Core TSOs common methodology for regional operational security coordination in accordance with Article 76 of Commission Regulation (EU) 2017/1485 of 2 August 2017

'Core ROSC Methodology'

Version for Public Consultation

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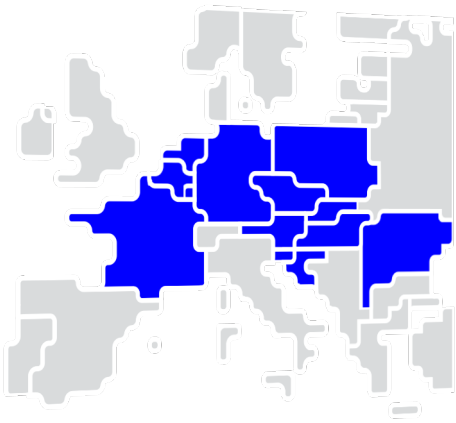

***Disclaimer**: This document is for public consultation and should be considered as "work in progress". Feedback from market parties will be used as input for the finalization of the methodology.*

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WHEREAS

1. Commission Regulation (EU) 2017/1485 establishes a guideline on electricity transmission system operation (hereafter referred to as 'SO Regulation'), which entered into force on 2 August 2017.
2. This document is the common methodology of all Transmission System Operators (hereafter referred to as 'Core TSOs') of the Core Capacity Calculation Region (hereafter referred to as 'Core CCR'), and defines the methodology for Regional Operational Security Coordination within Core CCR (hereafter referred to as 'Core ROSC Methodology') in accordance with articles 76 and 77 of SO Regulation.
3. Core ROSC Methodology takes into account the general principles and goals set in SO Regulation as well as Commission Regulation (EC) 2015/1222 establishing a guideline on Capacity Allocation and Congestion Management (hereafter referred to as 'CACM Regulation').
4. Article 76 of SO Regulation constitutes the legal basis for Core ROSC Methodology. Article 76 of SO Regulation defines that Core ROSC Methodology should include at least following requirements: (a) conditions and frequency of intraday coordination of operational security analysis and updates to the CGM by the RSC; (b) the methodology for the preparation of RAs managed in a coordinated way, considering their cross-border relevance as determined in accordance with article 35 of CACM Regulation, taking into account the requirements in articles 20 to 23 of SO Regulation and determining at least: (i) the procedure for exchanging information about available RAs between relevant TSOs and the RSC; (ii) the classification of constraints and RAs in accordance with article 22 of SO Regulation; (iii) the identification of the most effective and economically efficient RAs in case of operational security limit violations referred to in article 22 of SO Regulation; (iv) the preparation and activation of RAs in accordance with article 23 (2) of SO Regulation; (v) the sharing of the costs of RAs referred to in article 22 of SO Regulation, complementing, where necessary, the common methodology developed in accordance with article 74 of CACM Regulation.
5. Core ROSC Methodology defines how the ROSC shall be applied in a coordinated manner in day-ahead and intraday within Core CCR.
6. Core ROSC Methodology considers and, where necessary, complements the Methodology for coordinating operational security analysis in accordance with article 75 of SO Regulation (hereafter referred to as 'CSAM').
7. Core ROSC Methodology considers and, where necessary, complements the common Core methodology for coordinated Redispatching and Countertrading (hereafter referred to as 'Core RD and CT Methodology') in accordance with article 35 of CACM Regulation.
8. Core ROSC Methodology considers and, where necessary, complements the common Core methodology for coordinated Redispatching and Countertrading Cost Sharing (hereafter referred to as 'Core Cost Sharing Methodology') in accordance with article 74 of CACM Regulation.
9. In accordance with article 6(6) of SO Regulation, Core ROSC Methodology includes a timescale for its implementation and a description of its expected impact on the objectives of the SO Regulation.
10. Furthermore, the Core ROSC Methodology ensures application of the principles of proportionality and non-discrimination, transparency; optimisation between the highest overall efficiency and lowest total costs for all parties involved; and use of market-based mechanisms as far as possible, to ensure network security and stability.
11. In accordance with Recital (5) of the SO Regulation, synchronous areas do not stop at the Union's borders and can include the territory of third countries. The TSOs should aim for secure system

operation inside all synchronous areas stretching on the Union. They should support third countries in applying similar rules to those contained in this Regulation. ENTSO for Electricity should facilitate cooperation between Union TSOs and third country TSOs concerning secure system operation.

12. In conclusion, Core ROSC Methodology shall contribute to the general objectives of the SO Regulation to the benefit of all TSOs, the Agency, national regulatory authorities and market participants.

TITLE 1 GENERAL PROVISIONS

Article 1 Subject matter and scope

1. Core ROSC Methodology shall be considered as the methodology of Core TSOs in accordance with article 76 of SO Regulation and for organisation for regional operational security coordination in accordance with article 77 of SO Regulation.
2. Core ROSC Methodology shall cover the day-ahead and intraday regional operational security coordination within Core CCR. Core ROSC Methodology shall apply to all TSOs and RSCs within Core CCR.
3. Core ROSC Methodology is subject to NRA approval in accordance with article 6 (3)(b) of SO Regulation.

Article 2 Definitions and interpretation

1. In this Core ROSC Methodology, the following acronyms are used:
    a. ‘ANORA’ means ‘Agreed but Not Ordered Remedial Action’
    b. CGM’ means the ‘common grid model’;
    c. ‘CGMM’ means the methodology regarding articles 67 and 70 of SO Regulation;
    d. ‘IGM’ means the ‘individual grid model’;
    e. ‘RA’ means ‘remedial action’;
    f. ‘RD and CT’ means ‘redispatching and countertrading’;
    g. ‘CROSA’ means ‘Coordinated Regional Operational Security Assessment’,
    h. ‘CSA’ means ‘Coordinated Security Analysis’;
    i. ‘ROSC’ means ‘Regional Operational Security Coordination’;
    j. ‘RSA’ means ‘Regional Security Analysis’.
2. For the purposes of the Core ROSC Methodology, the terms used shall have the meaning of the definitions included in article 3 of the SO Regulation, article 2 of CACM Regulation, article 2 of Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and article 2 of CSAM. In addition, the following definitions shall apply:
    a. ‘Ordered RA’ is the subset of the Agreed RA that is bindingly ordered by the RA Requesting TSO and RA Connecting TSO;
    b. ‘RA Connecting TSO’ means the TSO responsible for the control area where the RA is located or connected or activated;
    c. ‘RA Requesting TSO’ means the TSO responsible for the operation of the control area where the violation of operational security limits is detected. In case of a violation of operational security limits on a cross-border transmission line, both TSOs responsible for the operation of that line are considered to be RA Requesting TSOs;

d. ‘Agreed RA’ means a RA which TSOs in CCRs agreed to implement;
e. 'Activated RA' means the ordered RA which the resource provider;
f. 'Shared RA' means a RA available for the global optimisation to relieve operational security limit violations;
g. 'Conditionally shared RA' means a shared RA whose applicability depends on conditions provided by the RA Connecting TSO;
h. 'Non-Shared RA' means a RA used to relieve specific operational security limits violations and not available for the global optimisation;
i. 'Redispatching' means a measure performed by one or several TSOs by altering specific generation and/or load patterns in order to change physical flows in the transmission system and relieve physical congestions. The location of the units considered for Redispatching are known and the parameters of the resource are known;
j. 'Countertrading' means a measure performed by one or several TSOs in one or several bidding zones in order to relieve physical congestions where the location of activated resources within the bidding zone is not known.

3. The following types of constraints are considered in this methodology:
    a. Constraints in line with SO Regulation means a situation in which there is a need to prepare and activate a RA in order to respect operational security limits. The consideration of these constraints within Core ROSC Methodology is further defined in Article 25. The constraints consist of the following:
        i. Power flows and voltages exceeding operational security limits;
        ii. Violations of stability limits of the transmission system identified in accordance with article 38 (2) and article 38 (6) of SO Regulation;
        iii. Violations of short-circuit current limits of the transmission system.
    b. Constraints related to all aspects required to be taken into account when using RAs and classified as following:
        i. Technical constraints are all the rules related to the technical limitations for resources for redispatching in accordance with article 5 of CT and RD methodology or network elements;
        ii. Operational constraints are all the operational conditions and usage rules taking into account the timings to operate the grid and avoid a premature ageing of the network elements;
        iii. Procedural constraints are all the timing constraints due to local or regional processes;
        iv. Legal constraints are the legal requirements stated in national laws regarding the priority of activation of RAs.
    c. System constraints are all the optimisation constraints added by Core TSOs, expressed as flow limitation on one or a set of Secured and Scanned Elements and necessary to respect stability limits or operational security limits other than power flow limits. These are further detailed in Article 17.
4. In this Core ROSC Methodology, unless the context requires otherwise:
    a. The singular indicates the plural and vice versa;
    b. Headings are inserted for convenience only and do not affect the interpretation of this Core ROSC Methodology;
    c. Any reference to legislation, regulations, directives, orders, instruments, codes or any other enactment shall include any modification, extension or re-enactment of it when in force.

TITLE 2 REGIONAL OPERATIONAL SECURITY COORDINATION

Article 3 General provisions for ROSC

1. Core TSOs in coordination with Core RSCs shall execute the ROSC for each hour of the target day. The ROSC is composed of the following activities:
    a. Core TSOs and Core RSCs shall perform day-ahead and intraday CROSAs. Intraday CROSAs shall be performed at least three times in intraday timeframe in accordance with article 24 of CSAM. Each CROSA shall consist of:
        i. Preparation as described in Chapter 1 of Title 4;
        ii. Coordination as described in Chapter 2 of Title 4;
        iii. Validation as described in Chapter 3 of Title 4.
    b. Core TSOs shall implement the Agreed RAs in the subsequent IGMs and shall activate the Ordered RAs following the provisions in accordance with Articles 35 and 36.
    c. Core TSOs shall have the right to modify an Ordered RA or may activate a new RA following the fast activation process in accordance with Article 37.

Article 4 Intraday regional security analysis

1. In addition to ID CROSA, Core TSOs with Core RSCs shall perform intraday regional security analysis (‘ID RSA’).
2. The goal of the ID RSA is to provide Core TSOs each hour of the day with the latest information about the loading of the grid and previously undetected violations of operational security limits, which may serve as a trigger for a fast activation process.
3. This ID RSA shall be performed at each hour of the day for each timestamp till the rest of the day.
4. ID RSA shall be performed on the updated IGMs containing the latest available forecast of generation and load, planned and forced outages, Agreed RAs and Ordered RAs.
5. RSCs shall merge updated IGMs into an updated CGM, perform a load flow and contingency analysis calculation and deliver the results to all Core TSOs.

TITLE 3 DEFINITION AND DETERMINATION OF CORE XNES, XRAS, CONSTRAINTS AND CONTINGENCIES

Article 5 Secured elements

1. Secured elements represent a set of grid elements in the Core CCR with a voltage level higher than or equal to 220 kV subject to the CROSA, on which operational security limits violations need to be managed in a coordinated way.
2. The secured elements are elements identified as cross-border relevant network elements (XNEs) in accordance with CSAM within the Core CCR.
3. Secured elements shall at least include all Core Critical Network Elements in accordance with day-ahead and intraday capacity calculation methodology of the Core CCR and XBRNEs in accordance with Core RD and CT methodology.

4. Core TSOs shall have a right to exclude any element from the secured elements set that fulfils one of the following criteria:
    a. Element is a power plant line;
    b. Element is a radial line;
    c. Element is connected to a DSO grid;
    d. Element is a transformer with the secondary voltage side lower than 220 kV.
5. Core TSOs shall have the right at any time to exclude any element from the secured elements set, except mandatory elements defined in paragraph 3, if there is a common agreement between Core TSOs that such element may be excluded.
6. Core TSOs, which are part of more than one CCR, shall have the right to exclude any element from the secured elements set which is subject to CROSA within other CCRs.
7. The list of excluded elements from the secured elements set shall be shared with the respective Core RSCs and among Core TSOs.
8. Each Core TSO shall have the right at any time to include any element with a voltage level higher than or equal to 220 kV in the secured elements set.

Article 6 Scanned elements

1. Scanned elements represent a set of elements on which CROSA shall not create new operational security limits violations or worsen any existing violation. Each Core TSO may, for CROSA purposes only, deviate from this by setting individual thresholds for the scanned elements of its IGM.
2. Core TSOs shall have the right at any time to include any element excluded from the secured elements set in the scanned elements set.
3. Core TSOs shall have the right at any time to include any element with a voltage level lower than 220 kV in the scanned elements set, which is modelled in its IGM, providing justification for its inclusion.

Article 7 The list of secured elements and the list of scanned elements

1. By 3 months after the approval of this methodology, Core TSOs with the support of the respective Core RSCs shall define the list of secured elements and the list of scanned elements.
2. If a new element with a voltage level higher than or equal to 220 kV is commissioned, it shall be included in the secured elements list, unless the Core TSO operating this element decides not to include it in the secured elements list in accordance with Article 5.
3. If a new element with a voltage level lower than 220 kV is commissioned, the Core TSO operating this element can decide to include it in the scanned elements list in accordance with Article 6.
4. Each Core TSO shall have the right at any time to move any element it operates with a voltage level higher than or equal to 220 kV from the scanned elements list to the secured elements list.

Article 8 Cross-border relevant network elements

1. The list of secured elements defined in accordance with Article 5, represents the list of cross-border relevant network elements of Core CCR, hereafter ‘Core XNEs’.

2. XBRNEs as defined by the Core RD and CT methodology are Core XNEs for which the costs attributed to them shall be shared among the involved TSOs in accordance with the Core Cost Sharing Methodology.
3. Costs incurred for solving violations on Core XNEs which are not identified as XBRNEs, shall be shared in accordance with the rules and criteria described in Core Cost Sharing Methodology.

Article 9 Classification of remedial actions

1. Each Core TSO shall classify the RAs in accordance with article 22 of SO Regulation.

Article 10 Cross-border relevance of remedial actions

1. Within one month after the secured elements set have been defined in accordance with Article 5, Core TSOs shall share with the Core RSCs all potential RAs designed in accordance with article 14 of CSAM,
2. Core TSOs, in coordination with Core RSCs, shall jointly assess the relevance of potential RAs shared by Core TSOs in accordance to paragraph 1.
3. Core TSOs shall aim at agreeing on a qualitative approach in accordance with Article 11 to determine RAs that are deemed cross-border relevant and corresponding TSOs affected by those RAs.
4. If Core TSOs cannot agree on a qualitative approach, in accordance with Article 11, for a certain RA, a quantitative approach in accordance with Article 12 shall be used for this RA.
5. Core TSOs will jointly define and share with the Core RSCs the list of RAs that are deemed cross-border relevant.
6. Reassessment of the list of cross-border relevant RAs shall be done on a yearly basis.
7. If a new RA is designed in day-ahead or intraday operation planning period, each Core TSO shall assess its relevance using quantitative approach in accordance with article 15 (5) of CSAM.
8. Remedial action influence factor computation for RAs described in paragraph 7 shall be performed on last available common grid model.
9. If a new RA is designed between two mandatory assessments and prior to day-ahead planning period, each Core TSO shall assess its relevance in accordance with Article 11. In case agreement cannot be reached the quantitative approach as described in accordance with Article 12 shall be used.
10. Core TSOs may delegate the task described in paragraph 7 to their respective Core RSCs.
11. If a new RA is designed during real time operation and if the system is in alert state in accordance with SO Regulation, the RA Connecting TSOs shall use quantitative assessment in order to identify if this RA is cross-border relevant. When doing this, the RA Connecting TSOs shall check that the activation of such RA does not lead to violations of operational security limits on elements of its observability area using either the last available common grid model or its model from the state estimator. If such analysis shows that activation of RAs may cause violations on elements of its observability area, its activation has to be coordinated with the RA affected TSOs.
12. In an emergency state, Core TSOs shall apply the provision of article 16 (4) of CSAM.
13. Between two mandatory assessments of RAs, each Core TSO shall have the right to request an additional assessment of a RA providing justification for such a request to the RA Connecting TSO and respective Core RSCs.

14. During fast activation process, when a Core TSO proposes an XRA in accordance with paragraphs 3 and 4 of article 17 of the CSAM and when this TSO is the RA Connecting TSO as well as the only XRA affected TSO, the activation of this XRA shall not be subject to further coordination.

Article 11 Qualitative assessment of XRAs

1. Core TSOs, with the support of Core RSCs, shall jointly establish a list of potential RAs provided by Core TSOs to Core RSCs in accordance with Article 10 (1).
2. For each RA included in the list defined in paragraph 1:
    a. Each Core TSO shall individually assess the cross-border relevance of the RA on its own grid;
    b. RA Connecting TSO shall assess the cross-border relevance of the RA on the grid of other TSOs and also on its own grid;
    c. If the RAs is quantifiable such as Redispatching, Countertrading, change of set point on HVDC systems or change of taps on phase-shifting transformers, the quantity above which this RA is deemed cross-border relevant on the grid of other TSOs and its own grid has to be specified in accordance with article 15 (7) of CSAM;
3. Core TSOs may delegate the tasks described in paragraph 2 to their respective Core RSC.
4. Each Core TSO shall propose RAs, which it regards cross-border relevant providing justification for their selection to RA Connecting TSOs.
5. If a common agreement among Core TSOs is reached, then the RA is defined as cross-border relevant and all XRA affected TSOs are identified.
6. If a RA is not proposed as cross-border relevant by any Core TSO, it is considered as non-cross-border relevant.
7. If a RA is identified as cross-border relevant only by the RA Connecting TSO, this TSO shall be considered as the only XRA affected TSO.

Article 12 Quantitative assessment of XRAs

1. Core TSOs shall use the common grid models established in accordance with article 67 of the SO Regulation when computing remedial action influence factor.
2. Each Core TSO shall provide a list of elements on which the influence of the RA shall be assessed. The assessment shall be done at least on the XNEC elements in accordance with article 15 (4) of CSAM.
3. The remedial action influence factor shall be calculated in accordance with article 15 (4) and article 15 (5) of CSAM for RAs for which agreement on using qualitative approach in accordance with Article 11 could not be reached.
4. If a RA consists of a combination of actions, its cross-border relevance shall be assessed for the effect of the combination.
5. Core TSOs may delegate the task of performing calculations of remedial action influence factors to the respective Core RSCs.
6. All RAs for which an influence factor for at least one XNEC is greater than the threshold defined in article 15 (5) of CSAM shall be considered as cross-border relevant, otherwise RAs shall be considered as non-cross-border relevant.

7. All Core TSOs that have at least one affected XNEC for which the remedial action influence factor is greater than the threshold shall be considered as XRA affected TSOs, in accordance with article 15 (8) of CSAM.

Article 13 Contingency list

1. Each Core TSO shall establish the list of contingencies to be simulated in operational security analysis in accordance with article 10 of the CSAM, hereafter referred to as ”Contingency List”.
2. Each Core TSO shall provide the respective Core RSCs with the Contingency List to be used in CROSA and shall inform the Core RSCs about any update of this list in accordance with article 11 of CSAM.
3. Core RSCs shall use the latest Contingency Lists shared by the Core TSOs.

TITLE 4 COORDINATED REGIONAL OPERATIONAL SECURITY ANALYSIS PROCESS

CHAPTER 1 PREPARATION

Article 14 Provision of the regional operational security inputs

1. Each Core TSO shall provide the following input data to Core RSCs:
    a. IGM according to Article 15, including the operational security limits for each secured or scanned element according to Articles 5 and 6;
    b. Available remedial actions within his control area according to Article 16;
    c. When relevant, System Constraints according to Article 17;
    d. Secured and scanned elements according to Articles 5 and 6;
    e. Contingency list according to Article 13.
2. The input data shall cover all remaining hours for a relevant business day.
3. Core TSOs shall deliver or update when required the input data before the commonly agreed process deadlines.

Article 15 Preparation and updates of IGMs by Core TSOs

1. Each Core TSO shall prepare and deliver day-ahead and intraday IGMs for day-ahead and intraday coordinated regional operational security assessments as defined in CSAM and the methodology accordance with article 70 (1) of SO Regulation.
2. Core TSOs shall have the right to perform local preliminary assessments. When preparing IGMs, each Core TSO shall have the right to include RAs resulting from these local preliminary assessments in accordance with article 21 (3) of CSAM which were performed by Core TSOs before the first day-ahead CROSA.
3. When preparing IGMs, Core TSOs shall have the right to include non-cross-border relevant remedial actions in accordance with article 21 (4) of CSAM resulting from local preliminary assessments performed by Core TSOs at any time.
4. If Core TSOs include Redispatching and Countertrading in their IGMs resulting from preliminary assessments in accordance with paragraph 2 and 3 of Article 15, the information on ordered

Redispatching and Countertrading shall be shared among Core TSOs in order to be clearly distinguishable from the network topology without RAs applied in accordance with article 70 (4) of SO Regulation.

5. In case the methodology in accordance with article 21 of CSAM is amended as requested by article 21 (6) of CSAM, the provisions of the amended article 21 of CSAM shall suspend paragraph 2 and 3 of Article 15 if the amendment is related to these paragraphs.
6. If the result of the optimisation contains Agreed RAs for the respective control area each Core TSO shall provide to Core RSCs updated IGM between two coordination runs in accordance with article 33 (1)(c) of CSAM and articles 3 and 4 of CGMM.

Article 16 Preparation and update of remedial actions by Core TSOs

1. Each Core TSO shall make available remedial actions to the Core RCSs for day-ahead and intraday coordinated regional operational security assessments as defined in CSAM.
2. When identifying the RAs that shall be made available, each Core TSO shall take in consideration the following principles:
    a. Define the RAs in line with the categories of article 22 of SO Regulation considering the provisions stated in articles 10 and 11 of the Core RD and CT Methodology;
    b. Assess the availability of the XRAs defined according to Article 10;
    c. Consider non-XRAs, as defined according to Article 10, which could have an impact on any of the secured or scanned element of his control area;
    d. Asses the availability of the RAs which were available for the previously performed coordinated regional operational security assessments or capacity calculation of the same hour and the previously ANORAs;
    e. Not consider the RAs which are not available following:
        i. an unforeseen event, or
        ii. an unplanned outage, or
        iii. a declaration of unavailability status done by a third party owning the remedial action, or
        iv. any other cause outside of the responsibility of the Core TSO;
    f. Identify whether a RA provided to Core CCR is an overlapping XRA according to article 27 (9) of CSAM;
    g. Identify whether a RA is shared, non-shared or conditionally shared.
3. Core TSOs shall provide any relevant information for each RA for the purpose of day-ahead and intraday regional operational security coordination process that will reflect the technical, operational or procedural constraints of the RA as defined in accordance with Article 2.
4. If relevant, each Core TSO shall provide to the Core RSCs updated list of RAs at the end of any coordination run of the coordination stage of DA or ID CROSA, considering
    a. The agreed outcome of the last coordination run for the XRAs in accordance with Article 33 and 34;
    b. Any unplanned or forced outages or changes of outage schedules of relevant assets;
    c. Latest schedules of load and generation.

Article 17 System constraints

1. Each Core TSO shall have the right to make available to Core RSCs System Constraints in accordance with Article 2 for the purpose of dynamic stability, voltages exceeding operational security limits in the N-situation and after occurrence of a contingency from the Contingency List described in Article 13.
2. The System Constraints, for the purpose of dynamic stability, shall be defined based on the criteria on dynamic system stability in accordance with articles 38 and 39 of SO Regulation.
3. When applying such System constraints, the concerned TSO shall provide to other Core TSOs and Core RSCs the reasoning of these System Constraints in a transparent manner.
4. If relevant, each Core TSO shall provide to the Core RSCs updated System Constraints, at the end of any coordination run of the coordination stage of day-ahead or intraday CROSA.

Article 18 Preparation of secured and scanned elements and contingencies

1. Each Core TSO shall make available the list of secured and scanned Elements for its control area to the Core RSCs for day-ahead and intraday coordinated regional operational security assessments in accordance with the principles defined in Article 7.
2. Each Core TSO shall make available the Contingency List for its control area to the Core RSCs for day-ahead and intraday coordinated regional operational security assessments pursuant to the principles defined in Article 13 developed in line with CSAM.

Article 19 List of Agreed RAs

1. The Core RSCs shall make available for day-ahead and intraday coordinated regional operational security assessments the list of Agreed RAs logged by Core RSCs in accordance with Article 36.

Article 20 Consistency and quality check of the input data

1. The Core RSCs shall assess the consistency and quality of each input data file provided by each Core TSO in accordance with CGMM and CSAM.
2. Core RSCs shall monitor if the Agreed RAs are included in the IGMs provided by each Core TSO.
3. The Core RSCs and Core TSOs shall inform the concerned Core TSOs on the identified issues in accordance with paragraphs 1 and 2 in an appropriate timeframe before starting the remedial action optimisation to give Core TSOs the opportunity to correct these errors or inconsistencies and provided an updated IGM.

CHAPTER 2 COORDINATION

Article 21 General provisions of coordination process

1. Core TSOs with the support of Core RSCs shall perform the day-ahead and Intraday CROSA in accordance with articles 23 and 24 of CSAM.
2. At day-ahead stage, CROSA will include two coordination runs and at the intraday stage CROSA will include at least one coordination run. Each coordination run will consist of the following steps:
    a. Building of the CGMs by the Core RSCs in accordance with CGMM;
    b. Running power flow and security analysis in accordance with Article 22;

c. Remedial actions optimization in accordance with Articles 23 to 30;
d. Remedial actions coordination in accordance with Article 31;
e. Inter-CCR coordination in accordance with Article 32.

3. Each Core TSO shall update the input data for the second coordination run in the day-ahead stage in accordance with the provisions defined in the Chapter 1 of Title 4.
4. In the Intraday CROSA, Core TSOs and Core RSCs shall reassess the ANORAs in accordance with Article 36 and that were agreed in the day-ahead CROSA or previous Intraday CROSA for the period until the results of the following Intraday CROSA are available.
5. Information about Ordered RAs and ANORAs during day-ahead and Intraday CROSA shall be logged by Core RSCs

Article 22 Power flow and security analysis

1. Core RSCs shall perform the power flow and security analysis by using the CGM built in accordance with CGMM. The security analysis will be performed considering the latest Contingency List as well as the latest list of secured and scanned elements provided by the Core TSOs.
2. Core RSCs shall provide to all Core TSOs the power flow and operational security analysis results.
3. Core TSOs shall have the opportunity to validate the power flow and operational security analysis results. This validation aims at identifying input mistakes which would make the outcomes of the operational security analysis non-realistic to give Core TSOs the opportunity to correct these errors.

Article 23 Optimisation of remedial actions

1. Core TSOs and Core RSCs shall optimise RAs in order to identify in a coordinated way the most effective and economically efficient RAs, based on following principles:
    a. The optimisation of RAs shall be performed with consideration of all available RAs;
    b. The optimisation is time-coupled in accordance with Article 24;
    c. The optimisation of remedial actions shall aim at relieving operational security limit violations on secured elements in accordance with Article 26;
    d. The optimisation shall not create additional operational security limit violations on secured and scanned elements in accordance with Article 26;
    e. The optimisation shall aim at minimising direct costs in accordance with Article 27;
    f. The optimisation shall consider constraints of the RAs in accordance with Article 2 (3);
    g. The optimisation shall propose balanced RAs in accordance with Article 28;
    h. The optimisation shall ensure the remedial action effectivity in accordance with article 29;
    i. The optimisation shall take into account the impact of variations in forecasts and market activities in accordance with Article 30.

Article 24 Time coupled optimisation

1. The optimisation of RAs shall be time-coupled in the identification of the most effective and economically efficient RAs.
2. In the optimisation for day-ahead all hours of that day shall be optimised.
3. For intraday all remaining hours until the end of the day shall be optimised.

4. In the optimisation for both day-ahead and intraday, any constraints in accordance with Article 2 on Agreed RAs from previous hours shall be taken into account.

Article 25 Relieving operational security limit violations

1. When performing Day-Ahead and Intraday CROSA, Core TSOs and Core RSCs shall detect if power flows violate operational security limits in N-situation or after occurrence of a contingency.
2. In Intraday CROSA the detection of power flows violations in accordance with paragraph 1 shall be performed on CGMs after removal of ANORAs.
3. For the detection of other constraints, such as voltage violations, violations of short-circuit current limits or violations of stability limits, each Core TSO should perform local assessment and long-term operational security analysis in accordance with articles 31, 38 and 73 of SO Regulation.
4. Other constraints than current limits may be reflected into system constraints in accordance with Article 17.
5. The optimisation process shall aim at identifying RAs from a list of non-costly and costly RAs made available by Core TSOs in accordance with Article 16 to relieve operational security limit violations on secured elements, detected in accordance with paragraph 1.
6. Curative RAs shall be used for relieving operational security limit violations in contingency case on a secured element as long as the temporarily admissible thermal limit of the element is not exceeded. Under consideration of all recommended preventive and curative RAs, the permanent admissible thermal limit of the secured elements shall be respected.

Article 26 Avoid additional violations of operational security limits on secured and scanned elements

1. The activation of RAs identified for relieving operational security limit violations on secured elements:
    a. Shall not lead to additional violations of operational security limits on secured and scanned elements;
    b. May not worsen existing operational security limits violations on scanned elements in accordance with Article 6.

Article 27 Minimise direct costs

1. The optimisation shall aim at minimising the direct costs which are defined by the Core RD and CT Methodology, resulting from the indicative price or costs information of the costly RAs used to relieve operational security limit violations.
2. The minimisation of costs shall take into account the effectivity of RAs in accordance with Article 29.

Article 28 Balance of RAs

1. In order to guarantee the balance of the system after activation of RAs, the optimisation shall ensure that the identified RAs are balanced and can be activated in a balanced way in each timeframe.

Article 29 RA effectivity

1. The optimisation shall include computation of the flow sensitivity of RAs.
2. The flow sensitivity of a RA reflects the variations of power flow or current on secured and scanned elements as a function of their nominal power flow.
3. The flow sensitivity of a RA shall be balanced with their direct costs in order to ensure the selection of the most economically efficient and technically effective RAs.
4. The optimisation shall localize any remaining operational security limits violations and flows.
5. Costly RAs shall only be chosen to relieve operational security limits violations on network elements and not for the purpose of increasing market welfare.

Article 30 Robustness

1. Taking into account all the principles introduced in Articles 23 to 29, the optimisation shall ensure that the identified RAs for relieving operational security limit violations on the secured elements are robust to variations of forecasts in consumption, RES production, and market activities and allow Core TSOs to operate their grid without violation of operational security limits.
2. In case of exceptional situations, such as but not limited to unpredictable arrival of a wind front, snowfall on PV modules, where the accuracy of one or more of the forecasts variables included in the IGMs is insufficient to allow the correct identification of operational security limit violations, Core TSOs shall have right to reduce thermal limits of their XNEs in regional day-ahead or intraday processes in accordance with articles 23 (4) and 24 (4) of CSAM.
3. Concerned TSOs shall inform without undue delay Core TSOs and Core RSCs in case of application of paragraph 2, providing at least following information:
    a. Elements and timestamps which are affected by the application of the paragraph 2;
    b. Estimate of the time for which application of paragraph 2 is needed.
4. In case of application of paragraph 2, the concerned TSOs shall provide ex-post on request its justification about its decision to other Core TSOs and Core RSCs.

Article 31 Coordination of RAs

1. In Day-Ahead and Intraday CROSA, Core TSOs in coordination with Core RSCs, shall manage in a coordinated way operational security violations on all secured elements considering all RAs in accordance with article 17 of CSAM. To this end, Core RSCs shall make recommendations for the implementation of the most effective and economically efficient RAs to the concerned TSOs according to the result of the optimisation in accordance with Article 23.
2. During each CROSA, RA Connecting TSOs and XRA affected TSOs shall decide whether to agree or reject proposed RAs in accordance with article 78 (4) of the SO Regulation and article 17 of CSAM.
3. In case all RA Connecting TSOs and XRA affected TSOs agree on a proposed RA, this RA is deemed validated by Core TSOs.
4. If a Core TSO rejects a RA proposed by Core RSCs, the reasons shall be justified, documented and provided to Core RSCs, in accordance with article 78 (4) of the SO Regulation.
5. In case of rejection of a proposed RA, the concerned Core TSOs shall coordinate with Core RSCs and other Core TSOs to identify and plan alternative RAs to relieve the operational security limits violations in a coordinated way in accordance with Core ROSC Methodology and article 17 (7) of CSAM.

Article 32 Inter-CCR coordination

1. Core TSOs and Core RSCs shall relieve operational security limits violations on overlapping XNEs and shall coordinate XRA impacting these overlapping XNEs in accordance with the proposal for amendment to be developed in accordance with article 27(3) of CSAM.
2. Core TSOs and Core RSCs shall perform the coordinated cross-regional operational security assessment in accordance with article 30 of CSAM.

CHAPTER 3 VALIDATION

Article 33 Validation session

1. In the end of the day-ahead CROSA in accordance with article 33 (1)(f) of CSAM, a session shall be hosted by Core RSCs in order to consolidate results of the day-ahead CROSA and for Core TSOs to reach a final agreement and acknowledge RA that have been agreed during the day-ahead CROSA.

Article 34 Outcome of validation

1. All Ordered RAs and ANORAs shall be logged after the validation session.
2. Remaining violations of operational security limits must be reported. The next steps shall be specified and may include but not limited to an intraday CROSA or interim process.
3. Core RSCs shall ensure the availability of results and decisions to all Core TSOs.
4. Core RSCs shall archive all necessary data for the yearly report in accordance with article 17 of SO Regulation.

CHAPTER 4 IMPLEMENTATION OF REMEDIAL ACTIONS

Article 35 Activation of remedial actions

1. RA Connecting TSO shall activate RAs at the latest time compatible with technical, operational and procedural constraints of the resources in accordance with article 19 of CSAM.
2. In case of activating Redispatching or Countertrading, the RA connecting TSO shall apply the provisions of article 14 of Core RD and CT Methodology.
3. Each Core TSO shall have the right to request a reassessment of Ordered RAs or already activated RAs in case the RAs are not required anymore and considering technical, operational and procedural constraints. XRA affected TSO shall reassess the Ordered RAs via fast activation process in accordance with Article 37.
4. The Core TSOs shall update in a coordinated manner the available cross-zonal capacities within the intraday or balancing timeframe by taking account the activation of XRAs. The updated capacities shall not aggravate the operational security.

Article 36 Consideration of remedial actions in next IGM

1. All Agreed RAs shall be classified based on a possibility of their reassessment in later CROSAs:

a. If activation time of an RA prevents waiting for next CROSA for possible reassessment, then the RA shall be classified as Ordered RAs. Only fast activation process can change the status of an Ordered RA;
b. If a reassessment of the RA in next CROSA is a possibility, then the RA shall be classified as ANORA.

2. Each Core TSO shall include all RAs agreed during latest CROSA in intraday IGMs according to the provision of articles 20 and 21 of CSAM. Information about all RAs agreed during day-ahead and intraday CROSA shall be logged by Core RSCs.
3. Core RSCs shall monitor the inclusion of Agreed RAs into IGMs in accordance with article 28 of CSAM.

Article 37 Fast activation process

1. A Core TSO shall trigger the fast activation process to relieve operational security limit violation(s) in case the detection of the physical congestion occurs:
   a. Between CROSA cycles and a fast activation of a XRAs is required because it cannot wait for the next CROSA;
   b. After the last CROSA.
2. The fast activation process shall also be considered as a fallback where coordination through the Core RSCs is no longer possible due to insufficient time and the regular process described in Article 21 could not be properly applied.
3. A Core TSO shall trigger the fast activation process in the case that an Ordered RA is an XRA and is not available anymore.
4. During the fast activation process, XRA affected TSOs shall coordinate among each other to identify, plan and activate alternative RAs to relieve the operational security limits violations in a coordinated way while respecting the relevant provisions of article 17 of CSAM.
5. In the fast activation process, the activation of preventive as well as curative XRAs may be applied.
6. In the fast activation process, each Core TSO may activate XRAs in direct coordination with XRA affected TSOs in accordance with the principles for coordination of XRAs described in CSAM.
7. The Core TSO activating XRAs through fast activation process shall provide the Core RSCs the relevant information on which the decision was based.
8. RAs agreed among affected Core TSOs during the fast activation process shall be considered as coordinated RAs and therefore shall be subject to cost sharing in accordance with the principles described in Article 38.
9. Core TSOs will take into account the Activated RAs in the next relevant IGMs. New congestions as a result of those RAs should be avoided.

TITLE 5 SHARING OF COSTS OF REMEDIAL ACTIONS

Article 38 General provisions for cost sharing of remedial actions

1. Any coordinated Ordered RA resulting from CROSA and fast activation process in accordance with this Core ROSC Methodology is subject to the cost sharing principles in accordance with Core Cost Sharing Methodology.
2. Each Core TSO and the Core RSCs shall provide all needed information about these Ordered RAs to ensure the application of the Core Cost Sharing Methodology.

TITLE 6 MONITORING AND IMPLEMENTATION

Article 39 Reporting

1. RAs will be reported by Core TSOs as described in the article 13 (1) of Transparency Regulation (EC) 543/2013 and the regulation for Energy Market Integrity and Transparency 1227/2011.
2. Core RSCs shall record and share all necessary data to enable Core TSOs to fulfil the obligations regarding Core ROSC Methodology, Core Cost Sharing Methodology and article 17 of SO Regulation.

Article 40 Implementation

1. The implementation of the Core ROSC Methodology will consider:
    a. Regulatory approval of this Core ROSC Methodology in accordance with article 6 of SO Regulation;
    b. Regulatory approval of Core RD and CT Methodology in accordance with article 9 of CACM Regulation;
    c. Regulatory approval of Core Cost Sharing Methodology in accordance with article 9 of CACM Regulation;
    d. Regulatory approval and implementation of the amendments of CSAM in accordance with article 27 (3), article 21 (6) and article 30 of CSAM;
    e. Development, testing and implementation of the IT tools, systems and procedures required to support the Core ROSC Methodology, CGMES format included and amendments of the CSAM;
2. All Core TSOs, with the support of the Core RSCs, shall aim at regularly identifying the common functions and tools needed in accordance with paragraph 1(e). All relevant Core TSOs, with the support of the Core RSCs, shall:
    a. Decide on their development;
    b. Provide for the needed budgets for their tendering, development and maintenance;
    c. Agree on the rules applicable for the management of the development and maintenance, including evolutions.
3. The provisions of Article 32 will be applied after the amendments of article 27 (3) of CSAM are implemented.
4. During the implementation of Core ROSC Methodology, the Core TSOs with the support of Core RSCs shall jointly define the timeline of each step of the day-ahead and intraday regional operational security coordination, in accordance with the article 45 of the CSAM and publish them on their website.

TITLE 7 ALLOCATION OF TASKS BY RSCS

Article 41 Appointment of RSCs and delegation of tasks to RSCs

1. Core TSOs appoint CORESO and TSCNET as regional security coordinators that will perform tasks listed in accordance with article 77 (3) of SO Regulation in the Core CCR.

2. CORESO and TSCNET will perform tasks listed in article 77(3) of SO Regulation in the Core CCR for all Core TSOs and for technical counterparties of the Core CCR in a transparent and non-discriminatory manner.
3. In accordance with article 77(3) of SO Regulation all Core TSOs delegate the following tasks to CORESO and TSCNET:
    a. Regional operational security coordination in accordance with SO Regulation Article 78 in order to support Core TSOs fulfil their obligations for the year-ahead, day-ahead and intraday timeframes in accordance with articles 34(3), 72 and 74 of SO Regulation;
    b. Building of common grid model in accordance with article 79 of SO Regulation;
    c. Regional outage coordination in accordance with article 80 of SO Regulation, in order to support Core TSOs fulfil their obligations in articles 98 and 100 of SO Regulation;
    d. Regional adequacy assessment in accordance with article 81 of SO Regulation in order to support Core TSOs fulfil their obligations under article 107 of SO Regulation.

TITLE 8 FINAL PROVISIONS

Article 42 Publication of this Proposal

1. Upon approval by the competent regulatory authorities, each Core TSO shall publish this Core ROSC Methodology on the internet in accordance with article 8 (1) of SO Regulation.

Article 43 Language

1. The reference language for this Core ROSC Methodology shall be English. For the avoidance of doubt, when Core TSOs need to translate this Core ROSC Methodology into their national language(s), in the event of inconsistencies between the English version published by Core TSOs in accordance with article 8 (1) of SO Regulation and any version in another language, the relevant Core TSOs shall, in accordance with national legislation be obliged to dispel any inconsistencies by providing a revised translation of this Core ROSC Methodology to their relevant national regulatory authorities.