

Nordic TSOs' common methodology for regional operational security coordination in Nordic capacity calculation region in accordance with Article 76 and Article 77 of the "Commission Regulation (EU) 2017/1485 of 2 August 2017" establishing a guideline on electricity transmission system operation

Amended version for NRA approval

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on behalf of the TSOs in Sweden, Denmark, Norway and Finland:

Affärsverket svenska kraftnät, Energinet, Statnett, Fingrid and Kraftnät Åland

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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 14 September 2017. The objective of SO Regulation is to safeguard operational security, frequency quality and the efficient use of the interconnected system and resources. To facilitate these objectives, it is necessary to enhance standardisation of operational security analysis at least per synchronous area according article 75 of SO Regulation and within capacity calculation regions according article 76 of SO Regulation. Standardisation shall be achieved through a common methodology for coordinating operational security analysis according article 75 of SO Regulation (hereafter referred to as “**CSAM**”).
- (2) This document is the methodology of the Nordic transmission system operators Affärsverket svenska kraftnät (Sweden), Energinet (Denmark), Fingrid (Finland), Statnett (Norway) and Kraftnät Åland (autonomous region of Finland) (hereafter collectively referred to as “**Nordic TSOs**”) for regional operational security coordination in Nordic capacity calculation region (hereafter referred to as “**NROSC**”) in accordance with articles 76 and 77 of SO Regulation.
- (3) NROSC considers the general principles and objectives 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) Articles 76 and 77 of SO Regulation define the main legal requirements for NROSC:
 - a. conditions and frequency of intraday coordination of operational security analysis and updates to the common grid model by the regional security coordinator;
 - b. the methodology for the preparation of remedial actions 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 the information of the available remedial actions between relevant TSOs and the RSC;
 - ii. the classification of constraints and the remedial actions in accordance with article 22 of SO Regulation;
 - iii. the identification of the most effective and economically efficient remedial actions in case of operational security violations referred to in article 22 of SO Regulation;
 - iv. the preparation and activation of remedial actions in accordance with article 23(2) of SO Regulation;
 - v. the sharing of the costs of remedial actions referred to in article 22 of SO Regulation, complementing, where necessary, the common methodology developed in accordance with article 74 of CACM Regulation.
 - c. the appointment of the regional security coordinator that will perform the tasks for Nordic capacity calculation region;
 - d. rules concerning the governance and operation of regional security coordinator, ensuring equitable treatment of all member TSOs;
- (5) NROSC contributes to and does not in any way hinder the achievement of the objectives of article 4 of SO Regulation. NROSC defines the requirements for regional operational security

- coordination and shall be applied in a coordinated manner by Nordic TSOs and Nordic RSC in day-ahead and intraday within Nordic CCR. Furthermore, NROSC defines the principles of the organisation of regional operational security coordination within Nordic CCR.
- (6) NROSC considers and, where necessary, complements CSAM in accordance with article 75 of SO Regulation. The Agency for the Cooperation of Energy Regulators (hereafter referred to as “**ACER**”) published its decision on CSAM on 19 June 2019.
 - (7) NROSC considers and, where necessary, complements the common Nordic capacity calculation methodology (hereafter referred to as “**Nordic CCM**”) in accordance with article 20(2) of CACM Regulation.
 - (8) NROSC considers and, where necessary, complements the common Nordic methodology for coordinated re-dispatching and countertrading (hereafter referred to as “**Nordic CRC Methodology**”) in accordance with article 35 of CACM Regulation.
 - (9) NROSC considers and, where necessary, complements the common Nordic methodology for coordinated redispatch and countertrading cost sharing (hereafter referred to as “**Nordic CRCCS Methodology**”) in accordance with article 74 of CACM Regulation.
 - (10) In accordance with article 6(6) of SO Regulation, NROSC includes a timescale for its implementation and a description of its expected impact on the objectives of the SO Regulation.
 - (11) Furthermore, NROSC ensures application of the principles of proportionality and non-discrimination, transparency, optimisation between the highest overall efficiency and lowest costs for all parties involved and use of market-based mechanisms as far as possible to ensure network security and stability.
 - (12) In conclusion, NROSC shall contribute to the general objectives of the SO Regulation to the benefit of all TSOs, ACER, regulatory authorities, and market participants.
 - (13) NROSC may be amended and specified in the future considering the upcoming requirements from Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.
 - (14) Statnett is not yet legally a part of Nordic CCR awaiting the decision of implementation of SO Regulation in Norwegian legislation. As long as Norway has not made the SO Regulation part of its internal legislation, Statnett is not obliged by national law to follow the SO Regulation. However, Statnett will nevertheless through the system operation agreement (hereafter referred to as “**SOA**”) follow what is stated in NROSC – not because Statnett is obliged to by law, but because it is agreed among the Nordic TSOs that these rules shall apply between the TSOs, and constitute an integral part of the SOA.
 - (15) The Nordic RSC has already been established and is operated as a joint office in Copenhagen, Denmark. The rules concerning the governance and operation of the Nordic RSC are set forth in the “Cooperation Agreement regarding Regional Coordination in the Nordic region, Nordic RSC” (hereafter referred to as “**Nordic RSC Agreement**”), entered into between the parties Affärsverket svenska kraftnät, Energinet, Fingrid and Statnett in 2016. Article 24 of NROSC provides general rules concerning the governance and operation of Nordic RSC in accordance with the Nordic RSC Agreement.

Title 1 General Provisions

Article 1 Subject matter and scope

1. NROSC shall be the common methodology of Nordic 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. NROSC shall cover the day-ahead and intraday regional operational security coordination within Nordic CCR. NROSC shall apply to all TSOs of Nordic CCR and Nordic RSC.
3. NROSC is subject to NRA approval in accordance with article 6(3)(b) of SO Regulation.

Article 2 Acronyms, definitions and interpretation

1. NROSC uses the following acronyms:
 - a. 'CGM' means the 'Common Grid Model';
 - b. 'CGMM' means 'Common Grid Model Methodology' regarding the common grid model methodology in accordance with articles 67(1) and 70(1) of SO Regulation;
 - c. 'CNE' means 'Critical Network Element';
 - d. 'CCR' means 'Capacity Calculation Region' as determined pursuant to Article 15 of the CACM Regulation;
 - e. 'D-1' means 'day-ahead';
 - f. 'D-1 IGM' means 'day-ahead individual grid model';
 - g. 'HVDC' means high-voltage direct current;
 - h. 'ID' means 'intraday';
 - i. 'ID IGM' means 'intraday individual grid model';
 - j. 'IGM' means 'individual grid model';
 - k. 'NRA' means 'National Regulatory Authority'.
2. For the purpose of NROSC, the terms used shall have the meaning of the definitions included in article 3 of SO Regulation, article 2 of CACM Regulation, article 2 of Commission Regulation (EU) No 543/2013 of June 2013 on submission and publication of data in electricity markets, article 2 of CSAM and the other items of legislation referenced therein. In addition, the following definitions shall apply:
 - a. 'adjacent CCR' means a CCR directly connected to Nordic CCR such as Baltic CCR, Core CCR and Hansa CCR;

- b. 'affected TSO' according article 3(2)(94) of SO Regulation means a TSO for which information on the exchange of reserves and/or sharing of reserves and/or imbalance netting process and/or cross-border activation process is needed for the analysis and maintenance of operational security'. In the context of the cross-border activation process the term is specified for the purpose of NROSC as following:
 - i. requesting TSO responsible for the operation of the control area where the violation of operational security limits is detected;
 - ii. connecting TSO responsible for the control area where the remedial action is located or connected or activated;
- c. 'agreed remedial action' according article 2(1)(19) of CSAM means a cross-border relevant remedial action for which TSOs in a region agreed to implement or any other remedial action for which TSOs have agreed that it does not need to be coordinated;
- d. 'Common Grid Model Exchange Standard' or 'CGMES' means the interface between ENTSO-E members' software in order to exchange power system modelling information as required by the ENTSO-E and TSO business processes;
- e. 'coordinated regional operational security assessment' or 'CROSA' means an operational security analysis performed by Nordic RSC on a common grid model, in accordance with article 78 of SO Regulation;
- f. 'coordinated operational security analysis' means an operational security analysis performed on a common grid model, in accordance with article 72(3) and 72(4) of SO Regulation. Nordic TSO may delegate this task to Nordic RSC;
- g. 'costs' are the actual costs and income incurred by activation of agreed remedial actions in real-time operation to relieve violations of operational security limits;
- h. 'D-1 IGM' means the TSO's day-ahead individual grid models used in day-ahead coordinated regional operational security assessment or coordinated operational security analysis;
- i. 'ID IGM' means the TSO's intraday individual grid models used in intraday coordinated regional operational security assessment or coordinated operational security analysis;
- j. 'cross-border relevant network element' means a network element identified as cross-border relevant on which operational security violations need to be managed in a coordinated way between Nordic TSOs and Nordic RSC;
- k. 'cross-border relevant remedial action' means a remedial action identified as cross border relevant and needs to be applied in a coordinated way between Nordic TSOs and Nordic RSC;
- l. 'overlapping cross-border relevant network element' means a network element that has been defined as a cross-border relevant network element in a bidding zone belonging to two or more different CCRs and where the physical flows on this cross-border relevant network element are significantly impacted by activation of cross-border relevant remedial action(s) in two or more CCRs.

- m. 'overlapping cross-border relevant remedial action' means a cross-border relevant remedial action between two or more different CCRs resolving operational security violations on overlapping cross-border relevant network element.
- n. 'Nordic D-1 CGM' means the Nordic day-ahead common grid model used in day-ahead coordinated regional operational security assessment or coordinated operational security analysis. The Nordic D-1 CGM is a subset of the CGM which encompasses the network elements relevant to the Nordic CCR and the Nordic coordinated regional operational security assessment;
- o. 'Nordic ID CGM' means the Nordic intraday common grid model used in intraday coordinated regional operational security assessment or coordinated operational security analysis. The Nordic ID CGM is a subset of the CGM which encompasses the network elements relevant to the Nordic CCR and the Nordic coordinated regional operational security assessment;
- p. 'Nordic CCR' means the Nordic capacity calculation region as defined in Annex I to decision no. 06/2016 of ACER dated 17 November 2016 on the electricity transmission system operators' proposal for determination of capacity calculation regions;
- q. 'Nordic TSOs' means the transmission system operators Affärsverket svenska kraftnät, Energinet, Statnett, Fingrid and Kraftnät Åland;
- r. 'Nordic TSO' means a single TSO of Nordic CCR;
- s. 'Nordic RSC' means the appointed regional security coordinator of Nordic CCR in accordance with Article 23 of NROSC;
- t. 'Qualitative approach' means an empirically based determination of (overlapping) cross-border relevant remedial actions and corresponding TSOs affected by those remedial actions;
- u. 'regional operational security coordination' in accordance with article 78 of SO Regulation in order to support Nordic TSOs fulfilling their obligations for the day-ahead and intraday timeframes;
- v. 'RSCs of adjacent CCRs' means RSCs located in adjacent CCRs to Nordic CCR providing services to one or several TSOs of this adjacent CCR. RSCs of adjacent CCRs are CORESO, TSCNET and Baltic RSC;
- w. 'secured element' means a network element subject to day-ahead and intraday coordinated regional operational security assessment, on which operational security limits violations need to be managed in a coordinated way. A secured element is an element identified as cross-border relevant network element;
- x. 'scanned element' means a network element, on which day-ahead and intraday coordinated regional operational security assessment shall not create new operational security limits violations or worsen any existing violation.
- y. 'substitution rules' mean rules for substitution of individual grid models which do not meet the quality criteria defined in accordance with article 23(1) of CGMM.

3. In NROSC, 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 NROSC;
- c) Any references to an “Article” are, unless otherwise stated, references to an Article of NROSC; and
- 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.

Title 2

Nordic regional operational security coordination

Chapter 1

Nordic day-ahead and intraday regional operational security coordination

Article 3

General provisions for Nordic day-ahead and intraday regional operational security coordination processes

1. Nordic TSOs in coordination with Nordic RSC shall perform day-ahead and intraday regional operational security coordination processes, detecting and assessing violations of operational security limits and coordinating and activating cross-border relevant remedial actions in Nordic CCR and if applicable, in coordination with TSOs and RSCs of concerned adjacent CCRs.
2. Nordic TSOs and Nordic RSC shall perform day-ahead regional operational security coordination process in accordance with Articles 3 and 5 of NROSC.
3. Nordic TSOs and Nordic RSC shall perform intraday regional operational security coordination process in accordance with Articles 3, 4 and 6 of NROSC.
4. NROSC shall consider in day-ahead and intraday regional operational security coordination processes, where applicable, the relevant provisions of CSAM, Nordic CCM, Nordic CRC Methodology and Nordic CRCCS Methodology.
5. The day-ahead and intraday regional operational security coordination processes shall at least contain the following steps:
 - a. Input data preparation, such as generation and update of individual grid models in accordance with Article 7 of NROSC, determination of secured and scanned elements in accordance with Article 10 of NROSC, definition of contingency list in accordance with Article 11 of NROSC and exchanging information on available remedial actions in accordance with Article 15 of NROSC;
 - b. Building and update of the common grid model in accordance with Article 8 of NROSC;
 - c. Performing operational security analysis in day-ahead and intraday regional operational security coordination processes considering the provisions pursuant to articles 23 and 24 of CSAM;

- d. Determination and preparation of remedial actions in accordance with Articles 13 and 14 of NROSC;
 - e. Coordination of remedial actions in accordance with Article 16 of NROSC;
 - f. Coordination between Nordic CCR and other CCRs in accordance with Article 18 of NROSC;
 - g. Activation of remedial actions in accordance with Article 17 of NROSC.
6. Nordic TSOs shall determine the cross-border relevant network elements in accordance with Article 10 of NROSC on which violations of operational security limits have to be identified and managed in a coordinated way.
7. Nordic regional operational security coordination shall ensure that
 - a. violations of operational security limits on a cross-border relevant network element with contingency identified are relieved using at least the remedial actions provided by Nordic TSOs,
 - b. each Nordic TSO affected by a cross-border relevant remedial action is informed about the violations of operational security limits to be solved by this remedial action.
8. Nordic TSOs and Nordic RSC shall perform the day-ahead regional operational security coordination process based on Nordic day-ahead common grid model.
9. Nordic TSOs and Nordic RSC shall perform the intraday regional operational security coordination process based on the Nordic intraday common grid model.
10. Nordic TSOs shall have the right to perform local preliminary assessments to detect any violations of operational security limits on internal network elements. When preparing individual grid models, each Nordic TSO shall have the right to include non-cross border relevant remedial actions resulting from these preliminary assessments in its individual grid model in accordance with Article 7(3) of NROSC.
11. When the conditions for implementation of remedial actions in accordance with Article 16(4) of NROSC are not met, each affected Nordic TSO shall accept or reject the implementation of the proposed remedial action. In case of rejection of the remedial action by one or several Nordic TSOs, the concerned Nordic TSOs shall provide an explanation for the decision to the other Nordic TSOs and Nordic RSC.
12. When providing cross-border relevant remedial actions to Nordic RSC, each Nordic TSO shall ensure that the remedial actions are available for the regional operational security coordination process of the respective hour of the day.
13. When relieving violations of operational security limits, each Nordic TSO shall take into consideration all the remedial actions already agreed during previously performed regional operational security coordination processes of the same hour of the day. If an unscheduled outage has made a remedial action unavailable or the remedial action has become technically unavailable, this remedial action shall not be considered in the subsequent regional operational security coordination process. Concerned Nordic TSOs shall inform the other Nordic TSOs and Nordic RSC about unavailable remedial actions and shall provide an explanation for the reasons.
14. When a Nordic TSO wants to modify the consistency of a remedial action which has been previously coordinated and agreed, concerned Nordic TSO shall reassess the cross-border relevance of the new remedial action in accordance with Article 14 of NROSC.
15. Each Nordic TSO shall include in the individual grid model all remedial actions already agreed as a result of previous regional operational security coordination process.

16. Nordic TSOs in coordination with Nordic RSC shall ensure that the coordination of cross-border relevant remedial actions and the coordination of remedial actions as determined in accordance with Nordic CRC Methodology are treated in a consistent way.
17. Nordic TSOs in coordination with Nordic RSC shall assess at least every three years the operational performance of day-ahead and intraday regional operational security coordination and agree, if applicable, on adjustments of the coordination processes.
18. The following hours shall be applied by default for day-ahead regional operational security coordination process in accordance with Article 5 of NROSC:
 - a. T0(D-1) = 18:00 (CET)
 - b. T1(D-1) = 19:00 (CET)
 - c. T2(D-1) = 20:00 (CET)
 - d. T3(D-1) = 20:45 (CET)
 - e. T4(D-1) = 21:30 (CET)
 - f. T5(D-1) = 22:00 (CET)
19. The Nordic TSOs shall assess in coordination with Nordic RSC the default timings referred to in paragraph 18(a) – (f) in accordance with paragraph 17 and agree, if applicable, on adjustments of the timings.

Article 4

Specific provisions for Nordic intraday regional operational security coordination process

1. The Nordic intraday regional operational security coordination process shall be performed by default at the reference times 00:00 (CET), 08:00 (CET) and 16:00 (CET).
2. The following hours of the day shall be analysed by default in the intraday coordinated regional operational security assessments:
 - a. for reference time 00:00 (CET) all hours of the day between 00:00 (CET) and 08:00 (CET);
 - b. for reference time 08:00 (CET) all hours of the day between 08:00 (CET) and 16:00 (CET);
 - c. for reference time 16:00 (CET) all hours of the day between 16:00 (CET) and 24:00 (CET).
3. Nordic TSOs in coordination with Nordic RSC may perform additional intraday regional operational security coordination process when one or several of the following conditions are met:
 - a. Outage of a relevant asset;
 - b. Significant change of forecasted generation or load;
 - c. Significant changes in physical flows;
 - d. Congestions on CNEs;
 - e. Violation of operational security limits;
 - f. Small amount of remaining cross-zonal intraday capacity;
 - g. Upon request by a Nordic TSO.
4. When performing an additional intraday regional operational security coordination in accordance with paragraph 3, Nordic TSOs in coordination with Nordic RSC shall agree on the hours of the day to be analysed in intraday coordinated regional operational security assessment.

5. The following hours shall be applied by default in intraday regional operational security coordination process in accordance with Article 6 of NROSC for the reference time 00:00 (CET):
 - a. T0(ID) = 23:15 (CET);
 - b. T1(ID) = 23:25 (CET);
 - c. T2(ID) = 23:30 (CET);
 - d. T3(ID) = 23:35 (CET);
 - e. T4(ID) = 23:40 (CET);
 - f. T5(ID) = 23:45 (CET).
6. The following hours shall be applied by default in intraday regional operational security coordination process in accordance with Article 6 of NROSC for the reference time 08:00 (CET):
 - a. T0(ID) = 07:15 (CET);
 - b. T1(ID) = 07:25 (CET);
 - c. T2(ID) = 07:30 (CET);
 - d. T3(ID) = 07:35 (CET);
 - e. T4(ID) = 07:40 (CET);
 - f. T5(ID) = 07:45 (CET).
7. The following hours shall be applied by default in intraday regional operational security coordination process in accordance with Article 6 of NROSC for the reference time 16:00 (CET):
 - a. T0(ID) = 15:15 (CET);
 - b. T1(ID) = 15:25 (CET);
 - c. T2(ID) = 15:30 (CET);
 - d. T3(ID) = 15:35 (CET);
 - e. T4(ID) = 15:40 (CET);
 - f. T5(ID) = 15:45 (CET).
8. Nordic TSOs in coordination with Nordic RSC shall define the timings for intraday regional operational security coordination process considering the provisions of article 22 of CGMM.
9. Nordic TSOs in coordination with Nordic RSC shall aim at synchronising the business process workflows and timings of Nordic intraday regional operational security coordination process at least with TSOs and RSCs of adjacent CCRs to ensure coordination of the results between Nordic CCR and concerned adjacent CCRs.
10. Nordic TSOs shall assess in coordination with Nordic RSC the intraday timings referred to in paragraphs 1, 2, 5, 6 and 7 in accordance with Article 3(17) of NROSC taking into account the provisions of paragraphs 8 and 9, and agree, if applicable, on adjustments of the timings.
11. If applicable, timings of the intraday regional operational security coordination process shall be published by Nordic RSC on the ENTSO-E website.

Article 5

Nordic day-ahead regional operational security coordination process

1. Nordic TSOs in coordination with Nordic RSC shall perform the day-ahead regional operational security coordination process in accordance with the following steps:
 - a. At the latest by T0(D-1), Nordic TSOs shall deliver the D-1 IGMs covering all hours of the next day.
 - b. Nordic RSC shall check the consistency and quality of the D-1 IGMs provided by each Nordic TSO in accordance with Article 8 of NROSC. In case of detected issues with D-1 IGMs, Nordic RSC shall contact the concerned Nordic TSO to solve the issue. If necessary, the concerned Nordic TSO shall provide an update of the D-1 IGMs in accordance with Article 7 of NROSC.
 - c. Nordic RSC shall merge the D-1 IGMs to the Nordic day-ahead common grid model and shall provide it before T1(D-1) to Nordic TSOs.
 - d. At the latest by T1(D-1), Nordic RSC shall perform the first run of day-ahead coordinated regional operational security assessment on the Nordic D-1 CGM.
 - e. At the latest by T2(D-1), Nordic RSC shall deliver the results of the day-ahead coordinated regional operational security assessment to Nordic TSOs.
 - f. In case of detected violations of operational security limits, at the latest by T2(D-1) Nordic RSC shall propose to the concerned Nordic TSOs an appropriate remedial action provided by the Nordic TSOs in accordance with Article 15 of NROSC. The proposal for remedial actions shall be accompanied by an explanation to the concerned Nordic TSOs.
 - g. Nordic RSC may also propose remedial actions other than those provided by the Nordic TSOs in accordance with Article 16 of NROSC.
 - h. When Nordic RSC is not able to propose to the concerned Nordic TSOs an appropriate cross-border relevant remedial action to relieve the violations of operational security limits on a cross-border relevant network element, Nordic RSC shall attempt to determine a remedial action in coordination with concerned Nordic TSOs. Nordic RSC may also coordinate with RSCs of adjacent CCRs in accordance with Article 18 of NROSC to find and propose a remedial action. Nordic RSC shall inform the concerned Nordic TSOs about the results of the coordination with RSCs of concerned adjacent CCRs.
 - i. The concerned Nordic TSOs shall evaluate the remedial action proposed by Nordic RSC. When the concerned Nordic TSOs accept the proposed remedial action, the respective remedial action shall be included in the Nordic TSO's update of the D-1 IGMs in accordance with Article 7 of NROSC. When the concerned Nordic TSO rejects the proposed remedial action, the Nordic TSO shall provide an explanation for this decision to Nordic RSC and the other affected Nordic TSOs and propose a more effective or economically more efficient remedial action or any other appropriate solution to solve the violations of operational security limits.
 - j. If necessary, Nordic RSC shall organize a coordination meeting with the Nordic TSOs, where the results of the first run of day-ahead coordinated regional operational security assessment shall be shared and discussed.
 - k. Nordic RSC shall prepare a report with the results of the first run of day-ahead coordinated regional operational security assessment and submit it to all Nordic TSOs.

- i. Each Nordic TSO shall include the agreed remedial actions in its D-1 IGMs in accordance with Article 7 of NROSC for the next run of day-ahead coordinated regional operational security assessment.
 - m. If necessary, Nordic TSOs in coordination with Nordic RSC shall perform a second run of day-ahead coordinated regional operational security assessment:
 - i. Before T3(D-1), all Nordic TSOs shall deliver for the second run of day-ahead coordinated regional operational security assessment updated D-1 IGMs with remedial actions agreed during the first run.
 - ii. At the latest by T3(D-1), Nordic RSC shall begin to merge the updated D-1 IGMs including agreed remedial actions to the updated Nordic D-1 CGM and shall provide the updated Nordic D-1 CGM before T4(D-1) to Nordic TSOs. In case of detected issues with updated D-1 IGM provided by a Nordic TSO, Nordic RSC shall contact the concerned Nordic TSO to resolve the issue in accordance with Article 8 of NROSC. If necessary, the concerned Nordic TSO shall provide an update of the D-1 IGM to Nordic RSC in accordance with Article 7 of NROSC.
 - iii. At the latest by T4(D-1), Nordic RSC shall perform an update of the day-ahead coordinated regional operational security assessment based on the updated Nordic D-1 CGM.
 - iv. At the latest by T5(D-1), Nordic RSC shall organize a coordination meeting with the Nordic TSOs where the results of the second run of day-ahead coordinated regional operational security assessment shall be shared and discussed. During the coordination meeting, Nordic TSOs and Nordic RSC shall consolidate the final outcomes of the day-ahead regional operational security coordination process.
 - v. Nordic RSC shall update the day-ahead report with the results of the second run of day-ahead coordinated regional operational security assessment and submit it to Nordic TSOs.
 - vi. Each Nordic TSO shall include the agreed remedial actions in its ID IGM in accordance with Article 7 of NROSC for the subsequent intraday coordinated regional operational security coordination process.
2. If any violations of operational security limits remain unresolved after the second run of day-ahead regional operational security coordination process, the Nordic TSOs and Nordic RSC shall jointly assess the severity of the remaining violations and, if necessary, perform an additional run of day-ahead coordinated regional operational security assessment after T5(D-1) applying the coordination steps in accordance with paragraph 1 (a-l).
3. If any violations of operational security limits remain unresolved at the end of day-ahead regional operational security coordination process, the Nordic TSOs and the Nordic RSC shall jointly assess the severity of the remaining violations and perform, if necessary, a reassessment in intraday regional operational security coordination process.
4. Nordic TSOs and Nordic RSC shall consider the results and agreed remedial actions of the day-ahead regional operational security coordination process in the intraday regional operational security coordination process.

Article 6

Nordic intraday regional operational security coordination process

1. Nordic TSOs in coordination with Nordic RSC shall perform the intraday regional operational security coordination process in accordance with the following process steps:
 - a. At the latest by T0(ID), Nordic TSOs shall deliver the ID IGM covering all relevant hours of the day in accordance with Article 4(2) of NROSC.
 - b. Nordic RSC shall check the consistency and quality of the ID IGM provided by each Nordic TSO in accordance with Article 8 of NROSC. In case of detected issues with ID IGM, Nordic RSC shall contact the concerned Nordic TSO to solve the issue. If necessary, the concerned Nordic TSO shall provide an update of the ID IGM in accordance with Article 7 of NROSC.
 - c. Nordic RSC shall merge the ID IGMs to the Nordic ID CGM and shall provide the Nordic ID CGM before T1(ID) to Nordic TSOs.
 - d. At the latest by T1(ID), Nordic RSC shall perform the first run of intraday coordinated regional operational security assessment on the Nordic ID CGM.
 - e. At the latest by T2(ID), Nordic RSC shall deliver the results of the intraday coordinated regional operational security assessment all Nordic TSOs.
 - f. In case of detected violations of operational security limits, at the latest by T2(ID) Nordic RSC shall propose to the concerned Nordic TSOs an appropriate remedial action provided by the TSOs in accordance with Article 15 of NROSC. The proposal for remedial actions shall be accompanied by an explanation to the concerned Nordic TSOs.
 - g. Nordic RSC may also propose remedial actions other than those provided by the TSOs in accordance with Article 16 of NROSC.
 - h. When Nordic RSC is not able to propose to the concerned Nordic TSOs an appropriate cross-border relevant remedial action to relieve the violations of operational security limits on a cross-border relevant network element, Nordic RSC shall attempt to determine a remedial action in close coordination with concerned Nordic TSOs. Nordic RSC may also coordinate with RSCs of adjacent CCRs in accordance with Article 18 of NROSC in order to find and propose a remedial action. Nordic RSC shall inform the concerned Nordic TSOs about the results of the coordination with RSCs of concerned adjacent CCRs.
 - i. The concerned Nordic TSOs shall evaluate the remedial action proposed by Nordic RSC. When the concerned Nordic TSOs accept the proposed remedial action, the respective remedial action shall be included in the Nordic TSO's update of the ID IGM in accordance with Article 7 of NROSC. When the concerned Nordic TSO rejects the proposed remedial action, the Nordic TSO shall provide an explanation for this decision to Nordic RSC and the other affected Nordic TSOs and propose a more effective or economically more efficient remedial action or any other appropriate solution to solve the violations of operational security limits.
 - j. If necessary, Nordic RSC shall organize a coordination meeting with the Nordic TSOs, where the results of the first run of intraday coordinated regional operational security assessment shall be shared and discussed.
 - k. Nordic RSC shall prepare a report with the results of the first run of intraday coordinated regional operational security assessment and submit it to all Nordic TSOs.

- i. Each Nordic TSO shall include the agreed remedial actions in its ID IGM in accordance with Article 7 of NROSC for the next run of intraday coordinated regional operational security assessment.
- m. If necessary, Nordic TSOs in coordination with Nordic RSC shall perform a second run of intraday coordinated regional operational security assessment:
 - i. Before T3(ID), all Nordic TSOs shall deliver for the second run of intraday coordinated regional operational security assessment updated ID IGMs with remedial actions agreed during the first run.
 - ii. At the latest by T3(ID), Nordic RSC shall begin to merge the updated ID IGM including agreed remedial actions to the updated Nordic ID CGM and shall provide the updated Nordic ID CGM before T4(ID) to Nordic TSOs. In case of detected issues with updated ID IGM provided by a Nordic TSO, Nordic RSC shall contact the concerned Nordic TSO to resolve the issue in accordance with Article 8 of NROSC. If necessary, the concerned Nordic TSO shall provide an update of the ID IGM to Nordic RSC in accordance with Article 7 of NROSC.
 - iii. At the latest by T4(ID), Nordic RSC shall perform an update of the intraday coordinated regional operational security assessment based on the updated Nordic ID CGM.
 - iv. At the latest by T5(ID), Nordic RSC shall organize a coordination meeting with the Nordic TSOs where the results of the second run of intraday coordinated regional operational security assessment shall be shared and discussed. During the coordination meeting with the Nordic TSOs, Nordic TSOs and Nordic RSC shall consolidate the final outcomes of the intraday coordinated regional operational security assessment.
 - v. Nordic RSC shall update the report with the results of the second run of intraday coordinated regional operational security assessment and submit it to Nordic TSOs.
 - vi. Each Nordic TSO shall include the agreed remedial actions in its ID IGM in accordance with Article 7 of NROSC for the subsequent intraday coordinated regional operational security coordination process.
2. If any violations of operational security limits remain unresolved after the second run of intraday regional operational security coordination process, the Nordic TSOs and Nordic RSC shall jointly assess the severity of the remaining violations and, if necessary, perform an additional run of intraday coordinated regional operational security assessment applying the coordination steps in accordance with paragraph 1(m).
3. If any violations of operational security limits remain unresolved at the end of intraday regional operational security coordination process, the Nordic TSOs and the Nordic RSC shall jointly assess the severity of the remaining violations and agree, if any remaining violations shall be resolved in real-time operation by Nordic TSOs. Concerned Nordic TSOs shall coordinate and, if necessary, activate measures to resolve any remaining violations during real-time operation. Concerned Nordic TSOs shall inform the other Nordic TSOs and Nordic RSC about the measures activated in real-time operation.

Chapter 2

Individual and common grid model

Article 7

Preparation and updates of individual grid models by Nordic TSOs

1. Each Nordic TSO shall prepare and deliver day-ahead and intraday individual grid models for day-ahead and intraday coordinated regional operational security assessments as defined in CSAM and CGMM.
2. Each TSO shall include in its day-ahead and intraday individual grid models at least:
 - a. all agreed remedial actions as a result of previous regional operational security coordination processes;
 - b. all planned outages of relevant assets already agreed as a result of previous outage planning coordination;
 - c. all unplanned or forced outages or changes of outage schedules of relevant assets.
3. When preparing individual grid models, each Nordic TSO shall have the right to include non-cross border relevant remedial actions resulting from local preliminary assessments in accordance with Article 3 (10) of NROSC.
4. Each Nordic TSO shall make transparent to Nordic RSC all the non-cross border relevant remedial actions included in the individual grid models in accordance with Article 15 of NROSC. Nordic TSOs shall deliver the remedial action to the Nordic RSC in an agreed exchange standard.
5. If necessary, each Nordic TSO shall update the individual grid models during day-ahead and intraday regional operational security coordination processes.
6. If applicable, concerned Nordic TSOs shall prepare and deliver day-ahead and intraday individual grid models for concerned parts of Baltic CCR, Core CCR and Hansa CCR for the purpose of day-ahead and intraday regional operational security coordination in Nordic CCR.

Article 8

Consistency and quality check of input data and individual grid models

1. Nordic RSC shall assess the consistency and quality of input data referred to in Article 3(5a) of NROSC provided by each Nordic TSO for day-ahead and intraday regional operational security coordination.
2. Nordic RSC shall inform the concerned Nordic TSO on the identified issues in accordance with paragraph 1 in an appropriate time frame before the start of day-ahead and intraday regional operational security coordination process. The concerned Nordic TSO shall provide an update of the input data to Nordic RSC and, if necessary, to the other Nordic TSOs.
3. Nordic RSC shall check the consistency and quality of the individual grid models provided by each Nordic TSO. In case of detected issues with an individual grid model, Nordic RSC shall contact the concerned Nordic TSO to resolve the issue. If necessary, the concerned Nordic TSO shall provide an update of the individual grid model in accordance with Article 7 of NROSC.

4. When a Nordic TSO is not able to provide an individual grid model or an update of the individual grid model for the day-ahead and intraday coordinated regional operational security assessment in due time, Nordic RSC shall substitute the individual grid model applying the substitution rules defined in accordance with article 20(4) of CGMM. Nordic RSC shall take topology changes such as planned outages into account when substituting individual grid models.
5. Nordic RSC shall check the inclusion of remedial actions agreed during previous day-ahead and intraday regional operational security coordination processes. When Nordic RSC identifies that an agreed remedial action has not been included by a Nordic TSO in the update of the day-ahead or intraday individual grid model, Nordic RSC shall contact the concerned Nordic TSO. The concerned Nordic TSO shall update its individual grid model and provide the individual grid model in accordance with Article 7 of NROSC.

Article 9

Update of Nordic common grid model by Nordic RSC

1. Nordic RSC shall merge the updated individual grid models provided by the Nordic TSOs to the updated Nordic common grid model and shall use the updated common grid model in subsequent regional operational security coordination processes in accordance with the respective process steps defined in Articles 5(1) and 6(1) of NROSC.

Chapter 3

Determination of secured and scanned elements, contingency list, restrictions, and remedial actions

Article 10

Secured and Scanned Elements

1. Secured elements represent a set of cross-border relevant network elements in Nordic CCR subject to day-ahead and intraday coordinated regional operational security assessment, on which operational security limit violations need to be managed in a coordinated way.
2. Secured elements shall at least include all CNEs of Nordic CCR in accordance with Nordic CCM and other network elements with a voltage level higher than or equal to 220 kV, except for those elements for which all Nordic TSOs agree that they are not cross-border relevant for Nordic CCR and may therefore be excluded.
3. Nordic TSOs shall classify network elements as overlapping cross-border relevant network elements which have been assessed as cross-border relevant in Nordic CCR and any adjacent CCR in accordance with article 27 of CSAM.
4. Each Nordic TSO may classify any network element as a scanned element, which shall be considered in day-ahead and intraday coordinated regional operational security assessment. The electrical state (at least flows) of the scanned element shall be computed and shall be subject to an observation rule. Such observation rule can be for example the definition of constraints to avoid increasing a violation or avoiding a new violation of operational security limits on this

network element, as a result of the design of remedial actions needed to relieve violations on the secured element. Each Nordic TSO may, for coordinated regional operational security assessment only, deviate from this by setting individual thresholds for the scanned elements of its IGM.

5. Each Nordic TSO shall provide the secured and scanned elements to Nordic RSC. Each Nordic TSO shall inform Nordic RSC about any update of secured and scanned elements.
6. Nordic RSC shall consider the secured and scanned elements in day-ahead and intraday coordinated regional operational security assessment.
7. Nordic RSC shall evaluate the secured elements and may propose to Nordic TSOs other network elements as secured elements on which operational security violations have to be identified and managed in a coordinated way during day-ahead and intraday coordinated regional operational security assessment.
8. Nordic RSC shall evaluate the scanned elements and may propose to Nordic TSOs other scanned elements. Nordic RSC shall justify the proposal to the Nordic TSOs concerned. Concerned Nordic TSOs shall assess the proposal. When the concerned Nordic TSOs accept the proposal, the respective scanned element shall be considered in the list of scanned elements. When the concerned Nordic TSOs rejects the proposal, respective Nordic TSO shall provide an explanation to Nordic RSC and the other concerned Nordic TSOs. In that case the proposal shall not be considered in the list of scanned elements.

Article 11 **Contingency list**

1. Each Nordic TSO shall define the list of contingencies to be simulated in day-ahead and intraday coordinated regional operational security assessment. The list of contingencies shall comply with articles 7-10 and 13 of CSAM.
2. Each Nordic TSO shall provide the list of contingencies to the Nordic RSC. Each Nordic TSO shall inform the other Nordic TSOs and Nordic RSC without undue delay about any update of the contingency list.
3. Each Nordic TSO shall inform the concerned TSOs about the external contingencies included in its contingency list.
4. Nordic RSC shall check the consistency and quality of the contingency list provided by each Nordic TSO. In case of detected issues with a contingency, Nordic RSC shall contact the concerned Nordic TSO to resolve the issue. If necessary, the concerned Nordic TSO shall provide an update of the contingency list to Nordic RSC.
5. Nordic RSC shall merge the list of contingencies to a common list of contingencies of Nordic CCR.
6. Nordic RSC may propose to Nordic TSOs other contingencies to be simulated in day-ahead and intraday coordinated regional operational security assessment. Nordic RSC shall justify the proposal to the Nordic TSOs concerned. Concerned Nordic TSOs shall assess the proposed contingency. When the concerned Nordic TSOs accept the proposed contingency, the respective contingency shall be considered in the list of contingencies. When the concerned Nordic TSOs rejects the proposal, respective Nordic TSO shall provide an explanation to Nordic RSC and the other concerned Nordic TSOs. In that case the proposed contingency shall not be considered in the list of contingencies.

7. Each Nordic TSO shall regularly update its contingency list and shall perform a full assessment of the list, when necessary.
8. Nordic RSC shall use the latest available contingency lists of all Nordic TSOs in day-ahead and intraday coordinated regional operational security assessment.

Article 12

Consideration of restrictions when preparing remedial actions

1. Nordic TSOs shall provide to Nordic RSC any relevant information for each remedial action in day-ahead and intraday regional operational security coordination which may limit the implementation of remedial actions in terms of technical, operational, procedural or legal restrictions such as but not limited to:
 - a. Technical restrictions such as ramping restrictions, min/max output power, min/max redispatch or power change through HVDC systems;
 - b. Operational restrictions and rules such as switching limitations, available range of taps, dependencies between topology measures;
 - c. Procedural restrictions resulting from timing issues due to local, regional or cross-regional processes;
 - d. Legal restrictions stated in national laws regarding the priority of activation of remedial actions.
2. If applicable, Nordic TSOs shall provide to Nordic RSC restrictions concerning dynamic stability, voltages exceeding operational limits in the N-situation and after occurrence of a contingency from the contingency list. 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. Nordic TSOs shall provide the information on possible restrictions to Nordic RSC together with the list of available remedial actions.
4. Nordic TSOs shall provide updated information on restrictions for the implementation of remedial actions to Nordic RSC for the subsequent day-ahead and intraday coordinated regional operational security assessment.
5. Nordic RSC shall consider the restrictions on implementation of remedial actions when performing day-ahead and intraday coordinated regional operational security assessment and proposing implementation of remedial actions to concerned Nordic TSOs.
6. Nordic RSC shall perform operational security analyses to detect possible restrictions which may limit the implementation of remedial actions.

Article 13

Determination and preparation of remedial actions

1. Each Nordic TSO shall define a list of remedial actions to be applied in day-ahead and intraday coordinated regional operational security assessment considering the principles defined in paragraph 4.

2. Nordic RSC shall check the consistency and quality of the list of remedial actions by each Nordic TSO. In case of detected issues with a remedial action, Nordic RSC shall contact the concerned Nordic TSO to resolve the issue. If necessary, the concerned Nordic TSO shall provide an update of the list of remedial actions to Nordic RSC.
3. Nordic RSC may propose to the Nordic TSOs other remedial actions to be included in the list of remedial actions. Nordic RSC shall justify the proposal to the Nordic TSOs concerned. Concerned Nordic TSOs shall assess the proposed remedial action. When the concerned Nordic TSOs accept the proposed remedial action, the respective remedial action shall be considered in the list of remedial actions. When the concerned Nordic TSOs rejects the proposal, respective Nordic TSO shall provide an explanation to Nordic RSC and the other concerned Nordic TSOs. In that case the proposed remedial action shall not be considered in the list of remedial actions.
4. When defining remedial actions each Nordic TSO and Nordic RSC shall consider the following principles:
 - a. Classify the remedial actions in accordance with article 22 of SO Regulation;
 - b. Consider the provisions stated in Nordic CRC Methodology;
 - c. Assess the availability of cross-border relevant remedial actions in accordance with Article 15 of NROSC;
 - d. Consider non-cross-border relevant remedial actions as defined in accordance with Article 14(5) of NROSC which could have an impact on any of the secured element of the control area of a Nordic TSO;
 - e. Assess the availability of remedial actions which were available for the previously performed day-ahead and intraday coordinated regional security assessments or capacity calculation of the same hour of the day;
 - f. Not consider the remedial actions which are not available following:
 - i. an unforeseen event, or
 - ii. an unplanned outage of a network element, or
 - iii. a declaration of unavailability status of a remedial action, or
 - iv. a new and more effective and efficient remedial action has become available, or
 - v. any other cause outside of the responsibility of the Nordic TSO;
 - g. Identify whether a remedial action provided to Nordic CCR is an overlapping cross-border relevant remedial action according to article 27 (9) of CSAM;
 - h. Classify remedial actions as non-costly and costly remedial actions and determine the costs for costly remedial actions. In case costs cannot be established, the concerned Nordic TSO shall provide cost estimates.
5. If necessary, after the coordination run each Nordic TSO shall provide to Nordic RSC updated remedial actions for the subsequent coordination run in day-ahead or intraday coordinated regional operational security assessment, considering
 - a. The agreed cross-border relevant remedial actions of the last coordination run;
 - b. Any unplanned or forced outages or changes of outage schedules of relevant assets;
 - c. Latest schedules of load and generation.

6. Nordic TSOs in coordination with Nordic RSC shall assess the cross-border relevance of remedial actions in accordance with Article 14 of NROSC.
7. If necessary, Nordic RSC shall assess in coordination with the Nordic TSOs the technical effectiveness and economic efficiency of a new remedial action before its implementation in day-ahead and intraday coordinated regional operational security assessment.
8. Nordic RSC shall define a merit order of the most effective and economically efficient remedial actions and share it with the Nordic TSOs.

Article 14

Assessing the cross-border relevance of remedial actions

1. Nordic TSOs shall aim at agreeing on a qualitative approach to determine the cross-border relevance of remedial actions.
2. If Nordic TSOs cannot agree on a qualitative approach in accordance with paragraph 1 for a specific remedial action, the Nordic TSOs in coordination with Nordic RSC shall assess the cross-border relevance of remedial actions in accordance with the following provisions:
 - a. For preventive remedial actions, the change of flows or voltage shall be assessed in the N situation and in each of the N-1 situations resulting of the contingency list;
 - b. For curative remedial actions, the change of flows or voltage shall be assessed in the simulation of the post-contingency situation, for which this curative remedial action has been designed;
 - c. The threshold for the remedial action influence factor shall be equal to 5%.
3. Nordic TSOs shall jointly define in coordination with Nordic RSC a list of remedial actions that are deemed cross-border relevant and share the cross-border relevant remedial actions with Nordic RSC.
4. When a remedial action is not determined as cross-border relevant in accordance with paragraph 1 and 2, the respective remedial action is considered as a non-cross-border relevant remedial action.
5. Nordic TSOs in coordination with Nordic RSC shall reassess the cross-border relevance of remedial actions at least once a year.
6. Nordic TSOs may delegate tasks to the Nordic RSC concerning the assessment of cross-border relevance of remedial actions in accordance with paragraph 2.

Article 15

Exchanging information on remedial actions

1. Each Nordic TSO shall provide the list of available remedial actions to Nordic RSC for the purpose of day-ahead and intraday regional operational security coordination.
2. The list of available remedial actions shall include information in accordance with Article 12 and Article 13 of NROSC.

3. When providing to Nordic RSC the list of remedial actions, each Nordic TSO shall consider as available the remedial actions which were available for the previously performed coordinated regional operational security assessments of the same hour of the day, except if:
 - a. an unforeseen event has made a remedial action unavailable, or
 - b. the remedial action has become technically unavailable, or
 - c. a new and more effective and efficient remedial action has become available.
4. If necessary, each Nordic TSO shall provide to Nordic RSC an updated list of remedial actions at the end of any coordination run of day-ahead or intraday regional operational security coordination processes.
5. A common list for cross-border relevant and non-cross border relevant remedial actions shall be defined by Nordic RSC based on the list of remedial actions provided by Nordic TSOs.
6. Each Nordic TSO shall inform the other Nordic TSOs and Nordic RSC without delay about unavailable remedial actions for day-ahead and intraday regional operational security coordination processes.
7. Each Nordic TSO shall inform Nordic RSC whether a remedial action, provided to Nordic RSC, is offered simultaneously to RSCs of adjacent CCRs.
8. When receiving possible remedial actions from Nordic TSOs as well as RSCs and TSOs of adjacent CCRs, Nordic RSC shall share this information with the other Nordic TSOs.

Chapter 4

Coordination and activation of remedial actions

Article 16

Coordination of remedial actions

1. In day-ahead and intraday regional operational security coordination processes, Nordic TSOs in coordination with Nordic RSC shall manage in a coordinated way operational security violations on all cross-border relevant network elements (secured elements) considering all cross-border relevant remedial actions and taking into account technical restrictions limiting the use of certain remedial actions.
2. In case of a detected violation of operational security limits on a cross-border relevant network element, Nordic RSC shall propose to the concerned TSOs an appropriate remedial action prepared by the Nordic TSOs in accordance with Article 13 of NROSC.
3. Nordic RSC may propose remedial actions other than those provided by the TSOs. Such recommendation for remedial actions shall be accompanied by an explanation to, and validation by the concerned Nordic TSOs.
4. Each TSO shall assess that the proposed remedial actions meet the following conditions:
 - a. the remedial action is considered available for the specific hour of the day in a consistent manner from the time frame of its decision in day-ahead and intraday coordination up to all the subsequent timeframes of security analyses including real time;

- b. the remedial actions relieve all congestions on the affected network elements;
 - c. the remedial action is not setting the affected Nordic TSO's network in an alert or emergency state based on the common grid model used in the coordination process;
 - d. the remedial action is not leading to any violations of operational security limits in the affected Nordic TSO's network after the simulation of the corresponding contingency based on the common grid model used in the coordination process;
 - e. the remedial action is considered as most effective and economically efficient to relieve the congestion.
5. When the concerned Nordic TSO accepts the proposed remedial action, the respective remedial action shall be included in the Nordic TSO's update of the individual grid model in accordance with Article 7 of NROSC.
 6. When the concerned Nordic TSO rejects the proposed remedial action, the Nordic TSO shall provide an explanation for its decision to Nordic RSC and the other affected Nordic TSOs and propose a more effective or economically more efficient remedial action or any other appropriate solution to solve the violations of operational security limits.
 7. When Nordic RSC is not able to propose to the concerned Nordic TSOs an appropriate remedial action to relieve the violations of operational security limits, Nordic RSC shall determine a remedial action in close coordination with concerned Nordic TSOs.
 8. If necessary, Nordic RSC shall exchange the results of day-ahead and intraday coordinated regional operational security assessment with concerned RSCs of adjacent CCRs for the purpose of coordination of operational security limits violation on overlapping cross-border relevant network elements and of cross-border relevant remedial actions in accordance with Article 18 of NROSC. Nordic RSC shall coordinate with RSCs of adjacent CCRs in order to detect and propose remedial actions. Nordic RSC shall inform the Nordic TSOs about the results of such coordination with RSCs of adjacent RSCs.

Article 17

Activation of remedial actions

1. Each Nordic TSO shall evaluate the activation of the remedial actions agreed upon in day-ahead and intraday regional operational security coordination processes at the latest time in real-time operation.
2. Where security violations occur in between coordination runs of day-ahead and intraday regional operational security coordination processes, the concerned Nordic TSOs shall agree on the necessary remedial actions in real-time operation in order to coordinate the management of these remaining violations of operational security limits.
3. If an agreed remedial action becomes unnecessary, the concerned Nordic TSOs can decline an activation of the remedial action or can deactivate the already activated remedial action. The concerned Nordic TSOs shall ensure that declining the activation or the deactivation of the remedial action is not deemed cross-border relevant and does not affect other Nordic TSOs. The concerned Nordic TSOs shall provide an explanation for this decision to Nordic RSC and the other Nordic TSOs.

4. Each Nordic TSO shall consider activated remedial actions in the update of the individual grid models for the next day-ahead and intraday regional operational security coordination process.

Article 18

Coordination between Nordic CCR and other CCRs

1. Nordic TSOs and Nordic RSC shall relieve operational security limits violation on overlapping cross-border relevant network elements and shall coordinate cross-border relevant remedial actions impacting these overlapping cross-border relevant network elements in accordance with the proposal for amendment to be developed in accordance with article 27(3) of CSAM.
2. Nordic TSOs and Nordic RSC shall perform the coordinated cross-regional operational security assessment in accordance with article 30 of CSAM.

Chapter 5

Sharing of costs of activated remedial actions

Article 19

General provisions for cost sharing of activated remedial actions

1. Each Nordic TSO shall provide the relevant information about the expected costs for activated cross-border relevant remedial actions in accordance with Article 15 of NROSC.
2. Cost sharing principles for activated costly redispatching and countertrading measures shall be subject to Nordic CRCCS Methodology according to the following:
 - a. For activated costly redispatching and countertrading for secured elements owned by one Nordic TSO in Nordic CCR as a result of the day-ahead and intraday regional operational security coordination, cost sharing provisions shall apply in the same manner as stated for network elements described in article 3(1)(a) of Nordic CRCCS Methodology;
 - b. For activated costly redispatching and countertrading for secured elements owned by more than one Nordic TSO in Nordic CCR as a result of the day-ahead and intraday regional operational security coordination, cost sharing provisions shall apply in the same manner as stated for network elements described in article 3(1)(b) or (c) of Nordic CRCCS Methodology.
3. Cost sharing principles pursuant to Article 20 of NROSC shall be applied for any additional activated cross-border relevant remedial actions agreed upon in day-ahead and intraday regional operational security coordination processes.
4. When calculating the costs to be shared between the concerned Nordic TSOs, the price for the activated cross-border relevant remedial action shall be based on the actual bid prices or the costs calculated transparently based on incurred costs.

Article 20

Cost sharing principles for activation of cross-border relevant remedial actions within Nordic CCR

1. For activated cross-border relevant remedial actions agreed upon in Nordic day-ahead and intraday regional operational security coordination processes to relieve violations of operational security limits on cross-border relevant network elements (secured elements), the cost sharing principles in accordance with paragraph 2 shall be applied.
2. Costs and income incurred by activation of cross-border relevant remedial actions in accordance with paragraph 1 shall be shared equally between those Nordic TSOs in whose control areas the operational security limits violation of the cross-border relevant network element was relieved.
3. Costs and income incurred by activation of non-cross-border relevant remedial actions shall be borne by those Nordic TSOs in whose control areas the violations of operational security limits of the network element were relieved.
4. If applicable, costs and income incurred by agreed but not activated cross-border relevant remedial actions shall be shared equally between those Nordic TSOs; who's control areas the operational security limits violation of the cross-border relevant network element would have been relieved by the agreed cross-border relevant remedial actions.

Article 21

Cost sharing principles for activation of overlapping cross-border relevant remedial actions between Nordic CCR and adjacent CCRs

1. For the following activated overlapping cross-border relevant remedial actions agreed upon in inter-CCR day-ahead and intraday regional operational security coordination in accordance with Article 18 of NROSC, Nordic TSOs may enter into separate cost sharing agreements with TSOs of adjacent CCRs:
 - a. Overlapping cross-border relevant remedial actions to relieve operational security limit violations on overlapping cross-border relevant network elements;
 - b. Overlapping cross-border relevant remedial actions to relieve operational security limit violations on network elements located in control areas of Nordic TSO;
 - c. Overlapping cross-border relevant remedial actions to relieve operational security limit violations on network elements located in control areas of TSOs in adjacent CCRs.
2. Nordic TSOs shall amend this article in accordance with the amendment to be developed in accordance with article 27(3)(e) of CSAM.

Article 22

Reporting

1. Remedial actions will be reported by Nordic TSOs as described in article 13(1) of the Transparency Regulation (EC) 543/2013 and the regulation for Energy Market Integrity and Transparency 1227/2011.

2. Nordic RSC shall record and share all necessary data to enable Nordic TSOs to fulfil the obligations regarding NROSC, Nordic CRC Methodology, Nordic CRCCS Methodology and articles 17(2)(b) and 17(2)(c) of the SO Regulation.

Title 3

Organisation for Nordic regional operational security coordination

Chapter 1

Common provisions concerning the organisation of regional operational security coordination

Article 23

Appointment of the regional security coordinator in Nordic CCR

1. In accordance with article 77(1)(a) of SO Regulation, Nordic TSOs appoint Nordic RSC as regional security coordinator of Nordic CCR that will perform the tasks set forth in Article 24 of NROSC.

Article 24

General rules concerning the governance and operation of Nordic RSC

1. Nordic RSC shall be the service provider for the Nordic TSOs. Nordic RSC shall perform the tasks delegated by the Nordic TSOs in accordance with Article 25 of NROSC.
2. Nordic RSC shall
 - a. provide to all Nordic TSOs coordination services for the secure and efficient operation of the Nordic transmission system;
 - b. build consistent regional data;
 - c. facilitate regional operational security coordination processes and perform the coordinated regional operational security assessment;
 - d. make recommendations to Nordic TSOs in relation to the services they provide; and
 - e. support the harmonisation of operational procedures and standards supporting Nordic TSOs to maintain security of supply.
3. The parties of the Nordic RSC Agreement shall be responsible for the operation of the Nordic RSC joint office and each party shall take all necessary measures and allocate necessary and agreed resources enabling the joint office to operate and deliver the agreed coordination services.
4. The overall cooperation between the parties under the Nordic RSC Agreement shall be governed by a supervisory board (hereafter referred to as “**Supervisory Board**”). The Supervisory Board is the highest decision-making body of the Nordic RSC and may decide on every item regarding the Nordic RSC. The Supervisory Board is in charge of the overall and strategic management of the Nordic RSC, including the determination of the overall objectives and strategies of the Nordic RSC, as well as monitoring the day-to-day management by the operational board (hereafter referred to as “**Operational Board**”).

5. Each party of the Nordic RSC Agreement shall appoint one (1) member to the Supervisory Board. The members of the Supervisory Board shall be appointed for a term of two (2) years. Chairman shall be elected for a term of two (2) years among the Supervisory Board members. All decisions within the Supervisory Board shall be taken unanimously, unless explicitly stated otherwise in one or more articles of the Nordic RSC Agreement. Supervisory Board meetings shall be held as required by their tasks, at least four times per year or upon request by the Operational Board. The chairman of the Supervisory Board shall ensure that the Supervisory Board is convened when necessary.
6. The Operational Board is a decision making and monitoring body, deciding all items regarding the Nordic RSC which are not reserved to the Supervisory Board. Each party of the Nordic RSC Agreement shall appoint one (1) ordinary member and one substitute member to the Operational Board. The members to be appointed shall be employees qualified to take decisions within the competences of the Operational Board and vested with the decision-making power by the appointing TSO party required for the tasks of the Operational Board.
7. The members of the Operational Board shall be appointed for a term of two (2) years and shall be eligible for reappointment. In case a member of the Operational Board is no longer employed within the TSO party's organization or is not able to participate in meetings on a regular basis, the party shall appoint a new member to the Operational Board. The Chairman of the Operational Board shall be elected for a period of one (1) year among the Operational Board Members. All decisions within the Operational Board must be taken unanimously among the members participating in the meeting - provided minimum 3 members are represented - unless explicitly stated otherwise in Nordic RSC Agreement.
8. The daily manager (hereafter referred to as "**Daily Manager**") shall be responsible for and shall be in charge of the day-to-day management of the services to be performed by the Nordic RSC according to guidelines and instructions issued by the Operational Board. The Daily Manager shall be the joint manager of the services to be performed at the location in Copenhagen for the Nordic RSC and has the right and obligation to perform daily instruction of the personnel employed by the parties of the Nordic RSC Agreement. This includes responsibility for ensuring ongoing development and performance of the employees to be focused on the Nordic RSC tasks.
9. The security of supply will remain the responsibility of each individual Nordic TSO according to national laws and regulations. The responsibility for secure system operation and any decision taken based on services provided by Nordic RSC shall remain with the Nordic TSOs.

Chapter 2
Tasks of the regional security coordinator

Article 25

Delegation of tasks to regional security coordinator

1. Nordic TSOs shall agree on delegation of tasks and responsibilities to Nordic RSC.
2. In accordance with articles 77(3)(a), (b), (c) and (d) of SO Regulation, Nordic TSOs delegate the following tasks to Nordic RSC in accordance with Article 22 of NROSC:
 - a. Regional operational security coordination in accordance with article 78 of SO Regulation and Article 25 of NROSC;
 - b. Building of common grid model in accordance with article 79 of SO Regulation and Article 26 of NROSC;
 - c. Regional outage coordination in accordance with article 80 of SO Regulation and Article 27 of NROSC;
 - d. Regional adequacy assessment in accordance with article 81 of SO Regulation and Article 28 of NROSC.
3. Nordic TSOs shall develop in close cooperation with Nordic RSC operational procedures and instructions related to the tasks delegated to Nordic RSC as set forth in Articles 26, 27, 28 and 29 of NROSC.
4. Each Nordic TSO with services delegated to Nordic RSC shall provide Nordic RSC with all relevant data and information to allow execution and coordination of the tasks set forth in Articles 26, 27, 28 and 29 of NROSC. Nordic TSOs and Nordic RSC shall respect requirements established in national legislation on information security of the different Nordic TSOs when managing data used in regional operational security coordination for Nordic CCR. This includes, but is not limited to, information access, information storage and communication.
5. Nordic RSC with services delegated by Nordic TSOs shall coordinate with RSCs of other CCRs on the delegated tasks set forth in Articles 26, 27, 28 and 29 of NROSC.

Article 26

Regional operational security coordination

1. Nordic TSOs delegate tasks on regional operational security coordination as described in NROSC to Nordic RSC.
2. In accordance with article 77(3)(a) of SO Regulation, Nordic RSC shall facilitate the regional operational security coordination within Nordic CCR in accordance with NROSC.

Article 27

Building of common grid model

1. In accordance with article 77(3)(b) of SO Regulation, Nordic RSC shall build a common grid model in accordance with CGMM established pursuant to articles 67(1) and 70(1) of SO Regulation.
2. Nordic TSOs delegate the following tasks to Nordic RSC:

- a. Assuring quality of individual and common grid model;
 - b. Performing pre-alignment service to determine the potential of the interconnections for the exchange of remedial actions based on local preliminary assessments;
 - c. Building the common grid model;
 - d. Coordination with RSCs of other CCRs.
3. Within ENTSO-E, TSOs will set up a consistent and harmonised approach at pan-European level to ensure that the solutions implemented to build CGMs and operated by RSCs will be compliant with the respective requirements set up in the relevant legislation in force, including SO Regulation (Article 79(5)), the CGMM and the CSAM, while ensuring reliability of the CGM delivery process and the aligned use of the resulting unique CGM.

Article 28

Regional outage coordination

1. In accordance with article 77(3)(c) of SO Regulation, Nordic RSC shall facilitate the regional outage coordination of the Nordic TSOs.
2. Nordic TSOs delegate the following tasks to Nordic RSC:
 - a. Detecting and analysing of outage planning incompatibilities;
 - b. Proposing solutions for resolving outage planning incompatibilities;
 - c. Preparing an annual report on outage planning incompatibilities;
 - d. Facilitating the regional outage planning coordination process;
 - e. Coordination with RSCs of other CCRs.

Article 29

Regional adequacy assessment coordination

1. In accordance with article 77(3)(d) of SO Regulation, Nordic RSC shall facilitate the regional adequacy assessment coordination of the Nordic TSOs.
2. Nordic TSOs delegate the following tasks to Nordic RSC:
 - a. Performing regional adequacy assessment;
 - b. Detecting absence of adequacy and proposing solutions to mitigate/solve adequacy issues;
 - c. Develop and provide reports on adequacy assessment results;
 - d. Facilitating regional adequacy assessment coordination process;
 - e. Coordination with RSCs of other CCRs.

Title 4 Impact Assessment and timescale for implementation

Article 30 Impact Assessment

1. NROSC contributes to and does not in any way hinder the achievement of the objectives of article 4 of SO Regulation. In particular, NROSC serves the objectives to
 - a. determining common operational security requirements and principles;
 - b. determining common interconnected system operational planning principles;
 - c. ensuring the conditions for maintaining operational security throughout the Union (and Norway);
 - d. promoting the coordination of system operation and operational planning;
 - e. ensuring and enhancing the transparency and reliability of information on transmission system operation and;
 - f. contributing to the efficient operation and development of the electricity transmission system and electricity sector in the Union (and Norway). NROSC contributes to these objectives by specifying common provisions for regional operational security coordination processes and the organisation of regional operational security coordination.

Article 31 Timescale for implementation

1. Nordic TSOs and Nordic RSC shall implement the NROSC without undue delay after the approval of the methodology, ensuring the following provisions are met:
 - a. implementation of CGMM in accordance with articles 67(1) and 70(1) of the SO Regulation;
 - b. development, testing and implementation of the IT tools, systems, business process and procedures required to implement the requirements set forth in NROSC;
 - c. concerning the implementation of cross-CCR coordination processes only, the regulatory approval and implementation of the amendments in accordance with article 21 (6), article 27 (3) and article 30 of CSAM;
 - d. any other future methodologies or requirements which are considered necessary in order to ensure Nordic regional operational security.
2. In accordance with article 46(5) of CSAM, Nordic TSOs and Nordic RSC shall implement the requirements set forth in NROSC concerning cross-regional operational security coordination six months after the requirements have been implemented in accordance with Article 31(1) of NROSC.
3. Nordic TSOs in coordination with Nordic RSC shall report the progress of the implementation of NROSC to concerned national regulatory authorities upon request.
4. If deemed necessary, the Nordic TSOs shall propose amendments to NROSC. If deemed necessary, the Nordic RSC shall propose amendments to NROSC in coordination with Nordic TSOs.

5. Nordic RSC shall be in charge of the implementation process. Nordic TSOs shall contribute as much as needed in order to secure the implementation.

Title 5

Final provisions

Article 32

Publication of NROSC

1. Upon approval of this NROSC, Nordic TSOs shall publish it on the internet in accordance with article 8(1) of SO Regulation.

Article 33

Language

1. The reference language for NROSC shall be English.
2. For the avoidance of doubt, when Nordic TSOs need to translate this NROSC into their national language(s), in the event of inconsistencies between the English version published by Nordic TSOs in accordance with article 8(1) of SO Regulation and any version in another language, the relevant Nordic TSO shall, in accordance with national legislation, provide the relevant national regulatory authority with an updated translation of NROSC.