Annex 4 – Reasoning to proposed amendments to the CACM Regulation

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1. INTRODUCTION

(1) ACER has elaborated a new and improved structure of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management ('CACM Regulation'), whereby the different elements of the regulation would be structured into a number of new titles, chapters and sections:

- *TITLE I - GENERAL PROVISIONS*
- *TITLE II – ORGANISATION OF MARKET COUPLING & OF CAPACITY CALCULATION*
- *TITLE III – CAPACITY CALCULATION*
- *TITLE IV – MARKET COUPLING*
- *TITLE V – BIDDING ZONE REVIEW PROCESS*
- *TITLE VI - REPORTING & IMPLEMENTATION MONITORING*
- *TITLE VII - TRANSITIONAL AND FINAL PROVISIONS*

(2) The new structure attempts to ease the orientation in the document and to cluster the particular areas by their nature and, where possible, it follows a chronological order.

(3) The proposed amendments to the Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation ('SO Regulation') arose as a consequence of the CACM Regulation's amendment changes. These amendments and the content moved from the CACM Regulation to the SO Regulation, as presented in Section 9 below, will enjoy more synergies in the current framework of the SO Regulation. These amendments and moved content encompass data exchange provisions, common grid model, scheduling and redispatching and countertrading provisions. For more details on these amendments, please refer to the Annexes 2 and 5 to this Recommendation.

(4) The proposed amendments to the current CACM Regulation are assessed against the objectives of the network codes as set out in Art. 59(4) of the Regulation (EU) 2019/943 of the European Parliament and of the Council on the internal market for electricity ('Electricity Regulation').

2. TITLE I GENERAL PROVISIONS

(5) Following Protocol 1 to the EEA Agreement[1] (No 8 and 9), it is agreed that references to territories and to nationals of Member States for the purposes of the Agreement is to be understood to references also to the territories of the Contracting Parties (EU and EEA countries) and the nationals of the EFTA States.

(6) The changes recommended to the current CACM Regulation subsequently led to the changes in the definitions. For the purpose of consistency of definitions of Article 2 of the Electricity Regulation and the definitions of all the adopted Commission regulations adopted on the basis of Articles 6(11) and 18(5) of Regulation (EC) No 714/2009 have been taken as the definitions for the amended

[1] https://www.efta.int/sites/default/files/documents/legal-texts/eea/the-eea-agreement/Protocols%20to%20the%20Agreement/protocol1.pdf

CACM Regulation. Subsequently, some definitions were removed because they have been included in the Electricity Regulation (e.g. nominated electricity market operators, capacity calculation region) and some of the previously defined roles (e.g. coordinated capacity calculator, scheduled exchange calculator, shipping agent) were deleted, because as they are replaced by new entities (e.g. regional coordination centre) or integrated within other existing roles (e.g. market coupling operator, NEMO).

(7) Some definitions were moved to the SO Regulation (e.g. common/individual grid model, contingency) and proposed as new definitions in the amendments proposed there. Some new definitions are added to the CACM Regulation and the explanations for these additions stem from the changes introduced in the respective chapters (e.g. gate times; passporting; joint decision making body).

(8) For the explanations and reasoning of amendments of the qualified majority voting for joint all transmission system operator ('TSO') and all nominated electricity market operators' ('NEMOs') decision making (including the definition of all NEMOs' blocking minority and the division of vote percentage for more than one NEMO per Member State), please refer to the Initial Impact Assessment (Section 3.2.2.2 of Annex 3 to the Recommendation).

(9) For the explanations and reasoning of amendments on stakeholder involvement, please refer to the Initial Impact Assessment (Section 3.2.1.11 of Annex 3 to the Recommendation).

(10) For the explanations and reasoning of amendments of provisions for the publication of information, please refer to the Initial Impact Assessment (Section 3.2.1.9 of Annex 3 to the Recommendation).

(11) For the explanations and reasoning of amendments on delegation of tasks, please refer to the Initial Impact Assessment (Section 3.2.13 of Annex 3 to the Recommendation).

3. TITLE II ORGANISATION OF MARKET COUPLING AND OF CAPACITY CALCULATION

3.1. Designation of NEMOs

(12) For the explanations and reasoning of amendments of the designation and passporting provisions (including provisions on the continuation of existing monopolies), please refer to the Initial Impact Assessment (Section 3.2.1.1 of Annex 3 to the Recommendation).

3.2. Market coupling governance and organisation

(13) For the explanations and reasoning of amendments with regard to the market coupling organisation, please refer to the Initial Impact Assessment (Section 3.2.3.3 of Annex 3 to the Recommendation) and in particular the conclusions therein.

(14) The initial impact assessment recommends implementing a joint decision making body and qualified majority voting for the decision making regarding the MCO tasks and the establishment of a single legal entity for the development and performance of MCO tasks including the clearing and settlement. The legislative proposals in Annex I reflect these recommendations. However, as indicated in the initial impact assessment, some NRAs support other alternatives and if these would be followed the following changes would need to be applied in the proposed legal text:

(a) to accommodate the support of some NRAs for the independent decision making body and ownership unbundled MCO entity, this would require amendments of: Recital 15, Article 2(21), Article 4(8)(b), Article 10(15), Article 13, Article 14, Article 15, Article 17, Article 18, Article 22, Article 41, Article 60 and Article 64;

(b) to accommodate the support of some NRAs for centralised clearing and settlement but keeping all (or some) NEMOs responsible for the remaining MCO tasks, the following Articles would need to be amended: Recital 13, Recital 14, Recital 15, Article 2(20), Article 15, Article 16, Article 17 and Article 22: and

(c) to accommodate the support of some NRAs for keeping all (or some) NEMOs responsible for all the MCO tasks, the following Articles would need to be amended Recital 13, Recital 14, Recital 15, Article 2(20), Article 2(42), Article 14, Article 15, Article 16, Article 17, Article 22 and Article 45.

3.3. MCO tasks and responsibilities

(15) For the explanations and reasoning of amendments with regard to the definition of tasks and responsibilities of the market coupling operator ('MCO') and NEMOs with regard to the market coupling, please refer to the Initial Impact Assessment (Section 3.2.1.13 of Annex 3 to the Recommendation).

3.4. Costs

(16) For the explanations and reasoning of amendments with regard to the definition of tasks and responsibilities of the MCO and NEMOs and related costs, please refer to the Initial Impact Assessment (Section 3.2.1.7 of Annex 3 to the Recommendation).

(17) To align the provisions for TSO costs, costs related to the obligations imposed on the TSOs are broken down into common, regional and national costs as known from the current CACM Regulation and reported by TSOs on a yearly basis. The costs, after being assessed by the regulatory authorities, are to be shared among TSOs proportionally to their annual electricity consumption. TSOs shall recover those costs in a timely manner through network tariffs or other appropriate measures as decided by the respective regulatory authorities. ACER proposes to base the sharing key on the electricity consumption, as it is more in line with the economic principle of attributing costs to the beneficiaries of the market coupling. Moreover, such principle is also partly reflected in the current CACM Regulation, where the sharing key attributes 5/8 share of costs via consumption.

(18) Proper cost reporting and clear and efficient sharing rules are important to ensure a level playing field among NEMOs and TSOs. Using the sharing keys based on electricity consumption provides a transparent and non-discriminative principle that supports a well-functioning market and all the necessary developments, as well as it fosters effective competition.

4. TITLE III CAPACITY CALCULATION

4.1. Capacity calculation regions ('CCRs')

(19) The requirements and criteria for the determination of capacity calculation regions were specified in the current CACM Regulation. These criteria and provisions are amended in order to take into consideration the accomplished tasks of application of the CCR resolution, and to define further objectives and plans. In this context, overall economic efficiency of capacity calculation, capacity allocation and regional operational security coordination in all timeframes should be understood as

the capability to deliver maximal physically achievable cross-zonal capacity (with the lowest level of reliability margin), while minimising administrative costs of such processes.

(20) The current CCR configuration encompasses certain CCR (e.g. Hansa CCR) aimed to separate the CCRs belonging to different synchronous areas. This is creating difficulties in properly assigning the bidding zone borders to the different regions and provides additional complexity in coordination and administration. At regional level, this issue has been solved by proposing the so-called advanced hybrid coupling in the respective capacity calculation region, which is to take into account the flows on the interconnectors belonging to one CCR in the flow-based allocation process of the neighbouring CCR. The new formulation provides the legal basis for this solution, by explicitly allowing borders connecting different synchronous areas (or exceptionally, two parts of the same synchronous area with low-meshed network) to be included in two CCRs. By adding this possibility, the merger of flow-based regions in different synchronous areas is no longer needed.

(21) In order to simplify the governance of large regions, a specific treatment of the TSOs operating the network on the opposite side of an interconnector where advance hybrid coupling would be applied is introduced: the TSO with internal elements connecting end consumers shall stay in the CCR where its internal elements are taken into account; TSOs not connecting end consumers (i.e. the TSOs operating only the interconnector) shall stay in both CCRs.

(22) A paragraph is added to address the amendments needed following a bidding zone review.

(23) The proposed amendments are contributing to market integration, effective competition and efficient functioning of the market since they allow for more efficient use of cross-zonal capacities and more reliable price signals for addressing both congestions and the development of new infrastructures while they also unburden the process for effectively improving the integration of markets. The criteria and rules for the CCR determination are based on non-discriminatory principles.

4.2. General requirements

(24) General provisions on capacity calculation are re-structured, compared to the current CACM Regulation, and put under a common article on general capacity calculation provisions. This Article includes the capacity calculation timeframes and introduces the share of responsibilities among the TSOs of a CCR and the corresponding regional coordination centre (RCC), including individual and coordinated validation and data quality.

(25) Some provisions in the current CACM Regulation depict an old target model, with references to regions that are now merged and with references to specific agreement with third countries limiting the developments and processes within the EU. Therefore, ACER introduced amendments, which are needed to reflect the current state of art and updates the status of third countries, while taking into account the most recent developments introduced by the Electricity Regulation:

a. The dependencies of processes within the EU on the developments in third countries (such as their readiness to apply market coupling) are substituted by a provision allowing to take into account flows with third countries in the capacity calculation processes and in ensuring the minimum capacity target pursuant to Article 16(8) of the Electricity Regulation.

b. The provision in the current CACM Regulation regarding mergers of flow-based CCRs are no longer relevant as the CWE and CEE regions were already merged into the Core, while the further merging depends on the specific treatment of third countries flows (e.g. Switzerland in relation to both Core and Italy North or SEE CCR with respect to the Balkans countries).

Such merging of the regions would result in a circular setup that shall be carefully evaluated from the technical perspective before proposing a flow-based approach for merged CCRs.

(26) More specific criteria are provided to allow the use of coordinated net transmission capacity (‘cNTC’) approach. The cNTC approach may be used if the flows on a specific border are not significantly impacted by other flows outside or within the same region: this allows to keep the cNTC approach in cases of purely radial topology of the network, but foresees the need to move to flow-based approach for more complex and meshed configurations.

(27) The proposed amendments are reducing barriers for further market integration, improve the efficient functioning of the market through a more efficient capacity calculation process and are non-discriminatory.

4.3. Capacity calculation methodologies (‘CCMs’)

(28) To improve the overall clarity, ACER included provisions on the development of the CCMs, including the description of the main elements and the frequency of their review. Each CCM shall include rules complying with the provision of minimum cross-zonal capacity targets, pursuant to Article 16(8) of the Electricity Regulation.

(29) ACER introduced more detail to the methodologies on the inputs to the capacity calculation. In particular, ACER introduced a methodology that determines the rules for the optimisation of at least non-costly remedial actions, as well as rules for determining the capacity calculation outputs for non-costly remedial actions to be optimised in capacity allocation.

(30) The provision of the current CACM Regulation requesting the harmonisation of CCMs is kept, nevertheless expecting a single proposal for flow-based and a single proposal for cNTC-based methodologies to be submitted by 31 December 2025.

(31) A link between the intraday capacity calculation and the frequency of the intraday implicit auctions is explicitly introduced: capacity shall be either updated (for the first intraday auction) or recalculated for subsequent intraday auctions. The capacity calculation output from the cross-zonal capacity update or recalculation shall be directly provided to the MCO for allocation in the intraday auctions and then the remaining capacity offered for continuous trading.

(32) Regarding the reliability margin, in the current CACM formulation, the reliability margin covers the inaccuracy in modelling and calculation. Nevertheless, based on experience with implementing the capacity calculation methodologies, ACER finds it beneficial to be more specific and to add linearisation error as part of the reliability margin.

(33) The current CACM Regulation provides the calculation of reliability margin per border for the cNTC approach, and per critical network element for the flow-based approach. The Option 1 proposed by ACER imposes to calculate the flow reliability margin for each critical network element regardless of the capacity calculation approach, i.e. the flow reliability margin shall be evaluated also in a cNTC environment. This enables the monitoring of the 70% target on each critical network element pursuant to the requirements of Article 16(8) of the Electricity Regulation, and also aligns the level of information provided from flow-based and cNTC regions. The Option 2 keeps the existing way of representing the reliability margin.

(34) The methodologies for critical network elements, contingencies and operational security limits are aligned with the relevant requirements of the Electricity Regulation. Namely, the CCM shall include a methodology to define the critical network elements to be considered in the capacity calculation

and this methodology needs to ensure that network congestion problems are addressed in accordance with Article 16(1) of the Electricity Regulation and the SO Regulation. Moreover, the operational security limits and contingencies and contingency lists are defined pursuant to the SO Regulation.

(35) Allocation constraints are addressed in a separate article that includes more detailed requirements for their use, in order to ensure a fair treatment of such constraints across Europe. In particular, allocation constraints shall be demonstrated to be the most efficient measure among all the alternatives for representing the operational security issues. The ultimate goal of such a requirement is to relieve the markets of inefficient constraints that negatively affect the overall social welfare and hamper market competition. Every three years, TSOs shall submit a specific cost-benefit analysis to regulatory authorities.

(36) Compared to the current CACM Regulation, the principles that determine the shift keys are generalised, to explicitly include the possibility to use both generation and load in the shift keys.

(37) The remedial actions to be used in the capacity calculation process shall be defined by each TSO based on their expected availability, with the possibility to exclude load shedding, those remedial actions required to ensure real-time operational security and those remedial actions potentially provided to another CCR.

(38) The use of remedial actions in the capacity calculation and validation is extended to include both non-costly and costly remedial actions, if required to fulfil the minimum capacity requirement pursuant to Article 16(8) of the Electricity Regulation;

(39) The coordination of the remedial actions application in capacity calculation to be applied by each RCC is linked with the remedial actions coordination within the regional operational security coordination process.

(40) The proposed amendments are improving market integration, effective competition and efficient functioning of the market since they allow for more efficient use of cross-zonal capacities by improving and specifying several provisions of the capacity calculation process. Further, the proposed amendments increase the transparency of the capacity calculation process and increase non-discrimination by ensuring equal treatment among all CCRs through the clarification of the requirements for the capacity calculation process.

4.4. Capacity calculation process

(41) Based on experience gained in the implementation of the capacity calculation methodologies, ACER proposes adding certain common principles to both flow-based and cNTC approaches in order to facilitate the 70% rule matching and monitoring. Moreover, the role of RCC in capacity calculation is defined to comply with the Electricity Regulation. The changes in the capacity calculation chapter address the aforementioned common principles and the role of RCCs as the parties responsible for regional capacity calculation is included in the proposal.

(42) To enable more efficient capacity calculation process, regional calculation of cross-zonal capacity enables the CCMs to entitle RCCs to define capacity calculation inputs.

(43) The treatment of non-costly remedial actions used directly in the capacity allocation has been defined, as they will not be optimised during the capacity calculation process.

(44) The application of the load flow solution for obtaining flows calculated on the basis of the common grid models ('CGMs') has been defined with AC load flow as the main solution (subject to an efficiency and feasibility analysis) and the DC load flow as a fallback.

(45) ACER introduces a step-by-step procedure of flow-based capacity calculation. Compared to the current CACM Regulation, it provides more concrete calculation steps, changes in treatment of remedial actions, and facilitates the 70% capacity target's matching and monitoring. The step-by-step flow-based calculation procedure is illustrated in the Appendix below.

(46) Similarly, a step-by-step procedure of cNTC-based capacity calculation is introduced. Compared to the current CACM Regulation, it provides more concrete calculation steps and facilitates the 70% capacity target's matching and monitoring, aligning this monitoring with the flow-based approach where possible, while keeping certain advantages of the cNTC approach, such as the possibility for application of the AC load flow to calculate the maximum exchange. The step-by-step cNTC-based calculation procedure is illustrated in the Appendix below.

a) Option 1 requires monitoring of all critical elements with contingencies, and also includes the update of CGM with applied remedial actions;

b) Option 2 requires monitoring of at least limiting critical elements with contingencies.

(47) The role of RCCs is to be the responsible entity for the coordinated validation, in coordination with the corresponding TSOs. Moreover, the draft sets out the obligations and rules for the individual validation of cross-zonal capacities by TSOs and their consideration by RCCs.

(48) The reporting on cross-zonal capacity validation is introduced as a periodical (quarterly) obligation and all capacity reductions made during either coordinated or individual validation shall be reported. As the minimum requirements, the information on the location, volume and reasons for the reductions are listed.

(49) The proposed amendments are ensuring a fair and orderly access to the cross-zonal capacity, promoting competition and efficient use of transmission infrastructure and establishing clear, non-discriminatory requirements and responsibilities for the capacity calculation process. Hence, these amendments support market integration, effective competition and efficient functioning of the market.

5. TITLE IV MARKET COUPLING

5.1. Market coupling development

(50) The target model for market coupling of the current regulation envisages implicit auctioning with a single price per bidding zone in the day-ahead timeframe and continuous trade with continuous capacity allocation in the intraday timeframe. Due to an increasing complexity in computing results of the day-ahead auction (wide range of complex products and the introduction of quarter-hourly products, geographical extension, flow-based allocation and other demanding functionalities), the day-ahead algorithm reaches its limits in terms of performance. The target solution of continuous allocation of cross-zonal capacity was not found as a technically feasible solution and it was agreed to use intraday implicit auctions to complement the continuous trading.

(51) In the day-ahead timeframe, the current draft introduces the possibility to use so-called non-uniform pricing, which would allow the inclusion of paradoxically accepted bids (i.e. out of money bids) in the coupling results. Such a new approach would significantly relieve the pressure on the

performance and slightly increase the EU welfare. Nevertheless, the paradoxically accepted bids need to be covered by a minimum amount of side payments. The definition of the (reference) clearing price was amended in order to cover both pricing mechanisms.

(52) The objective of the algorithms using implicit auctioning, i.e. the use in the single day-ahead coupling ('SDAC') and intraday auctions, is to maximize the economic surplus, while respecting the constraints given by the capacity calculation outputs and submitted orders and following the principles of scalability, repeatability and provision of an efficient price signal.

(53) In the intraday timeframe, the new target model established by the Regulation 2019/943 is introduced, i.e. continuous trading complemented by implicit intraday auctions.

5.1.1. Timings and procedures

(54) In order to provide the needed flexibility for the coupling processes and procedures, as well as to decrease the bureaucratic burden and to provide more transparency, the DA and ID 'timings and procedures' are introduced. These timings and procedures encompass the core functioning of the DA and ID markets by determining the timings used in coupling (e.g. the gate closure and gate opening times, deadlines for delivery of results etc.) and the procedures (e.g. normal operation, back-up, fallback, etc.).

(55) The timings and procedures merge together several terms and conditions or methodologies that used to be separate – the back-up, fallback, intraday gate opening and closure times – to create a comprehensive overview of the whole coupling process. One proposal containing the back-up and fallback procedures utilises the new governance structure, where the NEMOs and TSOs cooperate and design the proper procedures together, preventing a possible decoupling and limiting the negative effects of decoupling once it occurs.

(56) The firm timings (11:00, 15:30 D-1) were removed from the Regulation to enable all NEMOs and all TSOs to determine fully functional coupling, back-up and fallback procedures in the timings and procedures proposal. Without these timing restrictions, the proposal can utilise the benefit of granting all the crucial processes sufficient time (algorithm calculation time, back-up…), which is needed for the algorithm to find a solution and which can prevent decoupling in case of unexpected events.

(57) The timings and procedures also describe the timings and operation of intraday auctions that allow for the pricing of intraday capacity and their interaction with continuous trading. Moreover, the timings and procedures need to prevent parallel allocation of cross-zonal capacity in intraday auctions and continuous trading, which could lead to double allocation of the same capacity. In order to secure safe interaction of continuous trading and intraday auction, two options of suspension of the continuous trading have been discussed (below). The duration of the suspension is to be determined by the intraday timings and procedures.

- Option 1: This option requires the entire continuous trading to be suspended for the necessary duration to enable the organisation of intraday auctions. This implies that also national continuous trading shall be suspended. By this, the option would ensure that all liquidity is streamlined to the respective intraday auctions leading to efficient price signals for the intraday timeframe,

- Option 2: This option requires cross-zonal trade within the continuous trading to be suspended for the necessary duration to enable the organisation of intraday auctions. This allows for parallel national continuous trading (with different products only available in the continuous market) during the intraday auctions and market participants ability to choose on where to place their bids.

(58) Neither of the two options have any impact on competition between NEMOs as the sharing of order books would also apply to the parallel national continuous trading. The options only vary with regard to the question on where to allocate market liquidity.

(59) To utilise the maximum potential of the market coupling in terms of welfare, the NEMOs shall not organise trading outside the SDAC from the SDAC gate opening time until the SIDC gate opening time with the day-ahead products and, similarly, in single intraday market ('SIDC') from the SDAC gate opening time until the continuous trading closure time with intraday products.

(60) The combination of the possibility to choose the pricing mechanism and the introduction of the flexible timings and procedure significantly reduce the chance of failure of coupling and supports an efficient functioning of the market, as well as the market integration. A common governance of the market coupling prevents a discrimination among NEMOs and TSOs, while the effective competition and non-discrimination of market participants is secured by the anonymous handling of submitted orders and a principle that secures equal treatment of local and cross-zonal trades.

5.1.2. Scheduled exchanges

(61) In the current CACM Regulation the scheduled exchanges methodology is considered a regional methodology proposed by TSOs, while the approved methodology is applicable for all TSOs, operationally mainly applied by the coupling algorithms and also addressing the scheduled exchanges between NEMO trading hubs.

(62) Therefore, the scheduled exchanges methodology is transformed from regional TSO's proposal into all NEMOs' and all TSOs' proposal to overcome the issues that arose in the past (regional TSOs propose methodologies for scheduled exchanges and NEMOs calculate them). The governance is clarified and NEMOs and TSOs jointly propose the methodology, while the MCO shall perform the calculation. The inputs into the calculation were specified in more detail.

5.1.3. Congestion income collection and distribution & Clearing and settlement

(63) The current Regulation assigns generically to the TSOs the task of distributing congestion income, without specifying how the task should be performed by the TSOs, and establishes an indivisible obligation on several entities. For further information on difficulties related to regulatory oversight, please refer to the Initial Impact Assessment (Section 2.7 of Annex 3 to the Recommendation).

(64) In the current proposal, collection and distribution of congestion income is assigned to the MCO in line with the purpose of creating a one-stop-shop. However, the congestion income distribution methodology remains an all TSOs' methodology, since it addresses how the collected congestion income is distributed and therefore has the main impact only on TSOs.

(65) The current legal framework for clearing and settlement is not consistent (CACM Regulation, Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing ('EB Regulation'), SO Regulation) and at the same time does not set any common minimum requirements on the entities participating in clearing and settlement in the EU. This entails a risk of creating an uneven playing field affecting competition between both NEMOs and market participants as similar transactions are not subject to the same requirements and the resulting costs to provide the necessary (but different quality) services differ.

(66) A new methodology was introduced for all NEMOs and TSOs to develop requirements for clearing and settlement in the day-ahead and intraday electricity markets to ensure that a set of common standards is established. This methodology assumes that clearing and settlement is organised in a centralised way between each NEMO and MCO (whereas MCO is allowed to delegate this task to a third party). Some NRAs support centralised clearing and settlement but without supporting the establishment of the MCO entity – in such case a specific centralised entity would be designated only for clearing and settlement. Some other NRAs support that clearing and settlement remains decentralised as today (i.e. each NEMO settles with each other NEMO). In both of above alternatives the article introducing the new methodology would have to be slightly amended.

(67) To accommodate the new provisions on clearing and settlement, a set of definitions has been amended and some terminology changed to align with the SO Regulation and the EB Regulation.

(68) The MCO and the NEMOs shall not be allowed to charge each other cross-clearing fees in order to ensure level playing field among them. If any such fees were introduced, they would cause an uneven situation, in which NEMOs with a specific geographical position, higher/lower fees, specific cost recovery mechanisms and specific national tax conditions could be discriminated.

(69) The proposal promotes market integration, as it sets common minimum requirements for clearing and settlement and balance responsibility on the entities participating in the EU framework. Moreover, it ensures non-discrimination, since the same rules apply to all NEMOs across EU. The proposal promotes effective competition as the cross-clearing fees are prohibited. The proposal facilitates the efficient functioning of the market as it streamlines post-coupling activities

5.2. Market coupling operation

(70) To improve the orientation in the structure, the operation of the SDAC and SIDC is described in three Articles (pre-coupling, coupling, post-coupling) for each process (SDAC, intraday auctions, continuous trading). Moreover, this structure divides the tasks, which are regulated (the MCO; i.e. the coupling sections) and individual (NEMOs, market participants etc.; i.e. the pre- and post-coupling sections).

(71) To enable pricing of cross-zonal capacity in the intraday timeframe, the continuous trading will be complemented by intraday auctions, in compliance with the Regulation 2019/943.

(72) The process of providing inputs to coupling was amended to the new capacity calculation scheme that requires the RCCs to submit inputs directly to the MCO instead of to all NEMOs.

(73) In order to make the time used for coupling processes more flexible, the verification of coupling results by TSOs (RCCs) and NEMOs became an optional feature.

(74) For the explanations and reasoning of amendments on the NEMOs and (potentially) the MCO acting as balance responsible parties and central counterparties, please refer to the Initial Impact Assessment (Section 3.2.4 of Annex 3 to the Recommendation).

6. TITLE V BIDDING ZONE REVIEW PROCESS

6.1. Changes to bidding zone review procedure

(75) The current CACM Regulation is not coherent with the updated provisions for the bidding zone review process described by Article 14 of the Electricity Regulation and is revised accordingly. Other changes are also needed in order to improve and simplify the review procedure.

(76) The initiative to launch a review from ACER or regulatory authorities is harmonised such that this initiative come from the technical report issued by ENTSO-E. For this reason, ACER recommendation to regulatory authorities to launch a review is no longer needed.

(77) The concept of "relevant" TSOs, regulatory authorities and Member States is introduced in order to include all those located within the capacity calculation region of the participating TSOs, as prescribed by the Electricity Regulation.

(78) In case a bidding zone review is launched at national level by a single TSO or regulatory authority pursuant to Article 32(1)(d) of the current CACM Regulation, only the participating regulatory authority and the participating Member State are entitled to approve the methodology, assumptions, alternative bidding zone configurations and the final bidding zone configuration. This concept is preserved and further clarified regarding the coordination required with neighbouring TSOs and regulatory authorities.

(79) The timeline of the bidding zone review process is aligned with the Electricity Regulation. The TSOs are given three months to submit the proposal for methodology, assumptions and alternative bidding zone configurations, the regulatory authorities are given three months to adopt a decision and ACER becomes competent to adopt a decision in case no agreement is reached among regulatory authorities. The review needs to be completed within 12 months after the approval by the regulatory authorities or by ACER;

(80) The final decision on the bidding zone configuration is left to Member States or their designated competent authorities. The Commission becomes competent in in case no agreement is reached within six months. The content of the decision foresees the timeline for implementation and appropriate transitional arrangements.

(81) To ensure transparency towards market participants, while allowing for an efficient and timely bidding zone review process, a two-tier stakeholder involvement is organised. To minimise the delays during the review, the stakeholders are involved via regular stakeholder involvement (such as regular stakeholder committee meetings) instead of formal public consultation. The formal stakeholder consultation is performed only at the end when a final report is provided to Member States and this report includes all relevant elements for consultation, including methodology, assumptions, alternative configurations, review results and TSOs' recommendation. This consultation is combined with the consultation that needs to be organised by the Member States in accordance with Article 14 of Electricity Regulation. In this way a balance is reached between a timely process and proper stakeholder involvement.

(82) The clarification is added that the bidding zone review pursuant to CACM Regulation is without prejudice to the review triggered by an individual Member State or its competent authority pursuant to Article 14(7) of the Regulation 2019/943 adopting a decision whether reviewing the bidding zone configuration or establishing action plans within six months from the receipt of report identifying structural congestions.

6.2. Changes to criteria for bidding zone review

(83) The bidding zone review processes completed so far according to the CACM Regulation and the ongoing review pursuant to Electricity Regulation has also shown the need to reformulate some criteria reported in Article 33 of the current CACM Regulation in order to improve the effectiveness of the associated indicators. The amendments further aim to create a level playing field for all the reviews to be launched in the coming years.

(84) Based on the Electricity Regulation's provisions, ACER introduces principles that: include the general principles for the bidding zone review as reported in Article 14(3) of the Electricity Regulation; align the number of years for considering projects in the reference scenario to the three years scope; refer to Article 16 of the Electricity Regulation when referring to the maximisation of cross-zonal capacity; clarify the criteria of network security by separating the ability to ensure operational security with or without remedial actions; ensure that a bidding zone configuration facilitates the energy transition target in an efficient way; and streamline some criteria (to minimise overlaps) following the experience with the recent approval of the pan-European bidding zone review.

7. TITLE VI REPORTING AND IMPLEMENTATION MONITORING

7.1. Reporting on market coupling

(85) For the explanations and reasoning of amendments with regard to the introduction of a biennial report on market coupling, please refer to the Initial Impact Assessment (Section 3.2.1.10 of Annex 3 to the Recommendation).

7.2. Reporting on capacity calculation

(86) With regard to the biennial report on capacity calculation and allocation, the current CACM Regulation does not define a proper role for the RCC in preparing the report. The amendments propose a more efficient procedure to develop such report (being published by ACER), with the explicit involvement of RCCs. For this, each RCC shall draft a report on capacity calculation and submit it to ENTSO-E. ENTSO-E shall then compile all reports received and complement it with reporting on the capacity allocation.

(87) The proposed amendments positively contribute to the objectives of the network codes, as proper reporting is fundamental to promote efficient market integration, an effective competition and a proper level of transparency towards all the involved parties.

7.3. Reporting on bidding zone configuration

(88) The current CACM Regulation provides for the assessment of the efficiency of the existing bidding zone configuration in three steps: first, ACER requests ENTSO-E for a technical report, then ACER prepares a market report and, based on both reports, ACER assesses the efficiency of bidding zone configuration.

(89) In the first step, the technical report does not any more require explicit request from ACER. The second step is reframed such that the need for explicit market report on existing bidding zone configuration prepared by ACER on the basis of this technical report has been removed, since ACER is performing this task as part of general obligation on monitoring the internal electricity market pursuant to Article 15(1) of the ACER Regulation. The explicit reference to the market report would imply that this report cannot be part of the wider monitoring exercise performed by ACER. However, the need for ACER to assess the efficiency of the bidding zone configuration has been preserved.

(90) Regarding the technical report, several clarifications are recommended. First, the requirements on the assessment of cross-zonal capacities, a flow decomposition (using the prevailing flow-decomposition method) and the volumes of remedial actions have been added.

(91) With regard to reporting on structural physical congestion, the past reports have shown a significant variation among TSOs on how this data has been reported. While some TSOs reported on congestions which are occurring only very frequently, other TSOs were reporting data on almost all congestions, including those occurring rarely. With this respect, ACER identified two options:

Option 1: To define a threshold for frequency of occurrence when reporting on structural congestion. This threshold is proposed to be 2%, which means that only physical congestions, which occur more than 2% of times would be reported in this report. The level of 2% is based on the experience that some bidding zones have internal (commercial) structural congestion (i.e. congestion inside the zone occurring frequently) but this frequent congestion occurs due to very different physical congestions on network elements, which themselves could be infrequent. Thereby, even though a bidding zone may be frequently (commercially) structurally congested, each individual network element contributing to this commercial congestion may be physically congested much less frequently. In other words, the frequency of commercial structural congestion in a bidding zone is the sum of frequencies of physical congestions of all network elements causing the commercial congestion.

Option 2: No inclusion of a threshold to report structural congestion. In this case, it would be up to TSOs to decide which congested network elements are being reported.

7.4. Implementation monitoring

(92) For the explanations and reasoning of amendments with regard to the introduction of a biennial report on market coupling, please refer to the Initial Impact Assessment section 3.2.1.10.

8. TITLE VII TRANSITIONAL AND FINAL PROVISIONS

(93) The transitional intraday arrangements and the transitional provisions for Ireland and Northern Ireland were deleted and replaced with a single article specifying the transition from the existing complementary regional auctions towards (EU) intraday auctions.

(94) The changes in Article 84 relate to requirements on changes from the existing to the new regulation. In this regulation, the articles on terms, conditions and methodologies have been generalised and do not include a deadline. This is to prevent that when the deadline has passed the applicability of the article becomes unclear. Because entities responsible for providing the methodologies need time to provide new methodologies after the entry into force, these deadlines have now been included as a separate paragraph in Article 84.

9. PROVISIONS MOVED TO SO REGULATION

9.1. Generation and load data provision

(95) Article 16 of the current CACM Regulation provides requirements for the generation and load data provision. These requirements provide a legal basis for TSOs to request generation and load data from generation and load units which may be needed for the creation of individual and common grid models used for capacity calculation. Currently only some TSOs rely on this data for the creation of the common grid model, whereas some other TSOs rely on their internal forecasts instead.

(96) The content of this article has the same scope as Title 2 of Part 2 in the SO Regulation governing requirements on data exchange. In particular, Articles 40, 46 and 52 govern the data exchange

between generation and load facilities and TSOs requesting the same data as Article 16 of the current CACM Regulation, namely for the creation of individual and common grid models, but for a different purpose and different timeframe. In order to minimise the number of different legal obligations governing the same or similar requirements, ACER recommends to integrate Article 16 of the current CACM Regulation into Title 2 in the SO Regulation by expanding these provisions to include also the data required for the creation of individual and common grid models for capacity calculation. This merger provides more simple and transparent legal framework for generation and load facilities regarding the requirements for data delivery to TSOs.

9.2. Common grid model and scenarios

(97) Articles 17, 18 and 19 of the current CACM Regulation provide requirements for the common grid model, scenarios, and the individual grid model. These provisions require the TSOs to create the individual grid model, the common grid model for capacity calculation and to coordinate in this process.

(98) The content of these three Articles has the same scope as Title 1 of Part 3 in the SO Regulation governing requirements on data for operational security analysis in operational planning. In particular, Articles 64 and 70 of the SO Regulation govern the creation of the individual and common grid models in the day-ahead and intraday timeframe for operational security analysis in operational planning. In order to minimise the number of different legal obligations governing the same or similar requirements, ACER recommends to integrate Articles 17 to 19 of the current CACM Regulation into Title 1 of Part 3 in the SO Regulation by expanding these provisions to include also the requirements for the creation of individual and common grid models for capacity calculation for the day-ahead and intraday timeframe. This merger provides more simple and transparent legal framework for the creation of common grid models. There are three approved common grid model methodologies, one for the current CACM Regulation, one for the SO Regulation and one for the Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation ('FCA Regulation'). These three methodologies are largely the same, which is why ACER recommends to merge these three methodologies into a single one in order to minimise unintended differences and inconsistencies among them.

(99) Articles 17, 18 and 19 of the current CACM Regulation represent a legal basis for the creation of the common grid model in the forward timeframe pursuant to FCA Regulation. The removal of these Articles without replacement from the current CACM Regulation would, therefore, create a legal void. To avoid such a situation, ACER recommends that also the provisions of the FCA Regulation regarding the common rid model are integrated into Title 1 of Part 3 in the SO Regulation. Thereby, Articles 65, 66 and 67 of the SO Regulation have been amended to include also the provisions regarding the common grid model for the forward timeframes. In this way, the common grid model provisions from the FCA Regulation are fully integrated in the amended SO Regulation and these provisions can be deleted in the FCA Regulation, once the FCA Regulation is amended.

9.3. Redispatching and countertrading coordination and cost sharing

(100) Articles 35 of the current CACM Regulation provides requirements for the coordination of redispatching and countertrading actions. This is complemented by Articles 74 of the CACM Regulation that provides requirements for the sharing of costs of redispatching and countertrading actions activated in a coordinated way.

(101) The content of these two Articles has the same scope as Article 76 of the SO Regulation governing requirements on regional operational security coordination, which includes also the requirements on coordination and cost sharing of remedial actions. As redispatching and countertrading actions are a subset of remedial actions to be governed by Article 76 of the SO Regulation, in the absence of Articles 35 and 74 of the current CACM Regulation, Article 76 of the SO Regulation would already include coordination and cost sharing of redispatching and countertrading actions. It is only because these two Articles already existed at the time of the adoption of the SO Regulation that Article 76 of the SO Regulation requires that it complements, where necessary Articles 35 and 74 of the current CACM Regulation. Nevertheless, Article 76 of the SO Regulation provides a more comprehensive and holistic legal framework for coordination and cost sharing of all remedial actions (not just redispatching and countertrading actions). In contrast, keeping Articles 35 and Article 74 of the current CACM Regulation and Article 76 of the SO Regulation as separate, provides a high risk of creating an inconsistent legal framework on a process that is ultimately the same. Describing the same process in different legal provisions is not a good legal practice.

(102) For this reason, ACER proposes to remove Articles 35 and of the current CACM Regulation and instead integrate them into Article 76 of the SO Regulation.

10. PROVISIONS REMOVED FROM THE CACM REGULATION

(103) The provisions setting out the complementary regional intraday auctions are deleted, as the EU-wide intraday auctions provide an efficient tool for pricing the intraday cross-zonal capacity. As the intraday auctions can fully substitute the regional auctions, the rationale for the regional auctions will not exist anymore.

(104) The transitory possibility of the current CACM Regulation to explicitly allocate cross-zonal capacity in the intraday timeframe is deleted. The existence of fully functioning intraday market, i.e. the continuous trade complemented by implicit intraday auctions provides the market participants with all the necessary access to cross-zonal capacity and the explicit allocation becomes obsolete as a sub-optimal approach to capacity allocation.

(105) The arrangements concerning more than one NEMO in one bidding zone are deleted. By changing the coupling granularity to NEMO trading hubs, these national agreements can be abolished as each NEMO trading hub can interact with another on its own and independently of bidding zone or regional arrangements.

11. AREAS NOT TACKLED BY THIS RECOMMENDATION

11.1. Application of the CACM Regulation to third countries

(106) Article 1(4) and (5) of the current CACM Regulation specify the conditions under which the single day-ahead and intraday coupling may be opened to market operators and TSOs operating in Switzerland. While this article may be sufficient to cover the treatment of Switzerland regarding the single day-ahead and intraday coupling, it does not explain how access of Switzerland to capacity calculation is treated. It also does not explain how access of other third countries to EU capacity calculation and allocation is governed.

(107) For this reason, ACER asks the Commission to explain in more details the legal framework under which all (or specific where necessary) third countries are allowed to participate in the capacity calculation and in the single day-ahead and intraday coupling within EU.

11.2. Application of minimum capacity targets

(108) The recommendation provides concrete proposals about how the provisions of Article 16(8) of Electricity Regulation on minimum capacity targets are transposed into capacity calculation. However, some problems remain unaddressed as the intention of the legislator is not clear.

(109) The first problem is the application of Article 16(8) of Electricity Regulation to the intraday timeframe. This article does not specify in which timeframe the minimum capacity requirements need to be respected. While ACER, all TSOs and all regulatory authorities agree that they should apply to the day-ahead timeframe, their application to intraday timeframe is disputed by some TSOs and regulatory authorities. The reason for such dispute is that in many regions, TSOs can achieve these targets only with an extensive application of remedial actions. Offering minimum capacities in the day-ahead is not problematic, because TSOs have sufficient time after the closure of the day-ahead market to apply remedial actions. However, the same is not true for the intraday timeframe, which closes one hour before delivery and if all minimum capacities are utilised, TSOs do not have sufficient time to apply the necessary remedial actions.

(110) For the above reasons, some TSOs and regulatory authorities argue that minimum capacity requirements should not apply for the intraday timeframe as they cannot be met in regions which rely on remedial actions to achieve these targets. Some regulatory authorities argue the opposite that minimum capacity requirements should apply to the intraday timeframe as well, since the application of redispatching to tackle structural congestion problems should only be a transitional solution. They also expressed concerns that without minimum capacity targets in the intraday timeframe there would very often be zero intraday capacities in the whole region and this would effectively stop the cross-border intraday trading and prevent efficient integration of renewables to the internal market for electricity.

(111) Given the above, ACER invites the Commission to look into this problem and proposes a solution that would address the underlying concerns, i.e. to provide a transitional period in which intraday capacity targets could be relaxed in order for each Member State to finish its action plans and in order to stop relying on redispatching to achieve minimum capacity targets.

(112) The second problem is the question whether the physical flows arising from cross-zonal exchanges with third countries count as being part of the margin available for cross-zonal trade pursuant to Article 16(8) of the Electricity Regulation. In particular, there are very different arrangements for capacity calculation and allocation with third countries in place. Sometimes, capacity calculation with third countries is coordinated at wider regional level, whereas at other times it is not. Similarly, in capacity allocation some trade with third countries is based on capacity allocation with similar access rules as within the EU, whereas some other trade is based on long-term bilateral contracts without third party access. Some NRAs argue by implication of Article 16(8) subparagraph 2 of the Electricity Regulation that third country flows are to be taken into account in the margin available, as they differ from reliability margin, loop flows, and internal flows. Given the wide variety of the arrangements with third countries, ACER asks the Commission to clarify how the physical flows arising from cross-zonal exchanges with third countries should be taken into account in the margin available for cross-zonal trade pursuant to Article 16(8) of the Electricity Regulation.

11.3. Market Coupling Operator fee

(113) The Recommendation defines all costs related to MCO tasks and joint decision making body as costs to be assessed by all NRAs, shared among TSOs only and then subsequently recovered via network tariffs. However, ACER and NRAs also explored options how part of these costs could also be allocated to NEMOs and passed through to their market participants as part of the trading

fee. This option would better reflect the fact that benefits of market coupling are directly on market participants and only indirectly on consumers.

(114) ACER invites the Commission to explore the option of setting an MCO fee to be paid by NEMOs proportionally to their traded/cleared volume in the SDAC and SIDC, which would recover a part of the eligible MCO costs. The income collected through such fee would offset the costs that would need to be borne by the TSOs. Such a fee could be set by the Commission (similar to the REMIT fee), deciding implicitly on the approximate part of MCO costs put directly on NEMOs. As the legal framework around the establishment of such a fee would be rather complex, ACER considers the Commission would be best placed to develop it.

11.4. Enforcement of MCO entity

(115) This Recommendation provides proposals for a clear definition of the MCO tasks and the establishment of an entity for performing these tasks. It also provides a proposal for joint monitoring and oversight by regulatory authorities and ACER. However, this Recommendation does not make proposals on how the enforcement in case of incompliance of the MCO entity is performed. The approach chosen for the enforcement of RCCs can be a feasible option. It has not yet been fully assessed whether such provision should be included in the CACM Regulation or in a future amendment of the Electricity Regulation. Therefore, this is not yet detailed in the Recommendation on the CACM Regulation. Therefore, ACER would like to invite the Commission to address this issue before the start of the comitology process.

12. APPENDIX

Table 1: Calculation steps for the flow-based approach

Article 32(8): Flow-based approach		Inputs	Outputs
Each RCC, for each capacity calculation region applying the flow-based approach, and for each critical network element (with contingencies), shall:			
(a)	use operational security limits to calculate the **maximum flows** on critical network elements	*OSL, CNE*	F_{max}
(b)	use common grid model to **optimize the remedial actions** taken into account in capacity calculation in accordance with Article 31	*CGM, GLSK, CNEC*	**optimised RAs**
(c)	use common grid model, generation and load shift keys and the optimized remedial actions from point (b) to calculate **power transfer distribution factors**	*CGM (with optimized RAs), GLSK, CNEC*	$PTDF$
(d)	use common grid model and the optimized remedial actions from point (b) to calculate **flows** on critical network elements (with contingencies)	*CGM (with optimized RAs), CNEC*	F_{ref}
(e)	use the power transfer distribution factors from point (c) to perform the following calculations:	*PTDF*	
i.	**Adjust** the **flows** from point (d) by assuming no cross-zonal power exchanges within the capacity calculation region	EXC_{ccr}	$F_{0,ccr} = F_{ref} - F_{exc(ccr)} = F_{ref} - PTDF * EXC_{ccr}$
ii.	calculate **flows resulting from previously allocated cross-zonal capacity within the capacity calculation region**	LTA_{ccr}	$F_{LTA} = PTDF * LTA_{ccr}$
iii.	calculate **flows resulting from cross-zonal exchanges outside the capacity calculation region within the Union** as assumed in the common grid model	$EXC_{non-ccr,EU}$	$F_{UAF,EU} = PTDF * EXC_{non-ccr,EU}$
iv.	calculate **flows resulting from cross-zonal exchanges outside the capacity calculation region between the Union and third countries as well as between the third countries** as assumed in the common grid model	EXC_{non-EU}	$F_{UAF,non-EU} = PTDF * EXC_{non-EU}$
(f)	calculate **the available margins** which shall equal the maximum flows from point (a) reduced by reliability margin, and flows from point (e)i and (e)ii	*FRM*	$RAM_{initial} = F_{max} - FRM - F_{0,ccr} - F_{LTA} = RAM_{net,initial} - F_{LTA}$
(g)	**increase the available margins** from point (f) such that the sum of the adjusted available margin and the flows from point (e)ii, (e)iii and if applicable (e)iv is at least equal to the minimum capacity target pursuant to Article 26.3.		$F_{UAF} = F_{UAF,EU} + F_{UAF,non-EU}$ (if applicable) $MACZT = RAM_{initial} + F_{LTA} + F_{UAF}$ $r_{AMR} = 70\%$ (or lower, in case of action plans or derogations) $AMR = min(0, r_{AMR} * F_{max} - MACZT$ $RAM_{final} = RAM_{initial} + AMR$

Table 2: Calculation steps for the flow-based approach

Article 32(9): cNTC-based approach			**Inputs**	**Outputs**
Each RCC, for each capacity calculation region applying the cNTC approach shall:				
	OPTION 1	OPTION 2		
(a)	use operational security limits to calculate the **maximum flows** on critical network elements		*OSL, CNE*	$\boldsymbol{F_{max,i}(TTC)}$
(b)	calculate the **maximum power exchange** on each bidding zone border such that the power flows resulting from such exchange does not exceed:		*CGM(bce), GLSK (can be merit order as well), CNEC*	$\boldsymbol{NTC_{initial}}$ such that: $\boldsymbol{F_{last,i} \leq F_{max,i}(TTC) - FRM_i = F_{max,i}(NTC)}$ and $\boldsymbol{F_{last,i} \leq OSL_{other}}$
i.	the maximum flows on critical network elements with contingencies, reduced by the reliability margin; and		*FRM*	
ii.	any other operational security limit		OSL_{other}	
(c)	**adjust the common grid model** to reflect injections, withdrawals and applied remedial actions resulting from the maximum exchange calculated pursuant to (b)	**adjust the common grid model** to reflect injections and withdrawals resulting from the maximum exchange calculated pursuant to (b) and then identify the limiting critical network elements and contingencies as the network elements with flows close to maximum flows; if no network elements and contingencies have flows close to maximum flows, all critical network element and contingencies shall considered as limiting ones	*CGM(base), CNEC, RA*	***CGM(ntc)*** ***Limiting CNECs***
(d)	use generation and load shift keys and contingencies to calculate **power transfer distribution factors** for all critical network elements with contingencies	use generation and load shift keys and contingencies to calculate **power transfer distribution factors** for at least all limiting critical network elements and contingencies from point (c)	*GLSK (linearised), CNEC*	***PTDF***
(e)	use the power transfer distribution factors from point (c) and the maximum power exchange from point (b) to calculate the following **flows** on all critical network elements with contingencies:	use the power transfer distribution factors from point (c) and the maximum power exchange from point (b) to calculate the following **flows** on at least the limiting critical network elements with contingencies:	*PTDF*	
i.	**flows from cross-zonal exchanges within the capacity calculation region** as maximum power exchange from point (b) multiplied with the power transfer distribution factors from point (d)		$NTC_{initial}$	$\boldsymbol{RAM_{net,initial} = PTDF * NTC_{initial}}$ $\boldsymbol{RAM_{initial} = RAM_{net,initial} - F_{LTA}}$ $\boldsymbol{F_{LTA} = PTDF * AAC}$ (but there is no need for explicit $\boldsymbol{RAM_{initial}}$ or $\boldsymbol{F_{LTA}}$ calculation)

ii.	calculate **flows resulting from cross-zonal exchanges outside the capacity calculation region within the Union** as assumed in the common grid model		$EXC_{non-ccr,EU}$	$F_{UAF,EU} = PTDF * EXC_{non-ccr,EU}$
iii.	calculate **flows resulting from cross-zonal exchanges outside the capacity calculation region between the Union and third countries as well as between the third countries** as assumed in the common grid model		EXC_{non-EU}	$F_{UAF,non-EU} = PTDF * EXC_{non-EU}$
(f)	for all critical network elements with contingencies calculate **the available margin** which shall be equal to the flows from point (e)i and increase it such that the sum of this margin and the flows from point (e)ii and if applicable (e)iii is at least equal to the minimum capacity target pursuant to Article 26.3	for at least all the limiting critical network elements with contingencies calculate **the available margin** which shall be equal to the flows from point (e)i and increase it such that the sum of this margin and the flows from point (e)ii and if applicable (e)iii is at least equal to the minimum capacity target pursuant to Article 26.3		$F_{UAF} = F_{UAF,EU} + F_{UAF,non-EU}$ *(if applicable)* $MACZT = RAM_{initial} + F_{LTA} + F_{UAF}$ $r_{AMR} = 70\%$ (or lower, in case of action plans or derogations) $AMR = min(0\ , r_{AMR} * F_{max} - MACZT$ $RAM_{final} = RAM_{initial} + AMR$
(g)	calculate the **maximum power exchange** on each bidding zone border such that the resulting power flows calculated by dividing such exchange with the power transfer distribution factors from point (c), do not exceed the adjusted available margin on any critical network element with contingencies as calculated pursuant to point (f)	calculate the **maximum power exchange** on each bidding zone border such that the resulting power flows calculated by dividing such exchange with the power transfer distribution factors from point (c), do not exceed the adjusted available margin on at least the limiting critical network elements with contingencies as calculated pursuant to point (f)		$NTC_{final} = \frac{RAM_{final}}{PTDF}$
(h)	compute the **cross-zonal capacities** on each biding zone border which shall be equal to the maximum power exchanges calculated pursuant to point (g) decreased by the previously allocated cross-zonal capacities		AAC	$ATC = NTC_{final} - AAC$