
Italy North TSOs proposal for coordinated redispatching
and countertrading methodology in accordance with
Article 35 of Commission Regulation (EU) 2015/1222 of
24 July 2015 establishing a guideline on capacity
allocation and congestion management

February 2019



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TSOs of the Italy North Region taking into account the following:

Whereas

- (1) Commission Regulation (EU) 2015/1222 establishes a guideline on capacity allocation and congestion management (hereafter referred to as the “CACM Regulation”), which entered into force on 14 August 2015.
- (2) This document is a common proposal developed by all Transmission System Operators (hereafter referred to as “TSOs”) of the Italy North Capacity Calculation Region (hereafter referred to as “Italy North Region”), as defined in accordance with Article 15(1) of Regulation (EU) 2015/1222 on Capacity Allocation and Congestion Management (the “CACM Regulation”), for the methodology for coordinated redispatching and countertrading (hereafter referred to as “RD and CT methodology”). This proposal is required by Article 35(1) of the CACM Regulation.

This proposal takes into account the effective structure of the grid by establishing TSO-TSO based contractual frameworks to include Third Countries as Technical Counterparties. Therefore, this proposal is developed by TSOs of the Italy North Region, taking into account Technical Counterparties' grid elements.

- (3) This proposal takes into account the general principles and goals set in CACM Regulation.
- (4) Ensuring optimal use of the transmission infrastructure and operational security, which are among the objectives of capacity allocation and congestion management cooperation, laid down by Article 3 of CACM Regulation, requires the inclusion of Third Countries' remedial actions in the countertrading and redispatching processes of Italy North Region. CACM Regulation's objectives cannot be achieved in any other way but by including Third Countries' remedial actions. This inclusion is in line with Article 13 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as “SOGL Regulation”), providing that EU TSOs must establish “*cooperation concerning secure system operation*” with non-EU TSOs belonging to the same synchronous area via an agreement with these non-EU TSOs. In order to comply with the requirement laid down by EU Regulation, this methodology will include Third Countries as Technical Counterparties.
- (5) Capacity Calculation Coordinators (hereafter referred to as “CCC”), will take into account the whole Area of Common Interest (hereafter referred to as “ACI”) of the Italy North Region and include Technical Counterparties' remedial actions into the optimization procedure. TSOs of Italy North Region will conclude an agreement with relevant Technical Counterparties. In order to be taken into consideration in the countertrading and redispatching processes and enter into a TSO-TSO based contractual framework, Technical Counterparties must fulfil the conditions laid down by Article 1.3 of the “*All TSOs' proposal for a common grid model methodology in accordance with Article 17 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management*”, applicable to TSOs from jurisdictions outside the area referred to in Article 1(2) of Regulation 2015/1222. This agreement will include this methodology's provisions and ensure that Technical Counterparty is contractually bound by the same obligations as the ones binding upon Italy North TSOs by virtue of EU Regulations. Such agreement will govern mutual obligations and responsibilities of Technical Counterparty with Italy North TSOs in relation to the RDCT procedure on all elements of the ACI. This agreement will ensure availability of Technical Counterparties' costly and non-



costly remedial actions in the optimization procedure as well as participation of Technical Counterparty in the cost sharing of RDCT costs for solving congestions on the ACI.

- (6) Article 35(1) of CACM Regulation requires that “*the proposal on coordinated redispatching and countertrading shall be subject to consultation in accordance with Article 12*”. The Italy North RD and CT methodology Proposal was consulted from 23/02/2018 until 23/03/2018 in accordance with Article 12 of CACM Regulation.
- (7) Article 9 (9) of the CACM Regulation requires that the proposed timescale for the implementation and the expected impact of the Italy North RD and CT methodology Proposal on the objectives of the CACM Regulation is described. The impact is presented below (point (8) of this Whereas Section).
- (8) The RD and CT methodology Proposal contributes to and does not in any way hinder the achievement of the objectives of Article 3 of the CACM Regulation:

Article 3 (a) of the CACM Regulation aims at promoting effective competition in the generation, trading and supply of electricity. The Italy North RD and CT methodology Proposal serves the objective of promoting effective competition in the generation, trading and supply of electricity by defining a set of harmonized rules for effectively relieving physical congestion at the minimum cost.

Article 3 (b) of the CACM Regulation aims at ensuring optimal use of the transmission infrastructure. The Italy North RD and CT methodology Proposal contributes to achieve the objective of ensuring optimal use of the transmission infrastructure by using last available inputs based on the best possible forecast of transmission systems and market results at the time the security monitoring is performed for the detection of Coordinated Redispatching and Countertrading needs.

Article 3 (c) of the CACM Regulation aims at ensuring operational security. The Italy North RD and CT methodology Proposal contributes to achieve the objective of ensuring operational security by coordinating the Redispatching and Countertrading at regional level to ensure its reliability and effectiveness for all the TSOs.

Article 3 (d) of the CACM Regulation aims at optimizing the calculation and allocation of cross-zonal capacity. The RD and CT methodology Proposal contributes to achieve the objective by defining the rules for detecting and activating coordinated Redispatching and Countertrading contributing to ensure the availability and firmness of the capacity and by integrating the timings of the Coordinated Redispatching and Countertrading process into the timings of the Capacity Calculation process steps for different timeframes.

- (9) Coordinated Countertrading is by definition limited to relieve physical congestions by means of a cross zonal exchange initiated by system operators between two bidding zones. TSOs may also agree on other cross-zonal exchange procedure for reasons other than relieving physical congestions. Such arrangements are not within the scope of this RDCT methodology Proposal.
- (10) The RD and CT methodology Proposal shall also consider the requirements of the SOGL Regulation, especially the interrelation with Articles 75 and 76 of this Regulation.
- (11) In conclusion, the RD and CT methodology Proposal contributes to the general objectives of the CACM Regulation.



**SUBMIT THE FOLLOWING COORDINATED REDISPATCHING AND COUNTERTRADING
METHODOLOGY PROPOSAL TO THE NATIONAL REGULATORY AUTHORITIES OF THE REGION:**



Article 1

Subject matter and scope

The RD and CT methodology as determined in this Proposal is the common proposal of all TSOs of the Italy North Region in accordance with Article 35 of the CACM Regulation. In line with the capacity calculation methodology defined for the same Capacity Calculation Region, Technical Counterparties can be involved in the processes described in this methodology. Technical Counterparties will set up separate contracts, provided that they fulfil the requirements set up in Article 1(3) of the “*All TSOs’ proposal for a common grid model methodology in accordance with Article 17 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management*”.

Article 2

Definitions and interpretation

1. For the purposes of this RD and CT methodology Proposal, the terms used shall have the meaning set forth in Article 2 of Regulation (EC) 714/2009, Article 2 of Regulation (EC) 543/2013, which amends the previous, Article 2 of Regulation (EC) 2015/1222 and Article 3 of SOGL Regulation.
2. In addition, the following definitions shall apply:
 - a. ‘APG’ is the Austrian Transmission System Operator;
 - b. ‘Area of Common Interest’ (hereafter referred to as ‘ACI’) constitutes of the list of critical network elements, used in the capacity calculation process, whose congestions will be monitored and can be efficiently solved via the coordinated Redispatching and Countertrading;
 - c. ‘ELES’ is the Slovenian Transmission System Operator;
 - d. ‘RTE’ is the French Transmission System Operator;
 - e. ‘Sensitivity of a critical network element to a resource’ means the variation of the flow over one critical network element with a change of IMW of resources activated;
 - f. ‘Technical Counterparty’ means any non-EU TSO to be included in procedures of this methodology through respective agreements;
 - g. ‘Third Country’ means country from jurisdiction outside the area referred to in Article 1(2) of CACM Regulation;
 - h. ‘Terna’ is the Italian Transmission System Operator.
3. In this RD and CT methodology Proposal, unless the context requires otherwise:
 - a. the singular indicates the plural and vice versa;
 - b. headings are inserted for convenience only and do not affect the interpretation of this proposal; and
 - c. any reference to legislation, regulations, directives, orders, instruments, codes or any other enactment shall include any modification, extension or re-enactment of it when in force.

Article 3

Application of this proposal

This proposal applies solely to the methodology for coordinated redispatching and countertrading within Italy North Region. For the avoidance of doubt this proposal applies to any relevant Technical Counterparty of the Italy North Region.

Article 4



Area of Common Interest (ACI) and definition of Cross-Border Relevance

1. The RD and CT methodology shall include actions of cross-border relevance.
2. An action of cross-border relevance or a cross-border relevant remedial action is a remedial action that relieves a congestion on a network element of cross-border relevance. A network element of cross-border relevance is a critical network element as defined in the Italy North TSOs' proposals for coordinated capacity calculation methodologies in accordance with Article 21 of CACM Regulation. Other cross border impacting remedial actions will be coordinated according to the methodologies required by Articles 75 and 76 of SOGL Regulation.
3. The RD and CT methodology shall enable all TSOs of the Italy North Region and relevant Technical Counterparties to effectively relieve physical congestion on ACI, irrespective of whether the reasons for the physical congestion fall mainly outside their control area or not. The coordination of redispatching and countertrading for the elements which are not part of the ACI is going to be defined with methodologies to be defined according to the SOGL Regulation. The ACI as defined in this methodology is the same list of elements used in capacity calculation (referred to also as Critical Network Elements or CNEs) in order to ensure consistency between different methodologies and timeframes and to safeguard the secure operation of the systems in the Region and to guarantee optimal use of the transmission infrastructure and the availability and firmness of the capacity. For avoidance of doubt, ACI includes also such grid elements of third countries which are part of the ACI in the Italy North TSOs' proposal for coordinated capacity calculation methodologies in accordance with Article 21 of CACM Regulation. In the scope of this RD and CT methodology Proposal, the extent of the ACI is possibly reduced by evaluating the effect of redispatching and countertrading on all its elements. Elements not or lowly affected by redispatching and countertrading are removed from the ACI.
4. The influence of the application of countertrading and redispatching in one or more TSOs or Technical Counterparties control areas is considered on all the flows of the elements of the ACI irrespective of whether they are inside or outside those TSOs or Technical Counterparties control areas.
5. The interaction of ACI with other capacity calculation regions will be in line with methodologies to be defined according to the SOGL Regulation.

Article 5

Resources for redispatching and countertrading

1. Each TSO or Technical Counterparty may redispatch all available generation units and loads in accordance with the appropriate mechanisms and agreements applicable to its control area, including interconnectors.
2. Each TSO or Technical Counterparty shall define for each time-frame its resources available for redispatching and countertrading and their prices. The available volumes of a TSO or Technical Counterparty shall not compromise the provision of ancillary services and not endanger the security of supply of its control area while maintaining its system in Normal state. The resources will be defined for two different services:
 - a. increasing the control area balance or nodal injection (e.g. increasing generation/decreasing load);
 - b. decreasing the control area balance or nodal injection (e.g. decreasing generation/increasing load).
3. Depending on the mechanisms and agreements applicable to its control area, each TSO or Technical Counterparty shall provide the actual prices of the redispatching and countertrading resources available in its control area or the best estimation of the incurred costs calculated transparently.



4. As regarding redispatching, each TSO or Technical Counterparty commits to activate localized units (generation/load).
5. As regarding countertrading, each TSO or Technical Counterparty commits to activate resources for a total amount without any commitment on the localized units (generation/load) which will be activated according to the merit order and the mechanisms and agreements applicable to its control area.

Article 6

Overall process for coordinated redispatching and countertrading

1. The methodology for coordinated redispatching and countertrading shall enable all TSOs of the Italy North Region and any relevant Technical Counterparty to effectively relieve physical congestion on the elements of the Area of Common Interest (ACI), irrespective of whether the reasons for the physical congestion fall mainly outside their control area or not.
2. The coordinated redispatching and countertrading actions shall be decided after all other available and effective non-costly actions (e.g. grid topology variations, coordinated use of PSTs) have been coordinated and if network elements within the ACI are still congested.
3. The coordination of remedial actions shall be harmonized and complemented in accordance with the methodologies of Articles 75 and 76 of the SOGL Regulation. The impact of cross-border relevant remedial action on elements outside the Area of Common Interest and its coordination shall be assessed within the coordinated security analysis methodology in accordance with Articles 75 and 76 of the SOGL Regulation.
4. TSOs or Technical Counterparty shall provide information about their available non-costly actions for congestion relieving in Italy North Region. Those actions shall be assigned exclusively to the Italy North Region only and shall not be used by other capacity calculation regions unless a cross-regional coordination between capacity calculation regions is established.
5. The coordinated redispatching and countertrading actions shall be activated by the corresponding TSOs or Technical Counterparty after the following preliminary coordinated processes:
 - a. Coordinated security monitoring of the ACI performed by the CCC and identification of the congested grid element belonging to the ACI by the CCC. This process shall be complemented and harmonized with the one to be defined in accordance with Articles 75 and 76 of the SOGL Regulation;
 - b. Coordination of the available non-costly remedial actions for relieving or reducing congestions on the elements of the ACI with the support of the CCC. This process shall be complemented and harmonized with the one to be defined in accordance with Articles 75 and 76 of the SOGL Regulation.
6. The selection of redispatching and countertrading resources shall be performed with the objective to minimize the overall estimated cost for the TSOs of the Italy North Region and for relevant Technical Counterparties. The estimated cost shall be calculated as the sum of the products of activated resources multiplied by their prices. The volume of each activated resource shall not exceed the volume available of that resource. The sum of all activated resources shall be zero (the system shall remain balanced). The activation of redispatching and countertrading resources shall lead to a situation where no element of the ACI is congested without raising overload in any other part of the system. This shall be achieved by evaluating the impact of activated resources for each element of the ACI as the sum of the products of the activated resources multiplied by the sensitivities of the element to the resources.
7. The redispatching and countertrading resources which have been decided by TSOs and Technical



Counterparties at the end of the coordination process shall be included in the common grid model as required by the respective methodologies for following coordinated security analysis.

8. A TSO or Technical Counterparty has the possibility to decline the activation of a redispatching and countertrading resources proposed by the CCC. The TSO or Technical Counterparty has to justify his rejection and should propose another remedial action to relieve the congestion on the grid element, which has to be verified by the CCC and validated by the other TSOs and Technical Counterparties.

Article 7

Fast activation process for sudden critical situations

1. In case of sudden critical situations (such as, but not limited to, an unplanned outage in real time or a relevant forecast error), that lead to overloads on ACI elements and requires fast actions, which cannot be effectively and promptly treated with the Regular process described in Article 6, a Fast Activation process for coordinated redispatching and countertrading will be adopted in order to cover the time horizon until the Regular process described at Article 6 can be applied effectively.
2. The Fast activation process is meant to be called in real time, or very close to it. The details about the timings of the process will be defined during the implementation phase, as an example, it could be called within a time window of half an hour before the next hour starts; its need may be justified by security violations which were not detected during the preceding regular processes.
3. The Fast Activation process for coordinated redispatching and countertrading shall also be considered as a fallback where coordination through the CCC is no longer possible due to an insufficient time and in any case the Regular process described at Article 6 could not be properly applied (e.g. missing data, tools failure).
4. The Fast Activation process for coordinated redispatching and countertrading would be activated by one or more TSOs of the Italy North Region or by a Technical Counterparty who identify overloads on ACI elements during the security monitoring of their own grids which is regularly performed by TSOs or Technical Counterparty in the framework of their operational activities and responsibilities.
5. Before activating the coordinated redispatching and countertrading with the Fast Activation process, the TSOs of the Italy North Region and Technical Counterparties shall coordinate the available non-costly remedial actions for relieving or reducing congestions on the elements of the ACI, without raising overload in any part of the system
6. After the available non-costly remedial actions have been considered, the redispatching and countertrading resources needed to be activated to relieve the remaining congestions on the elements of the ACI shall be selected;
7. Considering the application of this process should be very infrequent, being linked to extraordinary and unusual events, and that it must be characterized by fast activation and additional flexibility the coordination and calculation of resources may be performed by a TSO or Technical Counterparty instead of the CCC and it may be possible that not all remedial actions available are considered because there is not enough time to evaluate their impact. At least bilateral coordination and information to other TSOs and Technical Counterparties shall be guaranteed, and mostly countertrading could be considered due to its flexibility.

Article 8

Timeframes for coordinated redispatching and countertrading application



1. The RD and CT methodology shall enable the TSOs and Technical Counterparties to relieve physical congestion in all the time frames of the day of delivery.
2. The process for coordinated redispatching and countertrading for each time frame of the delivery day shall start after the day-ahead market results for that day are available and it is possible for the TSOs and Technical Counterparties to forecast the physical congestions on the ACI elements. The first session of the process for coordinated redispatching and countertrading for all time frames of the delivery day shall be finished before the start of the delivery day.
3. The process for coordinated redispatching and countertrading shall be repeated where needed during the day of delivery, for the remaining time frames of the same day, when the intraday market results are available, and it is possible for the TSOs and Technical Counterparties to forecast the physical congestions on the ACI elements.
4. Considering there may be inaccuracies in the congestion forecasts and that they should diminish getting closer to the real time they refer to, the TSOs of the Italy North Region and relevant Technical Counterparties may decide to postpone the actual activation of the redispatching and countertrading resources, necessary to relieve physical congestion on the elements of the ACI in a time frame, when a subsequent process for coordinated redispatching and countertrading is foreseen for the same time frame.
5. All the time frames may be covered by the Fast activation process of Article 7 when the Regular process of Article 6 cannot be applied effectively.

Article 9

Total costs calculation

1. The methodology for coordinated redispatching and countertrading minimizes the total expected costs for physical congestion relieving on the elements of the ACI.
2. The total expected costs to be minimized shall be calculated based on the prices of the resources declared by the TSOs and Technical Counterparties as defined in Article 5.
3. Considering the interrelation with Articles 75 and 76 of the SOGL Regulation which have the objective to coordinate and optimize resources within regions, the TSOs of the Italy North Region and relevant Technical Counterparties shall harmonize the proposed methodology for Coordinated redispatching and countertrading with the methodologies to be defined in accordance to SO GL.
4. The actual total costs of the coordinated redispatching and countertrading shall be calculated based on the costs the TSOs of the Italy North Region and relevant Technical Counterparties incurred at the activation of the actual resources.

Article 10

Publication and Implementation of the coordinated redispatching and countertrading methodology Proposal

1. The TSOs of Italy North Region shall publish the RD and CT methodology Proposal without undue delay after relevant national regulatory authorities have approved the proposed coordinated redispatching and countertrading methodology or a decision has been taken by the Agency for the Cooperation of Energy Regulators in accordance with Article 9 (10), Article 9 (11) and 9 (12) of the CACM Regulation.
2. The implementation of this RD and CT Methodology is subject to:



- a. Regulatory approval of this RD and CT methodology in accordance with Article 9 of the CACM Regulation;
 - b. Regulatory approval of the Italy North TSOs' proposal for a redispatching and countertrading cost sharing methodology required by Article 74 of the CACM Regulation in accordance with Article 9 of the CACM Regulation;
 - c. Regulatory approval of the Italy North TSOs' proposal for a common coordinated capacity calculation methodology required by Article 21 of the CACM Regulation in accordance with Article 9 of the CACM Regulation and its implementation;
 - d. Development of the systems required to support the RD and CT methodology.
3. Considering the interrelation with Article 75 and 76 of the SOGL regulation, the TSOs of the Italy North Region shall subject the implementation of this RD and CT methodology to the approval of the methodologies according to articles 75 and 76 of SO GL and its implementations in order to have harmonized methodologies and processes.
 4. The TSOs of Italy North Region shall implement this RD and CT methodology no later than 24 months after the conditions specified Article 10(2) and Article 10(3) are fulfilled. The TSOs of Italy North will revise this RD and CT methodology and submit it to the national regulatory authorities for approval once more details about the algorithm and other pending issues are available.

Article 11

Language

1. The reference language for this RD and CT methodology Proposal shall be English.
2. For the avoidance of doubt, where TSOs need to translate this RD and CT methodology Proposal into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 9 (14) of the CACM Regulation and any version in another language, the relevant TSOs shall be obliged to dispel any inconsistencies by providing a revised translation of this RD and CT methodology Proposal to their relevant national regulatory authorities.

Article 12

Confidential treatment of information

1. The information and data handled during the redispatching and countertrading process is sensitive and should on this basis be treated as confidential. As a result, all information gathered, analysis performed and other data available to the involved Parties are deemed confidential and shall be managed in accordance with Article 13 of CACM Regulation and procedure to ensure its protection.
2. The information provided by generation units and loads or any other relevant costs for calculating the countertrading cost shall be shared between the relevant TSOs for countertrading purposes only, including reporting and monitoring obligations defined within the methodology of Article 74(5) of CACM Regulation.
3. The parties will prepare ad hoc non-disclosure agreements.



Annex

Objective function for the optimization of countertrading and redispatching resources

In case redispatching and/ or countertrading is necessary, the resources to be activated are selected with the objective to recover every security violation in the ACI at the minimum estimated cost and without raising overload in any other part of the system. Generations/loads will be shifted in the grid model until there are no more violations after having considered the effects of the Remedial Actions (both preventive and curative) identified in the steps before. The selection of generations/loads to be shifted to minimize the estimated cost for the Parties will be performed via an optimization algorithm¹. This algorithm will take into account the sensitivities of the overloaded elements on all the resources made available by the TSOs and relevant Technical Counterparties (in line with Article 5) and their declared prices.

Without going into the details, which shall be defined during the implementation phase, the algorithm can be summarized as follows:

$$\begin{aligned} & \min \left(\sum \Delta P_i \cdot p_i \right) \\ & P_e + \sum \Delta P_i \cdot \sigma_{e,i} \leq P_{e,max} , \forall e \in ACI \\ & P_e + \sum \Delta P_i \cdot \sigma_{e,i} \leq \max(P_e, P_{e,max}) , \forall e \in other\ elements \\ & \sum \Delta P_i = 0 \end{aligned}$$

$0 \leq \Delta P_i \leq P_{i,max}$ for upward resources

$P_{i,min} \leq \Delta P_i \leq 0$ for downward resources

Where:

- ΔP_i is the activated amount of the resource i ;
- p_i is the price of the resource i ;
- $P_{i,max}$ is the available volume of the upward resource i ;
- $P_{i,min}$ is the available volume of the downward resource i (considered as negative);
- $\sigma_{e,i}$ is the sensitivity of the generic element e to the generic resource i ;
- P_e is the power flow on the element e (it may be in N or N-1 situation depending on the congestion detected);
- $P_{e,max}$ is the maximum power admissible on the element e (it may be in N or N-1 situation depending on the congestion detected).

During this optimization phase, the optimization algorithm may consider at the same time redispatching and countertrading resources (in fact both are finally expressed in terms of power infeed change at a defined price) and its final outputs will be:

- a list of shifted generations/loads with their prices, amounts and type (for redispatching).
- the amounts of countertrading and their prices.

¹ A detailed definition of this optimization algorithm will be part of an implementation project



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- the estimated cost.

Therefore, the outcome could be the selection of a mix of resources of redispatching and countertrading at the same time. The detailed activation of the resources for redispatching and/or countertrading will be performed by TSOs and Technical Counterparties considering that:

- the specific redispatching units selected by the algorithm shall be activated for exactly the selected amounts;
- for countertrading, each TSO or Technical Counterparty will activate enough internal resources to match with the volume of countertrading selected by the algorithm in accordance with the appropriate mechanisms and agreements applicable to its control area.

During the implementation phase, the TSOs and Technical Counterparties will define rules for cancelling or reducing the amount of energy already defined during the redispatching and countertrading process, when it is respectively not considered necessary anymore or for a smaller level of congestion.