ACER
European Union Agency for the Cooperation of Energy Regulators

ACER Decision on Core RDCT Methodology: Annex I

Methodology for coordinated redispatching and countertrading for the Core CCR

in accordance with Article 35(1) of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management

4 December 2020

Contents

Whereas

(1) This document describes the methodology for coordinated redispatching and countertrading for the capacity calculation region Core pursuant to Article 35(1) of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereafter referred to as the 'CACM Regulation'). This document is hereafter referred to as the 'RDCT Methodology'.

(2) This RDCT Methodology takes into account the general principles and goals set in the CACM Regulation as well as Commission Regulation 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the 'SO Regulation').

(3) This RDCT Methodology takes into account the possible dependencies with Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing, Commission Regulation (EU) 543/2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) 714/2009 (hereafter referred to as the 'Transparency Regulation') as well as Commission Regulation (EU) 1227/2011 on wholesale energy market integrity and transparency (hereafter referred to as the 'REMIT Regulation').

(4) Article 35 of the CACM Regulation constitutes the legal basis and defines the requirements for the RDCT Methodology.

(5) As coordination of cross-border relevant redispatching and countertrading actions needs to be coordinated with other cross-border relevant remedial actions, this RDCT Methodology needs to be fully consistent with the methodology on regional operational security coordination in accordance with Article 76 of the SO Regulation ('hereinafter referred to as 'ROSC Methodology'). For this reason, this RDCT Methodology applies a common coordination of all cross-border relevant remedial actions among which are cross-border relevant redispatching and countertrading actions. Any references to cross-border relevant remedial actions therefore include also the reference to cross-border relevant redispatching and countertrading actions. This RDCT Methodology also complies with the requirements of the SO Regulation (in particular its Article 76), which are defining the obligations on coordination of cross-border relevant remedial actions.

(6) For the activation of cross-border relevant remedial actions, this RDCT Methodology defines two types of coordination processes which aim to resolve operational security violations with cross-border relevant remedial actions. The standard coordination process is called coordinated regional operational security analysis ('CROSA') in accordance with Article 78 of the SO Regulation that is performed at a regional level by all Core TSOs and RSC(s) together. In cases where the CROSA cannot be applied, TSO(s) can apply a fact activation process, which is a limited coordination performed by a TSO(s) facing operational security violation in coordination with RSC(s) and other TSOs, which may be affected by application of remedial actions.

(7) This RDCT Methodology defines all relevant types of constraints which are necessary to ensure the operational security.

(8) To identify the most effective and economically efficient remedial actions in accordance with Article 35(4) of the CACM Regulation, this RDCT Methodology introduces the remedial action

optimisation ('RAO'). The aim of this optimisation is to minimise the incurred cost as well as to ensure the remedial actions are applied effectivity to address operational security violations.

(9) This RDCT Methodology complements the cost sharing methodology for the Core CCR established pursuant to Article 74 of the CACM Regulation. While the cost sharing methodology determines the concrete cost sharing solution, this RDCT Methodology determines all the relevant input data and parameters that are required for the application of the cost sharing methodology.

(10) As the Core CCR is characterised by a highly meshed network, all network elements of voltage equal or higher than 220 kV and all available remedial actions are generally considered as cross-border relevant. This is because in Core CCR it is generally not possible to identify a network element that would be impacted only by remedial actions that do not have any impact on other cross-border relevant network elements. Still, exceptions to the rule are possible if all Core TSOs agree that individual network elements can be considered as not cross-border relevant.

(11) As all potential remedial actions are considered as cross-border relevant in Core CCR, when it comes to coordinated regional operational security analysis, there is no need for qualitative or quantitative assessment of their cross-border relevance in accordance with CSAM. Nevertheless, after optimal cross-border remedial actions are determined by RAO, these can be further modified by subsequent coordination and fast activation process and these modifications need to be coordinated only among the TSOs which are directly affected by the concerned remedial action. For this purpose, this RDCT Methodology also defines a methodology for a qualitative and quantitative assessment of TSOs that are significantly affected by cross-border relevant remedial actions.

(12) This RDCT Methodology considers and, where necessary, complements:

(a) the methodology for coordinating operational security analysis in accordance with Article 75 of the SO Regulation (hereafter referred to as 'CSAM');

(b) the ROSC Methodology in accordance with Article 76 of the SO Regulation;

(c) the common Core methodology for coordinated redispatching and countertrading cost sharing (hereafter referred to as 'cost sharing methodology') in accordance with Article 74 of the CACM Regulation.

(13) In this RDCT Methodology, the CROSA, consists of a preparation step, a coordination step (containing one or more coordination runs) and a validation step. The CROSA describes the coordination between TSOs and RSC(s) of the Core CCR as well as coordination of Core TSOs and RSC(s) with the TSOs and RSC(s) of other CCRs.

(14) In accordance with Recital (15) of the SO Regulation, synchronous areas do not stop at the European Union's (EU) borders and can include the territory of third countries. The TSOs should aim for secure system operation inside all synchronous areas which include EU countries. This RDCT Methodology is open to participation of third country TSOs subject to a common agreement and equal rights and responsibilities.

(15) To ensure the tools implemented to build CGMs and operated by RSC(s) will be compliant with the respective requirements set up in the relevant legislation in force, including the SO Regulation (notably Article 79(5) of the SO Regulation), the CGMM and the CSAM, while ensuring reliability of the CGM delivery process and the aligned use of the resulting unique CGM, a

consistent and harmonised approach at pan-European level is needed. This should be facilitated by ENTSO-E where all EU TSOs are involved.

(16) In accordance with Article 35(2) of Regulation 2019/943 of the European Parliament and of the Council on the internal market for electricity (hereafter referred to as "Electricity Regulation"), the regional coordination centres ('RCCs') shall replace the RSCs established pursuant to the SO Regulation and shall enter into operation by 1 July 2022. Core RCC(s) shall complement the role of TSOs by performing the tasks of regional relevance assigned to them in accordance with Article 37 of the Electricity Regulation.

(17) This RDCT Methodology contributes to the objectives of the CACM Regulation as follows:

(a) it promotes effective competition in the generation, trading and supply of electricity (Article 3(a) of the CACM Regulation) as it applies coordination and optimisation of remedial actions which aim to maximise cross-zonal capacities and thereby maximise cross-border competition in the generation, trading and supply of electricity;

(b) it ensures optimal use of the transmission infrastructure (Article 3(b) of the CACM Regulation) as it resolves physical congestions in transmission infrastructure by coordination and optimisation of remedial actions;

(c) it ensures operational security (Article 3(c) of the CACM Regulation) by applying a regional operational security coordination that aims to resolve all operational security violations in an efficient and coordinated manner;

(d) it helps optimising the calculation and allocation of cross-zonal capacity (Article 3(d) of the CACM Regulation) as it allows TSOs to increase cross-zonal capacities with implicit understanding that resulting congestions can be addressed efficiently with coordination and optimisation of remedial actions;

(e) it ensures fair and non-discriminatory treatment of TSOs as it lays down the rules for coordination of remedial actions without any specific treatment of any Core TSO and is deemed to have no impact on the treatment of NEMOs, the Agency, regulatory authorities and market participants (Article 3(e) of the CACM Regulation);

(f) it helps ensuring and enhancing the transparency and reliability of information (Article 3(f) of the CACM Regulation) since it identifies congestions and required remedial actions in a transparent and auditable manner which will enable TSOs to publish this information more easily;

(g) it contributes to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union (Article 3(g) of the CACM Regulation) because it significantly strengthen the management of operational security in highly meshed network of continental Europe, where operational security cannot be guaranteed in unilateral way.

(h) it respects the need for a fair and orderly market and fair and orderly price formation (Article 3(h) of the CACM Regulation) because coordination and optimisation of remedial actions is done in a way that minimises the impact on regular day-ahead and intraday markets;

(i) is deemed to have no impact on creating a level playing field for NEMOs (Article 3(i) of the CACM Regulation);

(j) it provides non-discriminatory access to cross-zonal capacity (Article 3(j) of the CACM Regulation) since the coordination and optimisation of remedial actions allow management of network congestions in a way that does not discriminate between internal and cross-zonal exchanges and this facilitates non-discriminatory access to cross-zonal capacities.

(18) In conclusion, this RDCT Methodology contributes to the objectives of the CACM Regulation and of the Electricity Regulation and to the benefit of all market participants and electricity end-users.

TITLE 1
GENERAL PROVISIONS

Article 1
Subject matter and scope

1. This RDCT Methodology is developed in accordance with Article 35 of the CACM Regulation and respects the provisions set out in Article 76 and Article 77 of the SO Regulation.
2. This RDCT Methodology shall cover the year-ahead, day-ahead and intraday regional operational security coordination within Core CCR.
3. This RDCT Methodology shall apply to all TSOs and RSCs within the Core CCR. This RDCT Methodology shall apply to Core RCCs upon their establishment pursuant to Article 35 of the Electricity Regulation.
4. This RDCT Methodology shall also apply to third country TSO(s), if such TSO(s) have signed an agreement with all Core TSOs that they shall comply with this RDCT Methodology, as well as the Core methodologies pursuant to Article 35 and Article 74 of the CACM Regulation and Article 76 of the SO Regulation and accept all the rights and obligations stemming from them. In such case the reference to Core TSO(s) and Core CCR in this methodology shall also include such third country TSO(s).

Article 2
Definitions and concepts

1. For the purposes of this RDCT Methodology, the terms used shall have the meaning of the definitions included in Article 2 of the CACM Regulation, Article 3 of the SO Regulation, Article 2 of the Electricity Regulation and Article 2 of the Transparency Regulation.
   In addition, the following acronyms and definitions shall apply:
   (a) ‘cross-border relevant remedial action’ or ‘XRA’ means a remedial action identified as cross-border relevant and needs to be applied in a coordinated way;
   (b) 'available XRA' means an XRA that is available for the CROSA to relieve operational security violations;
   (c) ‘recommended XRA’ is an XRA determined as optimal by RAO and/or recommended by RSC(s) to TSOs;
   (d) ‘agreed XRA’ means an XRA which has agreed during the coordination among Core TSOs and RSC(s);
   (e) ‘ordered XRA’ is an agreed XRA that bindingly ordered after the end of CROSA;

(f) ‘agreed but not ordered XRA’ or ‘ANORA’ is an agreed XRA that has not been ordered after the end of CROSA;

(g) 'activated XRA' means ordered XRA that has been implemented by the XRA connecting TSO(s), or the request for their activation has been sent to the third party XRA provider;

(h) ‘CGM’ means the common grid model as defined in Article 2(2) of the CACM Regulation;

(i) ‘CGMM’ means the common grid model methodology pursuant to Articles 67 and 70 of the SO Regulation;

(j) 'conditionally available XRA' means an XRA whose availability depends on conditions determined by the XRA Connecting TSO(s);

(k) ‘CSAM’ means the methodology for coordinating operational security analysis pursuant to Article 75 of the SO Regulation;

(l) ‘CROSA’ or ‘coordinated regional operational security assessment’ means a process of an operational security analysis performed by RSC(s) in accordance with Article 78 of the SO Regulation;

(m) ‘coordinated operational security analysis’ means an operational security analysis performed by a TSO in accordance with Article 72(3) and 72(4) of the SO Regulation;

(n) ‘ID RSA’ means the intraday regional operational security analysis as referred to in Article 72(1)(d) of the SO Regulation

(o) ‘IGM’ means the individual grid model as defined in Article 2(1) of the CACM Regulation;

(p) ‘RAO’, means remedial action optimisation that determines optimal set of XRAs within each CROSA;

(q) ‘RD and CT’ means ‘redispatching and countertrading’ as defined pursuant to Article 2(26) and Article 2(13) of the Transparency Regulation;

(r) ‘ROSC’ means ‘regional operational security coordination’;

(s) ‘scanned element’ means a network element which is monitored during CROSA such that CROSA does not worsen, or create new operational security violations.

(t) ‘(X)RA connecting TSO’ means a TSO responsible for the control area where the (X)RA is located or connected. In case of an interconnector, the TSO executing the topological change shall be considered as (X)RA connecting TSO;

(u) ‘XRA affected TSO’ means the TSO which is significantly impacted by the activation of an XRA;

(v) ‘XNE’ or ‘cross-border relevant network element’ means a network element identified as cross-border relevant and on which operational security violations need to be managed in a coordinated way;

(w) ‘XNEC’ or ‘cross-border relevant network element with contingency’ means an XNE associated with a contingency. For the purpose of this methodology, the term XNEC also covers the case where an XNE is used in operational security analysis without a specified contingency;

(x) ‘XNE connecting TSO’ means the TSO responsible for the control area where the XNE is located or connected. In case of an interconnector, the TSOs on both sides of the interconnector shall be considered as XNE connecting TSOs;

(y) ‘third party (X)RA provider’ means a party other than the (X)RA connecting TSO who owns and/or operates the assets involved in the activation of in the concerned (X)RA;

(z) ‘network element’ means any component of a transmission system, including interconnectors, or of a distribution system, including a closed distribution system, such as a single line, a single circuit, a single HVDC system, a single transformer, a single phase-shifting transformer, or a voltage compensation installation;

(aa) ‘RAIF’ or ‘remedial action influence factor’ means a flow deviation on a XNEC resulting from the application of a remedial action, normalised by the PATL on the associated XNE;

(bb) ‘preventive (X)RA’ means a remedial action that is the result of an operational planning process and needs to be activated prior to the investigated timeframe for compliance with the (N-1) criterion;

(cc) ‘local preliminary assessment’ means an operational security analysis performed by a TSO to prepare an individual grid model;

(dd) ‘overlapping XNE’ means an XNE on which the physical flows are significantly impacted by electricity exchanges in two or more CCRs or by XRAs from two or more CCRs;

(ee) ‘overlapping XRA’ means an XRA that is able to address operational security violations on overlapping XNE;

(ff) ‘curative (X)RA’ means a remedial action that is the result of an operational planning process and is activated straight subsequent to the occurrence of the respective contingency for compliance with the (N-1) criterion, taking into account TATL and the accepted duration of transitory admissible overload;

(gg) ‘virtual positive load margin’ means a positive margin defined by a TSO for a scanned element that will be applied on top of the PATL in order to represent the influence of available remedial action which is not an XRA.

(hh) ‘permanent admissible transmission loading’, or ‘PATL’ means the maximum loading in amperes, MW or MVA that can be sustained on a network element for an unlimited duration without risk to the equipment;

(ii) ‘temporary admissible transmission loading’, or ‘TATL’ means the maximum loading in amperes, MW or MVA that can be sustained on a network element for a limited duration without risk to the equipment;

(jj) ‘thermal limit’ refers to both PATL and TATL;

(kk) ‘transitory admissible overload’ means the temporary overload of a network element which is allowed for a limited period and which do not cause physical damage to the network element as long as the defined duration and thresholds are respected;

2. This RDCT Methodology defines the following types of XRAs determined in the following sequence:

(a) Recommended XRAs are the XRAs determined as optimal by RAO and recommended by RSC(s) to TSOs;
(b) Agreed XRAs are the recommended XRAs which are either agreed or modified during the coordination among TSOs and RSC(s);
(c) Ordered XRAs are agreed XRAs for which TSOs and RSC(s) agree that their activation cannot be postponed until the next CROSA due to specific activation constraints (e.g. required activation time) of such XRAs;
(d) Activated XRAs are the ordered XRAs which have been implemented by the XRA connecting TSOs, or the request for their activation has been sent to the resource provider.

3. This RDCT Methodology determines the following types of constraints:
   (a) Operational security limits: the acceptable operating boundaries for secure grid operation. This RDCT Methodology shall cover the following operational security limits:
      (i) thermal limits of network elements (PATL and TATL);
      (ii) voltage limits;
      (iii) stability limits of the transmission system identified in accordance with Article 38(2) and Article 38(6) of the SO Regulation; and
      (iv) short-circuit current limits of the transmission system.
   (b) Constraints on XRAs: constraints related to all aspects required to be taken into account when using XRAs and classified as following:
      (i) technical constraints are the rules representing technical limitations for activation of XRAs;
      (ii) operational constraints are the operational conditions and usage rules taking into account the timings to operate the network and avoid a premature ageing of the assets included in the XRAs;
      (iii) procedural constraints are all the timing constraints due to local or regional processes; and
      (iv) priority constraints are representing national legal requirements regarding the priority of activation of XRAs.
   (c) Additional optimisation constraints called system constraints are additional optimisation constraints, expressed as current limits on a single or a set of XNEs and scanned elements and necessary to respect operational security limits other than PATL and TATL.
4. In this RDCT Methodology, unless the context requires otherwise:
   (a) The acronym '(X)RA' is used where the reference can mean both the remedial action or cross-border relevant remedial action;
   (b) The singular indicates the plural and vice versa;
   (c) Headings are inserted for convenience only and do not affect the interpretation of this RDCT Methodology;
   (d) 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;
   (e) Any reference to an Article without an indication of the document shall mean a reference to this RDCT Methodology.

TITLE 2
REGIONAL OPERATIONAL SECURITY COORDINATION

Article 3
General provisions for ROSC

1. Core TSOs in coordination with Core RSC(s) shall perform the ROSC for long term studies for year-ahead regional operational security coordination in accordance with CSAM. When Core TSOs propose a first amendment to this RDCT Methodology, they shall include in this proposal also the detailed process for regional operational security coordination for year-ahead timeframe as well as possible other long-term timeframes.
2. Core TSOs in coordination with Core RSC(s) shall execute the ROSC for each timestamp of the target operation day. The ROSC consists of the following activities:
    (a) Intraday regional operational security analysis (ID RSA) as described in Article 4;
    (b) One day-ahead and several intraday CROSAs. Day-ahead CROSAs shall be performed in accordance with the timings defined in CSAM. Intraday CROSAs shall be performed at least three times in the intraday timeframe in accordance with timings defined in 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.
        (iv) Implementation and activation as described in Chapter 4 of Title 4.

    A CROSA may consist of two coordination runs.
    (c) Fast activation process as described in Title 5. Core TSOs shall have the right to modify an ordered XRA or may activate a new (X)RA following the fast activation process.

Article 4
Intraday regional operational security analysis

1. The goal of the ID RSA is to provide Core TSOs the latest information for each timestamp of the operation day about the loading of the transmission system and previously undetected operational security violations, which may serve as a trigger for a fast activation process.
2. ID RSA shall be performed at each hour of the day for each timestamp until the end of the operation day.
3. ID RSA shall be performed on the updated IGMs containing the latest available forecast of generation and load, planned outages, forced outages and agreed XRAs.
4. For the purpose of ID RSA, each Core TSO shall provide IGMs to Core TSOs and RSC(s) for all remaining timestamps of the operation day, respecting CGMM provisions and including all agreed XRAs resulting from the latest CROSA or fast activation process.
5. Core RSC(s) shall merge updated IGMs into an updated CGM, perform a load flow and contingency analysis and deliver the results to all Core TSOs.

TITLE 3
DEFINITION AND DETERMINATION OF CROSA INPUTS

Article 5
Definition of XNEs

1. XNEs shall be:
    (a) all critical network elements ('CNEs') included in the final list of CNEs in the day-ahead and intraday capacity calculation methodology of the Core CCR in accordance with the CACM Regulation; and
    (b) all other network elements within the control area of Core TSOs with a voltage level higher than or equal to 220 kV, except for those network elements that are not CNEs and for which Core TSOs agree that they are not cross-border relevant for the Core CCR and may therefore be excluded, following the process referred to in Article 7(3)(b)(iii).
2. The list of XNEs shall contain all XNEs defined in paragraph 1.

Article 6
Definition of scanned elements

1. The scanned elements shall be network elements, which are not XNEs and on which CROSA shall not worsen eventually existing operational security violations, or create new operational security violations.
2. For CROSA purposes only, each Core TSO shall set on each scanned element an individual virtual positive load margin, on top of the PATL defined in its IGM.
3. The list of scanned elements shall contain all scanned elements defined pursuant to paragraph 1.

Article 7
The establishment and maintenance of the lists of XNEs and scanned elements

1. By twelve months before the implementation of the first implementation step of this methodology, all Core TSOs, with the support of Core RSC(s) shall determine the list of XNEs and the list of scanned elements in accordance with Article 5 and Article 6.
2. By twelve months before the implementation of this methodology, all Core TSOs, with the support of Core RSC(s), shall agree on a process for amendments and regular review of the list of XNEs and the list of scanned elements.
3. When establishing and maintaining the list of XNEs and the list of scanned elements, each Core TSO shall have the right, for the network elements which are at least partly located in its control area:
    (c) to include in the list of XNEs any network element with a voltage level higher than or equal to 220 kV without further agreement with other Core TSOs, if the network element is modelled in the TSO's year-ahead IGM or in the IGM otherwise specified in the process pursuant to paragraph 2;
    (d) to exclude any network element from the list of XNEs (except for CNEs) as follows:

(i) the following network elements may be subject to exclusion without further agreement with other Core TSOs: (i) radial lines, including those connecting power plants, (ii) distribution network elements and (iii) transformers with the secondary voltage lower than 220 kV;

(ii) Core TSOs, which are part of more than one CCR, shall have the right to exclude from the list of XNEs any network element that is subject to regional operational security coordination within other CCR(s). In such case, the corresponding Core TSO shall inform the TSOs and RSC(s) of the other CCR(s), about the network elements it excluded;

(iii) Core TSOs shall have the right to exclude any elements from the list of XNEs (except for CNEs) if there is a common agreement amongst Core TSOs that such elements can be excluded;

(e) to include in the list of scanned elements any network element excluded from the list of XNEs;

(f) to include in the list of scanned elements any network element which is modelled in its IGM, with a voltage level lower than 220 kV that is not on the list of XNEs;

(g) to exclude any network element from the list of scanned elements;

(h) to move any network element from its control area fulfilling the criteria for XNEs defined in Article 5 from the list of scanned elements to the list of XNEs.

4. Each Core TSO shall have the right to include in the list of scanned elements also overlapping XNEs which are declared as XNEs in other CCRs as well as other network elements which are part of its observability area.
5. When applying the process referred to in paragraph 2 and if a new network element with a voltage level higher than or equal to 220 kV is commissioned, the Core TSO operating this network element shall decide on its inclusion in the list of XNEs pursuant to paragraph 2 while respecting Article 5.
6. When applying the process referred to in paragraph 2 and if a new network element with a voltage level lower than 220 kV is commissioned, the Core TSO operating this network element shall decide on its inclusion in the list of scanned elements pursuant to paragraph 2 while respecting Article 6.
7. By applying the process referred to in paragraph 2, Core TSOs shall update the list of XNEs and the list of scanned elements when necessary and inform the Core RSC(s) about the change. The list of XNEs and the list of scanned elements shall be reassessed by Core TSOs at least once a year.
8. Core TSOs shall share the list of XNEs and the list of scanned elements with Core RSC(s) for day-ahead and intraday CROSAs.
9. Core RSC(s) shall start using the newly shared list of XNEs and the list of scanned elements in the next CROSA.

Article 8
Classification of remedial actions

1. Each Core TSO shall classify the RAs in accordance with Article 22 of the SO Regulation.
2. RAs classified in categories (d), (h), (i) and (j) of Article 22(1) of the SO Regulation shall not be used for the ROSC process.

Article 9
Cross-border relevance of remedial actions

1. Within one month after the list of XNEs has been defined in accordance with Article 7, Core TSOs shall share with the Core RSC(s) all potential RAs, designed in accordance with CSAM, which are at least sometimes able to address violations of current limits on XNEs. In doing so, each Core TSO shall also consider the potential RAs recommended by Core RSC(s) in accordance with Article 78(2)(a) of the SO Regulation. Each Core TSO shall continuously asses the possibility for new potential RAs. All Core TSOs and RSC(s) shall commonly asses the possibility for new potential RAs at least on biannual basis.
2. All potential RAs identified pursuant to paragraph 1 shall be considered as cross-border relevant (XRAs), unless all Core TSOs unanimously agree that a potential RA is not cross-border relevant.
3. Core TSOs, in coordination with Core RSC(s), shall jointly assess the XRA affected TSOs for each XRA determined pursuant to paragraph 2.
4. Core TSOs shall aim at agreeing on a qualitative approach in accordance with Article 10 to determine XRA affected TSOs for each XRA.
5. If the concerned XRA is quantifiable such as RD and CT, change of set point on HVDC systems or change of taps on phase-shifting transformers, the quantity above which this XRA is having a significant effect on the control areas of other TSOs and its control area has to be specified in accordance with CSAM.
6. If Core TSOs cannot agree on XRA affected TSOs based on a qualitative approach in accordance with Article 10, quantitative approach in accordance with Article 11 shall be used to determine the XRA affected TSOs.
7. Core TSOs shall jointly define and share with the Core RSC(s) the list of XRA affected TSOs and any update to such list.
8. Core TSOs with the support of Core RSC(s), shall reassess the XRA affected TSOs at least on an annual basis.
9. If a new potential RA is designed by a Core TSO for its control area during real time operation and if the system is in alert state in accordance with the Article 18 of the SO Regulation and determined as XRA pursuant to paragraph 2, the XRA connecting TSOs shall use quantitative assessment in order to identify the XRA affected TSOs. In doing so, the XRA connecting TSO shall check that the activation of such XRA does not lead to operational security violations on network elements of its observability area using either the latest available CGM or its model from the state estimator. If such analysis shows that the activation of a new XRA may cause operational security violations on network elements of its observability area, its activation has to be coordinated with the TSO(s) where the operational security violations occur.
10. During real time operation, if the system is in emergency state and only when operational conditions allow it, when preparing restoring remedial actions each TSO shall assess the XRA affected TSOs.
11. Between two mandatory assessments of XRA affected TSOs pursuant to paragraph 8, each Core TSO shall have the right to request an additional assessment of XRA affected TSOs providing justification for such a request to the XRA connecting TSO and respective Core RSC(s).
12. During fast activation process, when a Core TSO proposes an XRA in emergency and alert state pursuant to CSAM and when this TSO is the XRA connecting TSO as well as the only XRA

affected TSO, the activation of this XRA shall not be subject to further coordination. Core TSOs and Core RSC(s) shall be informed of the activation of such XRA.

Article 10
Qualitative assessment of XRA affected TSOs

1. For each XRA identified pursuant to Article 9(2):
   (a) Each Core TSO shall individually assess the effect of each XRA on its control area;
   (b) Each XRA connecting TSO shall assess the effect of its XRAs on control areas of other Core TSOs and also on its control area;
2. Core TSOs may delegate the tasks described in paragraph 1 to Core RSC(s).
3. When a Core TSO identifies that an XRA has a significant impact on its control area, it shall inform the XRA connecting TSO and request that it be determined as XRA affected TSO and provide justification for such request.
4. If Core TSOs reach a common agreement that an XRA has significant impact on specific control area, then the concerned TSO shall be defined as XRA affected TSO.
5. If XRA connecting TSO receives no request from any other Core TSO to be determined as XRA affected TSO, the XRA connecting TSO shall be the only XRA affected TSO.

Article 11
Quantitative assessment of XRA affected TSOs

1. Core RSC(s) shall use the CGMs established in accordance with Article 67 of the SO Regulation when quantifying the effect of XRAs on TSOs.
2. Quantitative assessment of XRA affected TSOs shall be done on all XNEs defined in accordance with Articles 5 and 7.
3. If an XRA consists of a combination of actions, the quantitative assessment of XRA affected TSOs shall be done for the combined effect.
4. A TSO shall be considered as XRA affected TSO if the RAIF calculated in accordance with CSAM for this XRA is equal or higher than 5% on any XNE (in N-situation or contingency) for which this TSO is the XNE connecting TSO. This significance threshold may be reduced if agreed by Core TSOs subject to governance framework defined in Article 36.
5. The RAIF referred to in paragraph 4 shall be calculated on the latest available CGM.

Article 12
Contingency list

1. Each Core TSO shall establish the list of contingencies (hereafter referred to as ‘contingency list’) to be simulated in operational security analysis. The contingency list shall be established in accordance with Article 33 of the SO Regulation.
2. Each Core TSO shall provide the respective Core RSC(s) and Core TSOs with its contingency list to be used in CROSA and shall inform the Core RSC(s) about any update of this list in accordance with CSAM.
3. In case a specific operational security violation on XNE or scanned element with specific contingency can be more efficiently addressed outside of the day-ahead and intraday CROSA, the

Core TSOs and Core RSC(s) may exclude the relevant XNECs and scanned elements associated with a contingency from the concerned day-ahead and intraday CROSA if there is a common agreement amongst Core TSOs that such XNECs can be excluded.

4. Core RSC(s) shall start using the newly shared contingency lists in the next CROSA.

TITLE 4
COORDINATED REGIONAL OPERATIONAL SECURITY ANALYSIS PROCESS

CHAPTER 1
PREPARATION

Article 13
Provision of CROSA inputs

1. Each Core TSO shall provide the following input data to Core RSC(s):
   (a) IGM according to Article 14, including the operational security limits for each XNE and scanned element according to Articles 5 and 6;
   (b) XNEs and scanned elements according to Articles 5 and 6;
   (c) Contingency list according to Article 12.
   (d) Available XRAs within its control area according to Article 15;
   (e) Constraints on XRAs in accordance with Article 2(4) and Article 15; and
   (f) When relevant, system constraints according to Article 16;
2. Core RSC(s) shall provide for each intraday CROSAs the list of agreed XRAs from previous CROSAs archived by Core RSC(s) in accordance with Article 30.
3. When providing information on XNEs and XRAs pursuant to paragraph 1(b) and (d) the connecting TSO shall also provide the information whether the concerned XNE or XRA is overlapping as determined pursuant to Article 28.
4. The input data pursuant to paragraph 1 shall cover all timestamps of the operation day in case of day-ahead CROSA and all applicable timestamps of the operation day in case of intraday CROSA.
5. Each Core TSO shall update the input data for the second coordination run of the day-ahead CROSA and possible second coordination runs in intraday CROSAs in accordance with the provisions defined in Articles 14 to 17.
6. Within the timelines established pursuant to Article 18(4), all Core TSOs and RSC(s) shall define for each CROSA the common gate closure time by which the inputs pursuant to in paragraph 1 can be delivered and updated by Core TSOs.

Article 14
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 CROSAs as defined in CSAM and the CGMM.
2. Each Core TSO shall have the right to perform a local preliminary assessment pursuant to CSAM. Each Core TSO shall have the right to include in its IGM the (X)RAs resulting from the local

preliminary assessment performed before the day-ahead CROSA in accordance with the rules specified in CSAM.

3. In accordance with CSAM, each Core TSO shall have the right to include in its IGM, the (X)RAs for which this TSO is the only XRA affected TSO and that are resulting from the local preliminary assessment performed by such Core TSO at any time.
4. In accordance with CSAM, if a Core TSO includes in its IGMs the (X)RA(s) resulting from the local preliminary assessments pursuant to paragraph 2 and 3, the information on these (X)RA(s) shall be shared among Core TSOs and be clearly distinguishable in the IGM from the initial state variables without these (X)RAs applied in accordance with Article 70(4) of the SO Regulation.
5. The costs of (X)RAs included in IGM resulting from the local preliminary assessment shall not be included in the final costs to be shared in accordance with cost sharing methodology.
6. In case paragraphs 2 and 3 are contradicting the provisions of CSAM, the relevant provisions from CSAM shall prevail.
7. If the RAO results in agreed XRAs for the respective control area, each Core TSO shall provide to Core RSC(s) an updated IGM with agreed XRAs between two coordination runs within one CROSA in accordance with CSAM and CGMM. The XRAs resulting from the first coordination run shall not be binding and shall be possible to be changed by the RAO during the following coordination run within the same CROSA if deemed necessary.

Article 15
Information on available XRAs

1. Each Core TSO shall make available all XRAs as identified in Article 9(2) to the Core RSC(s) for each day-ahead and intraday CROSAs as defined in CSAM unless an XRA is not available pursuant to this Article.
2. When identifying whether the XRAs identified pursuant to Article 9(2) shall be made available for the day-ahead and intraday CROSAs, each Core TSO shall respect the following principles:
    (a) Each XRA connecting TSO shall asses the availability of all its XRAs identified in Article 9(2);
    (b) Each XRA connecting TSO may declare the XRA as not available in case it cannot be activated due to:
        i. an unforeseen event, or
        ii. planned or unplanned outage, or
        iii. a declaration of unavailability status done by a third party XRA provider, or
        iv. any other cause outside of the responsibility of the Core TSOs;
    (c) In case XRA is conditionally available, the XRA connecting TSO shall provide to Core RSC(s) and other Core TSOs the conditions for its availability and the underlying justification.
3. Each Core TSO shall provide any relevant information for each available or conditionally available XRA for the purpose of day-ahead and intraday CROSA process that will reflect the technical, operational or procedural constraints of the XRA as defined in accordance with Article 2.

4. Each Core TSO shall also provide, for the purpose of day-ahead and intraday CROSA, the information on the available volume of XRAs considering the constraints of XRAs as defined in accordance with Article 2.
5. Core TSOs and Core RSC(s) shall agree and define a detailed specification of information requirements for XRAs needed for each CROSA. This shall include a predefined set of conditions for conditionally available XRAs.
6. In case of a second coordination run of the coordination stage of day-ahead or intraday CROSA, each Core TSO shall provide to the Core RSC(s) an updated information on available XRAs, considering:
    (a) The agreed outcome of the latest coordination run for the XRAs in accordance with Article 27 and 28;
    (b) Any update of XRA availability related to unplanned or forced outages or changes of outage schedules of relevant assets;
    (c) Any update of available XRA volumes related to the latest schedules of load and generation.
7. In case XRAs are owned or provided by a third party, such third party XRA providers shall provide to the XRA connecting TSOs best up-to-date information on the availability of their XRAs, including all the necessary information that is required for CROSAs. This information shall be provided by the deadline determined by the XRA connecting TSO, which shall be shortly before the gate closure time referred to in Article 13(6). The provided information shall include at least the following:
    (a) Available volume of XRAs;
    (b) Technical characteristics and constraints of XRAs;
    (c) Information on prices or costs of XRAs, which shall enable the XRA connecting TSOs and Core RSC(s) the estimation of total costs of XRAs subject to their optimal and/or ordered volume.

Article 16
System constraints

1. Core TSOs may apply system constraints in accordance with Article 2 for the purpose of respecting operational security limits other than thermal limits. Such system constraints shall be expressed as a current limit on a single XNE or a set of XNEs and scanned elements.
2. The system constraints introduced for the purpose of dynamic stability shall be defined based on the criteria for dynamic system stability in accordance with Articles 38 and 39 of the SO Regulation.
3. Before applying such system constraints, the concerned Core TSO shall provide to other Core TSOs and Core RSC(s) in a transparent manner all the details and possible underlying studies on how the value of each specific system constraints was determined and calculated.
4. When Core TSOs propose a first amendment to this RDCT Methodology, they shall include in this proposal also the information on:
    (a) which TSOs need to apply system constraints;
    (b) which system constraints need to be applied and which operational security limits are represented in such system constraints;

(c) justification on why these system constraints need to be applied in CROSAs and why other measures are not sufficient or appropriate; and
(d) information about possible long-term measures to mitigate the need for system constraints.

Article 17
Consistency and quality check of the input data

1. The Core RSC(s) shall assess and monitor the consistency and quality of each input data file provided by each Core TSO in accordance with CGMM and CSAM.
2. Core RSC(s) shall monitor if the agreed XRAs are included in the IGMs provided by each Core TSO.
3. The Core RSC(s) shall inform the concerned Core TSOs on the identified issues pursuant to paragraphs 1 and 2 in an appropriate timeframe before starting the RAO, to give Core TSOs the opportunity to correct these errors or inconsistencies and provide updated input files.

CHAPTER 2
COORDINATION

Article 18
General provisions of coordination process

1. Core RSC(s) in coordination with Core TSOs shall perform the day-ahead and intraday CROSAs in accordance with CSAM.
2. The day-ahead CROSA shall include two coordination runs and each intraday CROSA will include at least one coordination run. Each coordination run shall consist of the following steps:
    (a) Building of the CGMs by the RSC(s) in accordance with CGMM;
    (b) Performing the load flow and contingency analysis in accordance with Article 19;
    (c) RAO in accordance with Articles 20 to 26;
    (d) Coordination of XRAs in accordance with Article 27;
    (e) Inter-CCR coordination in accordance with Article 28.
3. The RAO of each CROSA shall use all available XRAs as identified in accordance with Articles 9 to 11 and Article 15. All recommended XRAs that are the result of the RAO shall be considered for the purpose of subsequent processes, i.e. coordination of XRAs, validation, inter-CCR coordination and determination of costs for cost sharing.
4. All Core TSOs with the support of RSC(s) shall jointly define the timeline of each step of the day-ahead and intraday CROSA, in accordance with CSAM and CGMM. The timings shall be published on the ENTSO-E website.
5. In accordance with Article 32, during the intraday CROSA, the Core TSOs and Core RSC(s) shall reassess the ANORAs that were agreed in the day-ahead CROSA or previous intraday CROSA as well as other available XRAs (except ordered XRAs), for the period relevant for the actual intraday CROSA.
6. Information about ordered XRAs and ANORAs during day-ahead and intraday CROSA shall be archived by Core RSC(s).

Article 19
Operational security analysis

1. Core RSC(s) shall perform the operational 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 XNEs and scanned elements provided by Core TSOs.
2. Operational security analysis shall be performed by applying the AC load flow calculation. For the eventual cases of AC load flow divergence (at the particular contingencies), DC load flow can be used as the fall-back solution.
3. Core RSC(s) shall provide to all Core TSOs the operational security analysis results. These results shall contain, at least:
    (a) applied current limits for XNEs and scanned elements;
    (b) current loading of the XNECs and scanned elements with contingencies;
    (c) applied voltage limits;
    (d) voltages calculated on the CGM;
    (e) cases of AC load flow divergence and possible fall-back DC load flow results.
4. Core TSOs shall have the opportunity to validate the power flow and operational security analysis results. This validation aims at identifying errors in input data, which would make the outcome of the operational security analysis non-realistic and to give Core TSOs the opportunity to correct these errors. In case of the detection of errors in input data, the concerned Core TSOs shall update their input data.

Article 20
Remedial action optimisation

1. Core TSOs and RSC(s) shall optimise XRAs in order to identify in a coordinated way the most effective and economically efficient XRAs, based on the following principles:
    (a) The remedial action optimisation (RAO) of XRAs shall be performed with consideration of all available XRAs in accordance with Article 15;
    (b) The RAO shall consider all constraints on XRAs in accordance with Article 21;
    (c) The RAO shall aim at relieving operational security violations on XNEs in accordance with Article 22;
    (d) The RAO shall not create additional operational security violations on XNEs and scanned elements in accordance with Article 23;
    (e) The RAO shall aim at ensuring economic efficiency by minimising the incurred costs of XRAs as well as the effectiveness of the XRAs to address operational security violations in accordance with Article 24;
    (f) The RAO shall ensure energy balance of XRAs in accordance with Article 25;
    (g) The RAO shall take into account the impact of variations in forecasts and market activities in accordance with Article 26.

Article 21
Constraints on XRAs

1. The RAO shall take into account all constraints of XRAs as determined in Article 2 and provided by Core TSOs in accordance with Article 13, including intertemporal constraints, when identifying the most effective and economically efficient XRAs for all timestamps that are being optimised.
2. The RAO for day-ahead CROSA shall optimise all timestamps of the operation day.
3. The RAO for intraday CROSA shall optimise all remaining timestamps until the end of the operation day.
4. In the RAO for both day-ahead and intraday CROSA, any constraints in accordance with Article 2(4) on ordered XRAs from previous timestamps shall be taken into account.

Article 22
Relieving operational security violations

1. When performing day-ahead and intraday CROSAs, Core TSOs and Core RSC(s) shall detect operational security violations. These violations can be addressed with RAO or during the coordination of XRAs pursuant to Article 27. The RAO shall aim to reduce the currents on XNEs in N-situation or after occurrence of a contingency down to the applicable current limits. The current limits shall represent the thermal limits (PATL and TATL) of an XNE, unless otherwise defined in this methodology.
2. The thermal limits of XNEs shall be defined as follows:
    (a) Seasonal limit, which means a fixed limit for all hours of each of the four seasons.
    (b) Dynamic limit, which means a value per hour reflecting the varying ambient conditions.
    (c) Fixed limits for all hours, in case of specific situations where the physical limit reflects the capability of overhead lines, cables or substation equipment installed in the primary power circuit (such as circuit-breaker, or disconnector) with limits not sensitive to ambient conditions.
3. Core TSOs shall aim at gradually phasing out the use of seasonal limits pursuant to paragraph 2(a) and replace them with dynamic limits pursuant to paragraph 2(b), when the benefits are greater than the costs. After the end of each calendar year, each TSO shall analyse for all its XNEs for which seasonal limits are applied and have been congested at least in 0.1% of timestamps in the previous calendar year, the expected reduction of remedial action costs and increase in economic surplus from single day-ahead and intraday coupling in the next 10 years resulting from the implementation of dynamic limits, and compare it with the cost of implementing dynamic limits. Each TSO shall provide this analysis to Core RSC(s) and all Core TSOs shall report these analyses to Core regulatory authorities. If the cost benefit analysis, taking into account other planned investments, is positive, the concerned TSO shall implement the dynamic limits within three years after the end of the analysed calendar year. In case of interconnectors, the concerned TSOs shall cooperate in performing this analysis and implementation when applicable.
4. For addressing violations of other operational security limits, 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 the SO Regulation. These violations may be addressed in CROSA during the coordination of XRAs pursuant to Article 27. When addressing these violations by applying additional constraints on XRAs, the concerned Core TSO shall provide to other Core TSOs and Core RSC(s) the reasoning for these constraints in a transparent manner.

5. Core TSOs may also apply system constraints that reflect other operational security limits referred to in paragraph 4 for the purpose that RAO does not create new or worsen the existing underlying operational security violations. However, RAO shall not resolve these underlying violations as these shall be resolved in accordance with paragraph 4.
6. In intraday CROSA, the detection of current limits violations pursuant to paragraph 1 shall be performed on CGMs, which do not include ANORAs.
7. The RAO shall aim at identifying the optimal XRAs from the list of available XRAs in accordance with Article 15 to relieve violations of applicable current limits on XNEs in N-Situation and all contingencies, detected pursuant to paragraph 1.
8. Curative XRAs shall be used for relieving operational security violations in contingency case on an XNE as long as the TATL of a network element is not exceeded. Under consideration of all recommended preventive and curative XRAs, the PATL of XNEs shall be respected.

Article 23
Avoiding additional operational security violations on XNEs and scanned elements

1. The activation of XRAs determined by the RAO for relieving operational security violations on XNEs:
    (a) shall not lead to additional operational security violations of operational security limits on XNEs and scanned elements; and
    (b) shall not worsen eventually existing operational security violations on scanned elements in accordance with Article 6.
2. On request of Core TSOs and in case a scanned element constrains the RAO in a significant frequency, the Core TSO who has defined this scanned element shall do everything in its power to reduce its constraining character, e.g. by increasing its virtual positive load margin.

Article 24
Economic efficiency and effectiveness

1. The RAO shall determine the optimal set of XRAs and their volumes by respecting the following objectives (in order of priority):
    (a) aim to relieve operational security violations in accordance with Article 22 and 23;
    (b) aim to minimise total sum of costs and revenues of XRAs; and
    (c) aim to minimise the amount and volume of XRAs.
2. In case RAO is not able to find a solution given the three objectives defined in paragraph 1 it may relax these three objectives to the minimum extent required and in reverse order of priority in order to find a solution.
3. The RAO shall take into account the impact of XRAs on operational security violations with RA remedial action influence factor (RAIF), which determine the impact of each RA on the power flow or current on XNEs and scanned elements as a function of their nominal power flow or current.

4. If RAO is not able to relieve all operational security violations, it shall provide all relevant information on the remaining operational security violations.

Article 25
Energy balance of XRAs

1. In order to guarantee the energy balance of the electricity system after activation of XRAs, the RAO shall ensure that the optimised XRAs do not create energy imbalances and can be activated in a way that does not create energy imbalances in each timeframe.

Article 26
Robustness

1. Taking into account all the principles introduced in Articles 21 to 25, the RAO shall ensure that the identified XRAs for relieving operational security violations on the XNEs are robust to variations of forecasts in consumption, RES production, and market activities and allow Core TSOs to operate their control area without operational security violations.
2. In case of exceptional situations, such as, but not limited to, unpredictable arrival of a wind front or 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 violations, Core TSOs shall have the right to change the current limit of their XNEs referred to in Article 22 in regional day-ahead or intraday processes in accordance with CSAM.
3. Concerned TSOs shall inform without undue delay Core TSOs and RSC(s) in case of application of paragraph 2, providing at least the following information:
    (a) XNEs and timestamps which are affected by the application of 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 Core TSOs shall provide ex-post on request of any Core TSO its justification about its decision to other Core TSOs and RSC(s).
5. Core RSC(s) shall monitor the need, the effectiveness and the impact of the reduction of current limits applied pursuant to paragraph 2 and report to all Core TSO(s). Subject to this report, all Core TSOs may agree, in accordance with governance rules pursuant to Article 36, to exclude additional costs of XRAs resulting from reduced current limits from cost sharing.

Article 27
Coordination of XRAs

1. Core RSC(s) shall recommend the implementation of the most effective and economically efficient XRAs identified by the RAO to the XRA connecting TSOs and inform at least all XRA affected TSOs about this recommendation.
2. In accordance with CSAM, Article 78(4) of the SO Regulation and Article 42(2) of the Electricity Regulation, during each CROSA, the recommended XRAs shall be considered as agreed, except where it is rejected by:
    (a) any XRA affected TSO (including XRA connecting TSOs) on the grounds that the implementation of a specific XRA would result in operational security violations;
    (b) XRA connecting TSO on the grounds that the recommended XRA is no longer available.

3. If a Core TSO rejects a recommended XRAs, it shall provide to Core RSC(s) and other Core TSOs clear reasons for rejection, including the evidence for the claimed grounds of rejection.
4. If a Core TSO rejects a recommended XRAs, except in the case of an unavailability of the proposed XRA, the Core RSC(s) in coordination with the respective Core TSO shall perform an ex-post assessment, at the request of any Core TSO or RSC, to determine the additional costs and impact resulting from the rejected XRA on the congestion. These costs and impact shall be compared with the costs (and impact on congestion) of possible (X)RAs not recommended by RSC(s) which would avoid the rejection of a recommended XRA. If a recommended XRA is frequently rejected by a Core TSO due to a specific reason, the Core RSC(s) in coordination with the rejecting Core TSO shall perform an ex-post assessment as described above. The rejecting Core TSO shall also propose and apply mitigating measures to avoid similar rejections in future.
5. In case of rejection of a recommended XRAs, the concerned Core TSOs shall coordinate with Core RSC(s) and other Core TSOs to identify and plan alternative XRAs taking into account cost and efficiency to relieve the operational security violations in a coordinated way in accordance with this methodology and CSAM. In accordance with Article 78(2)(a) of the SO Regulation, the Core RSC(s) may recommend alternative XRAs other than those identified by the concerned Core TSO(s).

Article 28
Inter-CCR coordination

1. In accordance with the CSAM, Core RSC(s) and relevant other RSC(s) in coordination with Core TSOs shall relieve operational security violations on overlapping XNEs and shall coordinate overlapping XRAs impacting these overlapping XNEs.
2. In accordance with CSAM, Core RSC(s) shall perform the coordinated cross-regional operational security assessment with relevant other RSC(s). In doing so, Core RSC(s) shall consider and coordinate with relevant other RSC(s) the use of XRAs available in the concerned CCRs.
3. Core RSC(s) in coordination with XRA connecting TSOs and XNE connecting TSOs shall assess whether the concerned XRAs and XNEs are overlapping according to CSAM;

CHAPTER 3
VALIDATION

Article 29
Validation session

1. In the end of the day-ahead CROSA in accordance with CSAM, Core RSC(s) and core TSOs shall consolidate results of the day-ahead CROSA and validate XRAs that have been agreed during the day-ahead CROSA.

Article 30
Outcome of validation

1. Core RSC(s) shall archive all ordered XRAs and ANORAs after the validation session.

2. Core RSC(s) shall report any remaining operational security violations. Based on this input, Core TSOs shall specify next steps which may include, but not limited to, an intraday CROSA or fast activation process.
3. Core RSC(s) shall ensure the availability of results and decisions to all Core TSOs.
4. Core RSC(s) shall archive all necessary data for the yearly report in accordance with Article 17 of the SO Regulation.

CHAPTER 4
IMPLEMENTATION OF REMEDIAL ACTIONS

Article 31
Activation of XRAs

1. Each XRA connecting TSO shall activate XRAs at the latest time compatible with technical, operational and procedural constraints of the resources in accordance with CSAM.
2. In fast activation process, each Core TSO shall have the right to request a reassessment of ordered XRAs or already activated XRAs in case the XRAs are not required anymore and considering technical, operational and procedural constraints. XRA affected TSOs shall reassess the ordered XRAs via fast activation process in accordance with Article 33.
3. In order to prevent the effect of activated XRAs on operational security to be diminished by additional cross-zonal trade Core TSOs may:
    (a) prevent the netting of cross-border schedules, which result from activated XRAs, with cross-zonal capacities and prevent that these schedules increase cross-zonal capacities in the directions in which additional trade could worsen operational security;
    (b) as a last resort measure, modify cross-zonal capacities outside the coordinated capacity calculation process pursuant to the day-ahead and intraday capacity calculation methodology of the Core CCR, if:
        i. waiting for the next coordinated capacity calculation would endanger operational security; and
        ii. additional cross-zonal trade would create operational security violations which would not be possible to be addressed with available XRAs.

Article 32
Consideration of remedial actions in next IGM

1. All agreed XRAs shall be classified based on a possibility of their reassessment in later CROSAs:
    (a) If activation time of an agreed XRA prevents waiting for the next CROSA for possible reassessment, then such XRA shall be classified as ordered XRA. Only fast activation process can change the status of such ordered XRA;
    (b) If a reassessment of an agreed XRAs in the next CROSA is possible, then such XRA shall be classified as ANORA.
2. Each Core TSO shall include all agreed XRAs determined during the latest CROSA in the intraday IGMs as provided in CSAM. Information about all agreed XRAs determined during day-ahead and intraday CROSA shall be archived by Core RSC(s).
3. Core RSC(s) shall monitor the inclusion of agreed XRAs into IGMs in accordance with CSAM.

TITLE 5
FAST ACTIVATION PROCESS

Article 33
Fast activation process

1. The fast activation process shall be considered as a fallback solution for situations where coordination through the CROSA is no longer possible due to insufficient time and the regular process described in Article 18 could not be properly applied.
2. In case of new circumstances (determined in paragraph 3) which leads to detection of operational security violations on XNEs (in N-situation or after occurrence of a contingency) :
    (a) between two CROSAs, when a fast activation of XRAs is required because it cannot wait for the next CROSA; or
    (b) after the latest CROSA,

    the XNE connecting TSO shall trigger the fast activation process to relieve operational security violations on such XNEs.
3. The fast activation process can be triggered for the following circumstances:
    (a) The ordered XRA is no longer available due to unexpected technical unavailability of the underlying assets and alternative XRAs need to be activated; and
    (b) New operational security violations have been detected and they cannot be resolved with the next CROSA.
4. During the fast activation process, the XRA connecting TSOs and XRA affected TSOs shall coordinate among each other to identify, plan and activate alternative or additional XRAs to relieve the operational security violations in a coordinated way while respecting the relevant provisions of CSAM. New operational security violations as a result of those XRAs should be avoided.
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. A Core TSO activating XRAs through fast activation process shall provide the Core RSC(s) the relevant information on which the decision to activate XRAs was based.
8. The fast activation process shall end once XRAs to relieve the operational security violation are identified, coordinated and agreed. These XRAs will be considered as agreed XRAs.
9. Core TSOs shall include the changes regarding activated XRAs resulting from fast activation process in the next relevant IGMs.

TITLE 6
DETERMINATION OF INPUTS FOR COSTS SHARING

Article 34
Inputs for cost sharing of XRAs

1. Cost sharing pursuant to the cost sharing methodology shall be applied for ordered XRAs resulting from each CROSA. Cost sharing shall also be applied to XRAs which have been ordered in fast activation process in a circumstance determined in Article 33(3)(a). Cost sharing pursuant to the cost sharing methodology shall not be applied to XRAs which have been ordered in fast activation process pursuant to Article 33(3)(b). The costs of these XRAs shall be borne by the XNE connecting TSO(s) triggering the fact activation process.
2. The cost sharing methodology shall be executed, independently, for each CROSA. The inputs for the cost sharing of XRAs from a given CROSA, such as CGM, ANORAs and ordered XRAs, shall be determined exclusively from the data used and resulting from this CROSA. The costs and/or revenues for each CROSA shall be determined only for ordered XRAs resulting from that CROSA.
3. Core TSOs and RSC(s) shall determine for each CROSA and for each XRA the total costs and/or revenues that shall be shared between Core TSOs in accordance with the cost sharing methodology.
4. The costs and/or revenues of ordered XRAs shall be determined based on the prices and costs provided by TSOs and used in RAO and the volumes of ordered XRAs determined by RAO or subsequent coordination in accordance with Article 27.
5. Any deviations in costs and/or revenues resulting from the difference between:
    (a) the prices and costs per volume, provided by TSOs for the execution of the RAO; and
    (b) the final incurred costs per volume or settled costs per volume with third party XRA provider,

    shall also be subject to cost sharing pursuant to the cost sharing methodology.
6. The deviations of costs and/or revenues resulting from deviations between ordered and delivered volume of XRAs shall not be subject to cost sharing.
7. All Core TSOs and RSC(s) shall monitor the deviations in costs and/or revenues of ordered XRAs as defined in paragraph 5 and identify systematic deviations or other potential abuse resulting from these deviations. In case of identified abuse, Core TSOs shall have the right to reject a specific deviation to be included in cost sharing in accordance with the governance principles pursuant to Article 36.
8. All Core TSOs and RSC(s) shall monitor the impact of deviations in costs and/or revenues of ordered XRAs as defined in paragraph 5 on the efficiency and effectiveness of RAO. This monitoring shall focus on the loss of economic efficiency as well as possible effectiveness of RAO arising from these deviations.
9. For XRAs which have significant deviations pursuant to paragraph 5, all Core TSOs and RSC(s) shall identify mitigating measures to minimise the impact of these deviations on RAO and cost sharing.
10. All Core TSOs shall establish, share and settle the provisional costs and/or revenues of ordered XRAs for cost sharing and settlement by no later than 30 days after the end of the calendar month. Any corrections to the provisional costs and/or revenues of ordered XRAs shall be established, shared and settled by no later than 90 days after the end of a given quarter. Any deviations in costs and revenues beyond this deadline shall not be subject to cost sharing pursuant to the cost sharing methodology.

11. All Core TSOs shall determine and calculate all the parameters and data resulting from each CROSA that are required as inputs to cost sharing and as determined in cost sharing methodology, including particular versions of CGMs from each CROSA.

TITLE 7
MONITORING AND IMPLEMENTATION

Article 35
Reporting and monitoring

1. Core RSC(s) shall record and share all necessary data to enable Core TSOs and RSC(s) to fulfil the obligations regarding this methodology, the cost sharing methodology and Articles 14 and 17 of the SO Regulation. This data shall be stored for at least 3 years and shall be made available to Core regulatory authorities at request.
2. Core TSOs and RSC(s) shall perform regular monitoring of the efficiency, effectiveness and robustness of ROSC process after its implementation. This shall in particular include the following:
    (a) Monitoring of the input data and inclusion of agreed XRAs in IGMs in accordance with Articles 17 and 33;
    (b) Monitoring of deviations between indicative and realised prices and/or costs of XRAs and their impact on efficiency and effectiveness of RAO pursuant to Article 34;
    (c) Monitoring the need, the effectiveness and the impact of the reduction of current limits due to variations of forecasts in consumption, RES production, and market activities in accordance with Article 26;
    (d) Monitoring the occurrence and the reasons for the use of the fast activation process pursuant to Article 33; and
    (e) Monitoring the need, the effectiveness and the impact of the operational security violations on scanned elements in accordance with Article 23.
3. Core TSOs and RSC(s) shall prepare and submit to Core regulatory authorities on biannual basis a report on efficiency and effectiveness of ROSC process. This shall in particular include:
    (a) Reporting on the occurrence and impact of rejected XRAs in accordance with Article 27;
    (b) Reporting on the deviations between indicative and realised prices and/or costs of XRAs, their impact on efficiency and effectiveness of RAO as well as possible abuses and rejections to include those deviations in cost sharing in accordance with Article 34 and Article 35(2)(b);
    (c) Reporting on input data and inclusion of agreed XRAs in IGMs in accordance with Article 35(2)(a);
    (d) Reporting on the robustness of XRAs in accordance with Article 35(2)(c).
    (e) Reporting on the occurrence and the reasons to use the fast activation process in accordance with Article 35(2)(e).
4. Core TSOs and RSC(s) shall make available to Core regulatory authorities at their request the following data regarding the ROSC process:

(a) For each timestamp, each CROSA and each XNEC relieved by RAO: The list of XNECs relieved by RAO, their loading before and after RAO, applicable current and flow limits;

(b) For each timestamp, each CROSA and each XRA recommended by RAO and ordered XRA: The prices and/or costs used in RAO, the volumes determined by RAO, the type of XRAs, the ordered volume of XRAs, the final settled cost of XRAs;

(c) The loading of XNEC defined in point (a) in real-time (based on e.g. real time snapshots).

5. Core TSOs and RSC(s) shall consult and coordinate with Core regulatory authorities regarding detailed specification of the above reporting and data delivery requirements. Core regulatory authorities shall have the right to request additional reporting and data delivery in coordination with Core TSOs and RSC(s), or to withdraw the requirement for specific reporting or data delivery, if they consider it no longer valid. Core TSOs, RSC(s) and regulatory authorities shall cooperate to avoid duplication of reporting and data delivery requirements.
6. By no later than 6 months after adoption of this RDCT Methodology, each Core TSO shall develop a description of national rules and procedures for activation of remedial actions, with specific focus on redispatching actions. This description shall entail all relevant information that is required for understanding of these rules and procedures. For cost-based compensation of redispatching actions, the description shall clearly list the different cost categories, and identifies which cost categories are to be considered as incurred costs in the cost sharing methodology. It shall also include the planning on future evolution of these rules and assessment of potential incompatibilities with this RDCT Methodology. This assessment shall be updated on an annual basis and provided to Core RSC(s), Core TSOs and Core regulatory authorities.

Article 36
Rules concerning governance and decision making among Core TSOs

1. All Core TSOs shall cooperate for the implementation and operation of this RDCT Methodology. This cooperation shall be carried out through common bodies where each TSO shall have at least one representative. The members of the common bodies shall aim to make unanimous decisions. Where unanimity cannot be reached, qualified majority voting based on the voting principles established in accordance with Article 9(3) of the CACM Regulation shall apply.
2. All Core TSOs shall establish a steering committee consisting of one representative from each Core TSO. The steering committee shall make binding decisions on any matter or question related to the implementation and operation of this RDCT Methodology. The steering committee shall adopt rules governing its operation.
3. The steering committee shall also act as a body for settlement of disputes among Core TSOs regarding the implementation and operation of this RDCT Methodology. The steering committee shall solve the problems and disputes regarding, but not limited to, the following issues:

(a) Resolution of disputes on the interpretation of aspects of this methodology, which may not be clear;

(b) Resolution of disputes on design choices required for implementation and operation of this methodology, which are not defined in this methodology; and

(c) Resolution of possible disputes in the application and operation of this methodology, including the disputes related to the provisions ruling the day-to-day operation, but excluding the day-to-day operation itself.

Article 37
Implementation

1. This RDCT Methodology shall be implemented in two steps. In the first step, all Core TSOs and RSC(s) shall implement first implementation step of the RDCT Methodology as described in paragraphs 2, 3 and 5. In the second step all Core TSOs and RSC(s) shall implement the second implementation step of the RDCT Methodology as described in paragraphs 4 and 5.
2. All Core TSOs and RSC(s) shall implement the first implementation step of the RDCT Methodology by 30 months after the adoption of this RDCT Methodology. The first implementation step of the RDCT Methodology shall fulfil at least the following requirements:
    (a) Implementation of day ahead CROSA;
    (b) Implementation of cost sharing for day-ahead CROSA pursuant to cost sharing methodology;
    (c) RAO for day-ahead CROSA must include at least optimisation of redispatching resources and phase shifting transformers;
3. The first implementation step of the RDCT Methodology may include some other simplification of the RDCT Methodology which do not significantly infringe the requirements pursuant to paragraph 2. These simplifications shall be consulted with Core regulatory authorities.
4. All Core TSOs and RSC(s) shall implement the second implementation step of the RDCT Methodology by 54 months after the adoption of this RDCT Methodology. The second implementation step of the RDCT Methodology shall fulfil all the requirements of this RDCT Methodology and shall be complemented by the implementation of the cost sharing methodology.
5. The implementation process for both steps of the RDCT Methodology shall consist of the development, testing and implementation of the IT tools as well as systems and procedures required to support the RDCT Methodology.
6. All Core TSOs and RSCs shall regularly share information on the development of their tools systems and processes with TSOs and RSC(s) of South East Europe CCR and allow their experts to participate as observers in Core TSOs' working groups in order to allow the South East Europe TSOs and RSC to use the same tools, systems and processes to be used in the RDCT Methodology for the South East Europe CCR.
7. By no later than four months after the adoption of this RDCT Methodology, all Core TSOs and RSC(s) shall develop a detailed implementation plan for this RDCT Methodology and update it regularly. The implementation plan shall define:
    (a) clear implementation tasks, milestones and deliverables for which each Core TSO and Core RSC is responsible individually; and
    (b) clear implementation tasks, milestones and deliverables for which Core TSOs and RSC(s) are responsible jointly.
8. All Core TSOs with the support of Core RSC(s) shall regularly provide to Core regulatory authorities the following information regarding the implementation of this RDCT Methodology:

(a) the implementation plan as well as its regular updates;
(b) the information on the implementation progress with regard to individual and joint implementation steps, milestones and deliverables;
(c) without undue delay, the possible risks of implementation delay and possible mitigation options;
(d) the individual entities responsible for delays in implementation tasks, milestones and deliverables with individual responsibilities; and
(e) the contribution of individual entities to the failure to meet the implementation tasks, milestones and deliverables with joint responsibilities.

9. After adoption of this RDCT Methodology and during its implementation, all Core TSOs and Core RSC(s) shall endeavour to continue to improve the existing Core CSA and the existing day-ahead and ID RSA processes.

TITLE 8
FINAL PROVISIONS

Article 38
Publication of this proposal

1. Upon approval by the European Union Agency for the Cooperation of Energy Regulators, each Core TSO shall publish this RDCT Methodology on their respective websites in accordance with Article 9(14) of the CACM Regulation.

Article 39
Language

1. The reference language for this RDCT Methodology shall be English. For the avoidance of doubt, when Core TSOs need to translate this RDCT Methodology into their national language(s), in the event of inconsistencies between the English version published by Core TSOs in accordance with Article 9(14) of CACM 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 RDCT Methodology to their relevant national regulatory authorities.