Explanatory Note of the Coordinated Redispatching and Countertrading methodology for Italy North CCR

Consultation document

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Contents

1. Introduction

This document provides a technical description of the methodology for coordinated redispatching and countertrading affecting the borders of the capacity calculation region (CCR) Italy North and complement the document with the methodology proposal submitted to stakeholders for consultation and to the national regulators of the region for approval. Considering the structure of the grid, and in line with the capacity calculation principles defined for the same CCR, also the border Italy North – Switzerland is included in the scope of this methodology. The participating TSOs to the coordinated redispatching and countertrading are therefore Terna (Italy), RTE (France), APG (Austria), ELES (Slovenia) and Swissgrid (Switzerland).

The proposed methodology follows the Article 35 of the COMMISSION REGULATION (EU) 2015/1222 of 24 July 2015 establishing a guideline on Capacity Allocation and Congestion Management (CACM) and:

- Provides the principles for a common methodology for coordinated redispatching and countertrading which will be consulted with stakeholders of the involved Parties;
- Paves the way to a future pragmatic implementation of the redispatch and countertrading processes, which will follow after the approval by the relevant Authorities of the present methodology.

2. Definitions and acronyms

This chapter deals with detailed definitions and interpretations to be used in the scope of the countertrading and redispatching common methodology, and the timeframes in which its different processes apply (with different purposes, such as guarantee firmness of capacity, emergency delivery, etc.). Before developing a glossary, a unique definition of the following acronyms is necessary:

ACI: Area of Common Interest

CNEC: Congested Network Element Contingency

CC: Capacity Calculation

CGM: Common Grid Model

CRA: Curative Remedial Action

CRAC: Contingencies, Remedial actions, Additional Constraints

CT: Counter Trading

D2CC: D-2 Capacity Calculation

DACF: Day Ahead Congestion Forecast

GSK: Generation Shift Key

IDCC: Intra Day Capacity Calculation

IDCF: Intra Day Congestion Forecast

PRA: Preventive Remedial Action

PST: Phase Shifting Transformer

RA: Remedial Action

RD: ReDispatching

RDCT: ReDispatching Counter Trading

RSC: Regional Security Coordinator

SCOPF: Security-Constrained Optimal Power Flow

SN: Snapshot

SO GL: System Operations Guide Line on Electricity Transmission System Operations

TSO: Transmission System Operator

On the base of these definitions, the Parties developed a shared glossary aimed at reaching a common understanding on the matter. For the avoidance of doubt, following definitions and interpretations do not replace any provision of national or European law that may apply to any of the Parties. They shall comply with and be complementary to the applicable regulations. In case of contradictions between these definitions and interpretations and the applicable law its provisions shall be interpreted in line with the applicable regulations or amended accordingly.

Area of Common Interest (ACI)	A detailed definition is given in chapter 3.
Aggregated Netted External (ANE) Schedule	Means a Schedule representing the netted aggregation of all External TSO Schedules and External Commercial Trade Schedules between two Scheduling Areas or between a Scheduling Area and a group of other Scheduling Areas.
Cross-border relevant Remedial Action	A detailed definition is given in chapter 3.
Economically efficient multilateral remedial actions	Means actions which are taken among different TSOs (at least three) with a goal to relieve the critical situation while minimizing the activation costs (in the moment of activation) and taking into account the influence of measure on the critical network element(s).
Internal relevant Remedial Action	Means a remedial action which is performed with the goal to relieve a constraint(s) without XB-Relevance.
Internal Commercial Trade (ICT) Schedule	Means a Schedule representing the commercial exchange of electricity within a Scheduling Area between different Market Participants or between Nominated Electricity Market Operators and Market Coupling Operators.
Multilateral remedial actions	Means actions which are taken among different TSOs (at least three) and used to solve xb-relevant security violations.

Redispatching/Countertrading Measures	Defines all the different type of measures, modifying the injection of one or more power plants, taken to ensure system security and firmness of Capacity and Exchange Programs on and around the border of countries. All the Redispatching Measures can be applied bilaterally or among several TSOs.		
	Countertrading	This Redispatch Measure is a TSO-initiated transaction between two control areas in order to relieve a congestion between these two areas. The location in the two control areas where the increase or decrease of energy takes place is arbitrary, in the sense that it is not a specific action on a predefined generation unit, but rather a choice based on the merit order or any other location-independent method if such exists. This measure implies the modification of schedule.	
	Redispatching (National redispatching)	This Redispatch Measure is about increasing (decreasing) the level of production of a designated generation unit in one country (control area) and decreasing (increasing), by the same volume, the level of production of another designated generation unit located in the same country (control area), aiming to relieve a constraint in one control area (the affected generation units are mainly selected based on their sensitivity on that constraint). There are two distinct types of Redispatching, Internal Redispatching and External Redispatching and, both these types imply no modification of schedule between TSOs.	
		Internal Redispatching	This Redispatch Measure is implemented when a TSO decides to do Redispatching in its own country.
		External Redispatching	This Redispatch Measure is implemented when TSO A requests TSO B to do Redispatching in country B in order to relieve constraints in country A.

	Cross Border Redispatching	This Redispatch Measure is about increasing (decreasing) the level of production of a designated generation unit in country A and decreasing (increasing), by the same volume, the level of production of another designated generation unit in country B. To that end, TSO A increases or decreases the production by activating upward or downward offers based on both the location and costs of the generation units and TSO B counteracts in his country. In detail, generating units are mainly selected based on their sensitivity on the constrained element (and not only according to the economical merit order). Moreover at the same time, the TSO will have to initiate a transaction between the two control areas, corresponding to the amount of generation Redispatching done in each country. This measure implies the modification of schedule between TSOs.
Schedule	Means a reference set of values representing the Generation, consumption or exchange of electricity between actors for a given time period.	
Remedial action (RA) (according to UCTE Operational Handbook Policy 3)	RA refers to any measure applied in due time by a TSO in order to fulfill the n-1 security principle of the transmission power system regarding power flows and voltage constraints.	
	Preventive Remedial Actions (PRAs)	PRAs are those launched to anticipate a need that may occur, due to the lack of certainty to cope efficiently and in due time with the resulting constraints once they have occurred.
	Curative Remedial Actions (CRAs)	CRAs are those needed to cope with and to relieve rapidly constraints with an implementation delay of time for full effectiveness compatible with the Temporary Admissible Transmission Loading. They are implemented after the occurrence of the contingencies.

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

A cross-border relevant network element is a CNEC considered relevant for Capacity Calculation as it is defined in the Capacity Calculation Methodology for the same Region.

A cross-border relevant remedial action is a remedial action that relieves a congestion on cross-border relevant network elements which are defined in line with the Capacity Calculation methodology and used for cost sharing according to CACM. Other cross border impacting remedial actions will be coordinated according to the methodologies required by SOGL articles 75 and 76.

For the purposes of this methodology the Area of Common Interest (ACI) is the set of grid elements with a cross-border relevance and whose potential physical congestions can be effectively relieved by cross border Redispatching and Countertrading measures. For a more general operational coordination the area of common interest will be defined according to SOGL.

In order to improve efficient and fair application of Redispatching and Countertrading and to keep operations as smooth, reliable and secure as possible, it is essential to have simple and clear procedure to identify and agree upon the elements of the transmission grid belonging to the ACI.

The definition of the ACI has to respect the following principles:

a) **Effectiveness**: the grid elements must have a cross-border relevance and their potential physical congestions must be effectively relieved by the Redispatching and Countertrading measures.

b) **Consistency**: the ACI has to be consistent with the one used during the Capacity Assessment at any stage.

c) **Flexibility**: the ACI shall be continuously adapted in line with the most updated information about the grid (e.g. unplanned outages, topological modifications, etc.).

d) **Transparency**: the criteria for the inclusion of grid elements in the ACI have to be shared and agreed among the involved TSOs.

The definition of the ACI is a key point of this methodology since only congestions occurring on its elements will be taken into account for RDCT applications.

In order to respect the above mentioned principles and to be coherent with the operational experience, the ACI will come through the following two assessments:

1. Every TSO provides a list of its own grid elements consistent with the Capacity Calculation Methodology and whose potential physical congestions can be effectively relieved by cross border Redispatching and Countertrading measures available in the Italy North CCR. The elements in this list can be referred to normal conditions (N state) and to specific N-1 situations (e.g. an element can become relevant after the tripping/outage maintenance of a specific line).
2. The lists defined above are subject to a filtering process to remove the elements whose potential physical congestions cannot be effectively relieved by cross border Redispatching and Countertrading measures available in the CCR. The filtering is based on sensitivity analysis: the elements whose sensitivities to the application of RDCT measures is below a threshold are removed from the ACI. Therefore, the cross-border relevance of a Redispatching or Countertrading measure is implicitly defined during the filtering process. The filtering process will be better defined during the implementation phase.

The threshold introduced at point 2 above will be defined and fine tuned by the TSOs via ad-hoc coordinated studies.

The ACI shall be reviewed periodically and the frequency of its updating shall depend on what will be agreed and considered technically feasible by the TSOs during the implementation phases. As an example, the list introduced at point 1 could be defined daily one day ahead and the filtering could be performed every 4 hours in intra-day.

The sensitivity analysis at point 2 will be performed using the same dataset used for assessing the RDCT volumes. This means that the cross-border exchanges will be realized by shifting the same resources (e.g. nodal generation/load adjustment, proportional generation/load up/downward in a wide area, etc.) declared available for RDCT (see paragraph 4).

4. Resources for RDCT

Even if they are implemented in different ways, both Redispatching and Countertrading aim at removing violations on grid elements of the ACI by shifting generation/load in one part of the grid and rebalancing the same amount in another part.

It is crucial to have suitable in advance a clear and reliable overview of the available resources and their actual or estimated prices in order to:

- Properly define the ACI and perform the filtering process (see paragraph 3).
- Calculate the amount of generation/load involved in RDCT.
- Identify the generation/load to be shifted (i.e. this is valid for Redispatching).
- Minimize the actual or estimated costs of RDCT for the Italy North region.

Each TSO shall declare, for each time frame, the resources available in its control area for RDCT and their prices. The prices shall reflect the actual prices of the resources, when the information is available, or the best estimation of the costs incurred by the TSOs in accordance with the appropriate mechanisms and agreements applicable to their control areas. The resources will be defined for two different services:

1. increasing the control area balance (e.g. increasing generation/decreasing load);
2. decreasing the control area balance (e.g. decreasing generation/increasing load).

In case of Redispatching each TSO has to declare the location of the resources, the available upward/downward redispatching capacity, the prices of the potential generation or load units, and the time window of its availability. The TSOs will handle the technical constraints (e.g. minimum/maximum time of delivery, the full activation time[1]) in the definition of available resources.

In case of Countertrading each TSO has to specify the available countertrading capacities and their prices. The declared prices must be estimations of the market costs expected by the TSO (e.g. average cost for increasing area control balance by x MWh).

In accordance with the appropriate mechanisms and agreements applicable to the control areas, information about prices may be made available in advance by generation units and loads, thus allowing TSOs to estimate redispatching and countertrading prices.

[1] Full Activation Time = time needed between the reception of the order by the power plant and the “target power value” to be reached.

TSOs shall provide the best estimations of expected costs and, for sake of transparency, to share the methodology they implement in order to define in advance the prices of their CT resources.
RDCT resources could be declared using a Generation Shift Keys (GSK) file format in a similar way as it is done for capacity calculation processes (e.g. D2CC, IDCC); the main difference will be the additional information about prices and technical constraints. Even if the GSK files would most likely include specific generators/loads also for CT (e.g. shift to be split among a set of generation units proportionally to their productions), there are different obligations for TSOs:

- for RD, a **TSO commits** itself **to use the specific units** (generation/load) included in its GSK, in case they are selected during the optimization phase, ;
- for CT, **the units** (generation/load) selected during the calculation phase **are not binding** but they are only references for calculation purposes; the actual units will be selected by the TSO according to their national market rules and the real resources available at the time of application.

All data (resources, quantities and specific units for RD) included in the GSKs will be considered binding for the TSOs until they update them by sending new GSKs (e.g. a TSO update its GSK after a market gate closure or after a generation unit became unavailable). Each TSO will do its best effort to update its GSKs as soon as some or all the resources declared are no more available.

During implementation phase, the TSOs will agree on specific and detailed procedures to send and amend GSKs.

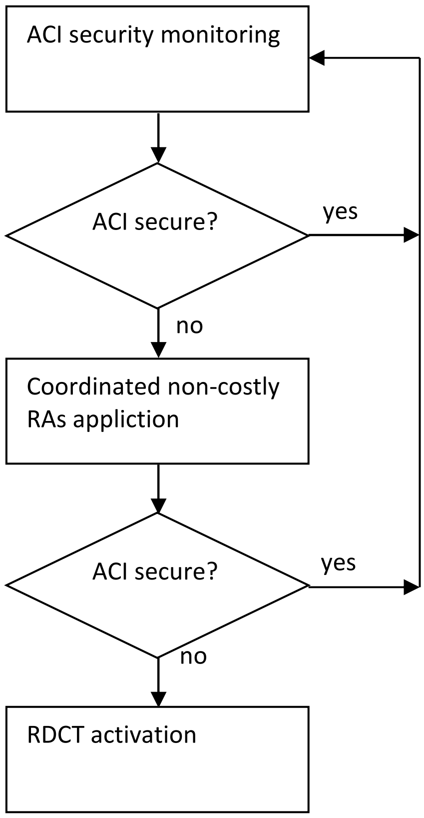
5. Overall process and RDCT resources calculation and commitment

1. Regular process

The aim of RDCT is to relieve congestions in the ACI but such costly remedial actions will only be used after all other effective non-costly remedial actions (e.g. grid topology variations, coordinated use of PSTs) have been taken into account. Hence, in case security violations occur in the ACI, TSOs, with the support of RSCs, coordinate and use the available non-costly remedial actions in order to restore the security or at least to reduce the extent of the violations. Afterwards, they can turn to RDCT.

RDCT activation must be preceded by a security monitoring process and by a phase of selection and application of effective coordinated non-costly remedial actions; these two preliminary activities have to be taken into account in the methodology for RDCT and to be coordinated and complemented with the methodologies to be defined according to articles 75 and 76 of SO GL and be part of a common continuous process whose macro steps are:

- Step 0: ACI definition and filtering.
- Step 1: ACI security monitoring.
- Step 2: coordinated non-costly remedial actions (RAs) application, security assessment and sensitivity calculation.
- Step 3: RDCT activation.



Additional details about roles during the each step of this process can be found at paragraphs 6 and 7.

Detailed requirements for time frames and time needed for resources activation will be specified during the implementation phase.

In case RDCT 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 algorithm[2]. This algorithm will take into account the sensitivities of the overloaded elements on all the resources made available by the TSOs (see paragraph 4) and their declared prices.

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

- a list of shifted generations/loads with their prices, amounts and type (RD).

[2] A detailed definition of this optimization algorithm will be part of an implementation project.

- the amounts of CT and their prices.
- the estimated cost.

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

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

During the implementation phase, the TSOs 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.

2. Fast activation process for sudden critical situations

In case of sudden critical situations (e.g. due to an unplanned outage in real time), that leads to an overload of an ACI element and requires very fast actions, which cannot be effectively and promptly treated with the Regular process described at paragraph 1, a Fast Activation process will be adopted in order to cover the time horizon until the Regular process can be applied effectively. This second process can also be considered as a backup in case the RDCT regular process is not properly working (e.g. missing data, tools failure).

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, a lower degree of optimization is accepted and a simplified calculation approach could be used (e.g. Bilateral or Pro-quota countertrading, standard proportional GSKs/LSKs).

This process would be triggered by one or more TSOs who detect security violations during their own real time monitoring activities. TSOs, with the contribution of RSCs, will first try to coordinate non-costly RAs in order to avoid or to reduce the need for RDCT resources. As soon as RDCT is considered to be necessary, the involved entities calculate the amount of RDCT resources to be activated. Depending on TSOs agreements, one TSO could play a central role (e.g. in case of security violations due to the Italian import, Terna could perform the calculation). The aim of the calculation will always be relieving congestions without raising overload in any other part of the system but, considering the short time available for actions, the objective of cost minimization could be neglected and, as a consequence, only the total volume of resources would be minimized. The final output will be the amount and type (RD or CT) of resources to be activated by each TSO.

The calculation could be performed using Snapshot files, also for next future hours, and the internal tools of TSOs, without necessarily using the common tool (see paragraph 7.2).

A different cost sharing methodology may be defined for RDCT costs arisen from the fast activation process as it will be detailed in the Cost Sharing Methodology.

6. Timeframes for RDCT application

RDCT measures could be applied starting from the day-ahead stage, after the cross border exchange schedules are fixed. However, considering the uncertainties of the day-ahead datasets and in order to avoid unnecessary costly measures, the application should be postponed to Intraday and to Real Time timeframes, when a better overview of the factual conditions of the grid is available. Activation of RDCT measures in the day ahead should be limited to extreme cases, such as when huge amounts of countertrading are expected and they could require the start up of additional conventional power plants for balancing the load and keeping suitable reserve margins.

In **Day ahead**, the RDCT process described at paragraph 5.1 is executed for the 24 hours of the next day using DACF models. In case the activation of RDCT measures prove to be necessary, their amount is calculated but the decision on the final activation is left to the TSOs. In case the TSOs consider they cannot postpone the activation to the next timeframes (e.g. Intraday or real time) the RDCT is implemented immediately, otherwise they consider this indication only as early warnings to better tackle the potential issue in the next hours.

In Intraday, the RDCT process described at paragraph 5.1 is executed for a rolling time window of N[3] hours by using IDCF models. As an example, the process could be run every 4 hours and at 10:00 it's monitored the security for the time window between 12:00 and 18:00. RDCT measures proposed by the process in intra-day will be implemented without any postponement.

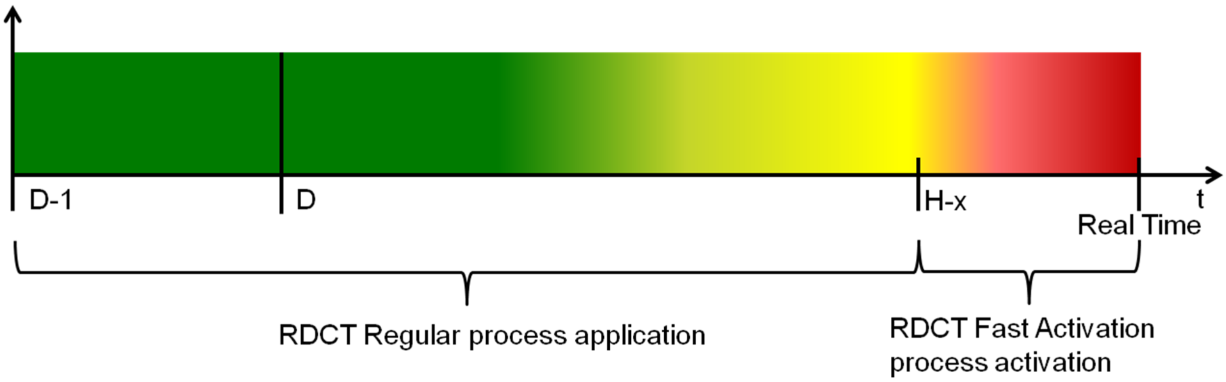
The RDCT intraday process should normally guarantee the security of real time operations but it is not possible to completely exclude that security risks still pop up in real time. In fact, out-of-range events affecting the ACI could always occur (e.g. unpredicted outage of grid elements or generation, unavailability of remedial actions declared beforehand, uncertainty associated with capacity calculation, etc.) and normal differences between forecasts and real operation may have a relevant impact.

In **Real Time**, the RDCT process described at paragraph 5.1 is executed for a time window which goes from the present till the next Intraday timeframe for RDCT application. Snapshots or IDCF models will be used and RDCT measures proposed by the process at this stage promptly activated.

In case of sudden critical situations (e.g. due to an unplanned outage in real time or unforeseen grid situations), which require very fast actions and which cannot be effectively and promptly treated with the regular process described at paragraph 5.1, the Fast Activation process described at paragraph 5.2 will be applied.

As an example the following timing sequence could be applied (i.e. the parameter "x" could be half an hour or one hour, depending on what is feasible to achieve with the Regular process):

[3] The exact number of process runs for a day and the size of the time window to be monitored will be decided during the implementation phase in line with what is considered as feasible and reasonable.



7. Involved parties and roles

The framework of the methodology for RDCT (see paragraph 5) relies on two main activities:

1. **Coordinated security monitoring of the ACI for RDCT application**[4]: this step includes the ACI security definition, monitoring and the selection of coordinated non-costly remedial actions.
2. **RDCT measures calculation and selection**: this step is triggered once the need of RDCT is identified and it includes the selection of the RDCT measures and the calculation of their total cost.

The parties involved in the processes are TSOs and RSCs and their roles are specified in the next paragraphs.

1. Coordinated security monitoring of the ACI for RDCT application

For RDCT purposes one or more **RSCs**[5] **monitor the security of the ACI** in the operational planning phase on behalf of the TSOs. This security monitoring is only intended for RDCT purposes and doesn't replace the usual security monitoring on the whole TSO grids which is part of TSOs activities and required by OH Handbook and guideline on System Operation. When RSCs detect a security violation in the ACI, they inform TSOs about the constraints and **propose coordinated non-costly RAs** within the available ones. In case of different results the worst one is considered as reference for next steps. For security monitoring and coordination of RAs, RSCs could take advantage from the experience gained and the tools developed for the Capacity Calculation processes (e.g. D2CC, IDCC). **TSOs have the possibility to validate and adjust the proposals of RSCs and the right to block the process at this stage** if they deem it as not necessary (e.g. the violation of the element of the ACI is not considered as critical because of bad modelling of the system, there are additional available RAs not considered). A proposal for a detailed validation methodology will be designed during the implementation phase, in line with the methodology required by art 76 of SOGL. In case the RDCT procedure triggering is confirmed by TSOs and RDCT measures need to be activated, the resources, their duration and quantities are calculated according by the tool mentioned at paragraph 2 (RDCT measures calculation and selection).

[4] This security monitoring is only intended for RDCT purposes and doesn't replace the usual security monitoring on the whole TSO grids which is part of TSOs activities and required by OH Handbook and guideline on System Operation.

[5] Except in sudden critical situations (see paragraph 6).

In case of any relevant event for the ACI (e.g. unplanned outage, line back in service before scheduled), the responsible TSO has to promptly inform the RSCs and the other TSOs in order to update the models used for RDCT process.

2. RDCT measures calculation and selection

In order to guarantee the maximum transparency and consistency for RDCT activation, the calculation of the needed resources will be performed with a common tool which will be jointly specified and developed by the TSOs and RSCs involved. Depending on what will be considered as feasible and economic during the specification phase, this tool could be automatic or executed manually. In the latter case the tool could be run by TSOs and/or RSCs on a rotating basis.

TSOs have the possibility to validate and adjust the proposed quantities in a coordinated way (e.g. in case of the resources are expected to be overestimated). A proposal for a detailed validation methodology will be defined during the implementation phase, in line with the methodology required by art 76 of SOGL.

In case the Fast Activation process for sudden critical situation is applied (see paragraph 5.2), the calculation could be performed using internal tools of TSOs, without necessarily using the common tool, and one TSO could play a central role (e.g. in case of security violations due to the Italian import, Terna could perform the calculation).

8. Dataset and tools

1. Grid models

Coordinated security monitoring of the ACI will be performed using the latest available Common Grid Models (CGMs) depending on the time of the application (e.g. DACF for day ahead, IDCF for intraday, Snapshots for real time). The data used will be the merged CGM produced by the ENTSOE European Merging Function.

2. Dataset for ACI definition

The input data necessary to detect the ACI will be provided via ad hoc files. The required data are:

1. The lists of critical elements defined as combinations of tripping elements and elements to be monitored.
2. The GSK for filtering the above mentioned lists according to sensitivity factors.

Formats and contents of these files will be defined and detailed during the implementation phase. As an example, the CRAC and GSKs files of the Capacity Calculation processes could be considered.

3. RDCT resources

The RDCT resources could be declared by each TSO via GSK files delivered for each time frame using the latest available information (e.g. for Intraday purposes, the GSK files could be updated at each market gate closure; in Real Time CRAC and GSKs could be updated in case of unpredicted outages of grid elements/generation units). The GSK files will include information on generations and loads available for RDCT purposes and the corresponding prices.

CT resources could be defined via a list of units whose contribution to the total shift is proportional to a predefined parameter (e.g. actual active power, reserve margin). In any case, the units selected for CT are not binding.

As stated at paragraph 2, format and content of the GSKs files will be defined and detailed during the implementation phase. As an example, the GSKs files of the Capacity Calculation processes could be considered with the addition of the prices.

Coordination with other processes that use the same resources as RDCT (especially capacity and merit order list) has to be addressed: for instance, Intraday gate closures, TERRE, IGCC shall be harmonized.

Resources which are not used in the timeframe for which they are declared shall not be considered available for a different timeframe.

4. Non-costly remedial actions

Non-costly remedial actions are usually grid topology modifications (e.g. opening of lines or busbar couplers) and changing of PSTs taps. These remedial actions will be communicated via an ad hoc file. When the availability of a RA changes, the pertaining TSO has to communicate it as soon as possible.

Formats and contents of these files will be defined and detailed during the implementation phase. As an example, the CRAC of the Capacity Calculation processes could be considered.

5. Common platform

All data will be provided and archived on a common platform which can be used also for ex-post analysis, reporting and cost sharing purposes.

6. Common tool

As stated at paragraph 7.2, a common tool will be developed in order to guarantee the maximum transparency and consistency for RDCT activation.

9. Actual costs calculation

The RDCT methodology does not really depend on how the prices are defined and how the actual costs are calculated and shared. Prices definition and actual cost calculation shall be defined during the implementation phase. The tool which is foreseen to be implemented in the framework of this RDCT methodology and the methodology itself will not be influenced by the rules defined to deal with prices definition and costs calculation.

10. Connection between RDCT and Capacity Calculation processes

RDCT procedures and Capacity Calculation (CC) processes have to be harmonized in order to avoid contradictory results endangering the security and efficiency of the interconnected system (e.g. RDCT process leads to countertrading which reduces the import of Italy while the following IDCC run calls for an increase of the IT import schedule for the same or the immediately following hour). In this light, following links between consequential process should be enforced:

1. The results of CC processes (NTC values of future hours, Preventive and Curative RAs) have to be available for the RDCT processes. As an example, the RAs used during the preceding CC process could be used for the security monitoring and coordination phases of the RDCT methodology and low results of CC could be early warnings for RDCT.
2. The results of RDCT processes have to be made available for the following IDCC process. As an example, if for a future hour CT has to be activated and the schedules of one or more borders have to be curtailed, this info could be taken into account during the CC process by setting an upper limit to the capacity.

11. Transparency

The involved parties commit to guarantee the transparency of the results of RDCT processes. The criteria for input data definition will be shared and a common tool will be used to calculate the costs and for the resources commitment.

Transparency of input data will be realized by:

- Using CGMs as datasets (transparency guarantee at ENTSOE level);
- Using shared and agreed criteria for ACI definition;
- Providing inputs in advance on a common platform.

Each TSO must also share the criteria it will use to define the prices of its resources. These prices have to be based on the actual market prices and/or have to reflect the effective costs incurred by the TSO (CACM c.3 a.35).

12. Implementation roadmap

The entry into force of this RD and CT Methodology is subject to:

1. Regulatory approval of this RD and CT Methodology in accordance with Article 9 of the CACM Regulation;
2. Regulatory approval of Redispatching and Countertrading Cost Sharing Methodology required by Article 74 of the CACM Regulation in accordance with Article 9 of the CACM Regulation;
3. Regulatory approval of Common Coordinated Capacity Calculation Methodology required by Article 20 of the CACM Regulation in accordance with Article 9 of the CACM Regulation;
4. Development and implementation of the systems required to support the RD and CT Methodology;
5. Considering the interrelation with articles 75 and 76 of SO GL, the TSOs of the Italy North CCR 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 in order to have harmonized methodologies and processes.

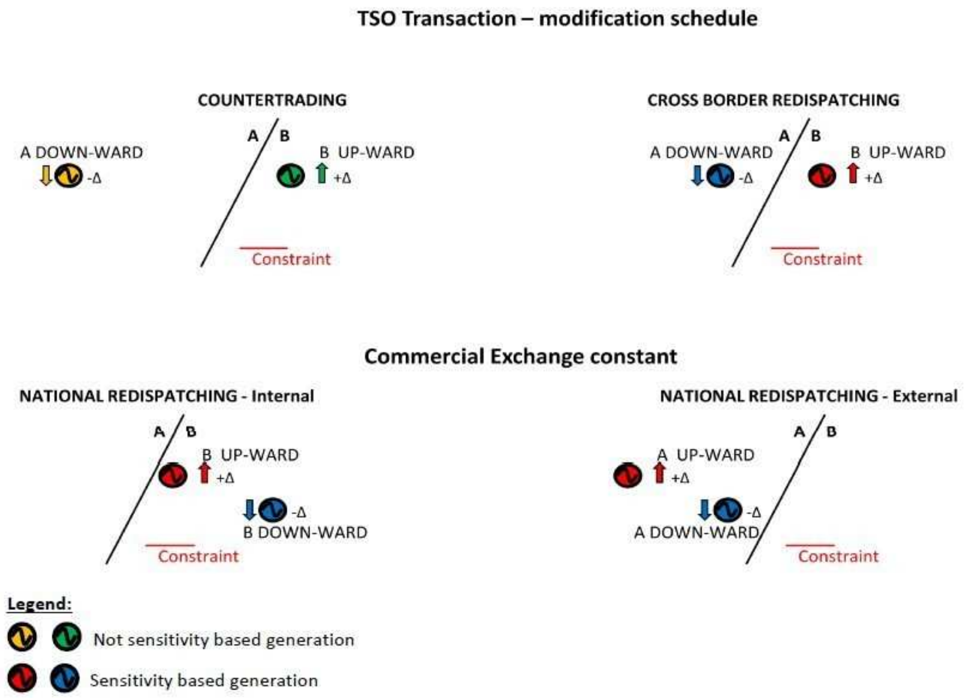
After the approval of the proposed methodology for coordinated redispatching and countertrading the

TSOs of the Italy North CCR shall start a dedicated project for its implementation. A detailed roadmap will be defined in the framework of this project.

The TSOs of Italy North region shall implement the proposed coordinated redispatching and countertrading methodology no later than 24 months after the conditions specified in paragraph 12 points 1 to 5 are fulfilled.

Annex 1 Redispatching and Countertrading measures summary table

	Shift TSO A	**Shift TSO B**	**Location dependence**	**Modification of schedule**
Countertrading	Increasing/decreasing	Decreasing/increasing by the same volume	Independent method (economical merit order)	YES
Internal Redispatching	Increasing and decreasing by the same volume	---	Geographical dependent method (sensitivity factor)	NO transaction between control areas
External Redispatching	---	Increasing and decreasing by the same volume	Geographical dependent method (sensitivity factor)	NO transaction between control areas
Cross Border Redispatching	Increasing/decreasing	Decreasing/increasing by the same volume	Geographical dependent method (sensitivity factor)	YES



Picture 1: Redispatching and Countertrading examples