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Explanatory document to the coordinated redispatching
and countertrading methodology for Capacity
Calculation Region Hansa in accordance with Article 35
of the Commission Regulation (EU) 2015/1222 of 24 July
2015 establishing a Guideline on Capacity Allocation and
Congestion Management

03 December 2020

1. Introduction

The Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management (hereafter referred to as “CACM Regulation”) sets out rules to ensure optimal use of the transmission infrastructure, operational security and optimising the calculation and allocation of cross-zonal capacity.

To implement the CACM Regulation, it is required to develop a common methodology for coordinated redispatching and countertrading (hereafter referred to as “CRC Methodology”). Pursuant to Article 35 of the CACM Regulation, all TSOs in the CCR Hansa have established a CRC Methodology. This document provides additional information in order to understand the thinking behind this methodology.

The CRC Methodology in CCR Hansa has to be submitted for approval to all national regulatory authorities (hereafter “NRAs”) within CCR Hansa no later than 16 months after the regulatory approval of capacity calculation regions referred to in Article 15 of the CACM Regulation. The date of submission of this methodology for NRA approval is therefore to be 17 March 2018 at the latest. Moreover, the methodology shall be subject to consultation in accordance with Article 12 of the CACM Regulation.

Regarding Norway, the CACM Regulation has not yet been implemented as Norwegian law due to delay in implementing the Regulation (EC) No 714/2009. No decision has been made from the Norwegian government at the time of writing this CRC Methodology, but there are no indications of obstacles in relation to implementing the CACM Regulation. This document is written under the assumption of Statnett that Norway will implement the CACM Regulation prior to the implementation deadline for this CRC Methodology.

This document is built up as follows: Chapter 2 describes the legal references and requirements relevant for this CRC Methodology. The legal context is used to interpret the scope of this CRC Methodology and notably what “redispatching” and “countertrading” is to cover. Chapter 3 focuses on explaining the essence of the CRC Methodology with description of the uses of redispatching and countertrading (hereafter referred to as “RD and CT”) as well as the coordination process. Chapter 4 provides examples on appropriate mechanisms and agreements for countertrade and redispatch for each of the control areas. Chapter 5 is dedicated to documentation of RD and CT measures. Further, Chapter 6 presents the foreseen implementation of this CRC Methodology. Lastly, the results of the consultation are covered in Chapter 7. The description of the current use of RD and CT constitutes Annex 1 to this explanatory document.

2. Legal references and requirements

A number of relevant parts of the preamble of the CACM Regulation are cited here and should be taken into account in order to properly interpret the articles stated further below.

No. 10 of the preamble of the CACM Regulation states that TSOs should:

“use a common set of remedial actions such as countertrading or redispatching to deal with both internal and cross-zonal congestion. In order to facilitate more efficient capacity allocation and to avoid unnecessary curtailments of cross-border capacities, TSOs should coordinate the use of remedial actions in capacity calculation.”

Followed by no. 12 of the preamble:

“TSOs should implement coordinated redispatching of cross-border relevance or countertrading at regional level or above regional level. Redispatching of cross-border relevance or countertrading should be coordinated with redispatching or countertrading internal to the control area.”

The basis for the CRC Methodology is Article 35(1) of the CACM Regulation:

“Within 16 months after the regulatory approval on capacity calculation regions referred to in Article 15, all the TSOs in each capacity calculation region shall develop a proposal for a common methodology for coordinated RD and CT.”

Article 35(2) further states that:

“The methodology for coordinated RD and CT shall include actions of cross-border relevance and shall enable all TSOs in each capacity calculation region to effectively relieve physical congestion irrespective of whether the reasons for the physical congestion fall mainly outside their control area or not.”

And lastly Article 35(3) states that the CRC Methodology shall:

“address the fact that its application may significantly influence flows outside the TSO’s control area.”

The CRC Methodology following Article 35 of the CACM Regulation is also interlinked with Article 21 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as “SO Regulation”) specifying that each TSO shall apply principles when activating and coordinating remedial actions in accordance with Article 23 of the SO Regulation:

“for operational security violations which need to be managed in a coordinated way, a TSO shall design, prepare and activate remedial actions in coordination with other concerned TSOs, following the methodology for the preparation of remedial actions in a coordinated way under Article 76(1)(b) and taking into account the recommendations of a regional security coordinator in accordance with Article 78(4).”

Further Article 23(2) of SO Regulation specifies that:

“When preparing and activating a remedial action, including redispatching or countertrading pursuant to Article 23 and 35 of Regulation (EU) 2015/1222, or a procedure of a TSO’s system defence plan which affects other TSOs, the relevant TSO shall assess, in coordination with the TSO concerned, the impact of such remedial action or measure within and outside of its control area, in accordance with Article 75(1), Article 76(1)(b) and Article 78(1), (2) and (4) and shall provide the TSOs concerned with the information about this impact.”

Also relevant in this respect is the requirement for TSOs to develop common provisions for operational security coordination on a regional level in Article 76(1) of the SO Regulation:

“...all TSOs of each capacity calculation region shall jointly develop a proposal for common provisions for regional operational security coordination, to be applied by the regional security coordinators and the TSOs of the capacity calculation region.”

Article 76(1) further specifies that:

“The proposal shall respect the methodologies for coordinating operational security analysis developed in accordance with Article 75(1) and complement where necessary the methodologies developed in accordance with Articles 35 and 74 of Regulation (EU) 2015/1222.”

Lastly, Article 78(1) of the SO Regulation states:

“Each TSO shall provide the regional security coordinator with all the information and data required to perform the coordinated regional operation security assessment, including at least:

...(b) the updated list of possible remedial actions, among the categories listed in Article 22, and their anticipated costs provided in accordance with Article 35 of Regulation (EU) 2015/1222 if a remedial action includes redispatching or countertrading, aimed at contributing to relieve any constraint identified in the region; and ...”

The methodologies from the CACM Regulation and the SO Regulation are thus highly interlinked. The following chapters provide a description of CCR Hansa TSOs’ interpretation and scope of this CRC Methodology.

2.1 Definition of RD and CT

According to the Commission Regulation (EU) 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex 1 to Regulation (EC) No 714/2009 of the European Parliament and of the Council (hereafter referred to as “Transparency Regulation”) Article 2(13):

“countertrading’ means a cross-zonal exchange initiated by system operators between two bidding zones to relieve physical congestion.”

Countertrading is therefore considered a measure with the objective of relieving physical congestions between two bidding zones, where the precise generation or load pattern alteration is not predefined¹. This measure is a market-based solution, where the cheapest bid is selected independently of the geographical location within the bidding zone.

Article 2(26) of the Transparency Regulation further clarifies that:

“Redispatching’ means a measure activated by one or several system operators by altering the generation and/or load pattern in order to change physical flows in the transmission system and relieve a physical congestion.”

Redispatching is therefore considered a measure with the objective of relieving physical congestions by altering a particular generation and/or load pattern. Specifically, this refers to one or several TSO(s), when congestion appears, and requires specific generators (or specific consumers) to start or increase production and specific other generators to stop or reduce production, in order to maintain the network security¹.

With regard to the above-mentioned definitions, the general idea of RD and CT is to alter the generation and/or load pattern by one or several TSO(s) in order to change physical flows and thereby relieve the physical congestion.

Redispatching and countertrading are also mentioned in Article 22 of the SO Regulation as categories of remedial actions² that are in line with the definitions specified in the above-mentioned section.

2.2 Interpretation and scope of the CRC Methodology

Firstly, this CRC Methodology seeks to address physical congestions and faults on the CCR Hansa bidding-zone borders and describes the coordination with neighbouring CCRs. The CRC Methodology is to be applicable to any future bidding-zone border which may be added to CCR Hansa by NRA or ACER decision. An overview of current and foreseen CCR Hansa bidding zone borders is given in **Figure 1**.

¹ ACER: Based on the definitions from the questionnaire for Market Monitoring Report

² “Remedial action” is defined in Article 2(13) of the CACM Regulation as ‘any measure applied by a TSO or several TSOs, manually or automatically, in order to maintain operational security’.

Current interconnectors:
 1: DK1-DE/LU AC grid
 2: Kontek
 3: SwePol

Foreseen interconnectors:
 4: NorNed
 5: COBRACable
 6: NordLink
 7: Baltic Cable
 8: Kriegers Flak CGS

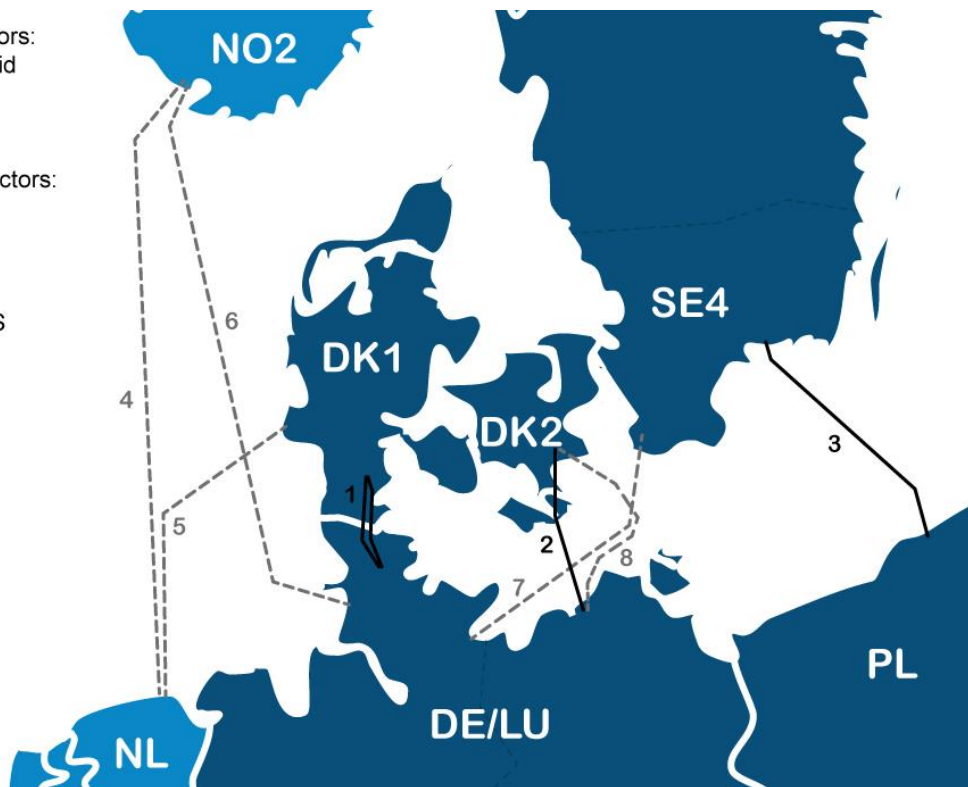


Figure 1: Overview of the current and foreseen interconnectors within CCR Hansa.

CCR Hansa currently consists of the following bidding-zone borders:

- 1) Denmark 1 - Germany/Luxembourg (DK1-DE/LU)
 Energinet.dk and TenneT TSO GmbH;
 Via onshore AC-grid connection
- 2) Denmark 2 - Germany/Luxembourg (DK2-DE/LU)
 Energinet.dk and 50Hertz Transmission GmbH; and
 Via the Kontek HVDC interconnector
- 3) Sweden 4 - Poland (SE4 – PL)
 Svenska Kraftnät and PSE S.A.
 Via the SwePol HVDC interconnector

Additionally, new bidding-zone borders are expected to be added to the CCR Hansa through requests for amendment. In the upcoming years, it is foreseen that requests for amendment could be handed in for the following bidding-zone borders to be added to CCR Hansa:

- 4) Norway 2 – the Netherlands (NO2-NL)
 Via the NorNed interconnector
 Additionally, it is expected that NorNed (NO2-NL) will be added to CCR Hansa once Norway ratifies the CACM Regulation. The 3rd EU liberalisation package, EU Regulation No. 713-714/2009 was ratified in Norway in April 2018, but the Network Codes and Guidelines are not yet ratified.
- 5) Denmark 1 – the Netherlands (DK1-NL)
 Via the COBRACable HVDC interconnector
 Request for amendment to add the DK1-NL border to CCR Hansa was handed in to all NRAs for approval on 13 March 2018.

6) Germany/Luxembourg – Norway 2 (DE/LU-NO2)

Via the NordLink HVDC interconnector

Similar prerequisite as NorNed that Norway ratifies the CACM Regulation. Foreseen go-live of the IC is end of 2020.

7) Germany/Luxembourg – Sweden 4 (DE/LU-SE4)

Via the BalticCable HVDC interconnector

At present, the owner of Baltic cable (SE4-DE/LU) is not a certified CCR Hansa TSO. Until the owner of Baltic Cable becomes a certified CCR Hansa TSO, BalticCable is not expected to be allowed to join CCR Hansa and is therefore not in scope of the CCR.

Lastly, an additional interconnector is to be added to an already existing bidding-zone border in CCR Hansa:

8) Denmark 2 – Germany/Luxembourg (DK2-DE/LU)

Through the development of Kriegers Flak Combined Grid Solution, a hybrid interconnector consisting of interconnected offshore wind farms in the DK2 and DE/LU bidding zone, an additional interconnector will arise parallel to the already existing Kontek interconnector.

The KF CGS was granted a 10 year exception with the EC decision no. 2020/7948 of 11 November 2020 on the derogation for KF CGS following Article 64 of Regulation (EU) 2019/943. The decision sets that the capacity basis to be used for calculating the minimum capacity shall be the residual capacity after deduction of the capacity necessary for transporting the forecasted electricity production by the wind farms connected to the Kriegers Flak Combined Grid Facility at the day ahead stage to the respective national onshore systems, rather than the total transmission capacity. The Hansa CRC Methodology is reflecting this decision in the solutions described for KF CGS by explicitly referring to an interconnector to which a number of windfarms are directly connected in Article 3(1)(c).

The legal framework stated above needs to be given an interpretation in order to formulate a legally sound proposal for the CRC Methodology to define the scope of this CRC Methodology and to make the proposal implementable.

According to Article 35 of the CACM Regulation, the CRC Methodology shall include actions of cross border relevance. Countertrading has cross border relevance in all situations due to the definition, as described in chapter 2.1, whereas redispatching should only be part of this CRC Methodology as far as the measure has cross border relevance. RD and CT are considered to have cross border relevance when these measures can effectively influence the flow on a CCR Hansa bidding zone border.

RD and CT are, as mentioned above, considered remedial actions as defined in the SO Regulation and can be prepared in different processes and in different timeframes, i.e. day-ahead, intraday and close to real-time.

When RD and CT are used for mitigating congestions, the TSOs or the Regional Security Coordinator (hereafter referred to as "RSC") identify the potential need in advance, while the effective application on the network will be done at the shortest time compatible, and if the TSOs' need is confirmed by the last available information on the expected situation. For example, RD and CT can be considered necessary to secure the grid under specific market scenarios but will not be applied if the market results turn out to be different from the assumption.

Since the above measures influence each other, an enduring coordination process is needed, and the main target of the coordination process is to ensure that RD and CT that have been identified in one process

step are also taken into account in the following process steps. To allow the CCR Hansa TSOs to effectively relieve congestion, appropriate coordination between CCR Hansa TSOs has to be ensured through this CRC Methodology. This coordination will largely be done through the RSC. The need for coordination throughout the different timeframes is described without prejudice to the future detailed processes for operational security analysis to be developed according to the SO Regulation.

3. The CRC Methodology

The reasons for the use of RD and CT in relation to the CCR Hansa bidding zone borders can be divided into seven different cases. Subsequently, these are explained after which the coordination process is described. It is important to understand the overlapping nature of this CRC Methodology with the coordinated use of remedial actions in system operation in general as described in the SO Regulation.

3.1 The uses of RD and CT in relation to CCR Hansa bidding-zone borders

In CCR Hansa, coordinated RD and CT measures are applied:

- a) *In order to maintain minimum technical limit for stable operation of a CCR Hansa HVDC interconnector, in accordance with Article 3(1)(a).*

In the instance where instability of a HVDC interconnector occurs when it is operated with specific levels of power exchange, it is necessary to adjust the exchange to a level where stable operation can be ensured. This adjustment of the flow to a level different than what is traded based on the market outcome is done by the use of countertrading.

- b) *In order to handle fault, failure or unplanned outage on a CCR Hansa interconnector, including converter stations, in accordance with Article 3(1)(b).*

In the event that an interconnector has a fault or an unplanned outage directly on the interconnector, it is necessary for the TSOs to bring back the balance in the systems on either side, which will be done through the use of RD and CT. This use of RD and CT will have to be maintained for as long as the TSOs are to guarantee the firmness of capacity on an interconnector after which the capacity is recalculated.

- c) *In order to maintain the capacity on an interconnector made available to the market in case a congestion occurs on an interconnector to which a number of windfarms are directly connected and that congestion is due to a wind forecast error for one of the windfarms, in accordance with Article 3(1)(c).*

In the case of Kriegers Flak there are windfarms connected to the cross-border line, thus the primary purpose of Kriegers Flak is to move offshore wind power to the transmission grid on land. In some hours there will be excess capacity, which is not taken up by the wind power. The generation that will be forecasted by the TSOs, Energinet and 50Hertz is an anticipated market outcome, and the capacity on the interconnector which is not a part of this will be given to the DA and ID markets. As wind forecasts are often not correct, a discrepancy between the anticipated market outcome and realised market outcome will in some cases necessitate RD or CT measures to avoid overloading of the offshore lines. This will in particular be the case when the anticipated market outcome is underestimated and subsequently more capacity is given to the DA and ID markets than what the lines can handle together with the realised market outcome.

- d) *In case that RD and CT are proposed related to the CCR Hansa bidding-zone borders is proposed based on the operational security analysis carried out by the RSC other than referred to in Articles 3(1)(a), 3(1)(b) and 3(1)(c) a), b) and c), in accordance with Article 3(1)(d).*

The RSC will continuously, when updated information is available, run operational security analyses in each CCR. The scope of the operational security analyses is set under the SO Regulation and is only determined after submission of the current CRC Methodology. Subsequently it is not known which CCR's operational security analysis will monitor which parts of the grid. This facilitates that CCR Hansa in writing the CRC Methodology will have to take into account that the operational security analysis of CCR Hansa could possibly cover more than just the interconnectors, but ideally the adjacent AC grids will be observed by the CCRs who have these parts of the grid included in their flow-based capacity calculation methodologies.

- e) *In case the RD and CT is coordinated bilaterally between neighbouring CCR Hansa TSOs in situations other than referred to in a), b), c) and d), in accordance with Article 3(1)(e).*

In case of events that cause physical congestions happen in the timeframe between the last relevant operational security analysis and real-time, or if elements are not taken into account³ in the RSC coordinated operational security analysis, the CCR Hansa TSOs will perform their own operational security analysis, in order to ensure the operational security and subsequently plan and activate bilateral RD and CT measures to alleviate these physical congestions. In this event, the neighbouring CCR Hansa TSOs shall, without undue delay, inform then CCR Hansa RSC and TSOs who are at risk of being affected by these measures.

It is the opinion of the CCR Hansa TSOs that cases a)-e) cover all events where it could be necessary to carry out regionally or bilaterally coordinated RD and CT within CCR Hansa, given the chosen, narrow scope of CCR Hansa. Thus, it basically covers the situations where the physical congestion is directly on the interconnectors or physical congestion is due to the elements that are not taken into account in the RSC coordinated operational security analysis. In addition to this, there could be a need to facilitate RD or CT from cross-regionally coordinated actions, as described in 3.2.

3.2 Cross-regionally coordinated redispatching and countertrading

In order to handle physical congestion in the adjacent AC grid the following cases are applicable for cross-regionally coordinated RD and CT across CCR Hansa bidding-zone borders, subject to confirmation by relevant CCR Hansa TSOs:

- a) *In case that RD and CT related to the CCR Hansa bidding-zone borders is proposed by the RSC of neighbouring CCRs in accordance with Article 6(1)(a).*

In the event that the RSC of a neighbouring CCR proposes RD and CT measures on a CCR Hansa bidding-zone border then this is a possibility. The coordination of such measures has to be done between RSCs and proposed to TSOs, who in the end will decide on activation as per description in the SO Regulation based on how the actual operating conditions are when time of activation is reached.

If the RSC of a neighbouring CCR identifies a violation of the operational security limits, it will

³ Such as voltage stability, short-circuit current limits, dynamic stability, interactions with distribution network, and grid elements which are influenced by cross-zonal exchanges to a lesser extent than what is defined as CNEs.

propose remedial actions to alleviate the violation, and the remedial action may be to use RD and CT across CCR Hansa borders to ensure the system security with the exchanges allocated on the CCR Hansa borders.

If the suggested RD and CT measures are accepted by the relevant CCR Hansa TSOs, CCR Hansa will, carry out a facilitator function between adjacent CCRs to ensure the most efficient use of CT & RD measures.

- b) *In case that RD and CT related to the CCR Hansa bidding-zone borders is requested by a TSO of a neighbouring CCR, through the relevant connected CCR Hansa TSO after the last relevant coordinated operational security analysis carried out by the RSC of that CCR, in accordance with Article 6(1)(b).*

As with the situation described in section 3.1 point e) an event, after a non-CCR Hansa RSC has carried out the last relevant operational security analysis, can also happen outside the area monitored by CCR Hansa TSOs that still possibly could be alleviated by RD or measures related to the CCR Hansa bidding zone borders. This paragraph allows for this to happen. Such a request will have to be accepted by the relevant CCR Hansa TSOs.

The Coordinated Security Analysis Methodology (CSAM) is developed in accordance with SO Regulation Article 75, and operational security coordination (OSC) in the SO Regulation Article 76.

In the event that violations of the operational security limits in the AC grids to the north or south of the CCR Hansa bidding zone borders are detected, it could in some cases be most efficient to carry out a countertrade or redispatch action which involves the CCR Hansa bidding zone borders. As it is in the AC grid which is represented in the FB methodologies of the CCR Nordic and CCR Core, it is most natural to have the Operational Security Analysis (OSA) cover these two areas as well. It will be more efficient than a static ex-ante definition of the geographical area of where the CCR Hansa OSA is to start, and the area where another CCRs OSA ends. This is coupled with the fact that each TSO shall submit remedial actions to the RSCs. A coherent use of each remedial action shall be ensured which implies it can only be used once and therefore should only be a part of one list. From an efficiency point of view, it will be much better to have as few lists as possible as it will reduce the risk of having RAs on the “wrong” list and thereby more expensive or contradictory choices would be chosen in a given situation. Therefore the CCR Hansa TSOs are of the opinion that the OSA that is carried out, and on which the planning of RD and CT is based, will take point of departure in the AC grid being monitored in the OSA of CCR Nordic and CCR Core, and that all RD and CT possibilities related to this, is part of the list of RAs that are submitted to the RSCs relevant to this.

In case that the operational security analysis carried out by the CCR Hansa RSC shows the need to carry out countertrading or redispatching and the most efficient and effective resource is part of the remedial action list submitted to another RSC, then the CCR Hansa RSC can contact the relevant RSC and make the request to this RSC as stated in article 6(2). This is ensured by the cooperation between RSCs and helps to enable that the most efficient solutions available are utilised. It is possible that the given resource is already planned to be used in which case the CCR Hansa RSC will have to suggest another solution.

In cases after the last relevant operational security analysis has been carried out the CCR Hansa TSOs can request RD and CT measures from another CCR through the relevant connected CCR Hansa TSO participating in the other CCR if it is the most efficient way of addressing a violation of the operational security limits as mentioned in article 6(3). This is to ensure that regardless of where the resources are placed, it is a possibility to make a request to the relevant TSOs to utilise the resources for redispatching or countertrading if the need arises. This means that it is carried out on bilateral or multilateral basis, and

the involved TSOs will have to inform the relevant RSCs of the actions taken.

3.3 Timeframes for planning and activation of RD and CT

In planning of RD and CT measures it is important to ensure feasibility from an operational point of view, see Figure 2. (It is assumed that the RSCs will carry out coordinated operational security analysis after each time a new CGM is available between D-1 until about several hours before time of operation). On this basis, the RD and CT can be planned well in advance of the operational hour by the RSC and be proposed to the TSOs. The TSOs can then activate the RD and CT measures at the shortest time compatible with the delay needed to their implementation, as long as they are still relevant.

In case a contingency with cross border impact happens close to real-time operation (between the last relevant coordinated operational security analysis and real-time) or if some elements are not taken into account³ in the RSC coordinated operational security analysis, the TSOs can perform their own operational security analysis and will handle this bilaterally as there is no time to involve the RSC and since the RSC will not have the information available to be of help initially. In case the contingency is long lasting, the relevant TSOs will ensure that the relevant information is a part of the next submitted IGM, thus in the next CGM merger the RSC will then be able to take this into account in forward planning. Because the contingency happens close to real-time operations there is less time for coordination or if some elements are not taken into account³ in the RSC coordinated operational security analysis, thus it will only be the directly involved parties that coordinate their measures, while other parties will be informed without undue delay. The actual processes will be defined at a later stage according to the SO Regulation, but an overall foreseen process is described below in Figure 1:

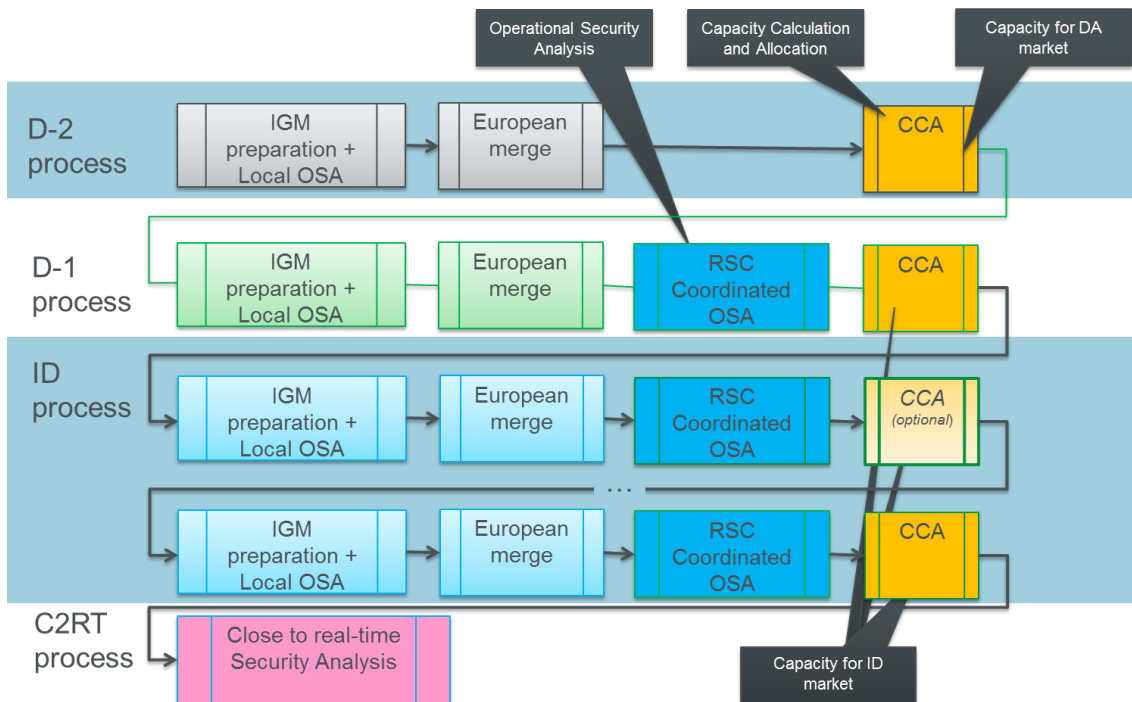


Figure 2: The coordination process for use of remedial actions⁴

3.4 The Coordination Process

The CRC Methodology is centred on cooperation of the TSOs in CCR Hansa via the RSC. Specific requirements in the SO Regulation already require, to a large extent, coordination in respect to remedial

⁴ From ENTSO-E remedial action framework

actions. As RD and CT are remedial actions, these are implicitly included. The SO Regulation will in the Articles 75 to 78 further require TSOs to elaborate on the coordinated operational security analysis which serves as the foundation for determining whether RD and CT is needed.

Coordination is done during different timeframes in relation to different markets. Preparation of RD and CT measures starts at D-1 (see Figure 2), i.e. the day before the day of delivery. Firstly, TSOs shall individually assess possible RD and CT measures and supply a list of these measures, including their anticipated costs, to the RSC. The RSC needs such a list, amongst other data such as common grid models, the contingency list and the operational security limits, in order to carry out a coordinated regional operational security assessment. The RSC then delivers the results of the coordinated regional operational security assessment to the CCR Hansa TSOs.

The RSC shall, where it detects a constraint, recommend to the relevant TSOs the most effective and economically efficient RD and CT measures. This recommendation is the result of coordination across the borders of CCR Hansa, through coordination of the RSC with other RSCs.

Any recommendation received from the RSC for a particular RD or CT action shall be evaluated by the TSO with regard to the elements involved in that action and located in its control area. The decision-making right on the implementation of a RD or CT measure remains with the TSOs, but there shall be a duty to inform and explain the TSOs' decision to the RSC in case the recommendation by the RSC for a particular measure is not accepted. The accepted recommended measures shall be included by the TSOs in the forthcoming individual grid model.

The process described leads to a considerable degree of coordination of RD and CT measures, as assessment for needed measures on a regional level will be performed by a third party, the RSC. Thus, this neutral entity will ensure more efficient dispatching of relevant resources on a regional level in comparison to the current situation where congestion is relieved bilaterally by involved TSOs.

Closer to real time there will be less possibilities for regional coordination via the RSC as the information available to the RSC can no longer be updated due to time constraints. In order to ensure coordination of unforeseen events causing physical congestions happening between the last relevant coordinated operational security analysis and real-time or if some elements are not taken into account³ in the RSC coordinated operational security analysis, the TSOs can perform their own operational security analysis and shall coordinate bilaterally with neighbouring TSO(s) in order to plan and carry out RD and CT. These TSOs will inform directly-impacted TSOs in CCR Hansa as well as the CCR Hansa-appointed RSC. Lastly, TSOs will take into account the bilaterally agreed RD and CT measures in the next relevant IGMs. Congestions in third TSOs' grid as a result of a RD or CT measure should be avoided.

3.5 Regional Security Analysis and inter-region coordination of remedial actions

When creating the RSCs in 2015, the TSOs in Europe decided that the objective was not only to ensure cooperation and coordination between TSOs but also between the RSCs. This has been stipulated in the Multilateral Agreement on Participation in Regional Security Coordination Initiatives between 37 European TSOs. RSCs shall aim at developing coordination between them for each service they provide. This coordination is agreed to cover the following aspects at operational level:

- a) Exchange all relevant operational information available useful to improve consistency and precision of analysis and recommendations provided to TSOs;
- b) Update and share grid models with remedial actions or improvement of electrical system (at least PST tap choices and secure topology) already agreed by TSOs within one region;
- c) Exchange results of analyses for checking and consolidating them, notably for cross-regional impact assessment;

- d) Search for cross-regional coordinated remedial actions to be proposed to TSOs when these remedial actions are more efficient than remedial actions that can be coordinated among TSOs served by a single RSC.

3.5.1 Regional Security Analysis and Coordination process

The OSA is subject to approval of the SO Regulation Article 75, and operational security coordination in the SO Regulation Article 76. Operational processes on how the coordination in reality will be carried out in relation to the operational security analysis and the coordination between RSCs are to be specified in the methodology developed under the System Operation Guideline Article 76.

It is expected that the regional OSA and coordination will follow the process shown in Figure 3. This takes point of departure in IGMs and remedial action lists being supplied from TSOs to the RSC who merges the IGMs into a CGM. The CGM is used to analyse if any of the operational security constraints are violated.

In case violations are identified, remedial actions will be planned to be applied. If it is shown they relieve the congestion, they are proposed to TSOs to be activated as late as possible, but the actual activation time may differ depending on the measure and local activation criteria. This is foreseen to be a continuous process carried out whenever new IGMs are available to the RSC.

RD and CT – activation of resources is done before real time

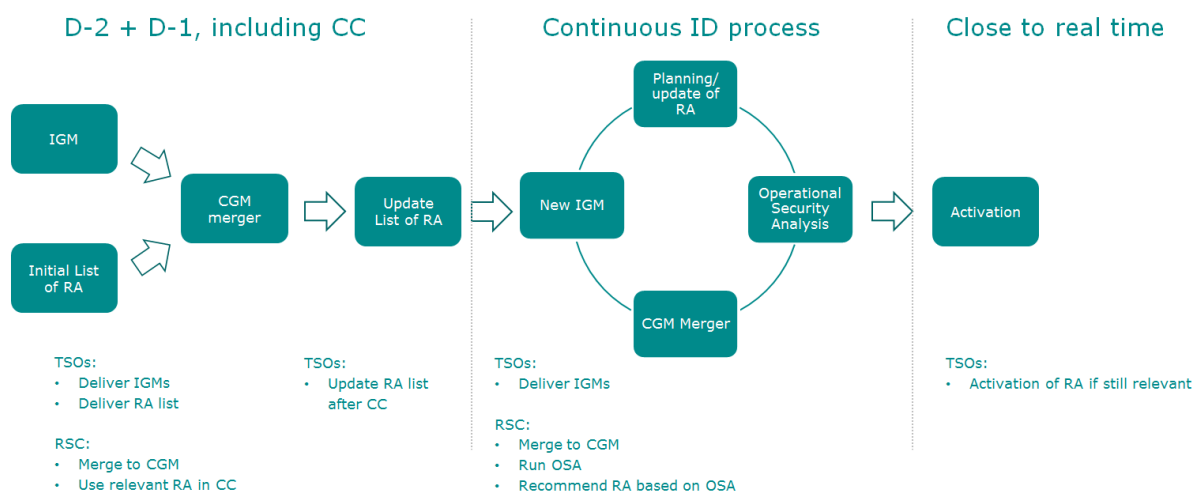


Figure 3: Process for operational security analysis foreseen in CCR Hansa

If some elements are not taken into account³ in the RSC coordinated operational security analysis, the CCR Hansa TSOs will perform their own operational security analysis, in order to ensure operational security and subsequently plan and activate bilateral RD and CT measures to alleviate the physical congestions.

3.5.2 Regional remedial action lists

When TSOs develop the lists of remedial actions available to the RSCs, they have to include all possible remedial actions according to Article 78(1)(b) of the SO Regulation, including countertrading and redispatching possibilities. When doing this there are two issues which have to be taken into account.

1. The possible remedial actions list is a bidding-zone specific property, and not so much a CCR-specific or bidding zone border-specific property. According to the Article 75 in the SO Regulation, it is possible to have a given remedial action listed on several lists in case a TSO is part of several CCRs, however the utilisation needs to be coordinated, as it can only be planned to be used and activated once.

A possible solution is to require the RSCs to cooperate in order to ensure that remedial actions declared on a list of one RSC can also be utilised by other RSCs. In each case two or more CCRs are overlapping or bordering, a methodology to split the available remedial actions has to be made.

In each case of split remedial action lists, it is important to note that with any arbitrary split an artificial boundary is created, which could in one way or another create the risk of suboptimal utilisation of remedial actions to solve a given event.

Another possible solution is to create remedial action lists per bidding zone, which can be accessed by all RSC's active in that area. In this case, the risk for suboptimal utilisation of remedial actions is minimised. However, clear access and utilisation rules between RSCs would have to be made in this case.

2. Some TSOs are utilising systems for countertrading and redispatching which are based on a voluntary bidding system where bids can be withdrawn as well. When TSOs have to add such countertrading and redispatching measures to the remedial actions list they should ensure the availability of these measures at all times. Effectively, there is only one way of ensuring this, which is to purchase them as reserves before they are actually needed.

This is likely to be infeasible within the current systems and is only applied today where a risk of shortage of reserves is expected. In these systems, an implicit trade-off exists between cost of ensuring availability of these measures and the risk of them not being available. This trade-off will be different in each bidding zone depending on for example, how active the market players are, how often the measures are needed and the cost of purchasing the capacity in advance.

It is important to note that there is a difference in withholding measures which is an intentional action in bad faith and then not declaring resources as being available, and thereby possible, as required in the SO Regulation article 78, when it is uncertain if the resources will actually be available.

As stated earlier in this section, the RSCs are obliged to cooperate and therefore there should be no practical problem for CCR Hansa to have the full onshore AC-grids of Denmark, Norway and Sweden, and their cross-border connections, monitored in the Nordic CCRs operational security analysis. Similarly, the onshore AC-grids of Poland, Germany and the Netherlands, and their cross-border connections, should be covered by the CCR Core operational security analysis.

3.5.3 The appointment of the RSC(s) for CCR Hansa

At the time of writing of this proposed CRC methodology, it is not yet decided how CCR Hansa will procure services from RSCs. It is also not yet decided if one or more RSCs will be appointed to provide the 5 services that are needed in CCR Hansa. The current expectation is 2 RSCs will be appointed in CCR Hansa as this will ensure that, the RSCs which have a certain geographical scope embedded in their scope, will be required to focus on this area within CCR Hansa, and thereby improving the time it will take to set up and limit the risks associated with changing the geographical scope of any given CCR. In addition, it will create a redundancy in the delivery of services in CCR Hansa.

For each of the services that the RSC(s) have to perform, specific division regarding responsibilities will be made in the final appointment. The division could be based on a time-based rotating principle, a geographical division or another division that is appropriate depending on the task. Guiding principles for the division are, a single party responsible per service and per locational area at any given time and ensured redundancy at all times.

For instance, a service like capacity calculation of the interconnectors is a task that is most likely being executed on a rotating principle, where the RSCs are performing the task for the whole CCR on a rotating principle.

Other services, for example operational security analysis, where it is important that RSCs are familiar with the specific grids they are responsible for, it could be divided on a geographical basis. In this case the two RSCs would be able to carry out the task simultaneously with one on the Nordic side of the Hansa bidding zone borders and another on the continental side of the Hansa bidding zone borders.

4. Appropriate mechanisms and agreements for countertrade and redispatch

The CRC methodology focuses on the coordination of countertrade and redispatch, whereas the legal document Article 3(1) specifies that RD and CT measures are based on appropriate mechanisms and agreements in accordance with CACM Article 35(3).

Appropriate mechanisms and agreements in CCR Hansa, are specific to at least each control area and consists of different mechanisms, markets and agreements. The following section provides an overview of some the current mechanisms and agreements in place in each control area.

Energinet, i.e. the Danish bidding-zones in CCR Hansa, are part of the Nordic mFRR market – usually referred to as the Nordic Regulating Power Market (Nordic RPM). Balance Responsible Parties (BRPs) in the Nordics submit their bids for up- and downward regulation to the Nordic RPM on a voluntary basis, and TSOs combine the bids in a single merit order curve, from which they can activate the regulation in order to secure the physical balance of the power system and to relieve network congestions. If the bids are used to relieve internal network congestions this is referred to as “special regulation.”, and function as Countertrade. Towards the DK1-DE border Energinet uses RPM bids in DK1, and it is also considered to be used on the future DK1-NL border (Cobra).

Energinet does not have the possibility to conduct redispatch, as the location of the precise generation or load in the Danish system is not known, so all network congestions are relieved using countertrade.

Statnett is also using the Nordic RPM for balancing purposes in the Norwegian bidding zone NO2, in the same way as Energinet. In addition, Statnett uses this market for Redispatching. This is possible due to the geographical information connected to the Norwegian bids. Norwegian bids are marked by which substation group (stasjonsgruppe) the market participant is connected to.

There are agreements for how to utilise the NorNed interconnector – agreed to by the two asset owners. All these agreements are still valid unless they are contradicting new European Guidelines or Methodologies.

The German legal and regulatory framework allows German TSOs to incorporate significant grid users into redispatching⁵. Planning data and redispatch-potential is continuously submitted and updated from approximately D-1 14.00 until real-time. From operational planning to close to real-time, German TSOs have the possibility to order redispatching of specific generation units. This means the upwards regulation and corresponding downwards regulation while maintaining the overall energy balance. Curtailment of renewable energy sources is by German law only allowed in exceptional cases in which no other measures, like redispatching or countertrading are available or those measures are not effective.

At PSE's side of the SwePol interconnector, RD and CT resources are activated within Integrated Scheduling Process (ISP) run by PSE based on the volume of remedial measure (RD/CT) agreed with Svenska kraftnät. ISP process is bid-based security constraint unit commitment and economic dispatch, where balancing, reserve procurement and congestion management are co-optimized within one integrated process run by PSE just immediately after the day-ahead market closure and continue until real

⁵ SGUs in accordance within German legal and regulatory definition

time. Commitment and operational set-points of all centrally controlled generation units in Poland is determined by PSE within the abovementioned ISP, minimising the global cost. The price used in the settlement of remedial measure reflects energy delivery/receipt cost of energy at the balancing market, i.e. it is based on the balancing market price and cost of activated resources when the location of resources is relevant to realize remedial measure.

Svenska kraftnät also use the Nordic RPM for balancing purposes in the same way as Energinet and Statnett. At Svenska kraftnäts side of Swepol interconnector bids from the Nordic RPM are used when handling faults on the Swepol interconnector or if PSE's is requesting resources for internal grid problems on the Polish side of the interconnector. Bids used for handling faults on the interconnector or for Polish grid problems is always seen as countertrade.

TenneT NL uses a nationally organised system for mFRR and aFRR bids. Within this system, a specific category of bids (so called 'biedingen overige doeleinden') is introduced for, among others, redispatch purposes. In case of network congestions, a bid in the region at one side of the congestion is activated. A counter-bid of the same magnitude is activated in any region other than the former region. The most economically efficient bids will be activated first in this system. The counter-action has a relatively large locational freedom, but pure countertrading is not used in the Netherlands. In case of an outage of NorNed, only the activation of bids in one direction is necessary to solve the imbalance the outage causes. In case no additional congestion occur, there is no regional-limitation necessary for these bids.

All CCR Hansa TSOs are currently considering if the future European Balancing platforms can be used for redispatch and countertrade, however this needs to be further investigated, as the potential of these platforms depends on their design, gate opening and gate closure time, which are still under development by the European Balancing platforms projects.

5. Documentation of RD and CT measures

Today, the TSOs in CCR Hansa are obliged to record and report the use and costs of RD and CT following the Transparency Regulation, more specifically Article 13(1) on information relating to congestion management measures:

"For their control areas, TSOs shall provide the following information to the ENTSO for Electricity:

(a) Information relating to redispatching per market time unit, specifying:

- *The action taken (that is to say production increase or decrease, load increase or decrease)*
- *The identification, location and type of network elements concerned by the action*
- *The reason for the action*
- *Capacity affected by the action taken (MW)*

(b) Information relating to countertrading per market time unit, specifying:

- *The action taken (that is to say cross-zonal exchange increase or decrease)*
- *The bidding zone concerned*
- *The reason for the action*
- *Change in cross-zonal exchange (MW)*

(c) The costs incurred in a given month from actions referred to in point (a) and (b) and from any other remedial action."

The TSOs of CCR Hansa already comply with these requirements⁶ today.

The CRC Methodology extends this obligation to ensure that a full picture of the RD and CT measures within CCR Hansa is recorded at a central position, in this case the appointed CCR Hansa RSC, and kept for a period of 5 years.

Article 7(2) of the CRC Methodology contains the steps possible in the RD and CT process giving a good overview of everything that happened regarding RD and CT and the justification thereof.

1. *The documentation following from Article 7 is limited to measures coordinated according to the CRC Methodology.*
2. *The CCR Hansa RSC is obliged to keep a record for 5 years regarding RD and CT of the following:*
 - a. the list of all possible RD and CT measures and their anticipated cost, as provided by the individual TSOs to the CCR Hansa RSC in accordance with Article 78(1)(b) of the SO Regulation;
 - b. all RD and CT recommendations made by the CCR Hansa RSC to CCR Hansa TSOs;
 - c. the RD and CT measures carried out in line with the CCR Hansa RSC recommendations based on information received from TSOs
 - d. the justification for CCR Hansa RSC RD and CT recommendations not carried out;
 - e. any alternative RD and CT actions taken, including not taking any actions at the given time, and the justification thereof or bilaterally coordinated RD and CT measures carried out in relation to the CCR Hansa borders.

Article 7(4) of the CRC Methodology describes RD and CT measures that are not necessarily carried out in consultation with the CCR Hansa RSC. To ensure that these measures and their justification are recorded as well within the central record, the TSOs have the obligation to inform the CCR Hansa RSC about those measures.

3. *In case alternative RD and CT is carried out, or no action is taken at the given time, the relevant CCR Hansa TSO shall inform the CCR Hansa RSC of such decisions and the justifications thereof in order for these to be recorded by the CCR Hansa RSC.*
4. *In the event of launching bilateral RD or CT measures pursuant to Article 5(1), the CCR Hansa TSOs have to inform the CCR Hansa RSC of such measures in order for these to be recorded by the CCR Hansa RSC.*

Articles 7(5) and 7(6) of the CRC Methodology specifies exactly which information the RSC of CCR Hansa is to record which is what is already provided to the transparency platform by TSOs today, but in an event by event basis. In addition, the RSC will have to record the duration of the measure selected. In Article 7(7) it is specified that the CCR Hansa TSOs are obliged to inform the RSC of all measures activated and the cost incurred for those measures.

5. *The CCR Hansa RSC shall record the following information, on a market time-unit basis, for each redispatching measure activated in their control area, in line with in the Transparency Regulation:*
 - a. the measure taken (i.e. production increase or decrease, load increase or decrease, in MW);

⁶ Pursuant to Article 5 of Regulation (EU) No 543/2013 in cooperation between ACER and ENTSO-E Manual of Procedures was updated, with regards to the internal redispatching, it was decided that the information relating to congestion management measures in central dispatch systems (i.e. Italy, Poland, Greece, Ireland and Northern Ireland) cannot be published because it is not possible to distinguish between balancing and congestion management which are performed simultaneously.

- b. the duration of the measure (in multiples of the market time unit);
 - c. the identification, location and type of network elements concerned by the measure;
 - d. the reason for the measure; and
 - e. capacity affected by the measure taken (in MW).
6. *The CCR Hansa RSC shall record the following information, on a market time-unit basis, for each countertrading measure activated in their control area, in line with the Transparency Regulation:*
- a. The measure taken (i.e. cross-zonal exchange increase or decrease, in MW);
 - b. the duration of the measure (in a multiple of the market-time unit);
 - c. the bidding zone concerned;
 - d. the reason for the measure; and
 - e. change in cross-zonal exchange (in MW).
7. *Each TSO shall provide the CCR Hansa RSC with the information of Articles 7(4) and 7(5) when bilaterally coordinated RD and CT actions are taken in accordance with Article 5(1).*

NRAs are able to request the central record kept at the CCR Hansa RSC through their corresponding TSO, following Article 7(8).

8. *Upon request of the NRAs, the CCR Hansa TSOs are obliged to provide a complete record of the items stated in Article 7.*

Article 4 of the RCCS methodology, developed according to Article 74 of the CACM regulation, extends the above obligations with obligations to record the costs accounted to the RD and CT measures recorded above to ensure that the central record covers both the physical recommendations and measures, and the accompanied cost in a single place.

6. Plan for implementation

The implementation of this CRC Methodology is dependent on a number of conditions:

- a) Regulatory approval of Redispatching and Countertrading Cost-Sharing Methodology required by Article 74 of the CACM Regulation.
- b) The implementation of Coordinated Operational Security Analysis Methodology, according to Article 75 of the SO Regulation.
- c) The appointment and operation of RSCs for CCR Hansa, CCR Core and CCR Nordic.
- d) The implementation of the common provisions for regional operational security coordination for CCR Hansa, CCR Core and CCR Nordic according to Article 76 of the SO Regulation.

The methodology for the coordinated operational security analysis will be submitted for approval by all NRAs in September 2018. Moreover, at present it is unknown which implementation timeline the Coordinated Operational Security Analysis Methodology will follow. The TSOs of CCR Hansa will implement the methodology 6 months after the methodology in point a) above is approved and the methodologies in points b) and d) are implemented, and RSCs are in place according to c).

7. Summary of stakeholders' comments

The following table provides an overview of the comments received in the public consultation

Comment no.	Reviewer (Organisation)	Comments received	CCR Hansa TSOs' reply
1.	Nord Energi	<p>Nord Energi, the umbrella association of the Nordic electricity industry associations, welcomes the consultation on the coordinated methodology for redispatch and countertrade. Our comments to the consultation are as follows:</p> <p>There is not a firm procedure to incentivize TSOs to use redispatch or countertrade in order to increase cross-border capacities. This methodology draft further states that this issue was dealt with in the CMM methodology, but one of our main points in the CMM consultation answer from Nord Energi was exactly, that there is no procedure for use of redispatch/countertrade to facilitate cross-border trade in that either. So it is currently not sufficiently dealt with anywhere. Whereas (8) reads that "Redispatching and countertrading may be used in capacity calculation for day ahead and intraday"</p>	<p>CCR Hansa TSOs thanks Nord Energi for the comment, however the TSOs believe this comment may be a copy and paste error and that it does not relate to the CCR Hansa methodology, as the cited whereas (8) of CCR Hansa does not address the issue of using RD and CT in capacity calculation.</p> <p>The wording of whereas (8), quoted by Nord Energi can instead be found in the proposal for a methodology for coordinated RD and CT of CCR Nordic.</p> <p>The comment is therefore considered not to be valid for CCR Hansa.</p>
2.	Nord Energi	<p>Whereas (10) reads that "The CCC will after each capacity calculation run the coordinated security analysis. In case this security analysis shows violations of operational security limits it will select remedial actions from the list provided by the TSOs, test whether these relieve the violations, and subsequently propose these remedial actions to TSOs to be used" It seems that TSOs can move internal congestion to the border in the day ahead capacity calculation and if no violations of operational security limits appear in the subsequent security analysis, nothing further will be done.</p>	<p>TSOs are unable to read the statement from the whereas (10) in the same way as Nord Energi. The alleged shift of internal congestions to the border is to be handled in the Capacity Calculation Methodology, and not in Article 35 – which is about the coordination to remove physical congestions – and not about limiting cross border capacity. It is the operational security analysis which determines whether the operational security constraints are violated, in which case the RSC will propose solutions to these violations.</p>
3.	Nord Energi	<p>As there is no obligation on TSOs to use redispatching/countertrading day ahead or at least test the economic efficiency of using it in the capacity calculation for day ahead, it remains unclear what mechanism will ensure that costly remedial actions are used to increase the capacity given to the market when it is economically efficient. A main concern is therefore that we do not view the methodology proposal as sufficiently taking into account ACER's recommendation that "As a general principle, limitations on internal network elements should not be considered in the cross-zonal capacity calculation methods. If congestion appears on internal network elements, it should be resolved with remedial actions in the short term". The TSOs should include a procedure to continuously assess efficiency of the use of costly remedial actions to increase the capacity given to the market – particularly in the day ahead time frame. This</p>	<p>In accordance with CACM Article 35 the TSOs of CCR Hansa developed and proposed a methodology for coordinated RD and CT with the aim of enabling the TSOs in CCR Hansa to effectively relieve physical congestion in a coordinated manner.</p> <p>The TSOs of CCR Hansa are of the opinion that this methodology is not supposed to address the topic of ACER's recommendation on capacity calculation or the question whether or not to use RD and CT to increase cross border capacities.</p>

Comment no.	Reviewer (Organisation)	Comments received	CCR Hansa TSOs' reply
		procedure should be subject to the regulator's approval and the operational choices on including or excluding remedial actions in the capacity calculation should be reported regularly to the regulator.	
4.	Nord-Energi	The documentation and main analyses that form the basis for the operational choices by the TSOs should also be made public to ensure transparency. This is particularly important for stakeholder since the methodology is new and since it is proposed to allow TSOs to deviate from actions proposed by the RSC.	The CRC Methodology is centred on cooperation of the TSOs in CCR Hansa via the RSC, and it will be the RSC conducting the analysis. Specific requirements in the SO Regulation already require a certain level of transparency, which is in addition to the transparency mentioned in this explanatory document.
5.	Nord Energi	There is a fundamental lack of including remedial actions to avoid undue discrimination. In applying grid constraints on cross-border trade, TSOs must continuously document and justify that it is economically efficient or ensuring operational security to curtail interconnectors rather than using remedial actions. The CACM guidelines refer to »rules for avoiding undue discrimination between internal and cross-zonal exchanges to ensure compliance with point 1.7 of Annex I to Regulation (EC) No 714/2009«. It remains unclear to us, how it is ensured that the proposed methodology does not discriminate between internal and cross zonal exchanges or involve the moving of internal congestions to the border.	It is important to understand the delimitation of CCR Hansa and the adjacent CCRs. CCR Hansa propose to be represented by advanced hybrid coupling in the flow-based methodologies of CCR Nordic and CCR Core, thus eliminating any ex ante decision of where to allocate capacity, both between CCRs and between bidding-zone borders. The methodology is to ensure that only the necessary CNEs are included within CCR Core and CCR Nordic in the flow-based methodologies. Subsequently the decision of using remedial actions for increasing the flow-based domain also falls within the methodologies developed in those regions.
6.	Statkraft	Statkraft is of the opinion that the proposed CRCM can only be properly reviewed and assessed in combination with the proposed Capacity Calculation Methodology (CCM). The proposed CCM for the Hansa CCR has several flaws and is not compliant with the CACM Regulation. The core flaw is that it would allow management of internal congestions (meaning congestions within the adjacent regions Core and Nordic) by restricting cross-zonal trade without economic justification and without considering remedial actions like (internal and cross-zonal) redispatch or countertrading. As long as the proposed CCM is not improved and made compliant with relevant EU regulations, it is impossible to conclude on the proposed CRCM.	<p>The CCR Hansa TSOs thank Statkraft for their comments to the CCR Hansa proposal for Coordinated Redispatching and Countertrading in accordance with Article 35 of the CACM.</p> <p>A similar concern as the one provided by Statkraft was raised in the consultation of the CCR Hansa Capacity Calculation Methodology in the summer of 2017 and has been addressed by the CCR Hansa TSOs in the final methodology submitted for NRA approval on the 17th of August 2017.</p> <p>The CCR Hansa TSOs understand the concerns raised by Statkraft, however as this proposal only includes provision regarding the coordination of RD and CT, the comment from Statkraft is considered out of scope of this proposal.</p>
7.	Statkraft	The proposed CRCM does not explain when	The use of the RD and CT is, as written in

Com- ment no.	Reviewer (Organi- sation)	Comments received	CCR Hansa TSOs' reply
		<p>redispatching will be used and when countertrading will be used. Statkraft has understood that the German TSOs are applying countertrading with Denmark when the German grid is facing congestions that are assumed to be related to scheduled imports from Denmark. By applying countertrading, however, there is no indication in which location of the German grid an actual change of infeed will be realized. Such measure will indeed reduce the flow at the Danish German border, however there is no certainty that the measure will relieve the actual congestion inside the German grid. This proposed CRCM will give discretionary powers to the TSOs to apply redispatch or countertrading, however the example of the Danish German border shows that the CRCM should give more detailed and binding guidance on the application of each of these two methods.</p>	<p>the proposal, part of the coordinated security analysis performed by the CCR Hansa appointed RSC following the requirements in Articles 70, 76 and 78 of the SO Regulation.</p> <p>When the RSC detects a physical constraint within the coordinated operation security analysis, the RSC shall, following Article 78(2)(a) of the SO Regulation, recommend to the relevant TSOs the most effective and economically efficient remedial action, including RD and CT measures, and may also recommend remedial actions, including RD and CT measures other than provided by the TSOs.</p> <p>It is therefore considered to be out of scope of this proposal to elaborate on how and when the two measures will be used, as this is based on evaluation by the RSCs in the operational security analysis.</p> <p>CCR Hansa TSOs have to accommodate that the questions to the definition of RD and CT be rewritten in the whereas section.</p>
8.	Statkraft	<p>The proposed CRCM is not clear on the impact on storage and consumers. It contains the following interpretation of the definition of redispatching: "Redispatching is considered a measure with the objective to relieve physical congestions by altering particular generation and/or load pattern. Specifically, this refers to one or several TSO(s) requesting, when congestion appears, specific generators (or specific consumers) to start or increase production and specific other generators to stop or reduce production in order to maintain the network security." Storage is not mentioned. And the second sentence would mean that consumers can only be affected if they operate generation. This should be elaborated and clarified.</p>	<p>From a power system point of view, a storage unit is considered as an entity that shifts between being a consumer and a generator. The proposal from CCR Hansa is considered neutral in the respect that the methodology does not impact entities differently – and the entities are therefore not described separately.</p> <p>The use of RD and CT will, as explained in the previous comment by Statkraft, depend on the recommendation by the RSC, which is based on the effectiveness of the entity to relieve physical congestions and the economic efficiency.</p> <p>In addition, this proposal by the TSOs does not describe the markets in each TSO's bidding zones for providing upward or downward regulation for RD and CT, but the coordination between the TSOs. This agreement does not put any legal requirements or limitations to the current markets and agreements in each TSO's bidding zones.</p>

Com-ment no.	Reviewer (Organi-sation)	Comments received	CCR Hansa TSOs' reply
9.	Statkraft	Article 35 of the CACM Guideline indicates that all generating units and therefore also RES generating units, fall under the scope of this method. Currently Germany still applies two different redispatch measures for RES and non-RES generation units, which seems not compliant with the CACM Guideline. Clarification is needed.	In Article 35(3) of CACM it states: "Each TSO may redispatch all available generation units and loads in accordance with the appropriate mechanisms and agreements applicable to its control area, including interconnectors." The German TSOs apply one single methodology for the redispatch of RES and non-RES generating units, yet with two different priorities, as stated in paragraph 13 of the ENWG (Gesetz über die Elektrizitäts- und Gasversorgung (Energiewirtschaftsgesetz - EnWG), § 13 Systemverantwortung der Betreiber von Übertragungsnetzen).
10.	Statkraft	The proposed CRCM does not provide rules on compensation of redispatch. How is an equal treatment of generation, storage and load affected by redispatch across borders ensured?	As written in comment 8, this proposal by the TSOs does not describe the markets in each TSO's bidding zones for providing upward or downward regulation for RD and CT, but the coordination between the TSOs. Also, the proposal for CCR Hansa does not differentiate between different entities in the power system. In regard to the compensation of redispatching, CACM Article 35(5) states that pricing of RD and CT shall be based on a) prices in the relevant electricity market for the relevant time frame or b) the cost of RD and CT resources calculated transparently on the basis of incurred costs. This requirement from CACM is considered by the TSOs in the cost-sharing methodology following Article 74 of the CACM.
11.	Statkraft	The proposed CRCM allows TSOs to deviate from the measures as proposed by the RSC. There are no restrictive conditions that would need to be met to allow for such deviation from the RSC proposal. An explanation of the individual TSO towards the RSC is not sufficient; instead a transparent justification is required.	The CRC Methodology is centred on cooperation of the TSOs in CCR Hansa via the RSC, and it will be the RSC conducting the analysis. Specific requirements in the SO Regulation already require a certain level of transparency, which is in addition to the transparency mentioned in this explanatory document. If requested, CCR Hansa TSOs will inform relevant regulators about the deviation and the justification.
12.	Baltic Cable	The proposed Coordinated Redispatching & Countertrading Methodology (CRCM) for the Hansa region is of immense importance to	CCR Hansa TSOs appreciate the consultation response from Baltic Cable, however referring to the comments it

Com-ment no.	Reviewer (Organi-sation)	Comments received	CCR Hansa TSOs' reply
		<p>Baltic Cable AB. The status of Baltic Cable within the Hansa CCR is not fully clear. However, as Baltic Cable is regarded as TSO and treated as TSO by both regulators and as Baltic Cable is in the heart of the Hansa region, it may be assumed that this CRCM will also apply to Baltic Cable. In that case, it is required for Baltic Cable AB to be involved in the drafting process before a proposal can be submitted to the regulators. The fact that Baltic Cable is still in the process of being certified as TSO should not hinder such involvement. There is no basis for exclusion of non-certified TSOs which would therefore be discriminatory. Moreover, other non-certified TSOs are already participating in this drafting process in some of the regions. We would therefore suggest to schedule a meeting to arrange for such involvement.</p>	<p>must be stressed that to the TSOs' understanding the responsibility of developing new methodologies etc. necessary to incorporate European Network Codes and Guidelines is a responsibility specifically imposed on TSOs certified according to the Electricity Directive. In our opinion and understanding, we cannot delegate this responsibility to third parties not actually being certified TSOs according to European legislation.</p> <p>Therefore, the work in the Hansa region is solely done by the national certified TSOs in the region and not – as stipulated by Baltic Cable AB – also by non-certified TSOs.</p>
13.	EFET, Euroelectric and MPP	<p>1. How RD and CT on the one hand, and restrictions of cross-border capacities allocated to the market on the other hand are treated on an equal footing. In our joint response to the consultations on regional capacity calculation methodologies, we insisted on the importance for TSOs to systematically consider RD and CT when still facing congestion after applying non-costly remedial actions: indeed, any decision to restrict cross-border transmission capacities for reasons other than system security should be based on an analysis comparing the costs/benefits of applying redispatching or countertrading vs. limiting the availability of cross-border capacities to the market, in order to achieve a welfare optimum. This requires that both RD and CT are fully part of the possible means for TSOs to deal with congestions in each CCR, and mandatorily considered by the TSOs alongside topology measures.</p>	<p>CCR Hansa TSOs appreciate the consultation response from EFET, Euroelectric and MPP, however the actual question here is unclear. Of course, the CCR Hansa TSOs consider and use RD and CT after applying non-costly remedial actions when facing congestions that endanger system security.</p> <p>The TSOs of CCR Hansa are of the opinion that this methodology is supposed to address coordinated RD and CT with the aim of enabling the TSOs in the capacity calculation region to effectively relieve physical congestion in a coordinated manner. The question of whether or not to use RD and CT to increase cross border capacities is not in scope of CACM Article 35 and therefore out of scope of this methodology.</p>
14.	EFET, Euroelectric and MPP	<p>2. How the scheduled exchanges, NTC/FB domain, and balance positions are simultaneously generated and handled by the relevant market and system operators.</p>	<p>This comment is considered to be out of scope of the requirements for the proposal.</p>
15.	EFET, Euroelectric and MPP	<p>3. How the operation scheme ensures full transparency and conforms to Transparency (ex-post) and REMIT Regulations, in terms of how much RD and CT is activated. This information should be available to market participants as soon as those measures are decided; full transparency on deviations from merit order activation (in case of joint congestion management and balancing) is also required.</p>	<p>The TSOs of CCR Hansa follow the transparency regulation and REMIT requirements for publication today. This is not changed with the introduction of coordinated RD and CT.</p>

Com- ment no.	Reviewer (Organi- sation)	Comments received	CCR Hansa TSOs' reply
16.	EFET, Euroelectric and MPP	<p>4. How open positions generated by redispatching or countertrading are to be counterbalanced in a market-based manner to deliver appropriate economic signals. In this regard, we see three main options:</p> <ul style="list-style-type: none"> a. TSOs managing the counterbalance in the framework of the balancing mechanism b. TSOs managing the counterbalance within the intraday markets c. Activation through a dedicated congestion management mechanism <p>The methodologies to be developed on the basis of the CACM and SO Guidelines need to assess the pros and cons of these options as well as justify the choice of the option(s) that has (have) been retained.</p>	<p>CCR Hansa TSOs appreciates the effort by EFET, Euroelectric and MPP to propose markets for RD and CT, however it is out of scope of this proposal.</p> <p>This proposal by the TSOs is not to describe the markets in each TSOs bidding zones for providing upward or downward regulation for RD and CT, but the coordination between the TSOs.</p>
17.	EFET, Euroelectric and MPP	<p>5. How measures on specific assets based on their location are remunerated. In our view, any network user being redispatched or constrained must be fully financially compensated (full costs and opportunity loss) so as to leave the asset owner is left financially indifferent to the TSO action.</p>	<p>In regard to the remuneration and providing economic signals, CACM Article 35(5) states that pricing of RD and CT shall be based on a) prices in the relevant electricity market for the relevant time frame or b) the cost of RD and CT resources calculated transparently on the basis of incurred costs. This ensures that the incurred costs for the market participant for providing the flexibility is covered.</p> <p>This requirement from CACM is considered by the TSOs in the cost-sharing methodology following Article 74 of the CACM.</p>
18.	EFET, Euroelectric and MPP	<p>6. Going more in depth into RD and CT measures themselves, we believe that the proposals should be accompanied by a thorough evaluation of the advantages and drawbacks of the various options, so as to justify the choice of the preferred one (or the preferred combination of options). In our view, there are three basic types of RD and CT (in the following part of the document, "asset" should be understood as a generic/technology neutral term covering all sources of flexibility – generation, demand, storage):</p>	<p>CCR Hansa TSOs appreciate the elaboration from EFET, Euroelectric and MPP, however as written to comment 4, it is out of scope of this proposal to define the relevant markets for providing RD and CT.</p> <p>The CCR Hansa TSOs will also use this opportunity to underline that the proposal in no way hinders all sources of flexibility to be used for RD and CT. When the RSC detects a physical constraint within the coordinated operation security analysis, the RSC shall, following Article 78(2)(a) of the SO Regulation recommend to the relevant TSOs the most effective and economically efficient remedial action, including RD and CT measures and may also recommend remedial actions, including RD and CT measures other than provided by the TSOs.</p>

Com-ment no.	Reviewer (Organi-sation)	Comments received	CCR Hansa TSOs' reply
19.	EFET, Euroelectric and MPP	<p>6.a Constraining the dispatch of a specific asset:</p> <p>This means part of the flexibility of the asset around its scheduled set point is disabled by the relevant network operator. This may represent a loss of opportunity for the asset that should be fully financially compensated (full costs and opportunity loss), for instance in case offers for standard balancing products are “filtered” and consequently not shared on the European balancing platforms. In terms of system balance, such an intervention has no immediate impact on the asset and does not require any complementary action. We note however that the measure may have an impact on balancing markets, as some assets potentially contracted as reserves may be disabled because of the measure, leading to more expensive balancing activations or potentially to a lack of reserves, affecting subsequently imbalance settlement prices. When it has a potential to affect balancing reserves or balancing energy activation, the congestion management process needs to ensure that there is sufficient transparency on what is used for which purpose, that balancing energy bids activated for congestion management purposes do not impact the imbalance price, and that full compensation for congestion management measures is ensured.</p>	The above comments from CCR Hansa TSOs cover this response from EFET, Euroelectric and MPP.
20.	EFET, Euroelectric and MPP	<p>6.b Modifying the scheduled dispatch of a specific asset:</p> <p>This means requesting a set point different than the scheduled one for a specific asset based on its location within a bidding zone. This may represent extra costs and/or loss of opportunity for the asset that must be fully financially compensated (full costs and opportunity loss). In terms of system balance, the activation of a specific asset opens a balance position in the same bidding zone that should be counterbalanced as discussed in point 4.</p>	The above comments from CCR Hansa TSOs cover this response from EFET, Euroelectric and MPP.
21.	EFET, Euroelectric and MPP	<p>6 c. Countertrading:</p> <p>This means updating the net export/import of two bidding zones, by simultaneously updating the scheduled cross-border exchanges, updating the NTC or FB domain for the same market time units, and opening opposite balance positions in the corresponding bidding zones. In terms of system balance, the opened balance position in each bidding zone will have to be managed as discussed in point 4.</p>	The above comments from CCR Hansa TSOs cover this response from EFET, Euroelectric and MPP.

Annex 1: The current use of RD and CT

In this section, the present RD and CT solutions in place within the CCR Hansa are described below.

Reason	SE4-PL (HVDC)	DK2-DE/LU (HVDC)	DK1-DE/LU (AC)	NO2-NL (HVDC)
Tech. min. power	CT	N/A	N/A	N/A
Outage of interconnector	CT	CT	CT	CT/RD
Physical congestion in the AC grid	CT/RD	CT/RD	CT/RD	CT

7.1 SE4-PL

Today, “*Agreed Supportive Power countertrading*” is used as a countertrading measure for the SwePol Link. It is used to maintain the commercial exchange in case of a disturbance of the SwePol Link (the cable + converter stations) and to guarantee a minimal technical limit for stable operation of the Link (60MW). RD or CT is also used in case of a disturbance in a TSO’s subsystem.

7.2 DK2-DE/LU

At the time of writing, the SOA of Kontek is under revision. Nevertheless, the following agreement is in place in case of a disturbance of the Kontek cable or its equipment:

Countertrading is used to maintain the commercial exchange in case of a disturbance of the Kontek cable or its equipment. Both TSOs, 50hertz and Energinet take the necessary measures on either side of the DC link to establish this countertrade.

7.3 DK1-DE/LU

The methodology for coordinated RD and CT currently in place on the border of DK1-DE/LU is considered by both parties (Energinet and TenneT) as a tool for promotion of mutual solidarity and support in order to maintain secure network operation in their respective control areas.

RD and CT can be used in case of (n-1) violations at the tie-lines between Energinet and TenneT and/or at other transmission lines within the control areas TenneT and Energinet.

In case of activation of RD or CT, the parties endeavour to use sources with the highest expected influence on network congestion with respect to the applicable regulations, based on the availabilities. If there are different applicable sources with equal influence on the congestion available, the parties shall select the source with the lowest expected costs.

The decision for RD or CT is jointly taken by the parties. The selection of the generation units, which will change their generation in the respective transmission network, are jointly agreed, while the instruction for activation of the respective generation unit is in the responsibility of the Party to which the generation is physically connected. RD or CT is only initiated after investigation and implementation of other available measures, e.g. topological measures. The parties align the delivery period, the volume (in MW) and the kind of remedial action, including fall-back solutions.

7.4 NO2-NL

No existing agreement on RD or CT is applied on the NorNed interconnector. RD and CT only occurs in situations when there is a fault on the interconnector. Then, Statnett and TenneT NL are activating balancing bids on each side of the border to alleviate the problem. Each TSO is covering its own costs. There is no agreement on exchange of balancing services.