high flow and have very high impact on security.

Topic 3: Minimum remaining available margin (RAM)

Context: ACER had concerns that the minRAM of 20% proposed by the Core TSOs may likely lead to much lower longterm cross-zonal capacities than nowadays. ACER intended to investigate the effect of no-netting on minimum RAM and level of offered capacities and propose a higher minimum RAM value for the long-term frame, if needed. In addition, in order to provide comparable levels of capacity allocation in a possible transitional period, ACER has been investigating the options of using historical long-term NTCs converted into minimum RAM, or statistical analysis of day-ahead RAMs as input to the long-term minRAM.

Question 3.1: What are your expectations and needs regarding the volume of offered capacities in the long-term time frame?

9 respondents provided an answer to this question.

approx sufficient capacity at DE-AT border for their hedging opportunities. They were also concerned that if the 70% target is not met, there would be lower auctioned capacities and insufficient incentives to establish long-term business. These respondents also claimed that the current proposal would bring uncertainty as to the level of cross-border capacity, arguing that the calculation process is not transparent and would leave businesses with a rather short- termed cross-border market. In respondents' view, weak harmonisation and the vague description of the methodology would open doors for nationally confined markets. In their opinion, there should be a regular assessment of the historical levels of available cross- border capacity, converted to historical minRAMs, and minRAM results of the proposed Core LT CCM. This "backtesting" should give insights into how the cross-border	e ACER understands these concerns, the coordinated flow-based each cannot and should not give priority to any border in advance, but to establish a level playing field for all market participants among all rrs based on their bid prices and network reality. 70% requirement pursuant to Article 16(8) of the Electricity lation is not applicable to the long-term time frame, however ACER rms the need for sufficient long-term capacities in order to provide er hedging possibilities to market participants who need those ng instruments. rding the stability of outputs and alleged uncertainty about the level boss-border capacity, ACER is of the opinion that with the amended LT CCM methodology the stability of the LT CC outputs is itently ensured by the application of minimum RAM. R is of the position that the historical auctioned levels are not a proper umark, as the historical capacities were not coordinated. ACER notes he only objective in this respect is to increase economic efficiency the same level of network security, pursuant to Article 10(5)(a) of the Regulation. rtheless, ACER has provided a framework for testing the results e its implementation and a strong incentive for the TSOs to increase vailable capacities so they can reach today's levels.
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of Energy Regulators

Respondents' views	ACER views
1 respondent expected that on average, the auctioned capacities would be equal to, or higher than, the historical ones, but with the exception of DE-AT border where the high current LT capacities are the result of an intergovernmental agreement and not TSOs' calculation.	
2 respondents questioned the claim that the minimum RAM level is not defined in the Core TSOs' proposal.	ACER agrees with the first comment, as the proposed minimum RAM of 20% is defined in the Article 14(2) of the Core TSOs' proposal. ACER agrees with the second comment. Reasons for the difference
They also welcomed the revision of the minimum RAM level if it is proven that its effect is not comparable with the same level applied in the DA time frame.	between the DA and LT minimum RAMs are set out in ACER's reply to comments on Question 2 above.
They also referred to the regulatory authorities' commitments given at Core Consultative Group meetings during 2020, that the average levels of allocated capacity in the forward time frame should not decrease following the implementation of the Core LT CCM.	ACER is of the position that historical auctioned levels are not the proper benchmark, as the historical capacities were not coordinated. The only objective in this respect is the increase of economic efficiency, pursuant to Article $10(5)(a)$ of the FCA Regulation.
2 respondents stated that the real value of capacity should be provided, as calculated, respecting the physical limits, without applying the artificial capacities, and allowing for secure power system.	ACER in principle agrees with this statement, however having in mind that a certain level of minimum RAM is required at both yearly and monthly time frame, in order to promote the effective long-term cross- zonal trade with long-term cross-zonal hedging opportunities for market participants in line with Article 3 of the FCA Regulation. In any case, application of minimum RAM should not compromise network security.
Topic 3: Minimum remaining available margin Question 3.2: Do you agree with using a min	(RAM) imum RAM higher than 20% for the LT time frames?
11 respondents provided an answer to this ques	
 9 respondents agreed with the proposed approach. 1 respondent underlined that the minRAM value must be carefully calculated so that it is secure. This respondent also supported the use of a statistical analysis of the DA RAMs for a transitional period, and was not in favour of using the historical LT NTCs and converting them into RAMs as some LT NTCs are the result of intergovernmental agreements and not TSO calculations. 	ACER agrees with these statements and has made amendments in this respect (see Article 14 of Annex I) ACER also welcomes the use of the statistical approach for the calculation of minRAM values as one of the future possibilities. However, in this case, it is to be decided whether to use statistical approach only to determine the minRAM values, or to determine all FB parameters. ACER has decided to not impose any solution in this respect yet, but will invite TSOs to investigate this aspect after the go-live of the Core LT CCM.
2 respondents expressed concerns about increasing the minRAM values without proper operational experience.	In its experimentation, ACER has simulated different levels of the minRAM. The results are discussed in paragraphs (105)-(118) of the Decision.
	Based on the applied simulations, discussions with the Core TSOs and the Core regulatory authorities, and considering the need to ensure offered capacities at both yearly and monthly time frame, ACER has proposed the minimal values of minimum RAM at the level of 20% of Fmax for yearly auctions and 10% of Fmax for monthly auctions. ACER is of the position that the proposed values of minimum RAM are the minimum required for ensuring compliance with the objective of effective long-term cross-zonal trade referred to in Article 3 of the FCA Regulation. ACER sees no



Respondents' views ACER views network security concerns from the application of the proposed minimum RAM values. Moreover, any potential operational security risks in this respect are in any case mitigated by the possibility to efficiently reduce the capacities during the capacity validation, if necessary. ACER considers that its proposal on the minimum RAM values strikes a balance between the opposite expectations of the Core regulatory authorities, Core TSOs and market participants. In view of the expressed concerns and bearing in mind the limitations of ACER's experimentation, ACER has provided for a mechanism whereby the Core TSOs increase the minimum RAM values during the implementation if their analysis and experimentations do not reveal network security risks (with the cap of 40% at yearly and 20% at monthly level). Such adjustment would have to be based on a comprehensive analysis performed by the Core TSOs and consistent with the objectives of the FCA Regulation, and consulted with the Core regulatory authorities and stakeholders.

Topic 4: Application of allocation (external) constraints

Context: ACER notes that external constraints are currently exercised by TenneT (NL) and PSE (PL) in the day-ahead timeframe. ACER aimed to keep the possibility for the external constraints at the LT level as long as they are existing on the DA level.

Question 4: Do you agree with the proposed way of application of allocation (external) constraints in the Core LT CCM?

10 respondents provided an answer to this question.

A respondents agreed with the proposed approach. A CER is generally not in favour of external constraints as long as there are other ways to address underlying operational security issues. However, ACER also understands that as long as external constraints are applied in the day-ahead time frame, they are also required in the long-term one, in order to avoid over-allocation. Therefore, ACER has allowed external constraints in the long-term time frame only as long as they serve to accommodate the existing day-ahead external constraints. In addition, ACER has strengthened the monitoring of the view that if such constraints were imposed, it should be mandatory that those constraints are consulted with the Core TSOs and market participants, and approved by all Core regulatory authorities.

Topic 5: Implementation timeline and revision

Context: The Core TSOs' proposal provides for an implementation timeline of 5 years. ACER has proposed to shorten this timeline to 2.5 years, and to allow for a subsequent revision of the methodology 18 months following its go-live. This would assume the application of monthly flow-based auctions for July 2024 and yearly flow-based auctions for January 2025.

Question 5: Do you agree with the proposed implementation deadline?

6 respondents provided an answer to this question.

 respondent agreed with the proposed approach. respondents were concerned that the complexity of the LT CCM requires more time than the proposed 2.5 years. of those respondents provided reasons for 	ACER has carefully assessed these concerns and agreed to extending the implementation timeline to 3 years, specifying that the first long-term auctions to be implemented are yearly flow-based auction for 2025 and the monthly flow-based auction for January 2025. However, any eventual delay in the implementation of either of these auctions for whichever reason, should not delay the implementation of the other auction.
extending the timeline to 3 years, starting with yearly auctions for 2025 and then monthly auctions, instead of mixing the NTC-based	



Respondents' views	ACER views
approach at monthly and flow-based approach at yearly level.	
The respondents argued that due to dependencies among yearly Common Grid Models (CGMs), LT CC and Outage Planning Coordination (OPC) process, the go-live of LTCC should be with calculation of yearly values for 2025.	
Topic 6: Other proposed amendments	
Context: ACER's further amendments proposed	l for the Core LT CCM included:
• applying AC load flow for the referen	ce load flow calculation in order to obtain more accurate results;
	d on the FB parameters from previous yearly auction (at Y level), i.e. eason of the previous yearly auction (at M level);
• aligning the provisions on the publica intraday CCMs.	ation of data with the corresponding provisions in the Core day-ahead and
Question 6: Do you agree with the proposed	amendments?
10 respondents provided an answer to this ques	tion.
3 respondents stated that the methodologies for reliability margin and for operational security limits have to be as transparent as possible.	 Although there are more uncertainties in the long-term time frames than in the day-ahead one, ACER considers that the DA reliability margin can be efficiently used in the long-term time frame under certain conditions. ACER notes that these conditions are met in the Core TSOs' proposal, as amended by ACER, therefore making the flow reliability margin from the day-ahead capacity calculation process suitable for the long-term time frames. These conditions are: The union of flow-based constraints from all calculation scenarios is used as a common set of constraints for each long-term auction, as this represents sufficiently conservative consideration of various constraints from different applied CGMs; The AC load flow is applied for the calculation of reference flow in the long-term time frame, as the day-ahead Core flow-based approach applies the direct current (DC) load flow, but
	 does not take into account the inaccuracies originating from the differences between AC and DC load flow; The fact that applying options at the long-term explicit auctions of cross-zonal capacity does not allow for the formal consideration of netting of counter flows, ensures a sufficiently conservative capacity calculation approach.
	Having the above in mind, ACER considers that transparency of the reliability margin approach is ensured as well.
4 respondents argued that the proposed Generation Shift Keys (GSK) methodology lacks transparency.	ACER broadly agrees with this statement. To increase transparency, the Core LT CCM aims towards harmonisation of the GSK methodology with the corresponding process in the DA CCM. Namely, it requires the Core TSOs to amend the GSK methodology in the long-term time frames no later than 12 months after the implementation of the proposal for further harmonisation of the corresponding methodology of the Core DA CCM.



Respondents' views	ACER views
3 respondents proposed to include costly remedial actions in the LT CC.	ACER disagrees with this proposal. As the long-term capacity calculation assumes very high uncertainty for assessing the availability of remedial actions far ahead of the real-time system operation, and that, in such circumstances, the process of coordination or even consideration of remedial actions would increase the complexity of the capacity calculation process without a clear added value, no remedial actions should be considered in the LT CC.
3 respondents suggested that third countries should be more accurately represented in the flow-based approach, with details like grid structure, grid and plant outages, remedial actions' potential and the variability of production and consumption.	The CGM used for the LT CCM includes grid models of third countries for the Continental European synchronous area. The CGMM amendment proposed by ACER would further improve the planned outage modelling, as it would be harmonised at the European level, at least for the EU regions, but opened as well for non-EU countries. However, third country TSOs cannot be formally included in the Core capacity calculation.
2 respondents questioned the added value of applying the AC load flow for the reference flow calculation, expecting no significant increase in accuracy or economic efficiency.	ACER's experimentation showed significant improvements of the accuracy in calculating the reference flows with AC LF, or at least with combined AC LF (n-0) and DC (for contingencies, with losses from AC (n-0)). The descriptions is provided in paragraphs (102)-(104) of the Decision. ACER considers that gaining additional precision in obtaining reference flow is an important element in the RAM calculation, it is a valid reason for introducing the AC load flow, having in mind that, contrary to the dayahead process, the long-term process provides sufficient time for its
3 respondents argued that there should be no	application. In case of implausibility to apply the AC load flow in certain CGMs, the DC solutions can be considered as a fallback. ACER takes into account the need to ensure availability and proper
CGMM amendment (CGMM being pan- European process) to include the planned outages, but the Core LT CC should apply the region-specific LT modelling concept.	granularity of the application of planned outages in the CGMs used for the LT CCM. On the other hand, ACER also sees the importance of ensuring coordination of the CGMs at the European level, in line with Article 18 of the FCA Regulation and Article 18 of the CACM Regulation. A coordinated use of the CGMs for the long-term capacity calculation across all the European CCRs is of utmost importance since the assumptions on generation load and topology for capacity calculation need to be the same in all regions. For example, TSOs in Italy north CCR need to have full visibility of the assumptions made in capacity calculation in Core CCR as these assumptions impact cross-zonal capacities e.g. in Italy North. In addition, regional CGM which is not used in other regions would contradict the concept of an EU-wide common grid model.
	Given the above, ACER has pragmatically allowed for a temporary procedure of the CGM development in the Core CCR, in order to ensure the required specifics of the CGMs' application in Core CCR. This temporary procedure may increase the granularity of the required CGMs, apply the outage topologies pursuant to the OPC data, and have flexible timestamps for the additional CGMs (excluding the initial timestamps defined pursuant to CGMM). The Core TSOs may apply the temporary procedure only until the first next CGMM amendment, assuming the willingness of the Core TSOs and ENTSO-E to support the inclusion of the elements of the temporary procedure in the CGMM amendment.
1 respondent noted the need that the fallback values are confirmed by all Core TSOs.	Article 16 of the Core LT CCM defines that the Core CCC shall provide the LT flow-based fallback parameters to the SAP, also requiring their common validation by the Core TSOs and the Core CCC.