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Explanatory note on the Italy North TSOs proposal for splitting long-term cross-zonal capacity in accordance with Article 16 of the Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a Guideline on Forward Capacity Allocation

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**August 2023**



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## 1. INTRODUCTION

This document is the explanatory note accompanying the amended methodology developed by the Transmission System Operators (hereafter referred to as “TSOs”) of the Italy North Capacity Calculation Region (hereinafter referred to as “Italy North CCR”) for a splitting methodology of long-term cross-zonal capacity in a coordinated manner between different time frames (hereinafter “Splitting Methodology”) in accordance with Article 16 of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a Guideline on Forward Capacity Allocation (hereafter referred to as the “FCA Regulation”). The Explanatory note has been updated with the amendment proposed on August 2023 following the analysis provided in the “Italy North Splitting Methodology Report” after the first year of application.

The FCA Regulation lays down detailed rules on:

- forward capacity calculation of cross-zonal capacity;
- a methodology for splitting long-term cross-zonal capacity;
- cross-zonal capacity allocation in the forward markets;
- the establishment of a single allocation platform at European level offering long-term transmission rights.

With reference to Article 16 of the FCA Regulation, TSOs intend to jointly develop a Splitting Methodology.

The proposal shall cover the bidding zone borders of the Italy North CCR as defined in accordance with Article 15 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereinafter referred to as “the CACM Regulation”). In particular:

- a. Italy North-France bidding zone border;
- b. Italy North-Austria bidding zone border;
- c. Italy North-Slovenia bidding zone border.

## 2. SPLITTING METHODOLOGY

### 2.1 FCA REQUIREMENTS

According to Article 16(2) of the FCA Regulation, the methodology for splitting long-term cross-zonal capacity shall comply with the following conditions:

- a. it shall meet the hedging needs of market participants;
- b. it shall be coherent with the capacity calculation methodology;
- c. it shall not lead to restriction in competition, in particular for access to long-term transmission rights.

In the following articles it is described how TSOs met the FCA requirements.



## 2.2 PROCESS AND INTERACTION WITH THE LT CCM

The Splitting Methodology is strictly linked to the capacity calculation methodology for long-term time frame in accordance with Article 10 of the FCA Regulation (hereinafter “LT CCM”). The two methodologies have been developed together by TSOs to ensure consistency on the various processes of the long-term allocation chain (according to FCA article 16.2 b).

The basic approach used by TSOs is to have a long-term capacity calculation methodology giving as a result a capacity with a pre-defined level of firmness for each time frame. The splitting methodology uses this capacity as input and should maximize the available capacity to the market as far in advance of real-time as possible, respecting all FCA requirements. Further releases of capacities at shorter time horizons in the forward time frame should be the result of capacity recalculations, or gradual release of the margins and constraints initially applied by the TSOs for year-ahead allocations when uncertainties reduce as real time is approached. Of course we have to keep in mind that monthly capacity calculation methodology could also lead to lower or identical values of available capacity due to new possible constraints not taken into account when performing yearly calculation so we need to reserve some of the long-term cross-zonal capacities also for the monthly allocation in order to respect all FCA requirements where yearly and monthly allocation is required.

## 2.3 CRITERIA USED TO DEFINE THE METHODOLOGY

In order to meet FCA provisions, Italy North TSOs considered several possible criteria to be applied. The main criteria were initially:

### **Product Validity**

This criterion has been investigated since the long-term Net Transfer Capacity (hereinafter “NTC”) on North Italian borders may show great variability on an hourly granularity throughout the year. For that reason, this criterion is based on:

- the Product Validity Percentage, that represents the percentage of hours in which the product is available compared to all possible hours of the related delivery period;
- the Number of Reduction Periods, that represents the number of periods in which the product cannot be allocated.

### **Requested Capacity Ratio**

The idea behind this criterion was to evaluate the hedging needs of the market participants in each time frame, comparing the capacity requested by Market Participants to the offered capacity in each long-term time frame. In the time frame in which the ratio is higher more capacity should be offered.

### **Minimum Quantity**

This criterion aims to offer a product with a pre-defined minimum threshold. If the available capacity is lower than the threshold value no long-term product is offered, and the capacity will be given to the day-ahead market.



The first condition of the Article 16(2) of the FCA Regulation represented the hardest point to fulfill. Therefore, in order to understand the hedging needs of Market Participants, TSOs published an informal public survey.

## 2.4 RESULTS OF THE QUESTIONNAIRE

The informal survey, held between 17/12/2018 till 27/01/2019 on the ENTSO-E consultation hub, was completed by three respondents: two companies and one association. A short summary of the feedbacks received is reported in the following points.

- All respondents report that the maximum available capacity should be offered as far in advance of real time as possible. Further release of capacity at shorter time horizons in the forward timeframe should be the results of subsequent recalculations, or gradual release of the margins and constraints initially applied by the TSOs for year-ahead allocations.
- All respondents are in favor of applying the Product Validity Criterion. However, one suggestion has been received about the minimum level of percentage of product validity, indicating 80% validity for both yearly and monthly time frames. No suggestion has been received about the maximum number of reduction periods. All respondents recommend TSOs to maximize the product validity and minimize the number of reduction periods.
- With reference to the requested capacity ratio, there is common consensus on the fact that this criterion would not be suitable for the definition of a splitting methodology. In particular, general opinion is that market dynamics change continuously, so any criteria based on historical data would not capture the actual reality of hedging and portfolio management by Market Participants.
- With reference to the minimum quantity criterion, there is common view on the fact that this criterion should not be taken into account for the splitting methodology as Market Participants are against the possibility to withholding long term capacity to be released in the day-ahead time frame.

Analyzing the answers received from the Market Participants, different points of views on the subject arise. This is enough to understand how difficult and complex it is to define the hedging needs of Market Participants unambiguously.

The strategy of hedging for each Market Participant strongly depends on a lot of different factors and assumptions like individual need of energy (physical need or pure trading) by a company, their own portfolio planning over time intervals (long-term, short-term), average traded volume, expected production and consumption of energy which is especially relevant for renewables, the expected grid situation and therefore available capacities and many others. Furthermore, for each trading company this is one of the key-assets to generate profit and therefore they would not tell too much details about their real hedging needs respectively bidding strategy for different timeframes.



## 2.5 CHOSEN CRITERIA

Since it is not possible to satisfy in full all Market Participants and their different views, TSOs tried to find the best criteria to define long-term products matching the views of the Market Participants and the FCA requirements.

### 2.5.1 MINIMUM PRODUCT VALIDITY PERCENTAGE CRITERION

TSOs have decided to include this criterion in the methodology because of feedback received from Market Participants, which clearly expressed the need for products that are suitable for hedging and are valid for significant number of hours during the delivery period. The Minimum Product Validity Percentage is set at 80% in the Splitting Methodology as it represents, according to TSOs, the minimum suitable percentage of product that can be priced and hedged. Further increasing the minimum Product Validity Percentage may cause lower volume of capacities offered on long-term profile.

### 2.5.2 MAXIMUM NUMBER OF REDUCTION PERIODS CRITERION

According to the approved Regional design of long-term transmission rights according to Article 31 of the FCA Regulation for the Italy North CCR, the long-term transmission rights shall be offered in the form of base load products that may include reduction periods.

Since NTC on Italy-North borders has specific case of volatility due to system security and system arrangements, TSOs are usually forced to offer long-term products with reduction periods. With many years of experience and receiving many complaints regarding the products with reduction periods, TSOs aim to offer products that have the least possible number of reduction periods. Therefore, products for yearly time frame should not include more than 25 reduction periods and the products for the monthly time frame should not include more than 5 reduction periods. This number of reduction periods is the compromise between offering a stable product and offering products with sufficient capacity. TSOs highlight that this number represents the maximum number of the reduction periods and stress that they will try to offer products with no or the least possible number of reduction periods.

### 2.5.3 REDUCTION PERIODS RESOLUTION

Feedback from Market Participants also showed that from hedging point of view the reduction periods should be on daily resolution and not on hourly.

### 2.5.4 MAXIMUM CAPACITY FOR YEARLY & MONTHLY TIME FRAMES CRITERION

From most of the received feedback it emerges that the market participants would like to get as much as possible long-term cross-zonal capacities on yearly time frame, while the monthly timeframe should be used to adjust the position through more accurate forecast closer to real-time.

Nevertheless, TSOs shall offer long-term cross-zonal capacity in both yearly and monthly time frames according to Article 31(2) of the FCA Regulation.



Therefore, TSOs introduced the “Maximum Capacity for Yearly time frame” criterion in order to prevent the allocation of whole long-term cross-zonal capacities in the yearly timeframe and, therefore, to ensure that a capacity is available also on the monthly time frame, giving to the Market Participants the hedging possibility in all long-term time frames.

In fact, this criterion states that the offered capacity on the yearly time frame in import direction to Italy shall not exceed the 85% of the average capacity resulting from the yearly capacity calculation according to Article 10 of the FCA Regulation.

This criterion does not ensure in all cases the availability of the capacity for the monthly time frame. TSOs investigated on the possibility to apply further criteria to ensure in all cases the availability of the capacity for the monthly time frame, however, such criteria would lead to a severe reduction of the offered capacity in the yearly time frame in contrast with the hedging needs of the market participant highlighted by the feedbacks received during the informal survey.

Therefore, TSOs considered that 85% of the average capacity resulting from the yearly capacity calculation offered on yearly time frame is a suitable compromise, as it guarantees that most of the long-term capacity would be allocated in the yearly time frame, but at the same time, it guarantees the capacity allocation in the monthly time frame in most of the cases. The capacity on the monthly time frame would not be guaranteed only in the very seldom case in which the capacity in one month is equal to the yearly product.

According to the Article 7 of the Splitting Methodology, the Italy North Splitting Methodology Report analyzed the results of its application since 2022. As indicated in the same article, an amendment of the methodology can be proposed based on these results. Resulting from the analyses, the TSOs propose to use two different caps of the average capacity resulting from the long term capacity calculation offered on yearly time frame. TSOs proposed to maintain, due to the capacity availability, the cap of 85% for the FR-IT border, instead, for AT-IT and SI-IT borders, reducing the Yearly CAP from 85% to 75% to allow a more even distribution of the capacity between the yearly and monthly auctions.

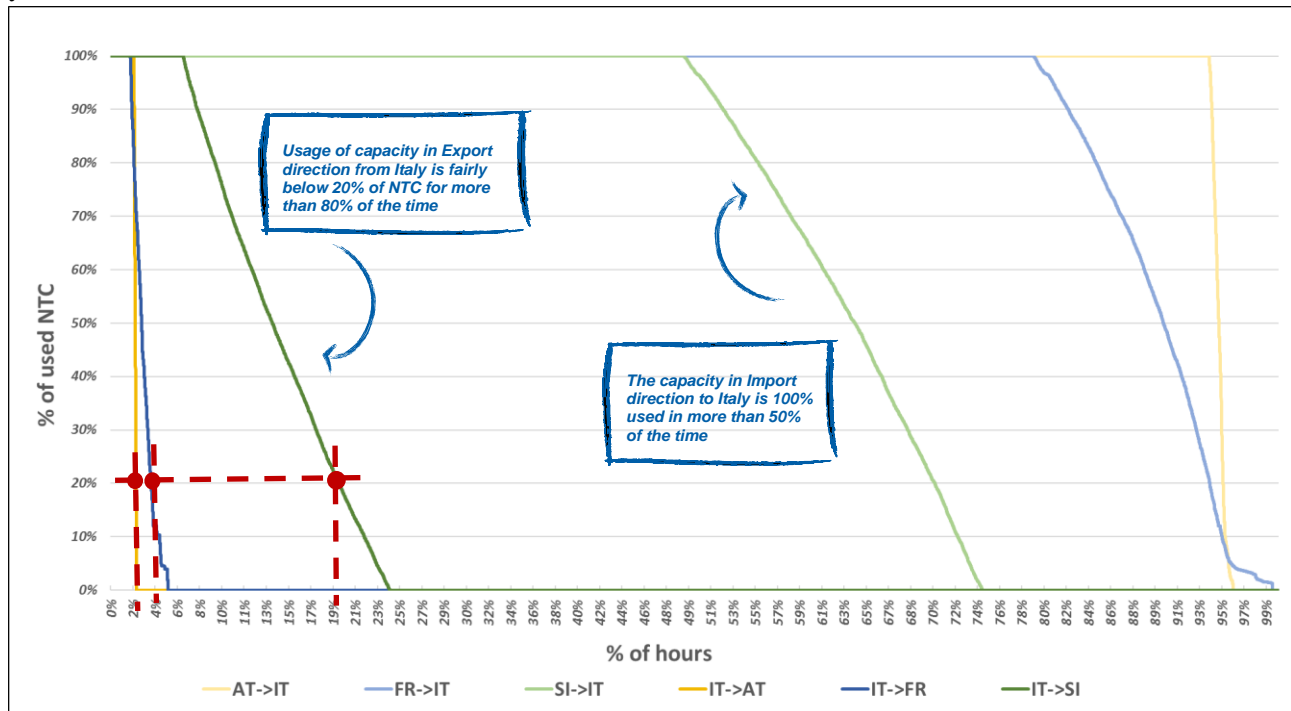
The Italy North Splitting Methodology Report also provided the evidence that the absence of any limitation on the monthly products could lead to a lack of available capacity in D-2 and therefore cause curtailment of long-term capacities. This issue is mainly associated to the Slovenia-Italy and Austria-Italy borders. Therefore, the TSOs proposed to introduce a cap only on these borders, in order to allocate a product such that the sum of the offered capacity in the import direction of Italy on the monthly timeframe and the already allocated capacities on yearly timeframe shall not exceed 75% of the average capacity resulting from the monthly capacity calculation according to Article 10 of the FCA Regulation. The remaining borders (FR-IT and CH-IT) are not concerned by this 75% cap reduction and remain with an 85% of the average capacity.

To implement these changes, Article 3.c, Article 3.d and Article 3.e of the *Splitting Methodology* are amended.

Concerning the export direction of Italy, historical data show that the situation is significantly different, at least for some borders, compared to the import direction since most of capacity is not required on yearly time frame, but on monthly or even on day-ahead time frame. In fact, the capacity in export direction from Italy is usually not used by market participants because of negative market spread. Usage of the capacity is



typically observed in limited periods during the year, strictly linked to not predictable factors on the long-term time frames, like generation outages, unexpected forecast of renewable generation, cold spell, etc. Indeed, based on historical data we can assume that there are no big volumes of long-term contracts in export direction. For some TSOs, this seems to suggest that most of the allocated long-term capacity in export direction is not used for hedging long term purchasing contracts from price fluctuation. Below it is reported a graph, showing the duration curve of the capacity usage (calculated as the ratio between the total nomination from yearly to daily and the NTC for a given border direction) on Italy North borders, over the years 2017-2019.



The graph represents the duration curve of the capacity usage (calculated as the ratio between the sum of the long-term and daily nominations and the NTC for a given border direction) on Italy North borders, over the years 2017-2019. In export direction the usage of capacity is fairly below 20% for more than 80% of time, while on import direction the capacity is fully used in more than 50% of the time.

Additionally, currently in the export direction of Italy the D-2 capacity calculation is not yet implemented but, the export corner is foreseen to be available by the end of the year 2023. Consequently, no further capacity will be available in the day-ahead and intraday time frame due to new capacity calculations.

Therefore, for the above mentioned reasons, the maximization of the capacity offered on the long-term auctions in export direction from Italy could cause an undervaluation/underselling of yearly and monthly capacity on some borders.

Underselling is defined as a situation where the marginal price of the long-term cross-zonal capacities determined in the auction of long-term cross-zonal capacities, for a given timeframe, is lower than the average day ahead price spread between two bidding zones used as the reference price for settlement of the





long-term cross-zonal capacities. Underselling in short means a situation where the buyer of the long-term cross-zonal capacities systematically obtains a higher cash flow from the variable settlement than what was paid by the buyer of the transmission right. In case of well-functioning competition one should (to some degree) expect the auction price should be statistically distributed around the price spread. If underselling was present in a product, then with perfect competition it would be expected that new market participants enter the auctions and drive up the price until equality is reached where no underselling is present. The market has also not attracted enough speculators to ensure the liquidity that would give perfect competition. The basic approach to manage the risk of underselling is done by calculating the amount of long-term cross-zonal capacities that can be allocated, securing that the expected price spread is equal to the expected auction price. This means, that if the auction price is below the price spread, the amount of long-term cross-zonal capacities will be reduced. On the other hand, if the auction price is above the price spread, the amount should be increased.

This finally results in the fact, that from market aspect the optimum of hedging is not fulfilled if all available long-term cross-zonal capacity is allocated as soon as possible, as it was requested by majority of traders. Moreover a split of available long-term cross-zonal capacities could be more effective to consider the hedging needs of all MPs with their very different needs (e.g. for long term portfolio trading as well as for the need to hedge against price risks e.g. for contractual short-term physical delivery of energy).

For that reason, and the reasons stated above TSOs have in line with Article 17(2) of regulation 2019/943 proposed to have a limit on some borders in order to prevent the allocation of all available capacity from yearly capacity calculation on the long-term time frame and leave 50% of the capacity available for the daily timeframe, enabling the Market Participants to hedge closer to the delivery day using more and accurate information.

In this way, TSOs guarantee the allocation of the capacity in all time frames with an equal balance between long-term and short-term time frames.

For all the above reasons, concerning the offered capacities in the export direction from Italy, TSOs consider the different situations on each border and deem it useful to implement different solutions on borders. In particular a cap on long-term capacities represents an efficient approach on Italy-Slovenia border (where underselling is demonstrated) and on Italy-Austria border (where the limited amount of cross-zonal capacity available might justify a more effective short term pricing). On these borders, TSOs consider that the capacity offered on the yearly time frame shall not exceed the 20% of the average capacity resulting from the yearly capacity calculation according to Article 10 of the FCA Regulation and the offered capacity in the export direction of Italy on the monthly time frame and already allocated capacities on yearly time frame shall not exceed 50% of the average capacity resulting from the monthly capacity calculation according to Article 10 of the FCA Regulation.

For Italy – France border, basing on the results of the consultation and of further analysis made by TSOs after the consultation period (showing no underselling phenomena and presence of high volatility of market spread justifying hedging needs for market participants), TSOs decided to apply on this border, the same rule as on import direction.



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## 2.6 RELAXING OF THE PVP CRITERION

Basing on the analysis made by TSOs, it resulted that in some cases, the product calculated with the product validity of 80%, was very low, but reducing the validity it was possible to have a quite higher product. Due to this reason, TSOs introduced the possibility to relax the PVP criterion.

In Article 4(7) of the proposed Splitting Methodology it is underlined that in cases in which the product calculated according all the criteria described in Article 3 and Article 4 results to be lower than 10 MW, a revision process is activated. Such minimum threshold seems to be effective to assure a minimum of market competition on the one side and on the other side to allow market participants to place bids in realistic quantity of typical several MW. In particular, TSOs bilaterally check if reducing PVP till 50% would increase the overall volume of the product and if this is the case, proceed to allocate the product with higher volume over the period, as described in the formula in Article 3.1. This clause is important in cases where applying all before mentioned criteria would lead to very low available capacities for the long-term timeframe and relaxing the PVP constraint, would result in more suitable products. TSOs are still able to offer to the market at least some capacity on long-term timeframe even in exceptional circumstances.

## 2.7 DISCARDED CRITERIA

Following the results of the public informal survey, TSOs have considered more appropriate to not include the Requested Capacity Ratio and the Minimum Quantity criteria in the Splitting Methodology.



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### 3. REPORTING OF THE PERIOD 2021-2023

TSOs has performed a report as requested by the Article 7 (2) of the splitting methodology. The whole report is publically available on JAO website.

Hereafter the summary part of the report has been included in order to give an overview of the splitting methodology amendments.

#### Summary

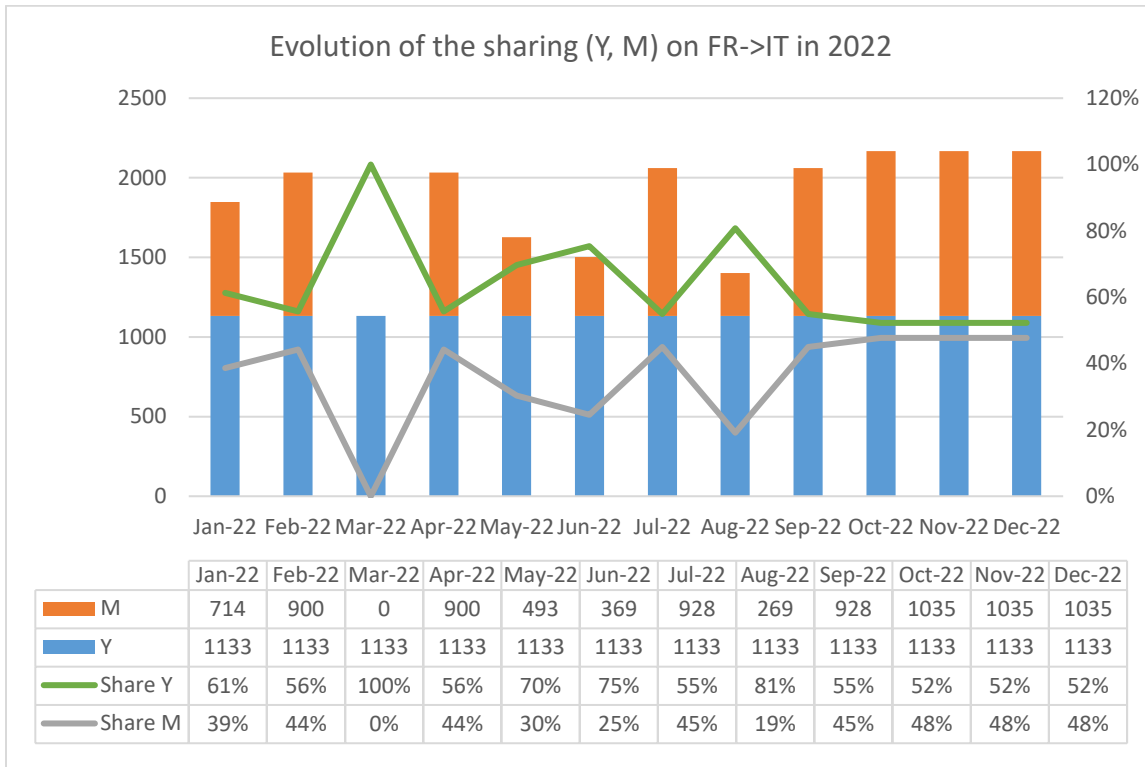
The coordinated capacity calculation has been commissioned in December 2021 and started with the yearly computation of year 2022. Comparing to the previous process, which was based on bilateral computations, the auction products remain steady on all borders. The new splitting methodology introduced a few new parameters in the auction computations:

- **PVP (Product Validity Percentage):** This parameter represents a minimum value to reach by the algorithm to guarantee a period where the product is available on the considered timeframe and maximising the volume of energy. For the Yearly and the Monthly timeframe, it has been fixed to 80%. For every single border, the yearly auction is available 80% of the time, so at least 7008 hours a year.
- **Max value of yearly offered capacity:** This parameter represents the share of the yearly product on the overall LT capacity that is offered to the market on the whole year. It varies between 20% and 85%, depending on the border and the direction.
- **Maximum Number of Reduction Periods:** This is the maximum allowed reduction periods that are allowed for each timeframe. A reduction period is defined as a continuous period where the capacity can be reduced by a TSO for a planned outage. It is fixed to 5 periods for the monthly timeframe and 25 periods for the yearly timeframe.

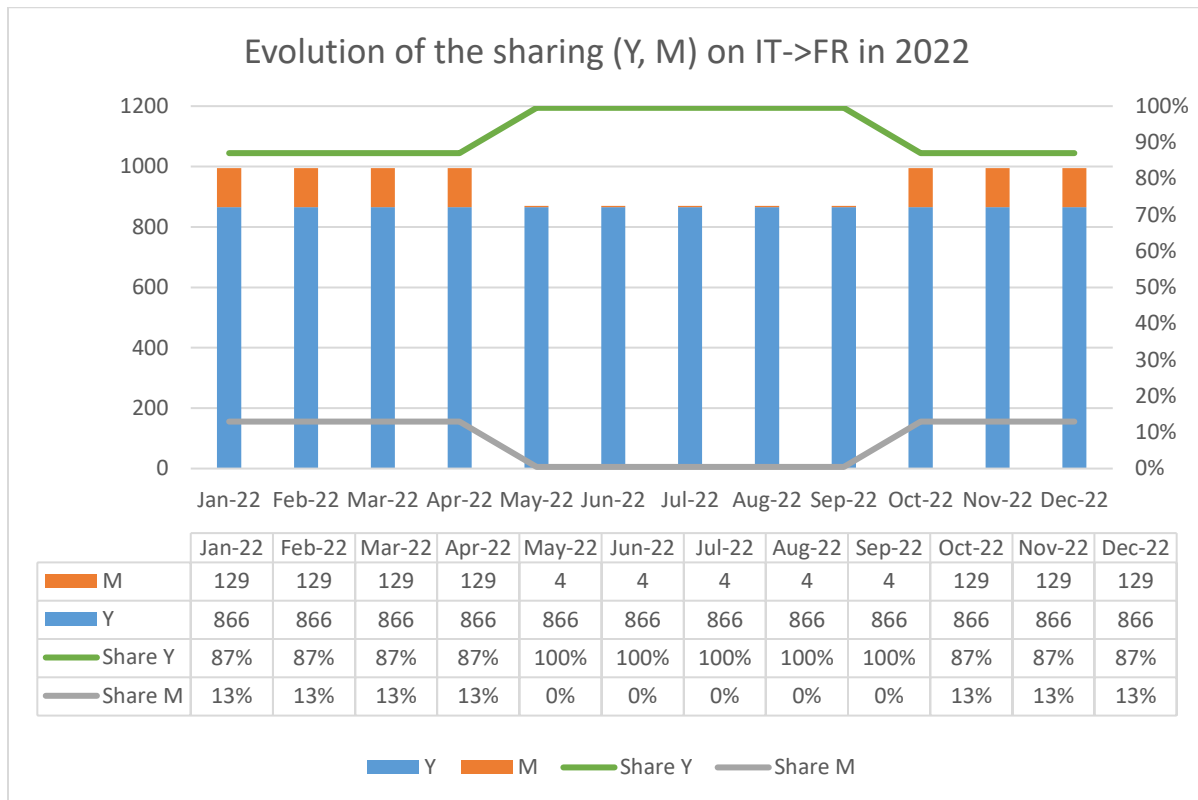


## FR-IT border

Year 2022 was the first year of commissioned new coordinated capacity calculation while the capacity on the FR→IT direction slightly decreased due to the PVP of 80% on the yearly timeframe. From month to month, most of the capacity has been sold to the yearly timeframe while the monthly timeframe represents between 0% to 48% of the capacity sold. Besides, due to a planned outage in March, no capacity has been sold to this timeframe. The yearly product represents between 52% to 100% of the overall long-term capacity.



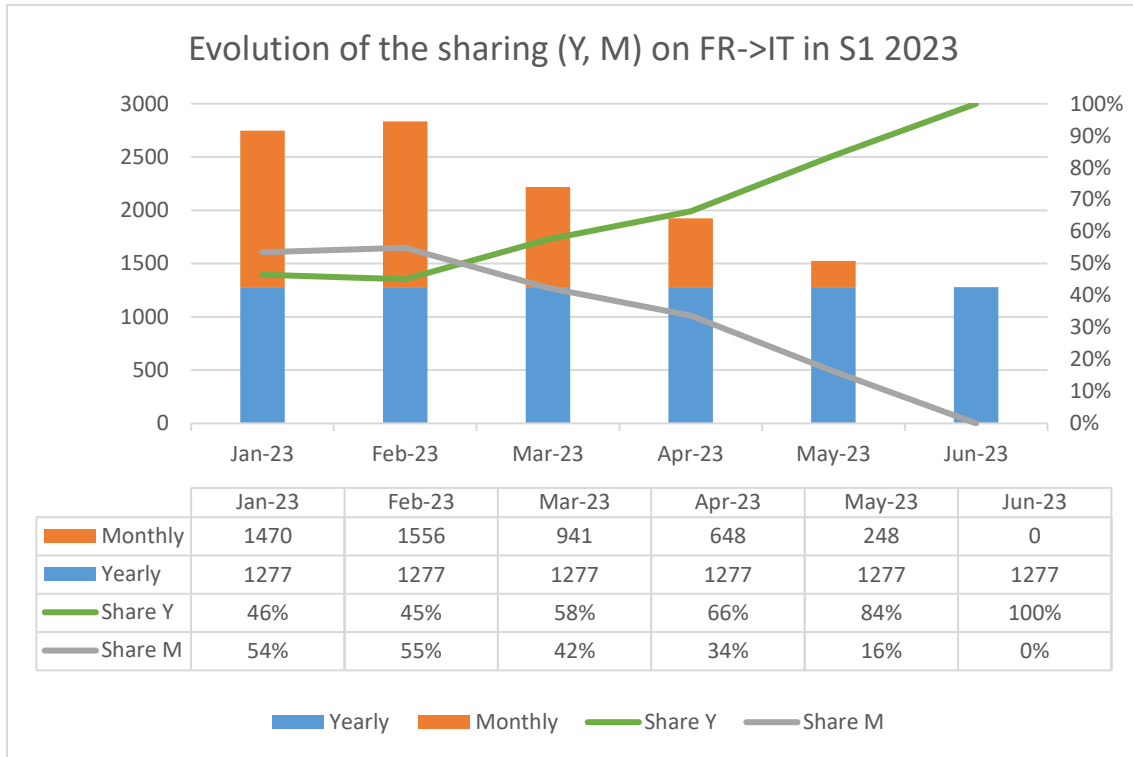
Concerning the IT→FR direction, most of the capacity has been sold during the yearly timeframe (87% to 100%). The summer period shows quite low capacity in the monthly related to the unavailability of more interconnexions between France and Italy.



Overall, the average share for the monthly in FR->IT direction is 36% and in IT->FR direction 8%, while for the yearly the average is 64% and 92%.

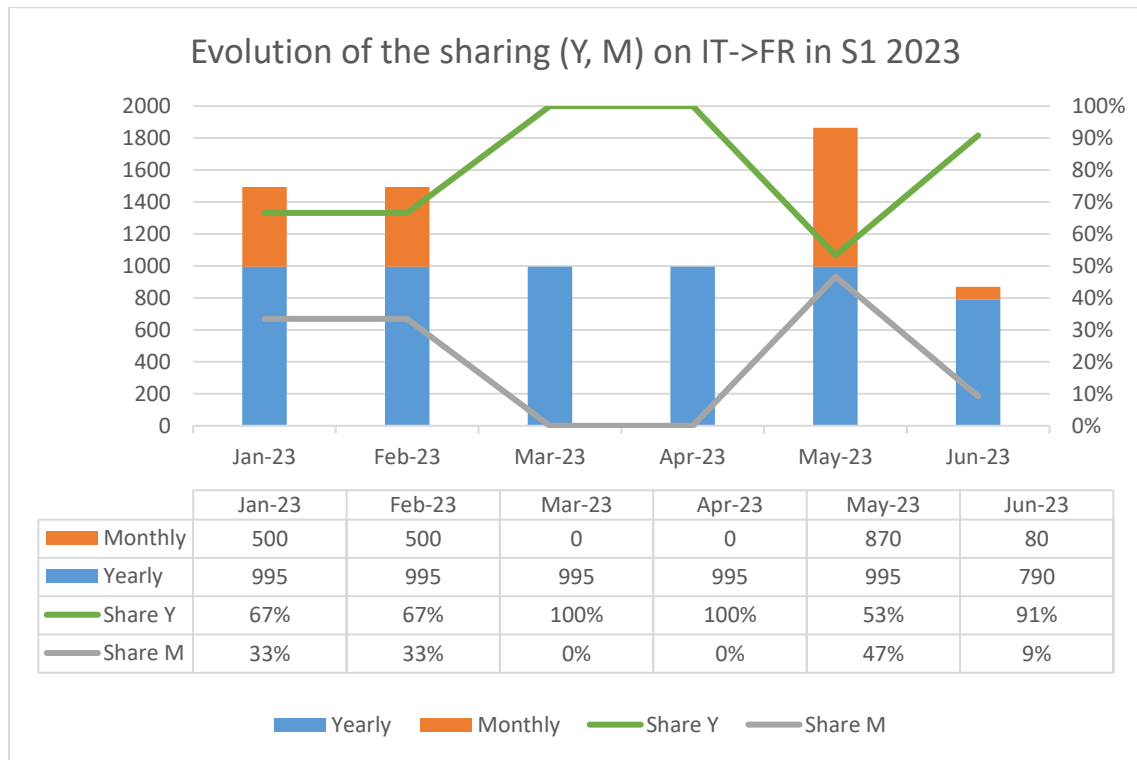


For the year 2023, only half of the year data are available when this report has been written. Consequently, only 6 months analysis has been performed for both directions.



In the first semester of 2023, the link 2 of the new HVDC line between France and Italy has been commissioned. Therefore, the capacity has been added to the yearly computation in the last computation run in November 2022. The yearly capacity increased by about 100 MW but most of the capacity increase can be observed in the monthly timeframe especially in January with no reduction on the grid with an increase of about 200%. The behavior for February is also similar.

From March to June, the monthly capacity starts to decrease due to planned and non-planned outages on the HVDC Link (May and June). The monthly product of June is well affected by this unplanned outage of the HVDC link, since only Yearly capacity is available and some yearly LTTR would have been curtailed.

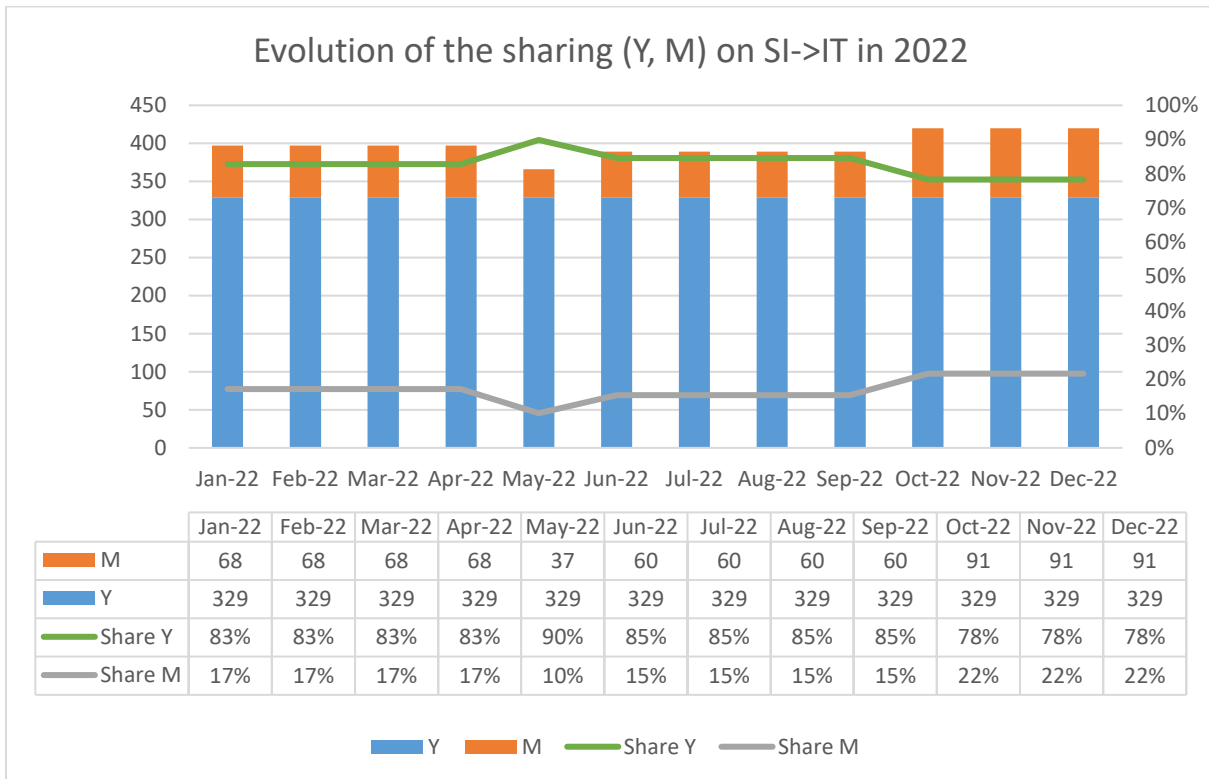


The situation in the other direction is quite similar with normal January and February, while March, April and June are well affected by some planned outages and unplanned outages on the HVDC link 2.



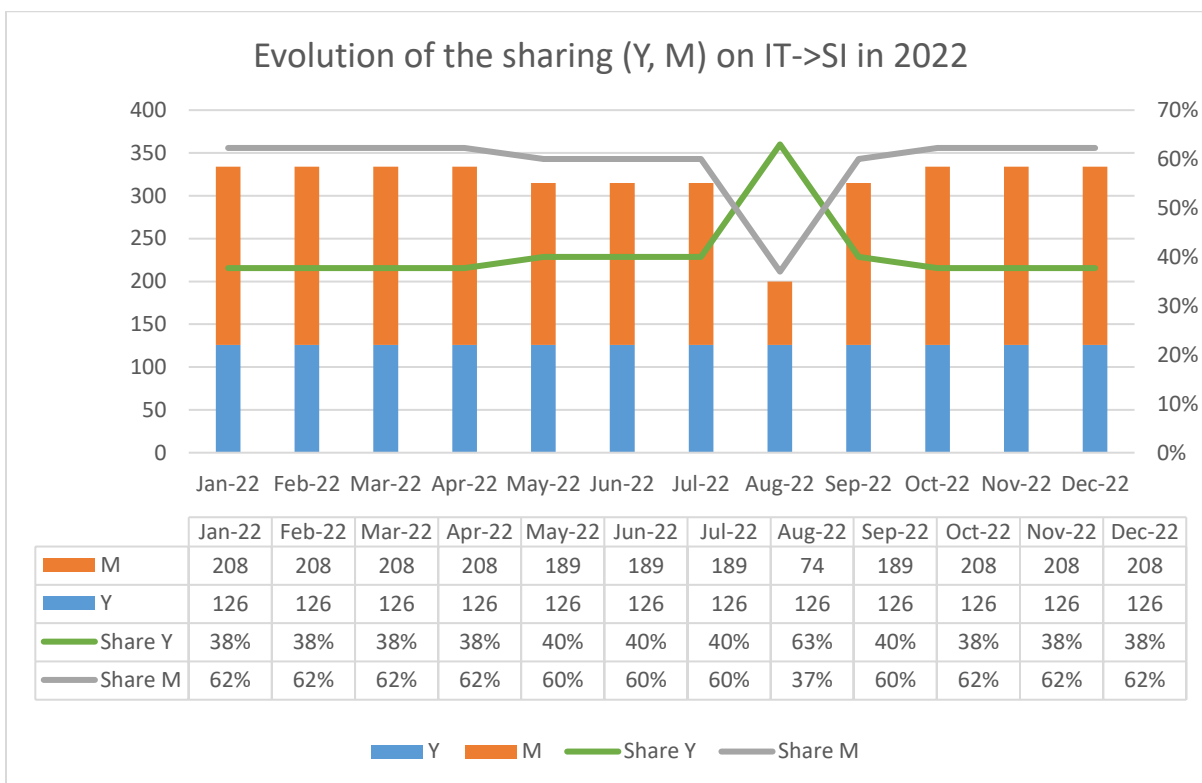
## SI-IT border

For SI->IT border the splitting methodology in 2022 brought a big difference between yearly and monthly capacities. The PVP was quite high in all the products except for August which is expected due to significant outages every year. There were almost no capacities resold from yearly to monthly level.

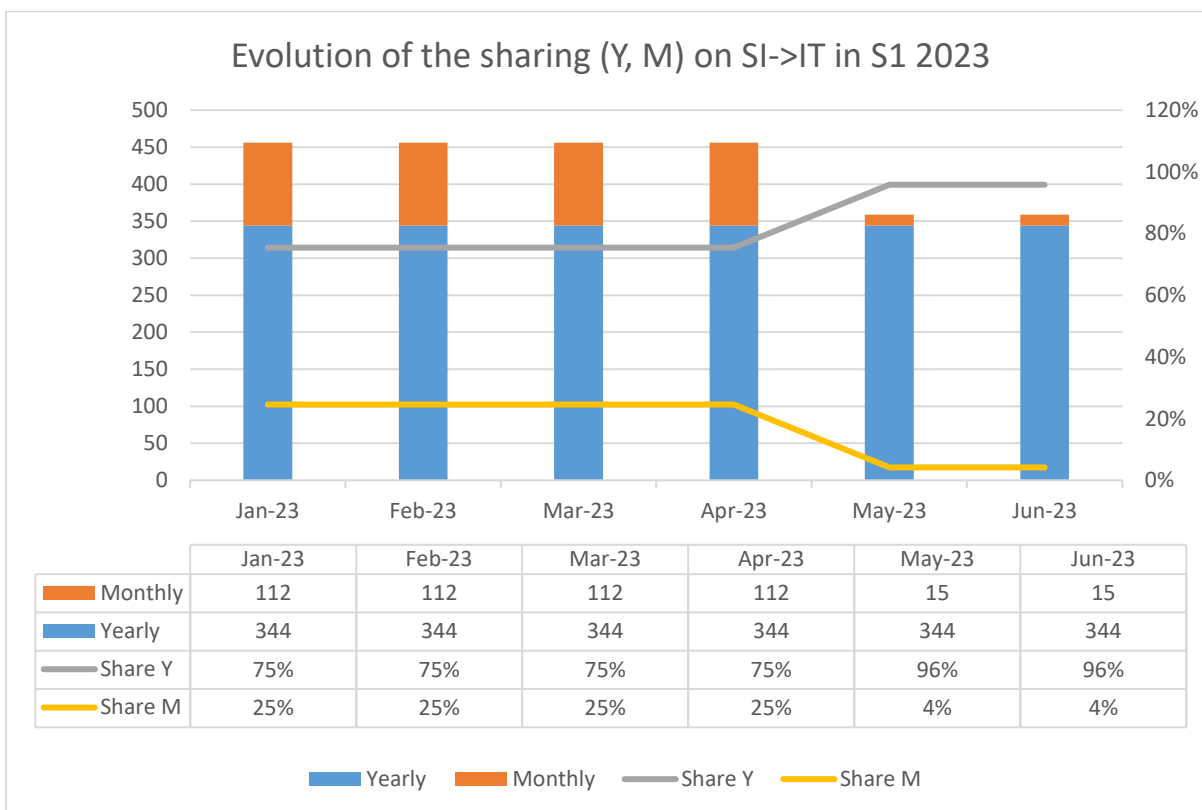


The direction IT->SI was in 2022 very stable. The share between yearly and monthly capacities are 60%-40% and except for August there was a PVP of 100%.

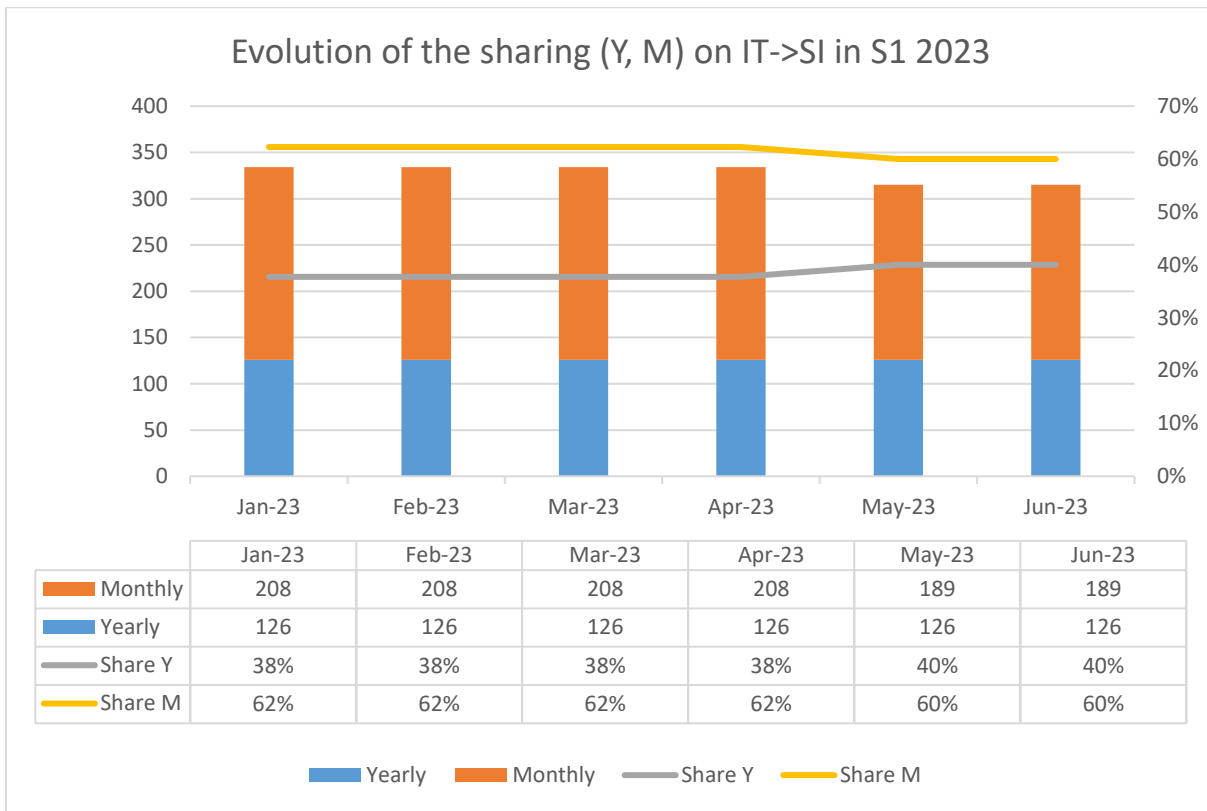




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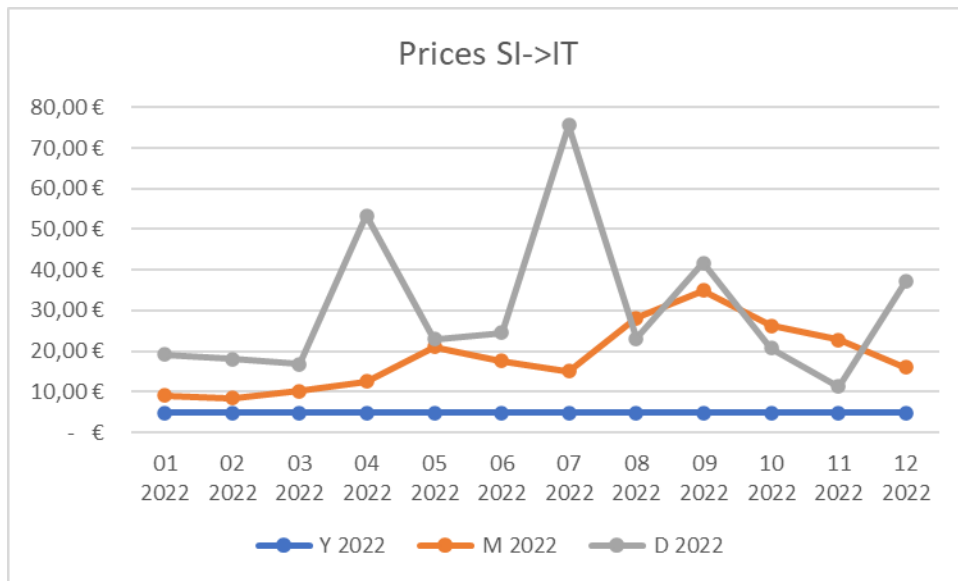


As visible on the graph for SI->IT in 2023, the splitting methodology made available even more capacities on yearly level. In the summer period, the monthly available capacities are really low – in May and June only 4% of long-term capacities.

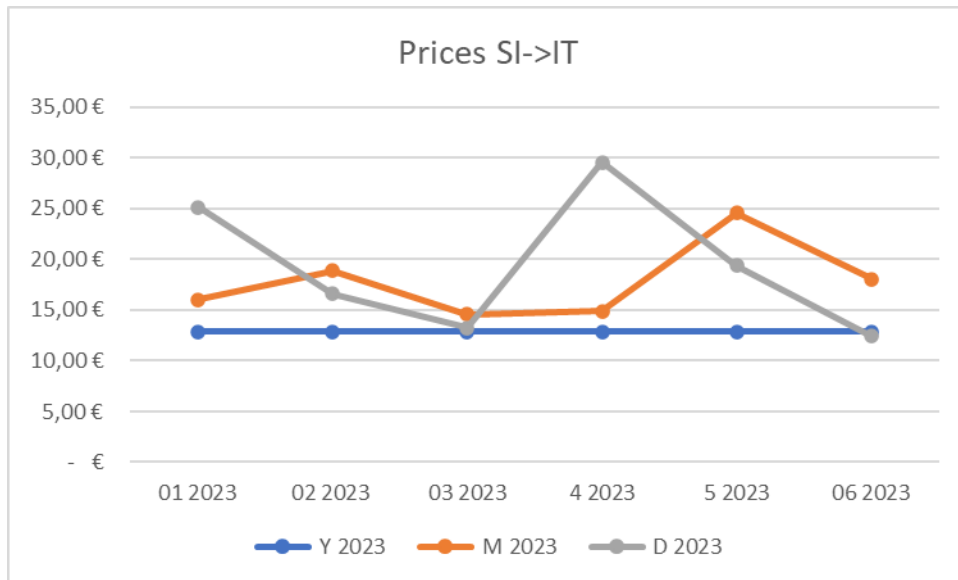


For IT->SI direction the splitting of long-term capacities remains stable.

For SI-IT border, deeper observation is necessary for the direction SI->IT where almost all of the capacity available goes to yearly auctions.



If we also check the prices in the year 2022, we can see that the yearly capacity is heavily underpriced. In almost half of year 2023, the trend continues but in a smaller dimension.

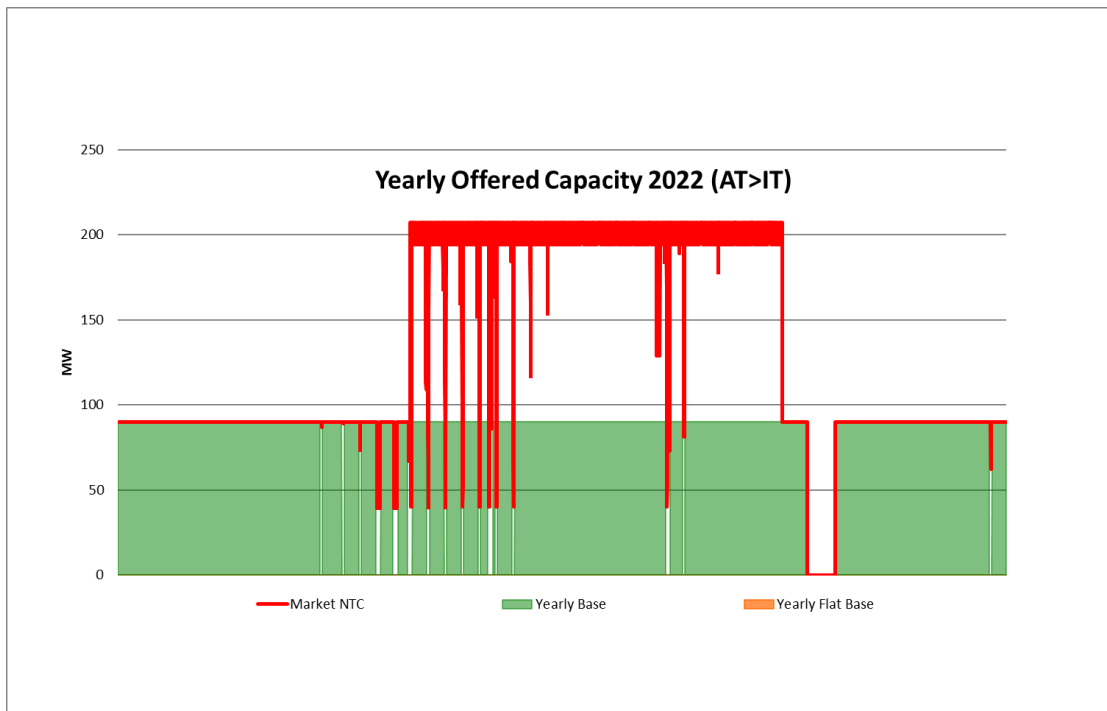




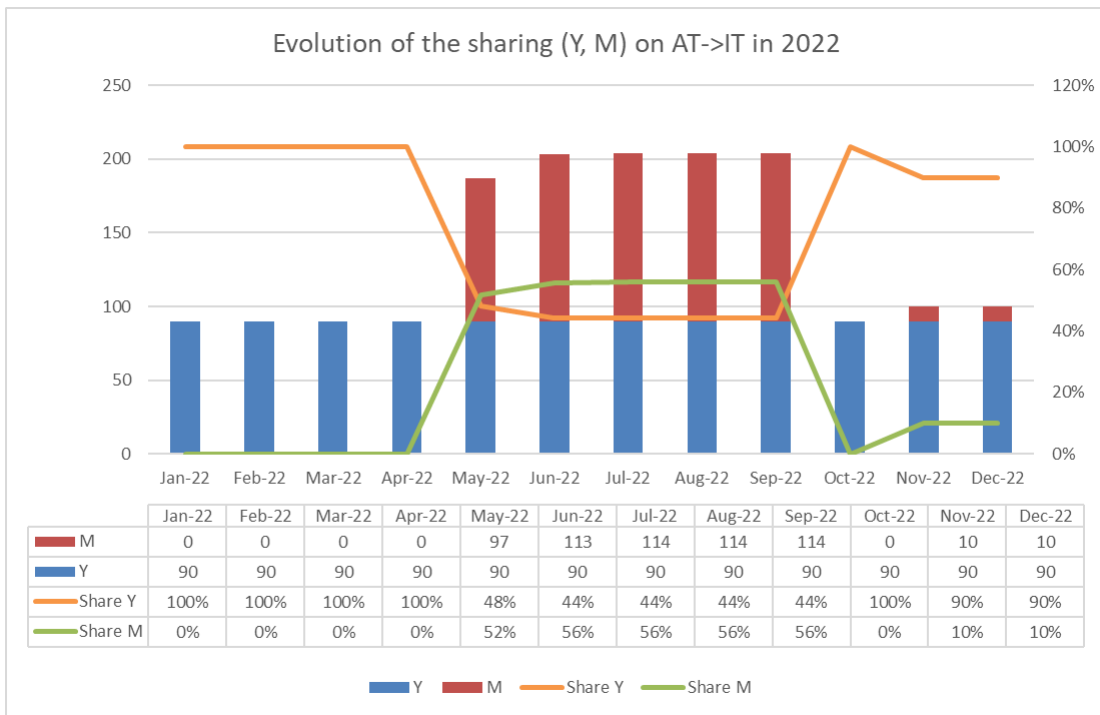
## AT-IT border

The year 2022 was the first year of commissioned new coordinated capacity calculation on the AT-IT BZB as well. In general, it could be said that on AT-IT border relatively low quantity is allocated compared to other borders, and therefore for the Northern Italy Border, AT-IT border has relatively low impact in total.

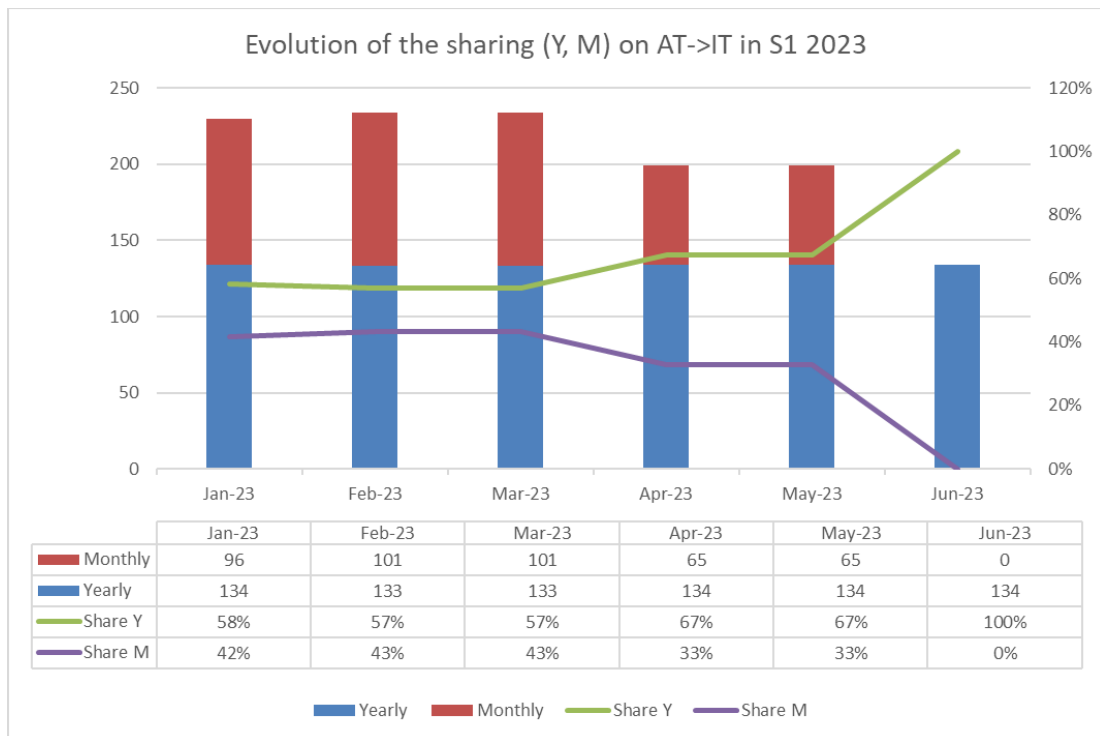
Due to the use of historical data for the LT-capacity calculation with the change to the new coordinated capacity calculation method, the LT-shape for AT>IT became quite extreme with relatively low available LT capacity for the first- and last months of the year and much higher capacity during summer period.



Applying the splitting rules for such resulting LT-capacity curve, 85% of LT average value for Y-product was already above the low values of 90MW at the beginning and the end of the year of the calculated LT-capacity. Therefore, for Y-product 90 MW were resulting and unfortunate no capacity was left for concerned month for M-product. However, it can also be observed that such effect was only present for the first year with the change to updated capacity calculation methodology.

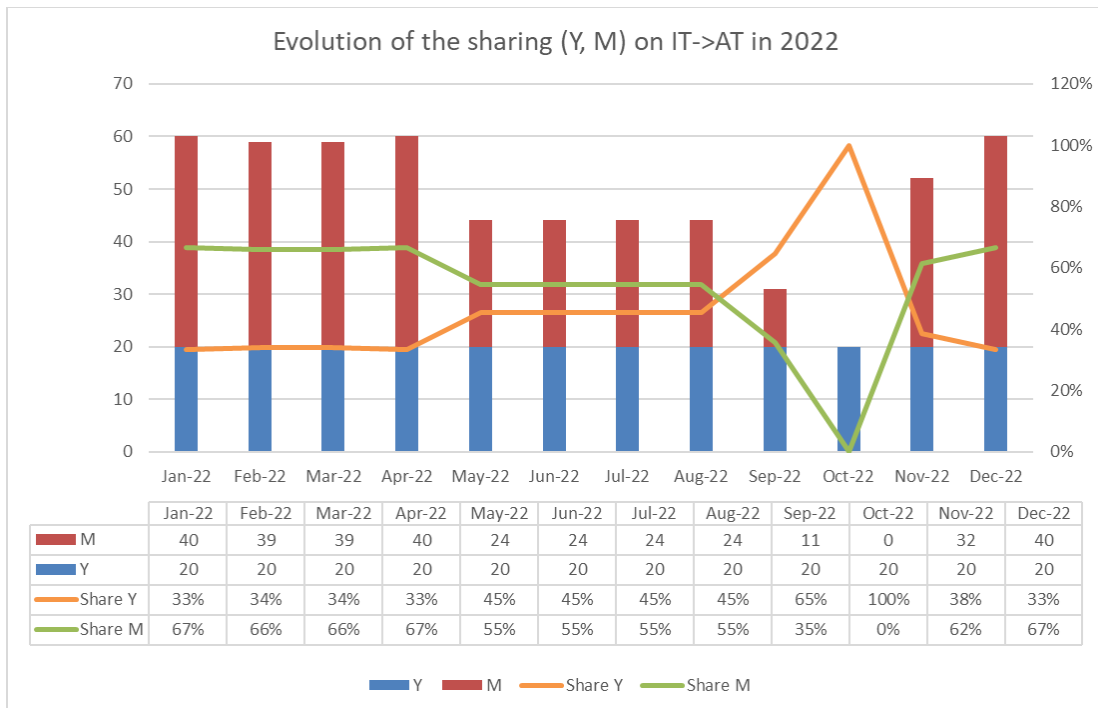


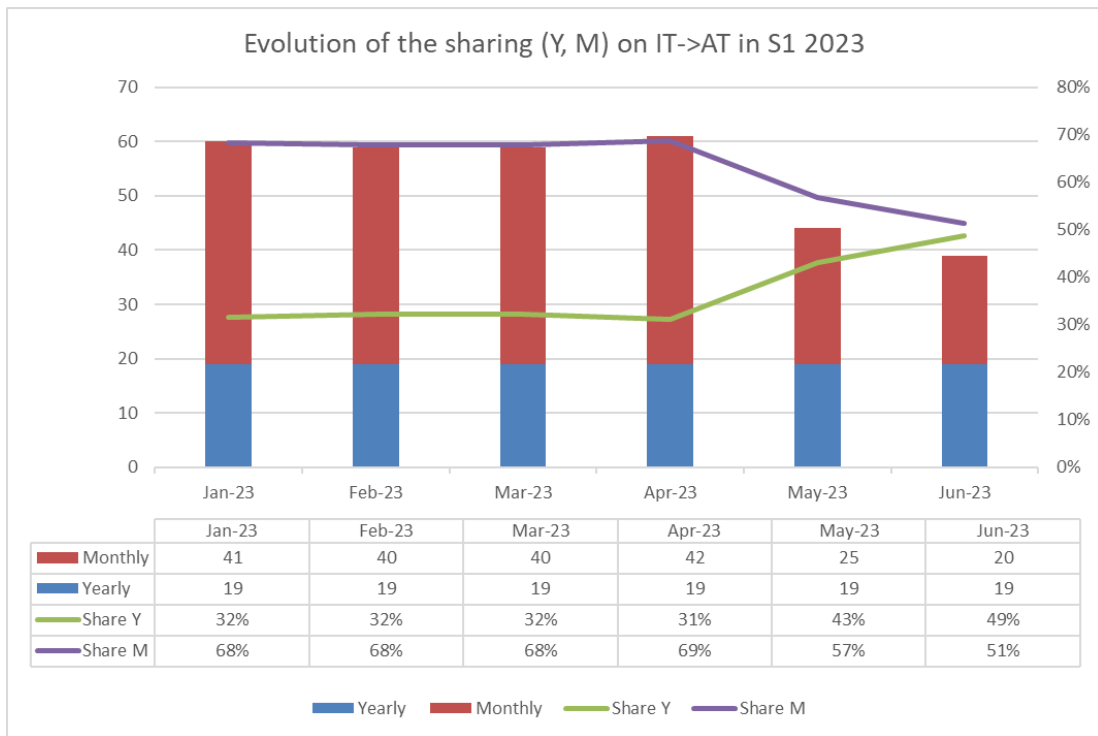
Having a look to the year 2023, it is seen that the Y-product increased from 90MW to 134MW, but also a quite appropriate M-product could be offered for the commercially more interesting direction AT>IT.





For the commercially less interesting direction IT>AT caused by the relatively low limits for offered capacity with only 20% for yearly capacity and 50% for yearly- plus monthly offered LT capacity related to LT average capacity, the total values for IT>AT direction became low. Independent of that, the sharing between Y- and M-product seems to be appropriate and considering low prices for allocated LT capacity in that direction also the hedging needs seems to be sufficiently considered.





Based on the fact that currently only two lines are operated on AT-IT border it could be observed that in situations where one of those two lines has to be switched off for several time periods, because of network security reason, no M-product could be allocated (see October 2022).

#### 4. TIME SCHEDULE FOR IMPLEMENTATION

Concerning the implementation, one precondition is that the Splitting Methodology amendment has been approved by relevant NRAs of Italy North TSOs or ACER.