

Core TSOs consultation on a proposal for a common long-term capacity calculation methodology



EFET response – 16 October 2020

The European Federation of Energy Traders (EFET) welcomes the opportunity to provide comments on the updated draft methodology for long-term capacity calculation (LTCCM) proposed by the TSOs of the Core capacity calculation region (Core CCR).

As previously mentioned in EFET responses to the Core and other CCRs' LTCCM proposals¹, forward capacity calculation and allocation is critical to allow market participants to hedge their long-term positions across borders and make sure that they are not exposed to short-term price volatility and imbalance costs. Hence, it is vital that the calculation methodology for the forward timeframe is robust.

As we see it for the moment, the draft proposal does not show a clear commitment to the first objective listed in article 3 of the Forward Capacity Allocation (FCA) Regulation, i.e. *“promoting effective long-term cross-zonal trade with long-term cross-zonal hedging opportunities for market participants”*. In particular, the **choice of a flow-based approach for the calculation** (and possibly the allocation) of long-term capacity in the Core CCR – instead of the default coordinated net transfer capacity (cNTC) approach – is not justified in the methodology or the explanatory document, as required by article 10(5) FCA Regulation.

¹ See the EFET responses to consultations on the SWE LTCCM proposal (dated 15 April 2019, available at: https://efet.org/Files/Documents/Downloads/EFET_ENTSO-E%20consult%20SWE%20LTCC_15042019.pdf), the Hansa LTCCM proposal (dated 15 May 2019, available at: https://efet.org/Files/Documents/Downloads/EFET_Hansa_CCM_15052019_final.pdf), the Core LTCCM proposal (dated 10 July 2019, available at: https://efet.org/Files/Documents/Downloads/EFET-MPP_TSOs%20consult%20CORE%20LTCC_10072019-2.pdf), the SEE LTCCM proposal (dated 2 September 2019, available at: https://efet.org/Files/Documents/Downloads/EFET_TSOs%20consult%20SEE%20LTCC_02092019.pdf), the Italy North LTCCM proposal (dated 13 March 2020, available at: <https://efet.org/Files/Documents/Downloads/EFET%20response%20to%20Italy%20north%20TSO%20on%20a%20forward%20capacity%20calculation%20methodology.pdf>) and the Baltic LTCCM proposal (dated 24 August 2020, available at: https://efet.org/Files/Documents/Electricity%20Market/Forward%20markets/EFET_response_ACER_consultation_Baltic_CCR_LT_CCM_24082020_final.pdf).

Besides, the proposal **lacks sufficient details in the description of the capacity calculation methodology itself**. This is especially when it comes to the selection of CNE(C)s, but also for the determination of GSKs or the definition of remedial actions.

Finally, it is currently **unclear how the allocation process will take place**. Beyond calculation, we understood from discussions at Core Consultative Group meetings that the objective is also to use the flow-based approach for the allocation of capacity by 3 to 5 years. In the meantime, an NTC extraction would be performed to allocate capacity at each border. Considering the uncertainties about the capacity calculation model already – and the worries we have that a flow-based calculation may not yield very high level of cross-zonal capacity in the forward timeframe – the lack of clear idea how capacity will be allocated in the future significantly adds to market participants concerns with the overall proposal. We call on the TSOs to engage in a dialogue with market participants to help us understand how the future capacity calculation and allocation processes will play out. This should also include all the elements in the new processes that would require an adaptation of tools and systems on market participants' side.

On a side note, we would like to underline that **political agreements on pre-determined levels of capacity at given borders**, such as bilateral agreements, are detrimental to the efficiency of capacity calculation and the maximisation of welfare at regional level. The treatment of such agreements, as they exist today, is not ruled in the LTCCM proposal. Should they be allowed to be maintained once the LTCCM comes into force, they should at the very least be listed in the capacity calculation methodology and their impact thoroughly assessed.

You will find below our detailed comments on individual articles of the draft methodology.

Comments on individual articles:

- **Recital 9:** *In accordance with article 10(5) of the FCA Regulation, the CCM applies the flow-based approach to capacity calculation. In capacity calculation regions characterised by meshed networks and physically interdependent bidding zone borders, the flow-based approach by default leads to an increase in economic efficiency with the same level of system security. This is because, when a network element, which is considered in capacity calculation as critical network element is significantly impacted by cross-zonal exchanges on two or more bidding zone borders (which makes those borders interdependent), then it is by default more efficient that requests for cross-zonal exchanges on these interdependent borders equally compete for the capacity of such critical network element. This competition between borders is the intrinsic advantage of the flow-based approach compared to the coordinated net transmission capacity ('NTC') approach. In the latter approach, the capacity of such critical network elements needs to be first split into portions reserved for each of the interdependent borders and then converted into NTC values for each border. These NTCs are then allocated independently on each interdependent border,*

which essentially limits the competition between interdependent borders for the capacity of such critical network elements. Lack of competition between borders for the capacity of network elements, which these borders are significantly impacting inevitably, leads to loss of economic efficiency in allocating the capacity of such network elements.

Recital 9 considers that the flow-based approach to capacity calculation leads “by default” to an increase in economic efficiency with the same level of system security. Should this necessarily be the case, we wonder why the legislator would have put this element as the first condition to the implementation of a flow-based approach in the forward timeframe in article 10(5) FCA Regulation.

While the flow-based approach may indeed be linked to improved economic efficiency in theory, the practice may be quite different. This is already the case in day-ahead – as shown by the economic indicators in CWE, which show much lower efficiency gains in practice than modelled ex-ante in theory. This would be even truer in the forward timeframe, where significant uncertainties will be taken into account in a flow-based model. Grid models will be much less precise than in day-ahead, and elements like reliability margins or allocation constraints will likely be much more limiting. Finally, the validation process may lead to significant gaps between theoretically calculated and actually allocated capacities.

All in all, it is far from certain that with such levels of uncertainty, a flow-based approach to capacity calculation will “by default” yield more economic efficiency than a cNTC approach.

Finally, as noted in our introduction, the proposal lacks details about the allocation process. The target model of this proposal, which we understand as including also flow-based capacity allocation, would require significant adaptation on market participants’ side from an operational standpoint. In light of all these uncertainties, some modelling of flow-based capacity calculation and allocation in the Core region could have helped to confirm or refute the assertion of Recital 9. The TSOs have not provided such information to the market.

Therefore, we believe that Recital 9 is only aspirational, and fails to provide a justification to the application of a flow-based approach to LTCCM in the Core region, as required by article 10(5) FCA Regulation.

- **Recital 11:** *The LT CCM enables Core TSOs to provide market participants with reliable information on cross- zonal capacities and import/export limits for year and month ahead allocation in a transparent way and at the same time. This includes regular reporting on specific processes within capacity calculation. The LT CCM therefore contributes to the objective of transparency and reliability of information (article 3(f) of the FCA Regulation).*

A binding methodology should *mandate* TSOs to provide reliable information to market participants, not *enable* them to do so.

- **Recital 18:** *The LT CCM shall be compatible with the day-ahead and intraday capacity calculation methodologies (article 10 (3) of the FCA Regulation).*

This recital is a copy-paste of article 10(3) FCA Regulation. When proposing a draft LTTCM – i.e. the document currently under consultation – this document has to be (not *shall be*) compatible with the day-ahead (DA) and intraday (ID) CCMs approved by ACER in February 2019. The TSOs should prove now, in this methodology and the explanatory document, that all Core CCMs (LT, DA and ID) are compatible.

- **Article 3.2:** *The year-ahead and month-ahead capacity calculation process shall consist of three main stages:*
 - a. the creation of capacity calculation inputs by the Core TSOs, in accordance with Title 2;*
 - b. the capacity calculation process by the CCC, in accordance with Title 3;*
 - c. the capacity validation by the Core TSOs in coordination with the CCC, in accordance with Title 4.***and article 3.3:** *In accordance with article 24 of the FCA Regulation, each Core TSOs shall validate the results.*

It looks like article 3.3 is an unnecessary repetition of article 3.2(c). See more details on the validation process in our reaction to article 17.

- **Article 4.1:** *The Core TSOs shall use the latest available FRM from the DA timeframe.*

The proposal is to use the same reliability margins in the forward timeframe as those of the day-ahead timeframe. According to article 22(2) of the CACM Regulation, referred to in article 11 of the FCA Regulation, “The methodology to determine the reliability margin shall set out the principles for calculating the probability distribution of the deviations between the expected power flows at the time of the capacity calculation and realised power flows in real time.” This means that reliability margins serve to cover uncertainty between the time of calculation and the time of delivery. Hence, using the *same methodology* to determine reliability margins in DA and forward timeframes would be welcome, but using the *same exact margins* does not seem appropriate: a specific calculation should be performed for each timeframe.

- **Article 6.1:** *In case operational security limits cannot be transformed efficiently into I_{max} and F_{max} pursuant to Article 5, the Core TSOs may transform them into allocation constraints. For this purpose, the Core TSOs may only use external constraints as a specific type of allocation constraint that limits the maximum import and/or export of a given Core bidding zone. and the rest of article 6.*

We oppose the inclusion in the methodology of a provision opening the possibility for TSOs to include import/export limits in the forward timeframe without proper justification, consultation of other Core TSOs and market participants, and approval by all Core regulators.

- **Article 7.1:** *Each Core TSO shall provide a list of critical network elements (CNEs), including by default all cross-zonal network elements and a list of associated contingencies (Cs) of its own control area based on operational experience. The result of the process will be an initial pool of CNECs in all subsequent steps of the common long-term capacity calculation.*

The article does not include the methodology for the CNE(C) selection, which will therefore remain at national level if the methodology is approved as is. This approach is not coherent with the CNE(C) selection methodology for day-ahead and intraday (article 5), which is harmonised at CCR level for the Core region.

Besides, the LTCCM proposal does not take account of the requirements laid down by ACER in its decision on the DA and ID CCMs for the Core region concerning the removal of internal CNE(C)s from the DA and ID capacity calculation within two years unless properly justified by the TSOs and approved by all CCR NRAs. For consistency reasons once again, we believe the same provision should apply to the LTCC. This will also allow full compliance with article 10(3) FCA Regulation (“*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.*”)

With such uncoordinated CNE(C) selection and application, between bidding zones and across timeframes, the likelihood of drastically reduced available capacity in the forward timeframe increases.

Furthermore, the methodology should be much more developed on the possible use of minimum RAM to ensure that a sufficient level of capacity is made available to the market.

- **Article 7.3:** *The CNECs shall have a maximum zone-to-zone PTDF higher than a common threshold of 5%. The CNECs of this category will be taken into account by the Core TSOs in all subsequent steps of the common capacity calculation and will determine the long-term capacity.*

We acknowledge that the PTDF threshold of 5% proposed in the LTCCM is consistent with that of the DA and ID CCMs, and the current practice in CWE flow-based. However, although this 5% criterion is apparently currently being applied, it has never

been approved. On the contrary, it was identified as one of the open issues that still need to be resolved. In their Position Paper on CWE Flow-Based Market Coupling of March 2015, the CWE NRAs write the following (in paragraph 9.12 CBCO selection):

“The project has proposed the rule of 5% to identify a critical branch (the 5% criterion means that a CBCO, to be selected, has to have at least one zone-to-zone PTDF which exceeds 5%). It is stated in the Approval Package that this rule was assessed inside the project to be efficient. This has nevertheless not been demonstrated to CWE NRAs. If there is room for improving this CB selection rule, this could lead to a higher global welfare. As a matter of fact, a network element not considered as a CB in the Flow-Based methodology cannot limit cross-border exchanges. If an overload is expected on this line, the relevant TSO(s) may have to activate potentially costly remedial actions such as re-dispatching. Moreover, the current rule does not prevent the fact that constraints with very low PTDF are active and may have huge impact on prices. Therefore, CWE NRAs consider that the project has to demonstrate, at the latest when applying for a capacity calculation methodology in the frame of the CACM Regulation, whether the 5% rule is optimal, or what other rule could lead to such optimality. The Flow-Based methodology would have to be adapted consequently.”

Five years later, this demonstration of the optimality of the 5% criterion has not been provided, and is still not detailed in the proposed LTCCM or its explanatory document.

- **Article 7.4:** *The list of CNEs and the associated contingencies can be updated monthly by the respective Core TSOs.*

The list of CNE(C)s should be systematically approved by all Core TSOs and all Core NRAs, not just updated unilaterally by single TSOs, as laid out in the DA and ID CCMs. The review of CNE(C)s should also happen at regular and foreseen intervals rather than ad-hoc and possibly every month. We request that the Core TSOs apply the same requirements as in article 5 of the Core DA/ID CCMs.

Finally on article 7: an additional paragraph in the LTCCM should mirror the latest evolutions regarding the possible consideration of third-country CNECs proposed in the DA CCM (article 20.6a of the updated Core DA CCM proposal). As we suggested in reaction to this proposal in the DA CCM, the process of approving a new CNEC (or set of CNECs) for a third-country TSO should not be left to the discretion of that TSO. The same process of collective selection and approval as for Core TSO CNECs (see our comments on article 7.1) should apply here.

- **Article 8.1** *In accordance with article 13 of the FCA Regulation, Core TSOs developed the following methodology to determine the common GSK:*
 - a. *each Core TSO shall define for its bidding zone and for each timestamp a GSK, which translates a change in a bidding zone net position into a specific change of injection or withdrawal in the CGM. A GSK shall have fixed values, which means that the relative contribution of generation or load to the change in the bidding zone net position shall remain the same, regardless of the volume of the change;*

- b. *Core TSOs shall take into account the actual information on generation and/or load available in the common grid model for each scenario developed in accordance with article 19 of the FCA Regulation in order to select the nodes that will contribute to the generation shift key;*
- c. *each Core TSO shall aim to apply a GSK that resembles the dispatch and the corresponding flow pattern, thereby contributing to minimizing the flow reliability margins;*
- d. *Core TSOs shall define generation shift key for the calculation period. Each Core TSO is allowed to use one GSK for multiple timestamps;*
- e. *the Core TSOs belonging to the same bidding zone shall jointly define a common GSK for that bidding zone and shall agree on a methodology for such coordination. For Germany and Luxembourg, each TSO shall calculate its individual GSK and the Core CCC shall combine them into a single GSK for the whole German-Luxembourgian bidding zone, by assigning relative weights to each Core TSO's GSK. The German and Luxembourgian TSOs shall agree on these weights, based on the share of the generation in each Core TSO's control area that is responsive to changes in net position, and provide them to the Core CCC.*

Article 8.1 does not provide a harmonised methodology for GSKs, as required under article 13 FCA Regulation. Should TSOs think that local specificities prevent harmonisation of principles and methodologies, these specificities should be clearly explained. The addition of article 8.2 foreseeing a harmonisation of the methodology for GSKs in the future is not sufficient in relation to the FCA Regulation.

The addition of specifications for the determinations of GSKs in Germany and Luxembourg – basically allowing the TSOs or Germany on the one side, and Luxembourg on the other side, to unilaterally define their GSKs – contradicts the principle of article 8.1.e which initially states that the GSK in bidding zones covering multiple TSO areas shall be defined jointly. Considering that the German-Luxembourg bidding zone is the only one covering multiple TSOs, the principle of article 8.1.e seems void.

- **Article 9.1:** *Each Core TSO may define a set of available RAs, which is located in its control area. For transparency reasons, all Core TSOs have to be informed about this set of RAs in advance.*
and article 9.2: *Only the following RAs are considered:*
 - *opening or closing of one or more line(s), cable(s), transformer(s), bus bar coupler(s);*
 - *switching of one or more network element(s) from one bus bar to another;*
 - *transformer and PST tap adjustment.*

Article 9.1 leaves entire room to TSOs to define the set of available RAs in their control area, and article 9.2 openly excludes the consideration of costly remedial actions. We believe that costly remedial actions should be systematically considered in the capacity calculation, to the same extent that they are considered in the coordinated security assessment. Where economically efficient, costly remedial actions should be

taken in order to allocate the maximum of cross-zonal capacity to the market. Congestion “rents” and redispatch “costs” are both financial redistributions elements that should be considered on an equal footing in order to optimise regional welfare.

- **Article 9.5:** *The initial step of the common procedure is a comparison of calculation results by each Core TSO based on its best practice and experience on the combination of the results and the contingencies. This step is followed by improvement of calculation results based on a common set of coordinated remedial actions, in case a Core TSO decides in the initial step that the result is not in line with its best practice and experience.*

The process as described in this version of the methodology does not give a role to the coordinated capacity calculator (CCC), contrary to the previous version of the methodology. We welcome clarification by the TSOs whether this step has now been abandoned, and why. If not, all the steps should be clearly detailed in the methodology.

- **Article 10.3:** *In case of a considerable change, compared to the IGM for the ENTSO-E year-ahead reference scenario, in the grid of a Core TSO, this Core TSO shall update its IGM by incorporating the latest available information as regard to the generation pattern and topology (due to grid element commissioning or decommissioning), while the net position of the bidding zone is maintained unchanged when changing the generation pattern/topology. This updating process with the latest available data is performed in the month-ahead capacity calculation timeframe by Core TSOs as there is no such a process at ENTSO-E level.*

We think the scenarios to be used in the common grid model for the monthly capacity calculation should always be updated – i.e. not only in case of “considerable change”, a concept that is not defined and would likely be applied differently by each TSO. This would allow reflecting the latest changes in market fundamentals and topology, and hence improve the efficiency of monthly capacity calculation.

- **Article 14.2:** *The Core TSOs shall commonly define the minimum RAM factor (R_{amr}), i.e. a specific percentage value for calculation of minimum RAM in accordance with paragraph 4. The minRAM factor is subject to a regular review by all Core TSOs.*

We welcome the adoption of a minRAM concept in the LTCCM. We nonetheless insist that the definition of the minRAM factor (and its reviews) is approved by the Core NRAs.

- **Article 17.1.b:** *In accordance with article 15 of the FCA Regulation, referring to article 26 of the CACM Regulation, the Core TSOs shall have the right to correct long-term capacity relevant to the Core TSO's BZBs for reasons of operational security during the validation process. In exceptional situations long-term capacities can be reduced by all Core TSOs. These potential situations are at least: [...] b. when RAs, pursuant to TITLE 2:Article 9, that are needed to ensure the calculated capacity on all CNECs, are not sufficient;*

See our comments to article 9.1 and 9.2. Considering that the use of costly remedial actions is excluded from the methodology, it is likely that the validation process will quite often restrict the capacity initially calculated. The “exceptional situations” mentioned in article 15.1 are likely to occur very frequently.

- **Article 17.4:** *When the process of individual verification of the calculated capacities is completed, then the final capacity validation process takes place in a coordinated way, whereby Core TSOs may require a reduction in calculated capacities for reasons of operational security. When performing the steps of the validation, Core TSOs shall consider the operational security limits, but may also consider additional grid constraints, grid models, and other relevant information. Therefore, Core TSOs shall use the tools developed by the Core CCC for analysis but may also employ verification tools not available to the Core CCC.*

The possible application by individual TSOs of “additional grid constraints, grid models and other relevant information” – none of them defined in this methodology – as part of the validation process leaves far too much room to the TSOs for further restricting capacity. Elements that can restrict capacity should be included in the methodology, not left open for discretionary application at the end of the process by the TSOs.

Coming back to our initial comment on Recital 9 and the application of a flow-based methodology: by the time we have reached article 17 of the methodology, we are particularly doubtful that a flow-based approach would be “by default” more efficient than a cNTC approach. Indeed, the theoretical model sees the imposition of the following elements that are likely to skew a calculation that may have “by default” led to mathematical ideal results:

- Non-coordinated selection of CNE(C)s
- sensitivity threshold for PTDFs set at 5% without justification
- imposition of import and export limits
- non-harmonised methodology for GSKs
- exclusion of costly remedial actions
- uncertain grid models that are not updated frequently enough
- potential application of “*additional grid constraints, grid models, and other relevant information*” as part of the validation process

- **Article 20.5:** *The Core CCC shall issue a quarterly report on capacity validation to the Core NRAs after approval by the Core TSOs. In each quarterly report, the Core CCC shall provide all the information on the reductions of calculated capacity after coordinated validation of capacities according to Article 17(4). and article 20.6.*

We recommend making the report for all reductions made during the validation of cross-zonal capacity available to the public as well, for transparency reasons.