

Quarterly report for Article 16.3 of EU Regulation 2019/943

D2 and ID Coordinated Capacity Calculation on the
Italy North region

Q4 2023

1st of October – 31st of December

Version 1.0

RCC

Information Classification: ☒ *Public* ☐ *Restricted* ☐ *Confidential*

Table of content

1.	Introduction	6
2.	Description of the reported reductions of capacity	7
2.1.	Reduction of capacity after 70% adjustment	7
2.2.	Reduction of capacity after TSOs validation process	8
3.	Description of the report.....	8
4.	D2 information	9
4.1.	Reduction of capacity after 70% adjustment	9
4.2.	Reduction of capacity after TSOs validation	11
4.3.	Deviation from coordinated actions	13
4.4.	Assessment of the incidences.....	14
4.4.1.	Assessment of 70% reduction	14
4.4.2.	Assessment of red flags sent by TSOs	15
4.5	Recommendations	20
5.	ID information	21
5.1.	Reduction of capacity after 70% adjustment	21
5.2.	Reduction of capacity after TSOs validation	22
5.3.	Deviation from coordinated actions	23
5.4.	Assessment of the incidences.....	24
5.4.1.	Assessment of 70% reduction	24
5.4.2.	Assessment of TTC reduction and red flags sent by the TSOs.....	25
5.5.	Recommendations.....	30

LIST OF TABLES

Table 1: D2 list of Critical Branches reported on FLAGS.....	19
Table 2: D2 list of Critical Outages reported on FLAGS.....	19
Table 3: ID list of Critical Branches reported on FLAGS	29
Table 4: ID list of Critical Outages reported on FLAGS	29

LIST OF FIGURES

Figure 1: D2 TTC Calculation results	9
Figure 2: D2 summary of TS during the adjustment process.....	10
Figure 3: D2 summary of TS during the validation process.....	11
Figure 4: D2 Distribution of required capacity for adjustment vs average of feasible capacity	14
Figure 5: D2 # TS with reduction per month vs the average % of reduction on that month	15
Figure 6: D2 share of TS with and without flag	15
Figure 7: D2 share of TS with flags classified by sender.....	16
Figure 8: D2 Share of global and bilateral flags.....	16
Figure 9: D2 type of flags sent by Swissgrid	17
Figure 10: D2 type of flags sent by APG	17
Figure 11: D2 type of flags sent by TERNAL	18
Figure 12: ID TTC Calculation results	21
Figure 13: ID summary of status of TSs during adjustment process.....	21
Figure 14: Summary of status of TSs during validation process in ID	22
Figure 15: ID Distribution of required capacity for adjustment vs average of feasible capacity	24
Figure 16: ID #TS with reduction per month vs the average % of reduction on that month	25
Figure 17: ID share of TS with and without flag	25
Figure 18: ID share of TS with flags classified by sender.....	26
Figure 19: ID Share of global and bilateral flags.....	27
Figure 20: ID type of flags sent by Swissgrid	28
Figure 21: ID type of flags sent by APG	28
Figure 22: ID type of flags sent by RTE	28

LIST OF ACRONYMS

ANTC: Additional Net Transfer Capacity

ANTCfinal: Additional Net Transfer Capacity required to be 70%minMargin compliant

ANTCfeasible: Feasible Additional Net Transfer Capacity to be adjusted

BD: Business Day

CACM: Capacity Allocation and Congestion Management

CC: Capacity Calculation

CCR: Capacity Calculation Region

CNE: Critical Network Element

CNEC: Critical Network Element Contingency

CRA: Curative Remedial Actions

D2: D-2 process

ID: Intraday process

IN: Italy North

MinMargin: minimum margin

NTC: Net Transfer Capacity

RA: Remedial Actions

RCC: Regional Coordination Centre

TS: Timestamp

TTC: Total Transfer Capacity

TTCAdj: Total Transfer Capacity after the adjustment process

Export Corner Calculation: The common capacity calculation when at least one country is expected to be importing capacities from Italy

1. Introduction

The capacity calculation (CC) process for Italy North (IN) Capacity Calculation Region (CCR) is performed by Coreso and TSCNET appointed by the Central Europe System Operation Region (Central SOR) as Regional Coordination Centre on the 1st of July 2022. The CC task is provided to IN region as described in the latest version of the D2 and ID methodologies approved by IN NRAs.

"Methodology for an intraday common capacity calculation in accordance with Article 21 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management within Italy North CCR"

And

"Methodology for a common D2 capacity calculation in accordance with Article 21 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management within Italy North CCR".

This report is provided in fulfilment of the RCC reporting obligations as covered within Article 16.3 of Commission Regulation (EU) 2019/943 for Q4 2023. The content of this report also covers the reporting requirements according to Article 26.5 of Commission Regulation (EU) 2015/1222 towards the IN NRAs.

According to Article 16.3 of the Commission Regulation (EU) 2019/943:

"Regional coordination centres shall carry out coordinated capacity calculation in accordance with paragraphs 4 and 8 of this Article, as provided for in point (a) of Article 37(1) and in Article 42(1).

Regional coordination centres shall calculate cross-zonal capacities respecting operational security limits using data from transmission system operators including data on the technical availability of remedial actions, not including load shedding. Where regional coordination centres conclude that those available remedial actions in the capacity calculation region or between capacity calculation regions are not sufficient to reach the linear trajectory pursuant to Article 15(2) or the minimum capacities provided for in paragraph 8 of this Article while respecting operational security limits, they may, as a measure of last resort, set out coordinated actions reducing the cross-zonal capacities accordingly. Transmission system operators may deviate from coordinated actions in respect of coordinated capacity calculation and coordinated security analysis only in accordance with Article 42(2).

By 3 months after the entry into operation of the regional coordination centres pursuant to Article 35(2) of this Regulation and every three months thereafter, the regional coordination centres shall submit a report to the relevant regulatory authorities and to ACER on any reduction of capacity or deviation from coordinated actions pursuant to the second subparagraph and shall assess the incidences and make recommendations, if necessary, on how to avoid such deviations in the future."

Based on our interpretation of the regulation, this report is required to contain three key components:

1. Reporting cases of reduction of capacity or deviation from coordinated actions per timestamps (TS) for the region
2. Assessing the incidences related to (1) – data analysis of how many TS were affected on a quarterly basis
3. Making recommendations, if necessary, on how to avoid such deviations in the future

Moreover, this report presents the results of TSs in which the 70% adjustment could not be performed due to a lack of costly RA capacity provided by the TSOs in accordance with Art 13.2. of the Capacity Calculation Methodology for Italy North CCR. The Q4 report includes the results from the 1st of October till the 31st of December 2023. The number of days considered in this report is 92 days for both D2 and ID capacity calculation process.

Starting from the 29th of November 2023 the Export Corner capacity calculation for the Intraday process successfully went live for the Italy North Region, in accordance to the with Article 21 of Commission Regulation (EU) 2015/1222 of 24 July 2015. The Q4 report for the IDCC process from the 29th of November to the 31st of December 2023 consist of results from the Export Corner computation; such that we could report on instances where TTC reduction occurred either in the cases with Export Corner triggered or in the import direction towards Italy. The two scenarios are classified as:

1. TTC Import Scenario: – Timestamps where all the capacity calculated are towards Italian import.
2. TTC Transit Scenario: – Timestamps where any of the participating TSOs triggered export corner for the possibility of capacity import from Italy. This scenario has the total transfer capacity for the region split into "TTC Import" towards Italy and "TTC Export" from Italy.

2. Description of the reported reductions of capacity

The report presents the following information:

2.1. Reduction of capacity after 70% adjustment

The Italy North (IN) region performs a coordinated Total Transmitted Capacity (TTC) Adjustment process. The adjustment is done by calculating the margin required on the limiting Critical Network Elements (CNEs) to fulfil the 70% minMargin requirement and adjusting the capacity accordingly by the use of costly remedial actions made available by the TSOs. In case the capacity available for adjustment is lower than the required amount to be adjusted, it is considered that the capacity has been reduced since it cannot fulfil the 70% margin required.

It has to be taken into account that the adjustment cannot always be performed since for some TS there is no grid information due to any possible issue on the TTC Calculation process (previous step to TTC Adjustment).

2.2. Reduction of capacity after TSOs validation process

The TSOs of IN region can apply a local validation of the adjusted TTC results, to avoid violation of the security limits. The validated TTC results are then used to compute the final bilateral NTC values. The reduction can be a global or a bilateral incidence. A global validation by a TSO results in a reduction of the total TTC calculated for the northern Italian borders. A bilateral validation results in a reduction that concerns only the border of the country that is reducing the capacity. The TSO(s) that apply the reduction provide a reason that justifies it. Moreover, this reduction of capacity can also imply that the 70% minMargin required in any given TS is not reached.

3. Description of the report

This report has been created for the D2 and ID process. For the D2 process, 24 TSs are covered, while for the ID process, 12 TSs are currently covered. The relevant TSs for analysis in both D2 and ID process are:

- The cases when TSOs reduce the TTC calculated by RCCs during the local validation step – this reduction could be a global or bilateral incidence. Since Export Corner go-live, this reduction could also occur either in the "*TTC Import Scenario*" – with no export corner triggered or the "*TTC Transit Scenario*" when export corner is triggered by one or more TSOs.
- The TSs where 70% reduction occurred during the adjustment and or local validation step of the process.
- Cases when the TTC calculation process failed are not considered – such cases correspond to instances when the "*LimitedBy*" variable within the *TTC_Adjustment* is defined as: "*ScheduledTTC*".
- We also do not consider cases where a Redflag raised by the TSOs during the local validation step results in capacity increase and instances where the reduction of less 1MW occurred due to rounding errors during the computation process, resulting to no accompanying Redflag to the reduction.

More details on the information presented on this report can be seen on the excel file attached on the package:

2023Q4 Summary Art16.3 D-2 ID Report Data.xlsx. The excel file contains extensive data for all the summary charts and assessment of reduction incidences within that occurred in the reporting period for both the intraday and the day-ahead process.

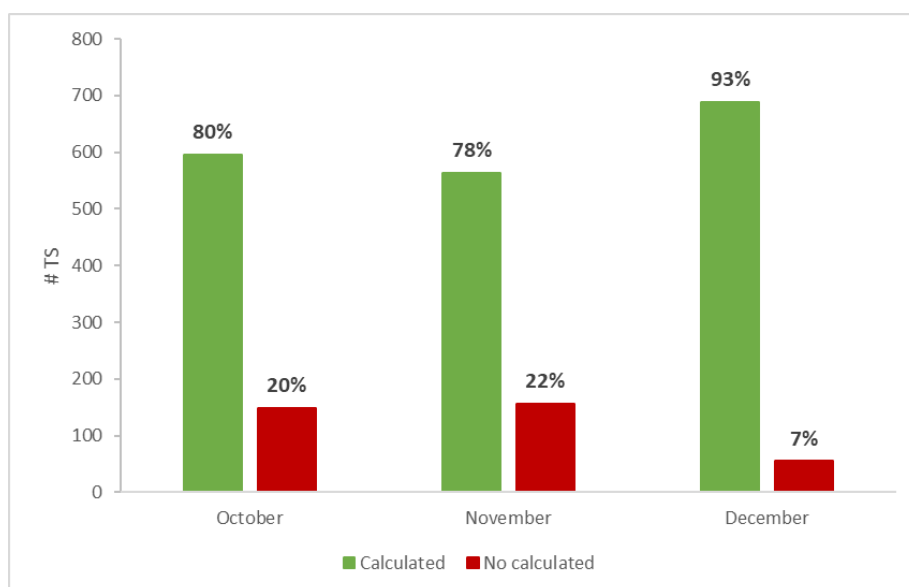
4. D2 information

4.1. Reduction of capacity after 70% adjustment

In this section, we report on the TSs within the D2 process where reduction of capacity after the 70% minMargin adjustment occurred.

The following figure presents, per month, a summary of the TSs that successfully performed in Q4 the TTC calculation process. Please note that the adjustment process could be performed only on these calculated TSs.

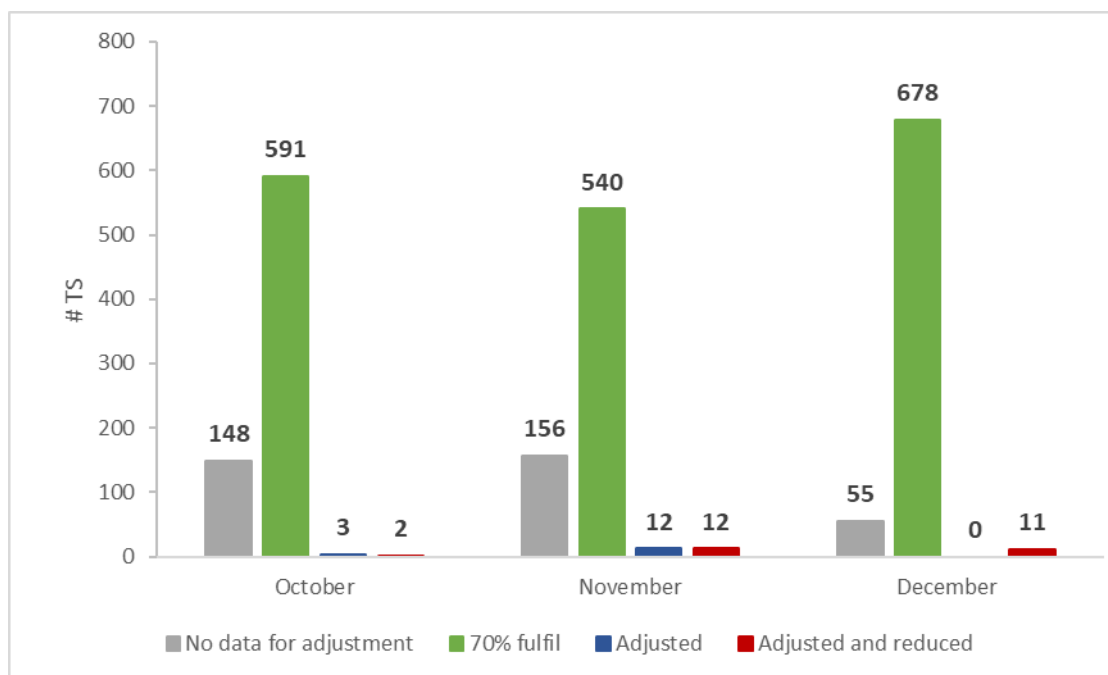
Figure 1: D2 TTC Calculation results



The figure below shows per month the different TSs classified as:

- No adjustment: timestamps in which no adjustment was performed either because there was no input data to perform the TTC calculation process or due to failure of TTC calculation process
- 70% minMargin Compliant: timestamps in which the adjustment could be performed but there was no need to perform it because the calculated capacity is already compliant with the 70% minMargin
- Adjustment: timestamps in which some adjustment was required and there was enough capacity to perform the adjustment.
- Adjustment and reduction: timestamps in which some adjustment was required and there was not enough capacity to perform the adjustment to the 70% minMargin, thus for these timestamps.

Figure 2: D2 summary of TS during the adjustment process



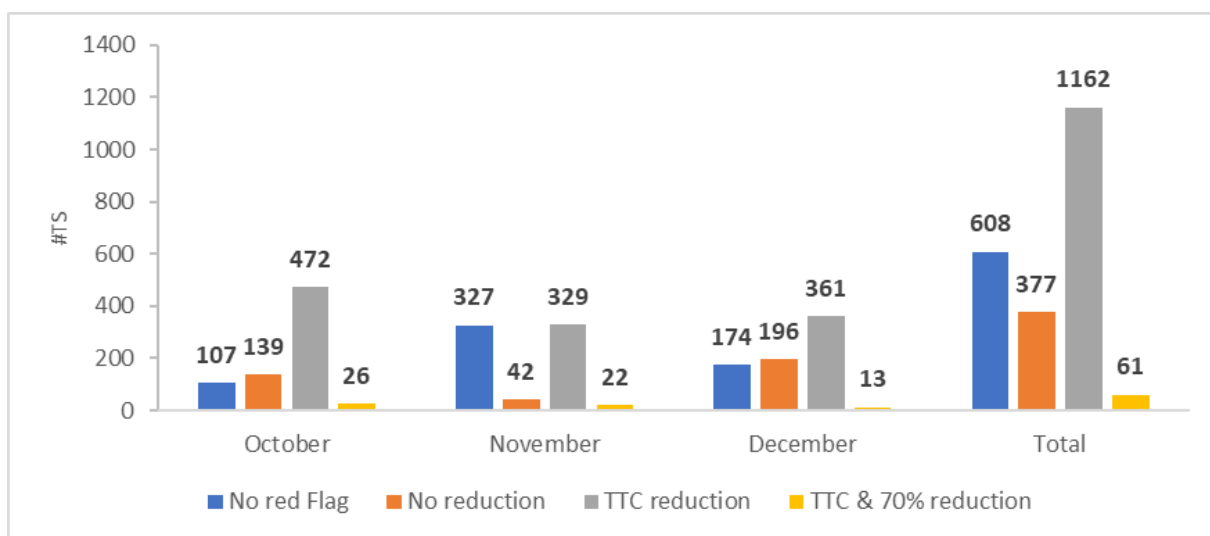
As it can be seen in the figure above, in this quarter, there were 25 TS where the reduction of capacity after the 70% minMargin adjustment occurred for the D2CC process.

4.2. Reduction of capacity after TSOs validation

In this section, the TSs within the D2 process where reduction of capacity after the TSO validation occurred are reported. The figure below presents different validated TSs classified as:

- No red flag raised: TSs in which no capacity reduction was requested by the TSO during the validation step and no red flag raised
- Red flag raised and no reduction: TSs in which some validation flags were raised but no capacity reduction occurred
- Red flag raised and reduction: TSs in which the local validation step by the TSO resulted in a capacity reduction and a red flag on the NTC1 file.
- Red flag raised and reduction and 70% minMargin not reached: TSs in which the local validation step by the TSO resulted in a 70% capacity reduction.

Figure 3: D2 summary of TS during the validation process



More details for the reporting period for the D2CC process are contained within the accompanied excel: **2023Q4 Summary Art16.3 D-2 ID Report Data.xlsx** on sheets "D2 70% reduction" and "D2 validation reduction".



Le réseau
de transport
d'électricité

swissgrid



TSCNET
Services

Connect. Create. Coordinate.

4.3. Deviation from coordinated actions

Not applicable for Italy North region

4.4. Assessment of the incidences

On this section an analysis of the reduction issues is assessed for each of the cases:

1. Reduction due to costly remedial actions during the adjustment process
2. Reduction due to the red flags sent by the TSOs

4.4.1. Assessment of 70% reduction

This chapter presents an overview of the capacity required for adjustment on the TS that suffered the reduction and could not fulfil the required adjustment of the 70% minMargin.

Figure 4 presents the distribution of required capacity to be adjusted per month. Moreover, the average of feasible capacity for the adjustment on that month is represented. Figure 5, presents the average % of reduction per month together with the amount of TS with reduction.

Figure 4: D2 Distribution of required capacity for adjustment vs average of feasible capacity

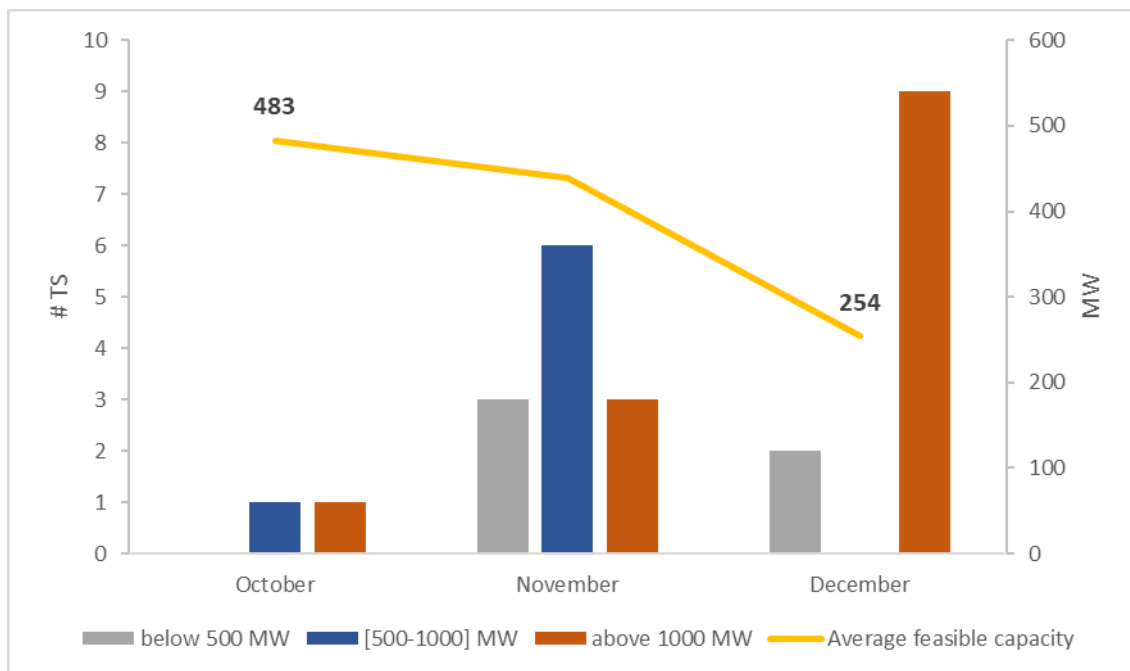
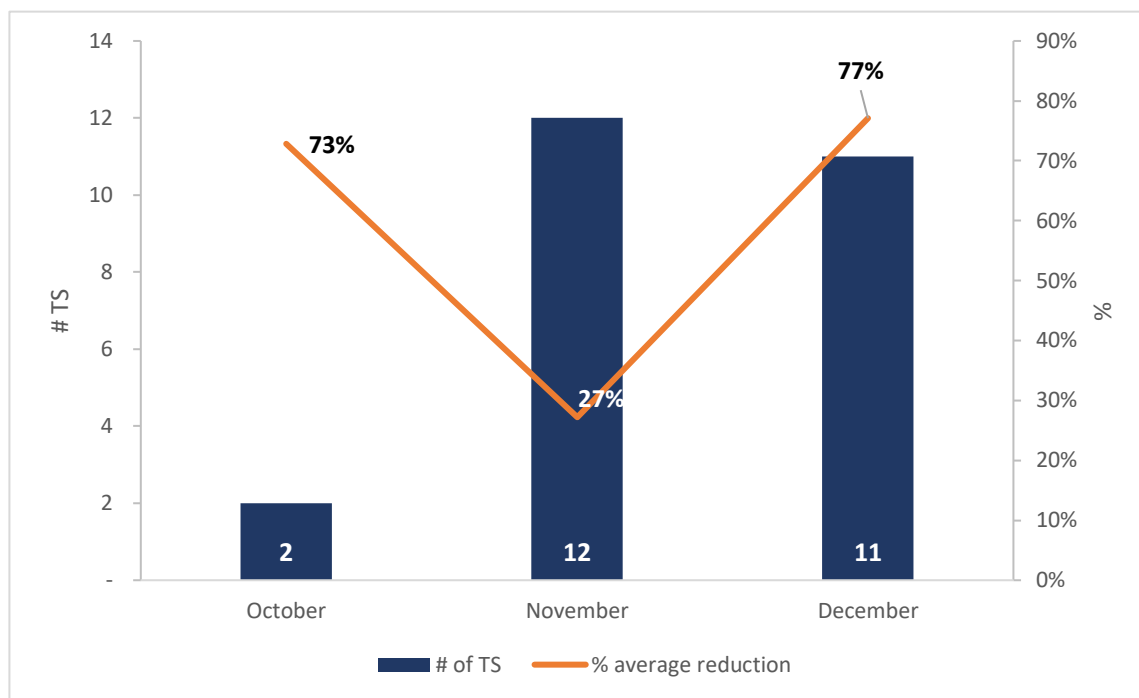


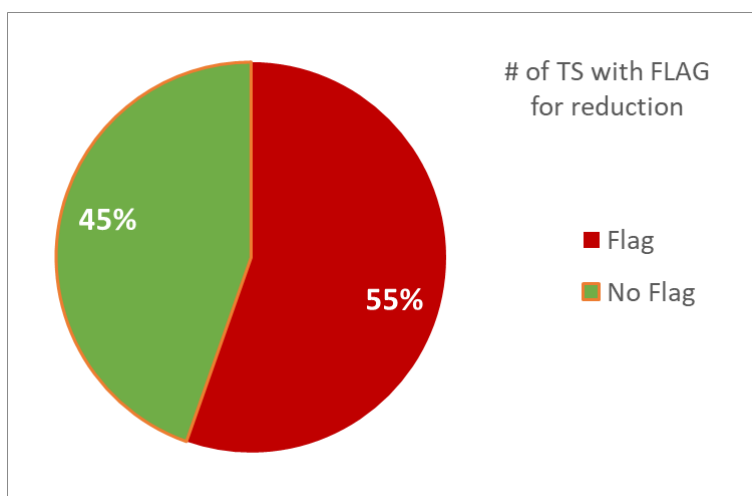
Figure 5: D2 # TS with reduction per month vs the average % of reduction on that month



4.4.2. Assessment of red flags sent by TSOs

This chapter presents an analysis of the reduction red flags sent by the TSOs. The following figure presents the distribution of TSs with and without flag during the period of analysis.

Figure 6: D2 share of TS with and without flag

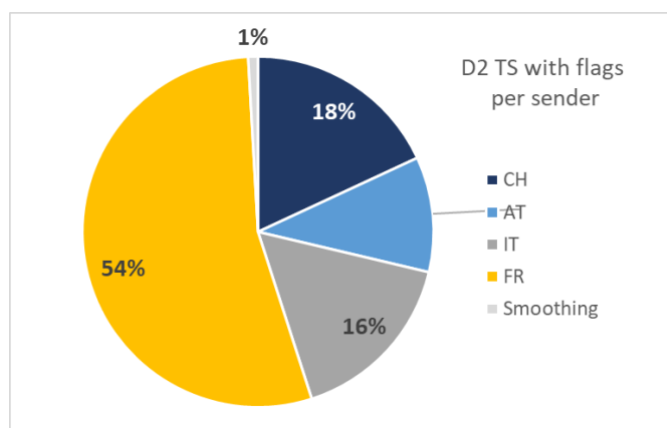


In D2, the validation process during Q4 was limited by four types of flag's provider:

- Flags sent by Swissgrid
- Flags sent by APG
- Flags sent by TERNA
- Flags sent by RTE
- Smoothing process: this validation is part of the NTC Calculation methodology. This process can cause a possible reduction of the adjusted capacity since the difference of capacity between the hours of the day should not be higher than 1500MW.

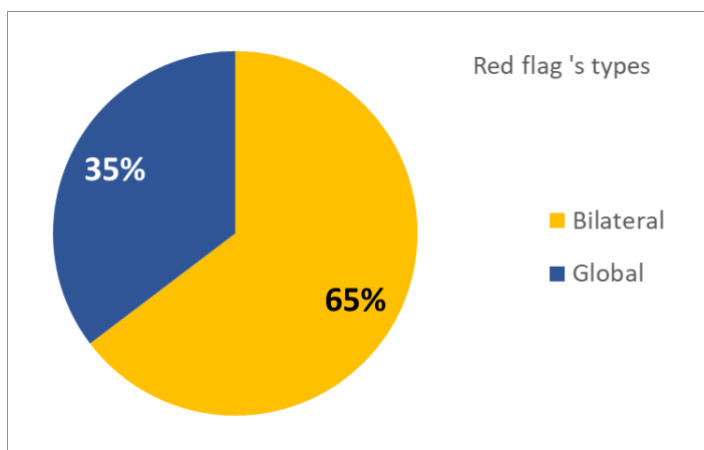
The following picture presents the share of each type of flag during the quarter. It can be seen that the TSO with the highest share of reduction is RTE. For all instances with limiting flag from a TSO equal to a bilateral flag, we provided all the reported bilateral flags for the corresponding TS in the case multiple flags were received.

Figure 7: D2 share of TS with flags classified by sender



The type of flags has also been classified depending on if they were global or bilateral:

Figure 8: D2 Share of global and bilateral flags



The following classification of the limiting flags sent by the TSOs has been done based on the reason provided by the TSOs – the flag classification process for this quarter was done only on the most limiting flags considered per timestamp:

- Overload
- Missing CNEC in Capacity Calculation
- Fault
- Coordination Problem
- IT Issues
- Process Fail
- Not Specified

The pictures below, present the type of flags sent by each TSO

Figure 9: D2 type of flags sent by Swissgrid

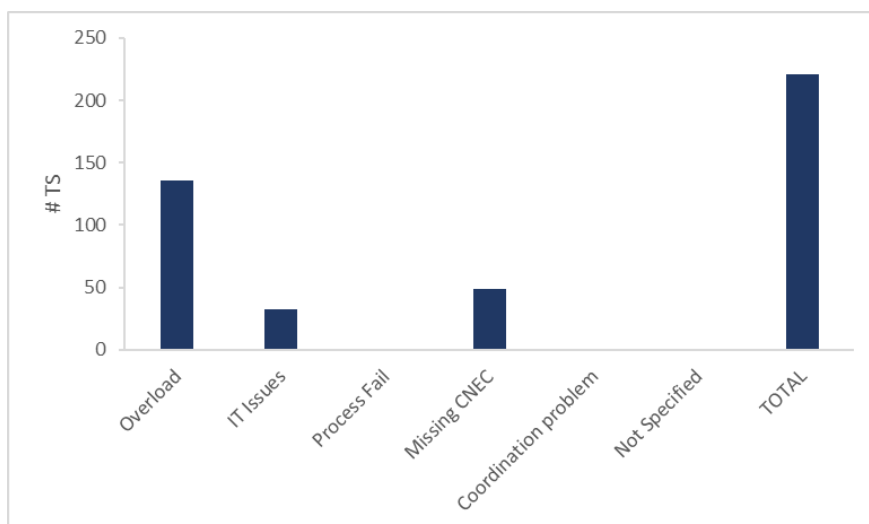


Figure 10: D2 type of flags sent by APG

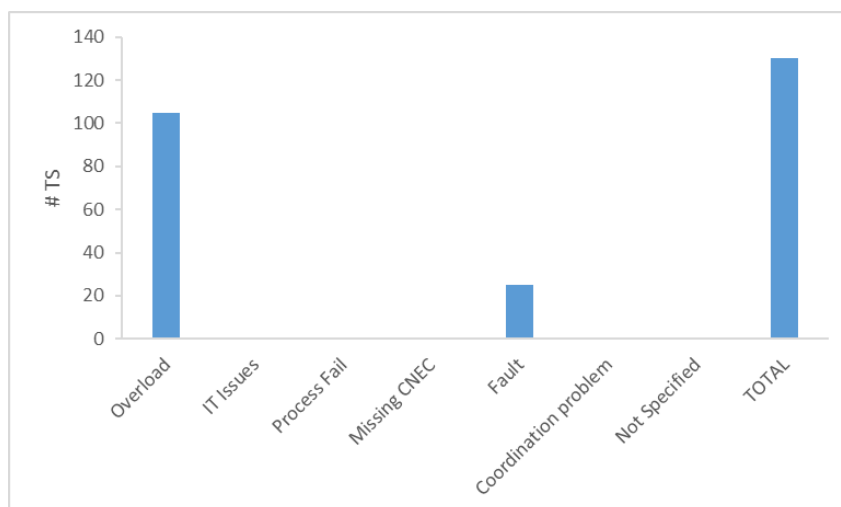


Figure 11: D2 type of flags sent by TERNAL

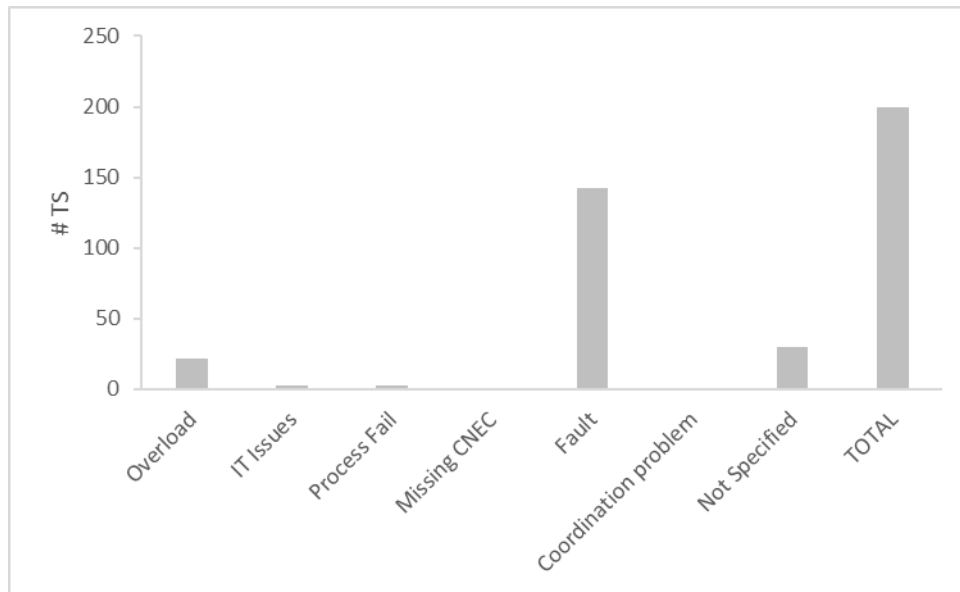
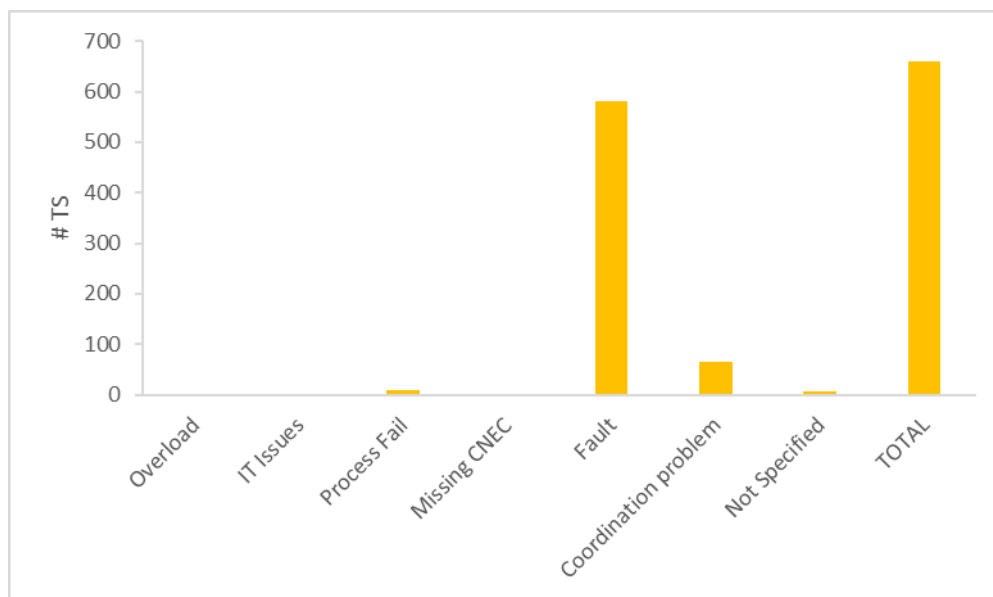


Figure 12: D2 type of flags sent by RTE



Finally, the Overload reasons have been analysed and the following lines and outages are the ones that have been limiting the capacity during the Q4.

Table 1: D2 list of Critical Branches reported on FLAGs

CB name
380kV Lavorgo - Musignano
380kV Gorlago - Robbia
220kV Riddes - Valpelline
380kV Bulciago - Soazza

Table 2: D2 list of Critical Outages reported on FLAGs

CO name
N-2 ALBERTVILLE-RONDISSONE
N-1 SOAZZA-BULCIAGO
N-2 Pradella-Robbia + Filisur-Robbia
N-2 Robbia-Gorlago + Robbia-S.Fiorano

4.5 Recommendations

Not applicable for Italy North region

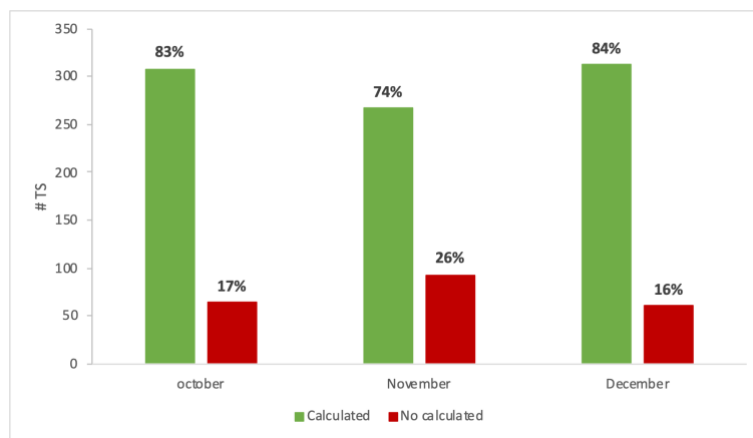
5. ID information

5.1. Reduction of capacity after 70% adjustment

In this section, we report on the TSs within the ID process where reduction of capacity after the 70% minMargin adjustment occurred.

The following figure presents, per month, a summary of the TSs that successfully performed in Q4 the TTC calculation process. Please note that only on these calculated TSs, the adjustment process could be performed.

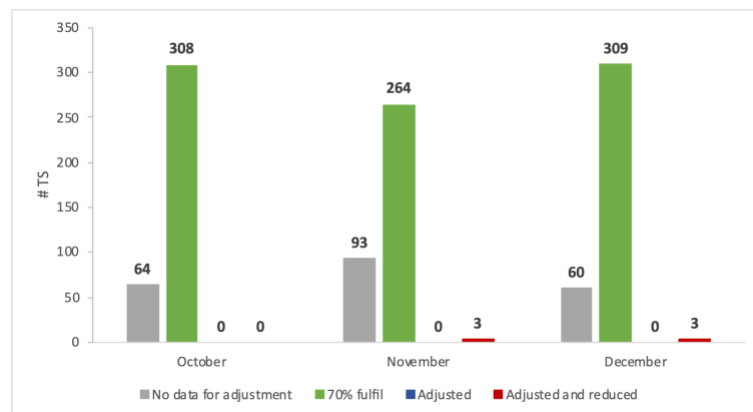
Figure 12: ID TTC Calculation results



The following figure presents the different TSs for the ID process classified as described in the D2 cases in subsection 4.1. In the case of ID process, the 70% minMargin compliant timestamps consist of two different cases:

1. Timestamps in which the capacity was already fulfilled in D2 process.¹
2. Timestamps in which the capacity was not fulfilled in D2 process but during the ID process the grid was 70% minMargin compliant.

Figure 13: ID summary of status of TSs during adjustment process



¹ For the 2023 Q4 report it was not feasible to make the distinction between the TS compliant in D2 process and the ones not compliant. These details will be consider for the future reports once it is feasible.

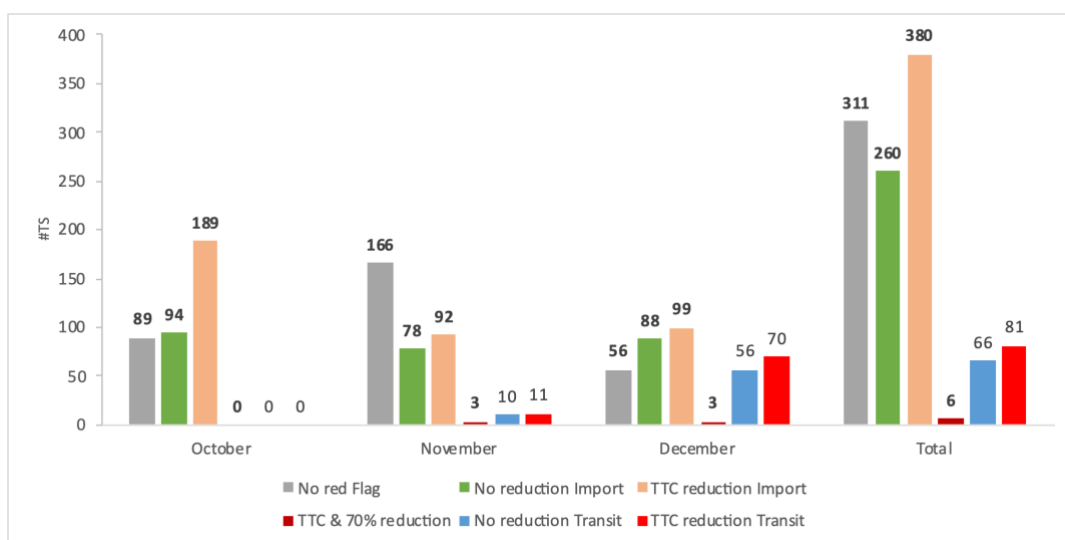
Figure 13 shows that within the reporting period, we had six (6) TS which the reduction of capacity after the 70% minMargin adjustment occurred for the IDCC process. All cases were recorded in November and December.

5.2. Reduction of capacity after TSOs validation

According to the criteria defined in subsection 4.2, in this subsection, we analyse the TSs within the ID processes where reduction of capacity occurred after TSO validation. Since Export Corner computation for the IDCC process is now live, additional TTC validated TS classification were included in the ID summary status for each TS in Figure 14. The additional classifications capture instances where TTC reduction occurred both in the Import and the transit scenarios, and cases where they did not occur within the relevant reporting period. They include:

- **TTC Reduction Import:** TSs in which the local validation step by the TSO resulted in a capacity reduction and a red flag on the NTC1 file, with export corner not triggered.
- **TTC Reduction Transit:** TSs in which the local validation step by the TSO resulted in a capacity reduction and a red flag on the NTC1 file, with export corner triggered.
- **No Reduction Import:** TSs in which no capacity reduction was requested by the TSO during the validation step and red flag raised with export corner not triggered.
- **No Reduction Transit:** TSs in which no capacity reduction was requested by the TSO during the validation step and red flag raised, with export corner triggered.

Figure 14: Summary of status of TSs during validation process in ID



More details for the reporting period for the IDCC process are contained within the accompanied excel file: **2023Q4_Summary_Art16.3_D-2_ID_Report_Data.xlsx** on sheets "ID 70% reduction" and "ID validation reduction".

5.3. Deviation from coordinated actions

Not applicable for Italy North region

5.4. Assessment of the incidences

On this subsection an analysis of the reduction issues is assessed for each of the cases within the IDCC process. The relevant cases for assessment are:

1. Reduction due to costly remedial actions during the adjustment process
2. Reduction due to the red flags sent by the TSOs
3. Case (1) and (2) applies for instances where Export Corner was triggered by a TSOs or for TSs with no Export Corner triggered.

5.4.1. Assessment of 70% reduction

Here, we assessed the capacity required for adjustment on the TSs that the 70% reduction occurred due to not enough redispatch capacity potential (costly remedial actions) to fulfil the required 70% minMargin after the adjustment process. For this quarter, this incidence occurred only in three TSs of November and December respectively for the IDCC process.

Figure 15, presents the distribution of required capacity to be adjusted in the relevant TSs in December and November in order to meet the 70% minMargin CEP requirement. From the figure below, we see that in November, the required capacities to meet the 70% minMargin requirements are all above 1000MW while for December, they are below 500 MW.

The figure also shows in yellow the average of feasible capacity for the adjustment on those TSs after the application of available costly remedial action during the adjustment step of the computation process.

Figure 15: ID Distribution of required capacity for adjustment vs average of feasible capacity

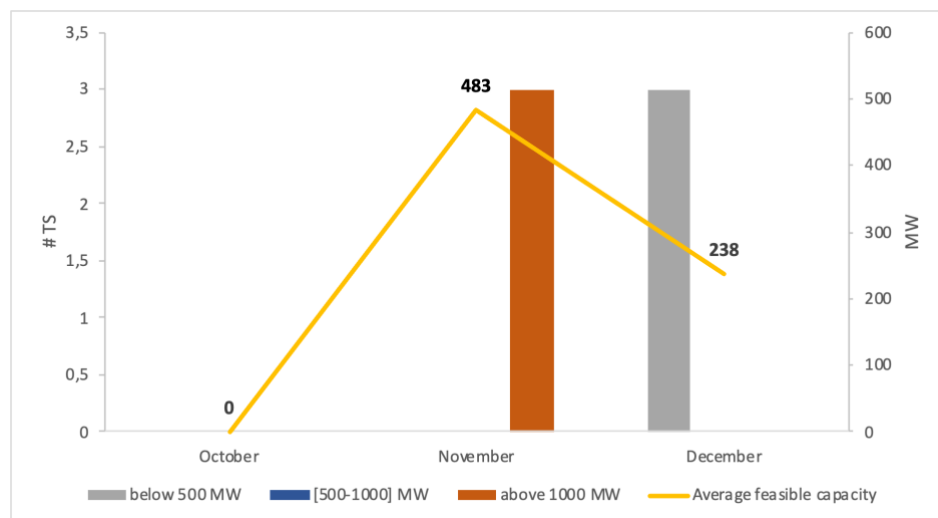
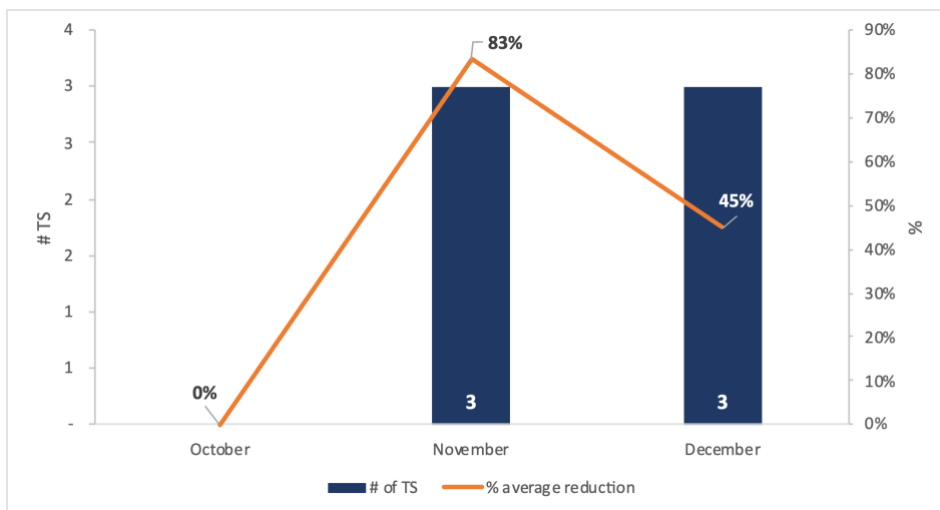


Figure 16 presents for the case in IDCC, the average percentage (%) of TTC reduction as a result of not meeting the 70% minMargin per month together with the number of TSs it occurred. For November, we have an average of 83% reduction of total transfer capacity available for the Intraday market for the impacted TSs while in December, the percentage reduction was at 45%.

Figure 16: ID #TS with reduction per month vs the average % of reduction on that month

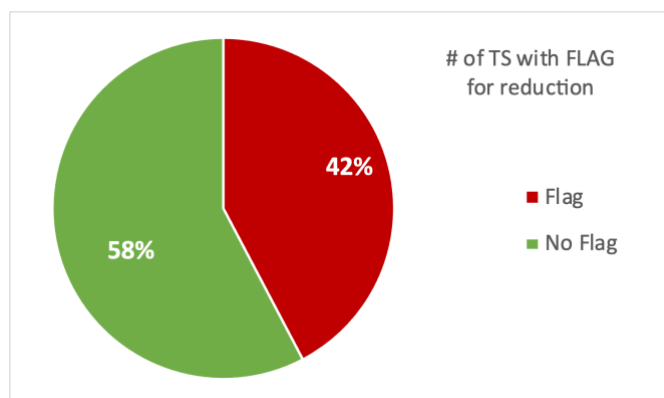


5.4.2. Assessment of TTC reduction and red flags sent by the TSOs

This subsection presents an analysis TSs in which a reduction red flags was sent by the TSO(s) that resulted in TTC reduction either for the Import or the Transit scenarios, compared to the total possible computed timestamps within the reporting period. TSs with red flags sent that did not result to a reduction of TTC or lead to an increase of TTC are considered as cases without flags.

Figure 17 presents the distribution of TSs with and without flag during the period of analysis.

Figure 17: ID share of TS with and without flag



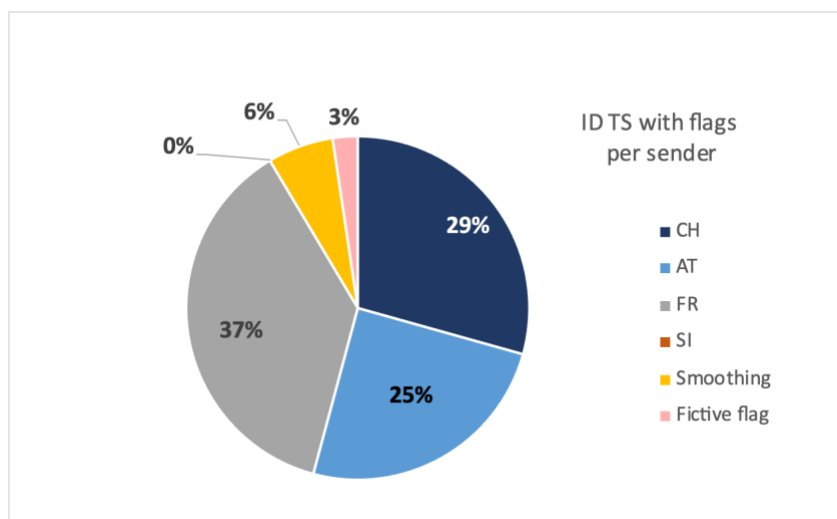
The validation process for IDCC in Q4 2023 was limited by four types of flag's providers and constraints defined within the detailed calculation methodology:

- Flags sent by SWG
- Flags sent by RTE
- Flags sent by APG
- Flags sent by ELES
- Fictive Flags: these flags are created automatically by the methodology when the process receives an invalid red flag file from any TSO. In these cases, the tool generates a global red flag with the minimum value between the scheduled TTC and the ID selected capacity.
- Smoothing process: this validation is part of the NTC Calculation methodology. This process can cause a possible reduction of the adjusted capacity since the difference of capacity between the hours of the day should not be higher than 1500MW.

Figure 18 presents the share of each type of flag during the quarter. It can be seen that the TSO with the highest share of TTC reduction limiting flags is RTE with a percentage share of 37% of the total 467 TS.

For the reporting period, ELES had no limiting red flags, hence why its percentage share in Figure 18 equals zero. The number of Fictive flags triggered also significantly reduced to 3% compared to the previous reporting quarters. It is expected that for the IDCC process, no more occurrences of Fictive flags will be recorded in the future because proper measures have been implemented with the go-live of Export Corner to ensure that only valid red flag files are considered by the tool.

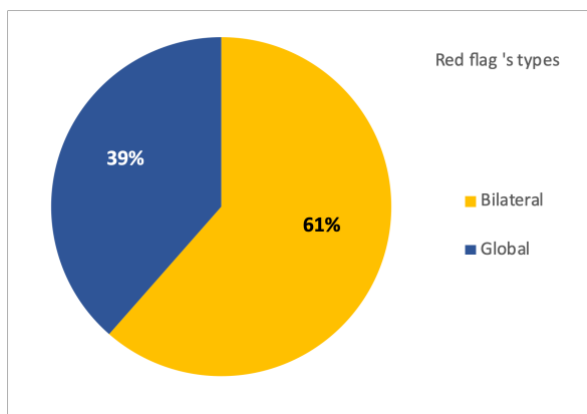
Figure 18: ID share of TS with flags classified by sender



In Figure 19, types of flags are classified depending on if they were global or bilateral:

- Global flags: are red flag send by a TSO that is limiting the total exchange of the region.
- Bilateral flags: are red flag sent by a TSO that is only limiting their border with Italy.

Figure 19: ID Share of global and bilateral flags



From Figure 19, we see that majority (61%) of the limiting flags in the reporting period from the total of 467 red flags are bilateral flags. For all instances with limiting flag from a TSO equal to a bilateral flag, we provided all the reported bilateral flags for the corresponding TS in the case multiple flags were received.

The following classification of the limiting flags sent by the TSOs has been done based on the reason provided by the TSOs – the flag classification process for this quarter was done only on the most limiting flags considered per timestamp:

- Overload
- Missing CNEC in Capacity Calculation
- Process fail during TSO Validation
- High Redispatch issue
- Fault
- NTC over thermal limit
- ATC blocked

The figures below, present the classification of flag types sent by each TSO.

Figure 20: ID type of flags sent by Swissgrid

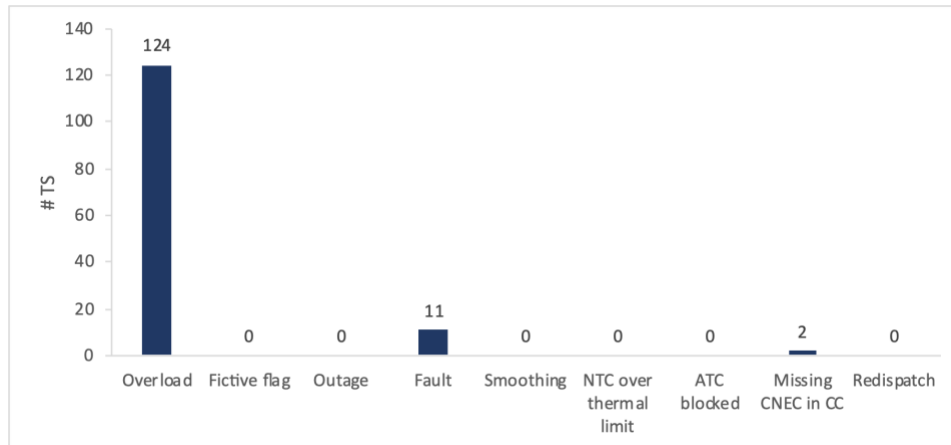


Figure 21: ID type of flags sent by APG

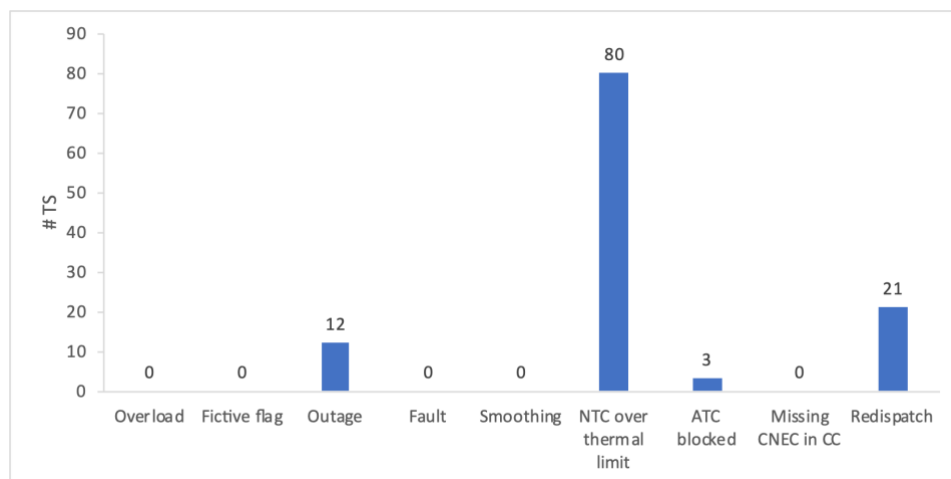
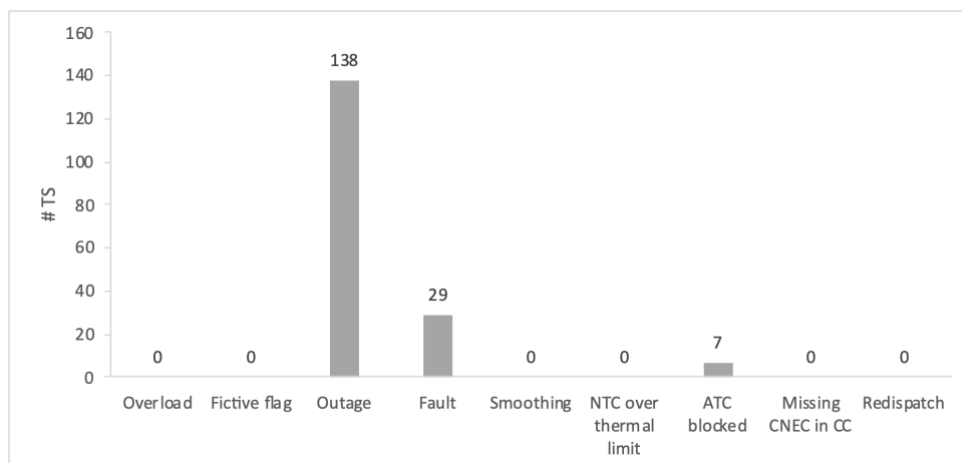


Figure 22: ID type of flags sent by RTE



Finally, the Overload reasons have been analysed and the following lines and outages are the ones that limited the computed total capacity in the region either bilateral or globally for the reporting period.

Table 3: ID list of Critical Branches reported on FLAGS

CB name
380kV Gorlago - Robbia
220kV Riddes - Valpelline
380kV Fiorano - Robbia
380kV Bulciago - Soazza
220kV Pallanzeno - Serra
380kV Filisur - Sils
380kV Sils-Soazza
220kV Avise-Riddes
380kV Lavorgo - Musignano

Table 4: ID list of Critical Outages reported on FLAGS

CO name
N-1 SOAZZA-BULCIAGO
N-2 ALBERTVILLE-RONDISSONE
380KV GORLAGO-ROBBIA
N-2 Pradella-Robbia + Filisur-Robbia
N-1 AIROLO-FIESCH/PONTE
N-1 ALBERTVILLE-RONDISSONE 1
N-2 Robbia-Gorlago + Robbia-S.Fiorano

More details for the reporting period for the IDCC process are contained within the excel file: **2023Q4 Summary Art16.3 D-2 ID Report Data.xlsx** on sheets "ID 70% reduction", "ID validation reduction" and "ID FLAGS processing".

5.5. Recommendations

Not applicable for Italy North region