— CREG

Publiek raadplegingsdocument

(PRD)2333
27 januari 2022

te weten

de goedkeuringsaanvraag van de NV ELIA TRANSMISSION BELGIUM voor wijzigingen aan het CWE *Increase/Decrease*-proces in het kader van de gecoördineerde *intraday* capaciteitsberekenings-methodologie in de capaciteitsberekeningsregio *Core*

VOORAFGAANDE OPMERKING

Alle raadplegingen zijn onderworpen aan de bepalingen van het huishoudelijk reglement van het directiecomité van de CREG. Dit geldt ook voor de behandeling en de bekendmaking van de ontvangen opmerkingen. Het huishoudelijk reglement en de wijzigingen eraan werden respectievelijk gepubliceerd in het Belgisch Staatsblad van 14 december 2015 en van 12 januari 2017. Meer informatie en de links naar de publicaties vindt u [hier](#).

OVERZICHT

Onderwerp:

De CREG ontving op 15 december 2021 een goedkeuringsaanvraag van Elia voor wijzigingen aan de gecoördineerde CWE *intraday* capaciteitsberekeningsmethodologie volgens het "*Increase/Decrease*"-proces. Deze methodologie werd door alle TSB's van de CWE regio ontwikkeld en goedgekeurd en dient als tijdelijke oplossing tot de implementatie van de gecoördineerde, stroomgebaseerde *intraday* capaciteitsberekeningsmethodologie in de *Core* regio.

Teneinde samen met de andere regulerende instanties van de CWE regio een gezamenlijk standpunt over dit voorstel te formuleren, wenst de CREG de standpunten van de Belgische belanghebbenden mee te nemen in haar analyses. Belanghebbenden worden gevraagd om hun standpunten over het voorstel van Elia aan de CREG over te maken. Deze zullen worden behandeld en, indien gepast, meegenomen in de gezamenlijke standpuntvorming en de daaropvolgende nationale beslissing van de CREG ten aanzien van de goedkeuringsaanvraag van Elia.

De goedkeuringsaanvraag van Elia omvat een beschrijving van het intraday Increase/Decreaseproces, in een geconsolideerde versie en met aanduiding van wijzigingen ten opzichte van de huidige versie. Ook van de begeleidende, informatieve nota, wordt een geconsolideerde versie en versie met wijzigingen ten opzichte van de huidige, toegevoegd. Deze laatste is louter ter informatie en niet ter goedkeuring.

Modaliteiten voor opmerkingen:

1)   Raadplegingsperiode:

Deze raadplegingsperiode bedraagt 3 weken en loopt af op 25.02.2022 om 23.59 CET inbegrepen.

2) <u>Vorm voor indiening van opmerkingen:</u>

- Per e-mail aan consult.2333@creg.be

In geval de respondent van mening is dat zijn antwoord vertrouwelijke informatie bevat, dient deze informatie nauwkeurig en ondubbelzinnig als vertrouwelijk te worden aangeduid in het antwoord. Tevens dienen in dit antwoord de redenen voor de vertrouwelijkheid alsook het mogelijke nadeel of de mogelijke schade die de respondent meent te kunnen lijden indien toch tot publicatie van de vertrouwelijke informatie zou worden overgegaan, te worden opgegeven. Indien de respondent (andere dan een natuurlijke persoon) een geldige reden meent te hebben om zijn naam niet onthuld te zien, motiveert hij dit in zijn antwoord.

3) <u>Contactpersoon en/of contactgegevens voor inlichtingen:</u>

Nico Schoutteet, +32 2 289 76 72, consult.2333@creg.be

RAADPLEGINGSDOCMENTEN:

- **CWE Methodology for the Increase/Decrease process during the Intraday timeframe – (versie clean en TC)**

- **Explanatory Note on individual CWE TSO's increase/decrease process for Intraday Capacity Calculation – (versie clean en TC)**

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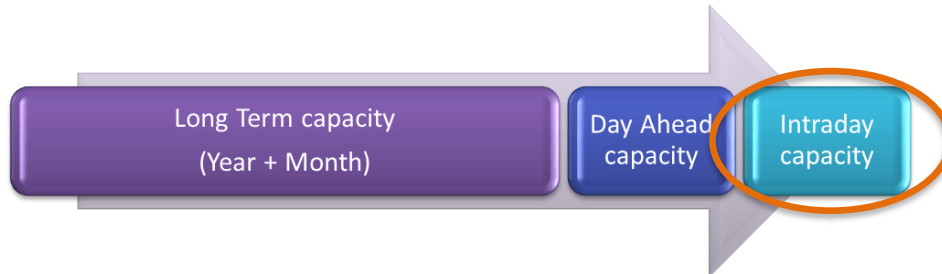
CWE NRA approval package

Version	4	
Date	14-12-2021	
Status	☐ Draft	☒ Final

Contents

1 Introduction and purpose

This document gives a description of the calculation of the intraday (ID) capacity for the CWE internal borders. Pursuant to Regulation (EU) 2019/943 of 5 June 2019 on the internal market for electricity (which is part of the Clean Energy Package – "CEP") and based on regulatory approved splitting rules, TSOs allocate capacity in different market timeframes (long term, LT; day-ahead, DA; and intraday, ID). TSOs try to maximize available capacity in all time frames.

The scope of this methodology is strictly limited to the ID timeframe and to CWE countries. This model is part of a coordinated approach by the TSOs involved in accordance with the ENTSO-E policies and assumes that the day-ahead (DA) capacity, allocated to the market, is the result of the Flow Based Market Coupling (FBMC) in the Core CCR. This methodology is - in line with the Article 26.7 of the Core CCR TSOs' Intraday Capacity Calculation Methodology- applied for the CWE internal borders after go-live of the day-ahead Flow-Based Market Coupling in the Core CCR in accordance with the timescale for implementation of Article 28.3 of the Core CCR TSOs' Day-Ahead Capacity Calculation Methodology and until the go-live of the Core intraday capacity calculation (methodology (Core ID CCM Article 26.3).As it refers to the Core ID CCM, this also means that there no longer is an obligation to include virtual capacity in the flow based domain used for the calculation of ID ATC parameters[1].

Up to now no capacity is reserved for ID allocation. All ID capacity given to the market is a result of non-used DA capacity, increase processes after DA allocation, or due to the netting effect.

The aim of this ID increase/decrease methodology is to have the possibility to release additional capacity in CWE countries to the market players after the Core ID ATCs domain has been calculated following Core day-ahead Flow Based Market Coupling.

This methodology is a transitional solution, allowed by the Core Intraday CCM, article 26.7, for calculating intraday cross zonal capacities, that would be applied from Core Day-Ahead Go-Live until the Go-Live of the first Core Intraday Flow-based capacity calculation.

Note: this document is an update of the Methodology for capacity calculation for ID timeframe version 3 as submitted to CWE NRAs on 03.07.2020.

The main changes compared to the version 3 are the following:

- Update of references to the CWE DA CC to the Core DA CC for the transition phase between go-live of the Core DA CC and go-live of the Core ID CC.

- Update of processes due to differences in the CWE DA CC and Core DA CC.

2 Definitions

- **CCM :** Capacity Calculation Methodology

- **CMT**: Central Matching Tool. Central tool used for intraday increase/decrease process to consolidate the increase requests and the decrease notifications.

- **CNEC**: Critical Network Element with Contingency (also known as CBCO, Critical Branch Critical Outage).

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[1] Article 11.2 of the ACER decision on Core ID CCM

- **Core DA CCM:** ACER decision n°02/2019 of 21 February 202192019 – Annex I – Day-ahead capacity calculation methodology for the Core capacity calculation region, as amended on 10 May 2021

- **Core ID CCM:** ACER decision n°02/2019 of 21 February 2019 – Annex II – Intraday capacity calculation methodology for the Core capacity calculation region

- **DA CGMs & ID CGMs** are the Day Ahead & Intraday Common Grid Models which are the result of the merging of the Individual Grid Models provided by TSOs in day-ahead or in intraday as their best forecast of the topology, generation and load for a given hour of the Day D.

- **Day D**: delivery day for which capacity increases or rejection are considered.

- **Day D-1**: day before Day D, day ahead.

- **DACF**: Day-Ahead Congestion Forecast.

- **Firmness**: arrangements to guarantee that capacity rights remain unchanged or are compensated.

- **Full acceptance**: situation in ID increase/decrease process when a TSO will fully accept the requested increase.

- **HVDC**: High Voltage Direct Current.

- **ID ATC**: Intraday Available Transfer Capacity.

- **Increase Feedback Deadline**: this is the latest time a CWE TSO may introduce a feedback for the request of increase on one of the borders for the applicable MTP: acceptance, partial acceptance or justified rejection.

- **Increase Request Deadline (IRD) and decrease Notification Deadline (DND)**: this is the latest time a CWE TSO may introduce a request for increase or a notification of decrease on one of his own borders.

- **Initial ID ATCs**: output results of Initial ID ATC computation (left-over capacities after DA FBMC).

- **Market Coupling net positions**: sum of power flows per hub induced by the accepted orders.

- **MTP**: Market Time Period. This is a group of consecutive hours within the Day D.

- **Own border of TSO x**: bidding zone border within CWE across which TSO x has at least one (tie)-line.

- **Partial acceptance**: situation in ID increase/decrease process when a TSO will partially accept the requested increase on the borders on a non-discriminatory basis. This occurs when the requested capacity increases on different borders compete for available margin on the same network element.

- **PTDF**: Power Transfer Distribution Factor. Factors showing the impact of the various bilateral exchanges on the overloaded branch.

- **RAM**: Remaining Available Margin on CNECs.

- **Rejection**: situation in ID increase/decrease process when a TSO will reject the increase requested because the consequences of the request cannot be fully nor partially accepted by the TSO.

3 General principles of ATC ID CC after FBMC

The principle to calculate Intraday cross-zonal capacities from transitional ID CC initiatives for the CWE internal borders is based on the outcome of the initial ID ATC extraction performed in Core followed by local processes coordinated on CWE level in different steps:

1. First, the initial ID ATC of the CWE borders, based on the Core Initial ID ATCs (Core ID CCM article 11 and article 21) will be sent to the CWE TSO common tool.

2. The second step is a local evaluation by each involved TSO to request a possible increase (Basecase) or decrease (in special situations) on his own borders.

3. The third step is a merging step by a <u>common</u> system. The CWE Central Matching Tool (CWE CMT, hereafter "CMT") consolidates the increase requests and the decrease notifications.

4. During the fourth step, based on this consolidated input, each involved TSO performs a <u>local</u> analysis that enables him to accept fully, accept partially or reject the requested capacity increases in a justified manner.

5. In the fifth step, these acceptance or rejection messages are then gathered and handled in a <u>common</u> way by the CMT. The System will distribute these consolidated acceptances and rejections back to the <u>local</u> TSOs.

6. In the last and sixth step, each TSO will then be able to use these <u>common</u> CWE ID ATCs and NTCs as input for the capacity allocation of their respective borders.

The steps 4 to 6 can be performed several times a day for a certain period of trading. For example, the assessment can be done during the evening for the night hours and during the night for the day hours. For an overview of the proposed ID ATC capacity calculation process see Figure 1.
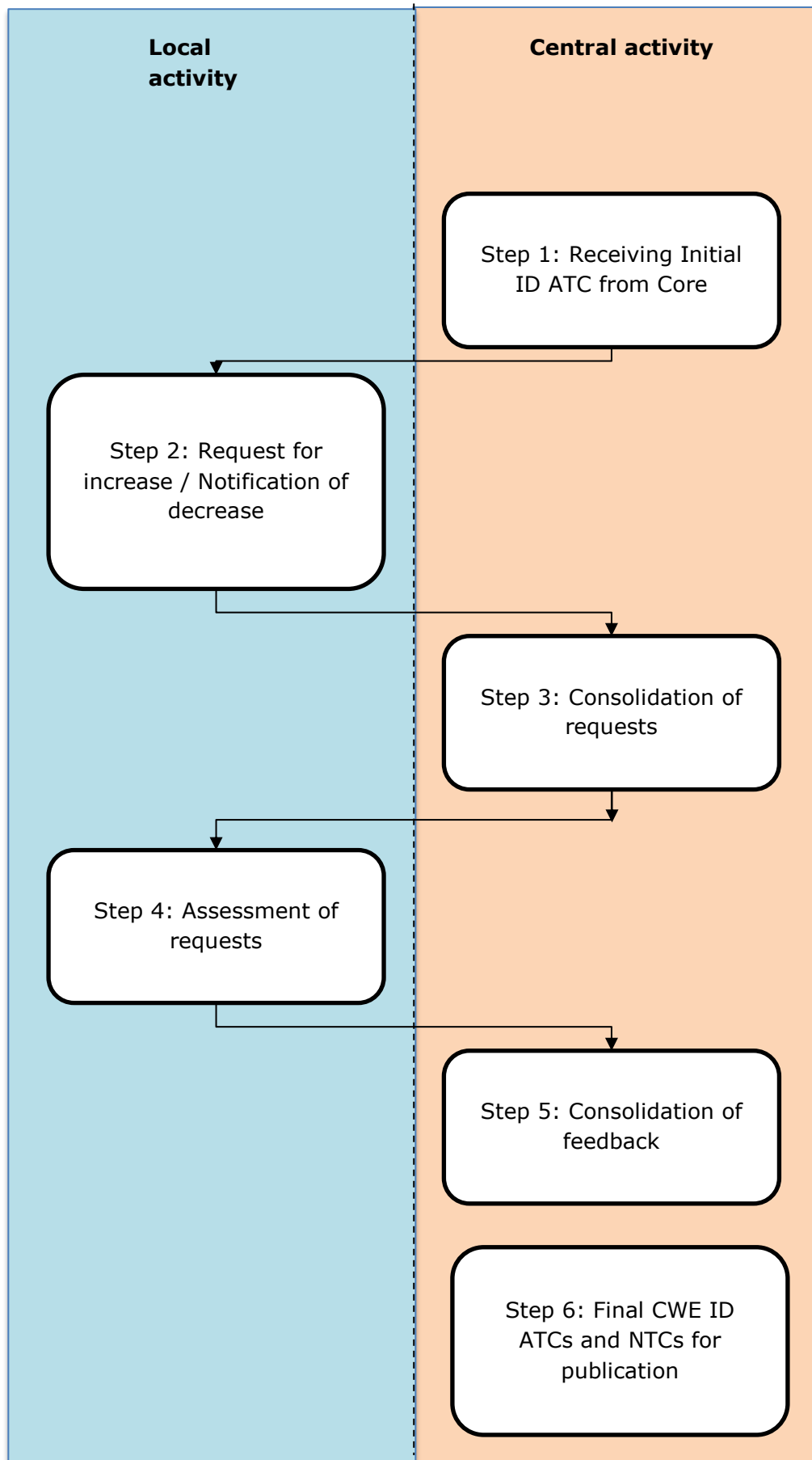
Figure 1: High-level process of ID ATC CC methodology.

4 Coordinated ID ATC CC after FBMC process

4.1 Core ID ATC extraction

At Core Day Ahead Capacity Calculation Go-Live, the CWE Flow-Based Domain won't be computed anymore. In that situation the ID ATC Capacity Calculation (step 1) will be performed from a Core Day Ahead Flow-Based Domain on each Core borders, e.g. including the CWE internal borders. This ID ATC capacity calculation is pursuant to articles 11 and 21 of Core ID CCM. The values obtained, on CWE borders, from this Core process will be fed to the CWE common tool (step 1 of the previous figure).

4.2 CWE Increase/Decrease process during intraday timeframe

4.2.1 Requesting increase or notifying decrease of capacities on own borders

4.2.1.1 Requesting increased capacities on own borders

Capacity increases can be requested by all CWE TSOs for each hour of the Day D on their own borders via the CMT.

The starting point for the local analysis to launch an increase request is the already available initial Core ID ATCs. In order to maximize the acceptance of the requests, the TSOs should favour a request for the borders and directions where the available capacity provided to the market after the FB MC is low.

Every increase request is capped with a fixed value per border and direction. These fixed values are proposed by each TSO for their own borders and commonly approved by the involved CWE TSOs.

The requested capacity increase is an intention for a capacity increase. However, due to constraints identified during the local analysis (during the fourth step of the process cf §4.2.3), it can be the case that a proposed capacity increase for a specific border is rejected by the same TSO who requested it.

The Increase Request Deadline is set for all MTP simultaneously to ensure a coordinated assessment on local side.

Every 3 months, an overview of the individual increase notifications per TSO (per oriented CWE internal border and per hour) will be provided to CWE and Core NRAs for monitoring purposes within 1.5 months after the concerned quarter, in line with the requested format and content including:

   a) the increase requests per time stamp and per TSO,
   b) the feedback from each individual TSO on each individual increase request,
   c) the justification from each individual TSO for a partial or full rejection of an individual increase request;

For transparency purposes, the quarterly report containing (a) and (b) shall be published within 1.5 months after the concerned quarter.

The CWE reporting requirements for monitoring and transparency are without prejudice to the upcoming Core process, i.e. will be subject to discussion within the Core framework.

4.2.1.2 Notification of a decrease of capacities on own borders

All TSOs have the possibility to take the necessary steps to guarantee the security of the grid. Intraday capacity reduction is a pragmatic process that allows involved TSOs for any hour of the Day D to reduce Intraday ATCs, on their own borders, in cases operational security issues arise.

As the notification for decrease is an emergency process, a capacity reduction is an input to the assessment of capacity increases and cannot be rejected by other TSOs.

As firmness of the trades applies, only capacity that was not yet allocated will be reduced, even if a higher decrease is requested.

The overview of the decrease process is described in the same report mentioned in the previous section, therefore all assertions of the previous section on transparency and the reporting are also valid concerning the decrease process.

4.2.2 Consolidation of the requests of increase and notification of decrease

When the Increase Request/Decrease Notification deadline is reached, the CMT will immediately proceed for each hour of the Day D with the consolidation per border and direction of the received information respecting the following rules:

- In case only Increase Request have been sent, the CMT will take the maximum of the requests. If this value is higher than the fixed maximum increase authorized on this border, the CMT will cap the request to this maximum authorized increase.

- In case a Decrease Notification has been sent, the notification for decrease will prevail over an increase request for the same hour. The CMT will consider the minimum value of the notified decrease[2].

- Increase request for borders connected via HVDC links will be capped to the maximum transmission capacity of the HVDC links.

The CMT will then send for each hour of the Day D and for each CWE internal border and direction (which is covered by the re-computation process) the resulting increase or decrease to the CWE TSOs.

4.2.3 Assessing the feasibility of requested increases

After receiving the requests of increase and notification for decrease, the involved TSOs have to assess locally the feasibility of the requests.

A request for increase can be:

- **Fully accepted**

- **Partially accepted**

  There are situations when requested capacity increases on different borders compete for available margin on the same network element.

  In this case, the TSO will partially accept increases on the borders on non-discriminatory basis.

- **Rejected** in case the consequences of the requests cannot be fully nor partially accepted by the TSO.

After the assessment, the TSO will notify the CMT with the status of each request for each MPT before the Increase Feedback Deadlines.

4.2.4 Local implementation

This section lists a short summary of each TSO's local implementation of the evaluation of increase requests. A more detailed description of the increase/decrease functionality can be found in the "Explanatory Note on individual TSO's increase/decrease process for ID Capacity Calculation".

Amprion

Amprion checks upon the feasibility of capacity increases via a local simulation tool that models the effect of capacity increases of Amprion's network. The tool uses the lastest available DA CGMs or ID CGMs before starting the assessment and models the impact of capacity increases via linear sensitivities.

APG

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[2] For example, the CMT will receive two requests for decrease (-100 MW and -200 MW) and one increase request (100 MW), in this case the CMT will consider the minimum value, namely −200 MW, as consolidated notification of decrease.

APG assesses the increase requests with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point. The security assessments considers the second or if not available the first DA CGM and models the impact of capacity increases via linear sensitivities. The assessment of increase requests for all MTPs takes place when the DACF files are available. In case full acceptance is not possible, the values are checked for partial increase requests according to the common rules.

Elia

ELIA assesses ATC around the SDAC market clearing point in D-1 and in intraday on Belgian borders and in all directions based on the latest available DA CGMs or ID CGMs. Calculation will be performed for a given MTP on representative hour(s) for this period. In this assessment, realistic values in the direction of the likely corner(s) are considered for the non-Belgian borders. Based on this, ELIA defines for this period the (partial) increase ID ATC possible on the Belgian borders and motivated (partial) acceptances or rejections for other borders, if any.

For the assessment, the same set of acceptance criteria and non-costly remedial actions as the ones used locally at Elia for the DACF process are considered. The available non-costly remedial actions are both preventive and curative PST taps as well as preventive and curative non-linear topological actions.

On request of ELIA, Coreso may be in charge for Elia of the assessment whether or not to increase capacity for the aforementioned time periods. Based on this information Elia's operator will decide about possible rejections of capacity increases. Increase requests are rejected if they create an overload, either in basecase or in N-1, which cannot be solved with the available remedial actions.

RTE

For each hour of the day, RTE checks the inclusion of the increased ATC domain into a Flow Based domain.

The ATC domain is the initial ATC domain centrally computed increased by the requests on each border. If the resulting domain is larger than the normal behaviour of the market players in the intraday timeframe, the domain is reduced in this market direction.

The Flow Based domain used for the inclusion is the Flow Based domain with only the CNECs of RTE within the Core Day Ahead Capacity Calcuation, taking into account Final PTDF and Remaining available margin for ID ATC Extraction (RAM_ID). It also means that none of the CNECs of other CWE TSOs and none of the external constraints are in this domain.

TenneT TSO B.V.

For the Dutch-German and Dutch-Belgian borders harmonized procedures were already developed, meaning that the capacity analyses are running in parallel and use identical parameters for the decision making for the intraday capacity.

For both borders, several timeframes are used to analyse the capacity increases for the forthcoming hours. The analyses is in line with the agreed feedback deadlines.

The current local assessment looks at the thermal loading of a predefined set of network elements (CNEC) under all relevant (n-1)-contingencies. If thermal loadings per CNEC are below a certain threshold (Imax of a certain CNEC in the N-1 situation), the capacity increase is permitted. The local assessment makes use of information from the latest available common grid model. Depending on the time that the increase request is received, the local assessment is performed on the basis of information from the merged DACF or IDCF models. In case operational security issues are expected/arise for the coming hours, operators can take these results into account when releasing intraday capacity. Consequently, a decision whether or not to accept an increase request is made hour-wise.

TenneT TSO GmbH

The increase requests are assessed starting from DA CGM (first or second merge, depending on availability) and the D-1 clearing point. Maximum utilization of potential ID ATCs (total of initial ATCs, decrease notifications and increase requests) is simulated for the most likely combinations of simultaneous exchanges on all five

borders. Security assessment is performed using AC load flow and CNECs of TenneT TSO GmbH. If the network security assessment fails for at least one likely market direction, it is repeated with reduced increase requests in order to check for the possibility of partial acceptance.

The assessment of increase requests takes place for all MTPs simultaneously.

TransnetBW

TransnetBW assesses the increase requests with the help of local load flow tool that uses DA CGMs as basis for the security analysis which starts shortly after the CGMs are available for the dedicated Business Day. The latest DA CGM version is used that still allows to submit the acceptance/rejection of the increase requests before the Increase Feedback Deadline. The focus of increase assessment is on the internal and cross-border CNECs in the control area. Requests are checked simultaneously in likely market directions, meaning simultaneous (increased) exchanges on all borders. In case full acceptance is not possible, the process is repeated with partial increase requests according to the common rules. The results of possible reductions of the local assessment are sent to CMT.

4.2.5 Consolidation of acceptances/rejections

When an Increase Feedback Deadline is reached, the CMT will immediately proceed for each hour of the applicable MTP with the consolidation per border and direction of the received information respecting the following rule:

- In case justified rejections are received, the CMT will consider the lowest value as the result of the applicable increase.

The CMT will then send for each hour of the Day D and for each CWE border and direction to the CWE TSOs the resulting ID ATCs/NTCs as the sum of the initial ID ATCs and the consolidated increase/decrease for the applicable MTP.

4.2.6 Providing ID ATCs for allocation

After receiving the updated capacity from the CMT, the responsible TSOs offer the capacity to the market players with the allocation rules and platforms.

CWE Methodology for ~~capacity calculation for~~the Increase/Decrease process during the Intraday timeframe
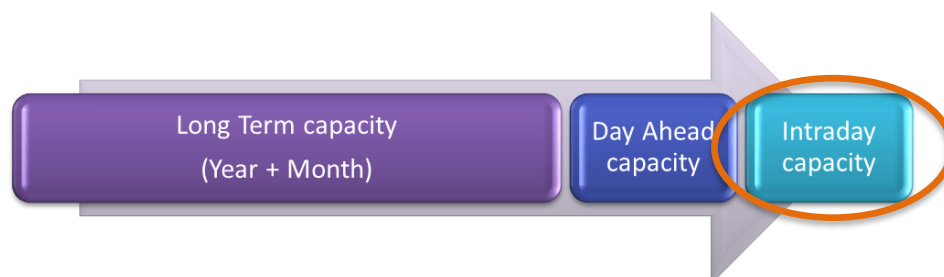
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- ~~**Post-coupling process**: activities to check the DA MC result and to transform the Net Positions, computed as a result of the market coupling, into bilateral exchanges for further processes.~~

- ~~**Pre-coupling**: activities to compute the DA capacities that will be sent to the MC system.~~

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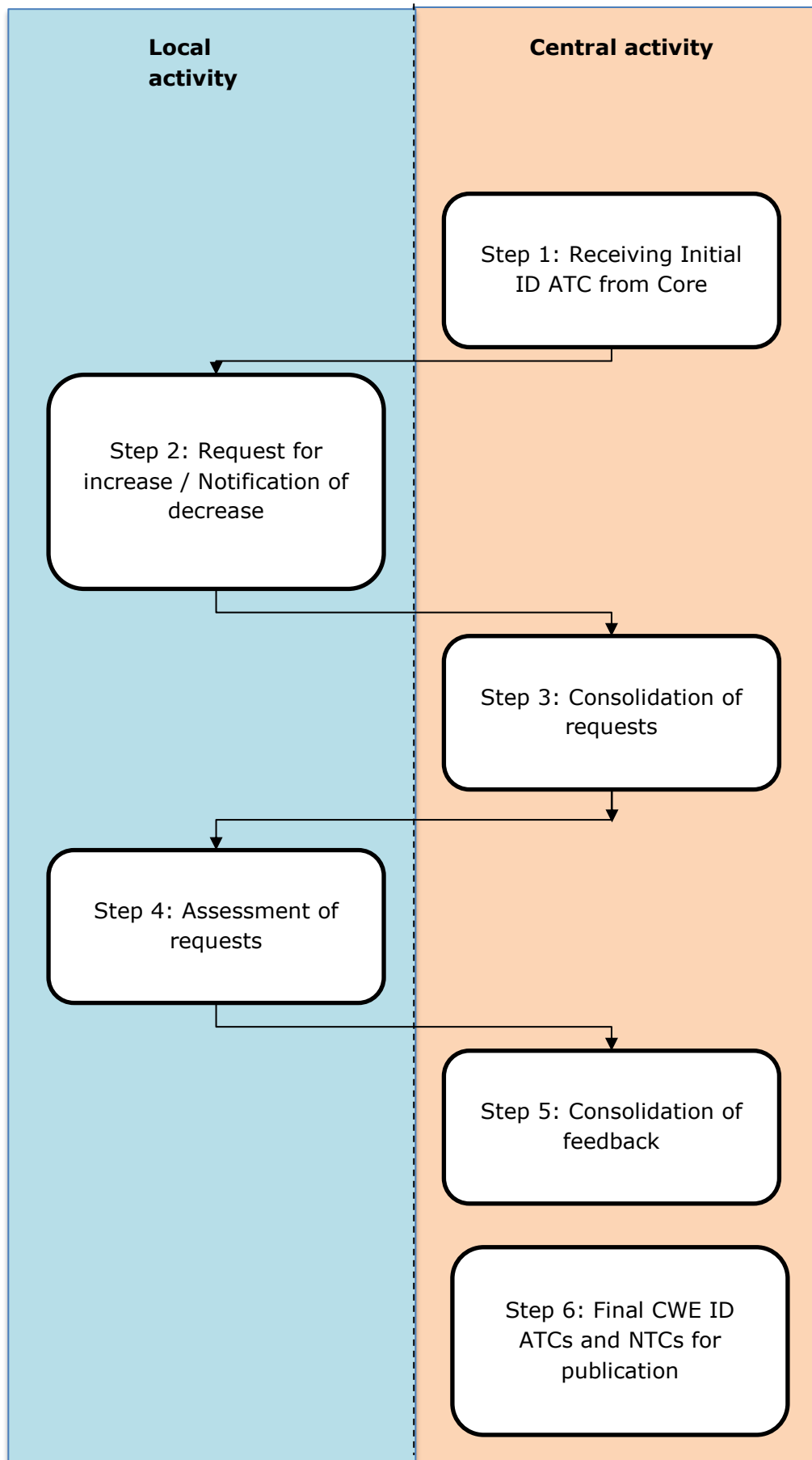
Figure 1: High-level process of ID ATC CC methodology.

4 Coordinated ID ATC CC after FBMC process

4.1 Core ID ATC extraction

At Core Day Ahead Capacity Calculation Go-Live, the CWE Flow-Based Domain won't be computed anymore. In that situation the ID ATC Capacity Calculation (step 1) will be performed from a Core Day Ahead Flow-Based Domain on each ~~relevant~~Core borders ~~for Core~~, e.g. including the CWE internal borders. This ID ATC capacity calculation is pursuant to articles 11 and 21 of Core ID CCM. The values obtained, on CWE borders, from this Core process will be fed to the CWE common tool (step 1 of the previous figure).

4.2 ~~Re-computation of~~ CWE ~~ID ATC~~ Increase/Decrease process during intraday timeframe

~~After the first computation, the TSOs have the possibility to re-assess the new capacities. This chapter describes the process after the first computation.~~

4.2.1 Requesting increase or notifying decrease of capacities on own borders

4.2.1.1 Requesting increased capacities on own borders

Capacity increases can be requested by all CWE TSOs for each hour of the Day D on their own borders via the CMT.

The starting point for the local analysis to launch an increase request is the already available initial Core ID ATCs. In order to maximize the acceptance of the requests, the TSOs should favour a request for the borders and directions where the available capacity provided to the market after the FB MC is low.

Every increase request is capped with a fixed value per border and direction. These fixed values are proposed by each TSO for their own borders and commonly approved by the involved CWE TSOs.

The requested capacity increase is an intention for a capacity increase. However, due to constraints identified during the local analysis (during the fourth step of the process cf §4.2.3~~4.2.3~~), it can be the case that a proposed capacity increase for a specific border is rejected by the same TSO who requested it.

The Increase Request Deadline is set for all MTP simultaneously to ensure a coordinated assessment on local side.

Every 3 months, an overview of the individual ~~increase requests~~~~decrease~~increase notifications per TSO (per oriented CWE internal border and per hour) will be provided to CWE and Core NRAs for monitoring purposes within 1.5 months after the concerned quarter, in line with the requested format and content including:

  a) the increase~~/decrease~~ requests per time stamp and ~~within 1.5 months after the concerned 3-months period. The report shall also be made public~~per TSO,
  b) the feedback from each individual TSO on each individual increase~~/decrease~~ request,
  c) the justification from each individual TSO for a partial or full rejection of an individual increase~~/decrease~~ request;

For transparency ~~reasons~~purposes, the quarterly report containing (a) and (b) shall be published within 1.5 months after the concerned quarter.

The CWE reporting requirements for monitoring and transparency are without prejudice to the upcoming Core process, i.e. will be subject to discussion within the Core framework~~if needed.~~.

4.2.1.2 Notification of a decrease of capacities on own borders

All TSOs have the possibility to take the necessary steps to guarantee the security of the grid. Intraday capacity reduction is a pragmatic process that allows involved

TSOs for any hour of the Day D to reduce Intraday ATCs, on their own borders, in cases operational security issues arise.

As the notification for decrease is an emergency process, a capacity reduction is an input to the assessment of capacity increases and cannot be rejected by other TSOs.

As firmness of the trades applies, only capacity that was not yet allocated will be reduced, even if a higher decrease is requested.

~~Every 3 months, an overview of the individual decrease notifications per TSO (per oriented CWE internal border and per hour) will be provided to CWE and Core NRAs for monitoring purposes, in line with the requested format and content and within 1.5 months after the concerned 3-months period. The report shall also be made public for transparency reasons and subject to discussion within the Core framework if needed...~~

The overview of the decrease process is described in the same report mentioned in the previous section, therefore all assertions of the previous section on transparency and the reporting are also valid concerning the decrease process.

4.2.2 Consolidation of the requests of increase and notification of decrease

When the Increase Request/Decrease Notification deadline is reached, the CMT will immediately proceed for each hour of the Day D with the consolidation per border and direction of the received information respecting the following rules:

- In case only Increase Request have been sent, the CMT will take the maximum of the requests. If this value is higher than the fixed maximum increase authorized on this border, the CMT will cap the request to this maximum authorized increase.

- In case a Decrease Notification has been sent, the notification for decrease will prevail over an increase request for the same hour. The CMT will consider the minimum value of the notified decrease[2].

- Increase request for borders connected via HVDC links will be capped to the maximum transmission capacity of the HVDC links.

The CMT will then send for each hour of the Day D and for each CWE internal border and direction (which is covered by the re-computation process) the resulting increase or decrease to the CWE TSOs.

4.2.3 Assessing the feasibility of requested increases

After receiving the requests of increase and notification for decrease, the involved TSOs have to assess locally the feasibility of the requests.

A request for increase can be:

- **Fully accepted**

- **Partially accepted**

    There are situations when requested capacity increases on different borders compete for available margin on the same network element.

    In this case, the TSO will partially accept increases on the borders on non-discriminatory basis.

- **Rejected** in case the consequences of the requests cannot be fully nor partially accepted by the TSO.

After the assessment, the TSO will notify the CMT with the status of each request for each MPT before the Increase Feedback Deadlines.

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[2] For example, the CMT will receive two requests for decrease (-100 MW and -200 MW) and one increase request (100 MW), in this case the CMT will consider the minimum value, namely –200 MW, as consolidated notification of decrease.

4.2.4 Local implementation

This section lists a short summary of each ~~TSOs'~~TSO's local implementation of the evaluation of increase requests. A more detailed description of the increase/decrease functionality can be found in the "Explanatory Note on individual TSO's increase/decrease process for ID Capacity Calculation".

~~Every 3 months, an overview of the individual acceptances/rejections per TSO (per oriented CWE internal border and per hour) will be provided to CWE and Core NRAs for monitoring purposes, in line with the requested format and content and within 1.5 months after the concerned 3 months period. The report shall also be made public for transparency reasons and subject to discussion within the Core framework if needed.~~

Amprion

Amprion checks upon the feasibility of capacity increases via a local simulation tool that models the effect of capacity increases of Amprion's network. The tool uses the lastest available DA CGMs or ID CGMs before starting the assessment and models the impact of capacity increases via linear sensitivities.

APG

APG assesses the increase requests with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point~~.~~. The security assessments considers the second or if not available the first DA CGM and models the impact of capacity increases via linear sensitivities. The assessment of increase requests for all MTPs takes place when the DACF files are available. In case full acceptance is not possible, the values are checked for partial increase requests according to the common rules.

Elia

ELIA assesses ATC around the SDAC market clearing point in D-1 and in intraday on Belgian borders and in all directions based on the latest available DA CGMs or ID CGMs. Calculation will be performed for a given MTP on representative hour(s) for this period. In this assessment, realistic values in the direction of the likely corner(s) are considered for the non-Belgian borders. Based on this, ELIA defines for this period the (partial) increase ID ATC possible on the Belgian borders and motivated (partial) acceptances or rejections for other borders, if any.

For the assessment, the same set of acceptance criteria and non-costly remedial actions as the ones used locally at Elia for the DACF process are considered. The available non-costly remedial actions are both preventive and curative PST taps as well as preventive and curative non-linear topological actions.

On request of ELIA, Coreso may be in charge for Elia of the assessment whether or not to increase capacity for the aforementioned time periods. Based on this information Elia's operator will decide about possible rejections of capacity increases. Increase requests are rejected if they create an overload, either in basecase or in N-1, which cannot be solved with the available remedial actions.

RTE

For each hour of the day, RTE checks the inclusion of the increased ATC domain into a Flow Based domain.

The ATC domain is the initial ATC domain centrally computed increased by the requests on each border. If the resulting domain is larger than the normal behaviour of the market players in the intraday timeframe, the domain is reduced in this market direction.

The Flow Based domain used for the inclusion is the Flow Based domain with only the CNECs of RTE within the Core Day Ahead Capacity Calcuation, taking into account Final PTDF and Remaining available margin for ID ATC Extraction (RAM_ID). It also means that none of the CNECs of other CWE TSOs and none of the external constraints are in this domain.

TenneT TSO B.V.

For the Dutch-German and Dutch-Belgian borders harmonized procedures were already developed, meaning that the capacity analyses are running in parallel and use identical parameters for the decision making for the intraday capacity.

For both borders, several timeframes are used to analyse the capacity increases for the forthcoming hours. The analyses is in line with the agreed feedback deadlines.

The current local assessment looks at the thermal loading of a predefined set of network elements (CNEC) under all relevant (n-1)-contingencies. If thermal loadings per CNEC are below a certain threshold (Imax of a certain CNEC in the N-1 situation), the capacity increase is permitted. The local assessment makes use of information from the latest available common grid model. Depending on the time that the increase request is received, the local assessment is performed on the basis of information from the merged DACF or IDCF models. In case operational security issues are expected/arise for the coming hours, operators can take these results into account when releasing intraday capacity. Consequently, a decision whether or not to accept an increase request is made hour-wise.

TenneT TSO GmbH

The increase requests are assessed starting from DA CGM (first or second merge, depending on availability) and the D-1 clearing point. Maximum utilization of potential ID ATCs (total of initial ATCs, decrease notifications and increase requests) is simulated for the most likely combinations of simultaneous exchanges on all five borders. Security assessment is performed using AC load flow and CNECs of TenneT TSO GmbH. If the network security assessment fails for at least one likely market direction, it is repeated with reduced increase requests in order to check for the possibility of partial acceptance.

The assessment of increase requests takes place for all MTPs simultaneously.

TransnetBW

TransnetBW assesses the increase requests with the help of local load flow tool that uses DA CGMs as basis for the security analysis which starts shortly after the CGMs are available for the dedicated Business Day. The latest DA CGM version is used that still allows to submit the acceptance/rejection of the increase requests before the Increase Feedback Deadline. The focus of increase assessment is on the internal and cross-border CNECs in the control area. Requests are checked simultaneously in likely market directions, meaning simultaneous (increased) exchanges on all borders. In case full acceptance is not possible, the process is repeated with partial increase requests according to the common rules. The results of possible reductions of the local assessment are sent to CMT.

4.2.5 Consolidation of acceptances/rejections

When an Increase Feedback Deadline is reached, the CMT will immediately proceed for each hour of the applicable MTP with the consolidation per border and direction of the received information respecting the following rule:

- In case justified rejections are received, the CMT will consider the lowest value as the result of the applicable increase.

The CMT will then send for each hour of the Day D and for each CWE border and direction to the CWE TSOs the resulting ID ATCs/NTCs as the sum of the initial ID ATCs and the consolidated increase/decrease for the applicable MTP.

4.2.6 Providing ID ATCs for allocation

After receiving the updated capacity from the CMT, the responsible TSOs offer the capacity to the market players with the allocation rules and platforms.

Explanatory Note on individual CWE TSO's increase/decrease process for Intraday Capacity Calculation

Version	2.0
Date	14-12-2021

Contents

1 Management summary

1.1 Purpose of the document

The purpose of this explanatory note is to explain the individual increase/decrease process of the ID ATC after flow-based market coupling process as described in the *CWE Methodology for capacity calculation for the Intraday timeframe*.

2 Overview Table

TSO	INCREASE PROCESS	DECREASE PROCESS	How many assessment for Increase/Decrease Process
Amprion	No local process to ask for increase requests in operation. Increase requests for Amprion borders are performed by other CWE TSOs/RSCs. Feasibility of increase requests is checked by local tool considering the latest DA and ID CGMs available. Two validations are performed per Business Day using linear sensitivities similar to a Flow Based approach.	Local process to send decrease notifications before increase/decrease deadline is in operation. Decreases of capacities for Amprion borders during the increase/decrease process on request by other TSOs is also possible.	2 (Based on DACF/IDCF)
APG	An automatic import/export increase request is generated internally, if the FB day ahead leftover in combination with the NP is below a certain threshold. APG then assesses this internal increase requests with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point. The security assessments considers the DA CGM and models the impact of capacity increases via linear sensitivities. The assessment of increase requests for all MTPs takes place when the DACF files are available.	APG does not have a local tool to assess decreases based on schedules or ATCs/day ahead leftovers. After the DACF load flow calculation process to ensure possible increase requests, a unilateral decrease by APG is possible.	1 (Based on DACF)
ELIA	An increase of 300 MW is requested for one or both directions of the Belgian borders. Market directions may be prioritised. 2 assessments are performed per business day. Increase requests are evaluated by performing a detailed security analysis for a set of representative timestamp/corner combinations.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	2 (Based on DACF/IDCF)

RTE	Automatic increase request sent in case of FB day ahead leftover in combination with the NP is below a certain threshold on FR-DE and FR-BE frontiers; Feasibility of the increase requests based on some verification of the absence of overload on the French CNEC on the Final flow Based Domain.	Functionality not foreseen to be used on RTE's side	1 (Based on D2CF)
TenneT DE	No local process to ask for increase requests in operation. Increase requests for TenneT DE borders are performed by other CWE TSOs/RSCs. Likely Comers for Increase Requests are checked for likely corners and TenneT DE CNECs via load-flow calculations. In case of an overload the partial acceptance steps are checked for the concerned corner until no overload is detected anymore or the increase request is zero.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	1 (Based on DACF)
TenneT NL	Semi-automatic increase request (max feasible value) is sent for the borders BE-NL and DE-NL in both directions.	Based on 2 possibilities a decrease can be applied: • *Critical Grid Situation* (CGS) confirm ENTSO-E definitions. • Unplanned outage in the 380kV grid	4 to 6 (Based on DACF/IDCF)
Transnet BW	No local process to ask for increase requests in operation. Increase requests for TransnetBW borders are performed by other CWE TSOs/RSCs. Feasibility of increase requests is checked by local tool considering the latest CGMs available. Currently with likely corners approach but planned to be exchanged in the future to a linear sensitivity analysis similar to a flow based approach.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	1 (Based on DACF)

3 Maximum Increase request on borders

The maximum increase request for borders involving Belgium is 300 MW (e.g. BE <-> FR, BE <-> DE, BE <-> NL), for other border it's 200 MW (e.g. DE <-> FR, AT <-> DE, DE <-> NL).

4 Individual Increase/Decrease Process for ID ATC Extraction

4.1 Amprion

4.1.1 Increase Process

There is no local process to ask for increase requests in operation. Increase requests for Amprion borders are performed by other CWE TSOs/RSCs.

Assessing the feasibility of the consolidating increase requests:

To assess the feasibility of increase requests, two local validations are performed per Business Day using linear sensitivities similar to a Flow Based approach. The assessment is performed by a local tool considering the latest DA and ID CGMs available before starting the assessment which contains all integrated RAs at this moment in time.

1. h01-h09: DACF CGM (D-1)

2. h10-h24: IDCF CGM (D)

The local validation tool computes the sensitivities (zone2zone PTDFs for the CWE ATC borders) and initial loadflows for each critical network element of Amprion in a basecase or n-1 situation.

Possible loadlflow changes from zone A to zone B due to increase request and leftover ATCs can be described as

$$\Delta flow_{A \to B} = PTDF_{A \to B} \cdot (increase\_request_{A \to B} + ATC_{A \to B})$$

Only positive PTDF factors are considered for the dedicated critical network element. Both directions of a critical network element are evaluated seperately.

The additional flow for one critical network element can be determined by the sum of the delta flows of each ATC border

$$additional\,flow = \sum_{j=1}^{\substack{number\,of \\ ATC\,borders}} \Delta flow_j$$

In case the additional flow leads to an overload of a critical network element for a basecase or n-1 situation after respecting a security margin (FRM), the initial increase requests will be reduced until no overloads occur anymore. If no overloads occur, the request is fully accepted.

The reduction of increase requests is performed successively for all borders applying the same partial acceptance steps (200 MW, 100 MW, 50 MW) followed by a full rejection (0 MW). If different increase requests for several borders are made, the increase requests are curtailed to a common level before all borders are reduced. This ensures non- discriminatory among increase requests for all borders.

4.1.2 Decrease Process

Local process to send decrease notification before the increase/decrease deadline is in operation and can be triggered in case of security concerns e.g. unplanned outages. Decreases of capacities for Amprion borders during the increase/decrease process on request by other CWE TSOs is possible.

However, when network security in Amprion's, RTE's or TransnetBW's network is endangered, the operator at Amprion's control centre may decide at any time to reduce capacities. When another TSO informs Amprion's control centre via telephone about capacity decreases, Amprion's operator will decide whether or not to apply a capacity reduction.

4.2 APG

4.2.1 Increase Process

Capacity increases are only requested by APG for the Austrian-German border.

An import/export increase of 200 MW is generated internally until 6 pm D-1, if the FB day ahead leftover in combination with the NP is below a certain defined threshold for import/export. These thresholds are based on historical data and can vary due to seasonal effects or based on new knowledge gained in the course of using the increase / decrease process.

APG then assesses this internal increase request with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point. The security assessments considers the DA CGM and models the impact of capacity increases via linear sensitivities. Remedial actions are taken from DACF, acceptance criteria is n-1 security.

In detail, for every APG CNEC and MTU, the maximal possible increase (for import/export) is calculated by the formula:

$$Inc_{\max i} = \frac{F_{\max i} - F_{DA\,i}}{PTDF_i}$$

$Inc_{\max i}$ ... maximum possible increase on a certain CNEC i
$F_{\max i}$ ... maximum thermal capacity of a certain CNEC i
$F_{DA\,i}$ ... Flow on a certain CNEC i after FB DA MC
$PTDF_i$ ... Power Transfer Distribution Factor for a certain CNEC i for the Border DE/AT based on DACF

After that, the CNEC with the smallest Inc_{max} of a MTU which had an aggregated increase request ≠ 0 MW defines the maximum increase for this MTU by the following formulas:

$200\,MW < Inc_{max} \rightarrow$ accepted increase = 200 MW
$100\,MW < Inc_{max} < 200\,MW \rightarrow$ accepted increase = 100 MW
$50\,MW < Inc_{max} < 100\,MW \rightarrow$ accepted increase = 50 MW
$Inc_{max} < 50\,MW \rightarrow$ accepted increase = 0 MW

At the end of the process, the operators are in charge to finally accept or decline the import/export increase for every MTU, which was provided by the local tool.

4.2.2 Decrease Process

APG does not have a local tool to assess decreases based on schedules or ATCs/day ahead leftovers.

After the DACF loadflow calculation process to ensure possible increase requests, a unilateral decrease by APG is possible.

4.3 ELIA

4.3.1 Increase Process

Increase requests

Capacity increases are requested by Coreso on behalf of Elia. An increase of 300 MW is requested for one or both directions of the Belgian borders. Market directions may be prioritised.

Assessing the feasibility of the consolidated increase requests

The local validation of CWE ID ATC increase requests is performed by Coreso on behalf of Elia. 2 assessments are performed per business day:

1. Evening Process:

    ▪ Increase requests for period [00h00-09h00] are evaluated

    ▪ Assessment is based on DACF information.

    ▪ Results are sent to CMT before 21h45 in D-1.

2. Nightly Process:

    ▪ Increase requests for period [09h00-24h00] are evaluated.

    ▪ Assessment is based on IDCF information.

    ▪ Results are sent to CMT before 05h30.

The approach for both processes is the same:

Step 1: Selection of representative timestamps/corners

   Considering the already allocated capacity, the initial ATC and the ID ATC increase requests per oriented CWE border, a set of representative timestamp/corner combinations is determined. Different sets of likely corners are evaluated. This is done by making use of sensitivity coefficients which reflect the impact of each CWE commercial exchange on the physical flows in the network.

   Corner variations consider both initial ATC and ID ATC increase requests. If the initial ATC is very high for a specific border, it will be capped to a more realistic value based on the ID nominations observed in the past. This is done to avoid being too conservative in the assessment of the ID ATC increase requests.

   The selection of the representative timestamp/corner combinations is cross-checked with the Elia operator.

Step 2: Detailed security analysis

   A detailed security analysis is performed for the selected timestamp/corner combinations. The same set of acceptance criteria and remedial actions than the ones used locally at Elia for the DACF/IDCF processes is considered. Both preventive and curative RA are taken into account.

Step 3: Validation of results

   Coreso calls the Elia operator to present the results. Overloaded CNEC pairs are reported for each timestamp/corner combination which was analysed. The Elia operator can overrule the result in specific situations (i.e. incident has occurred, adequacy issues, voltage issues, …). Based on the studied timestamps, the ID ATC increase requests for the full period are either accepted or rejected.

Step 4: CMT upload

   Coreso uploads the Elia feedback for the different ID ATC increase requests to the CMT.

In exceptional situations, Elia can ask Coreso to split the period of the Evening Process or the Nightly Process into 2 sub-periods.

4.3.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment.

4.4 RTE

4.4.1 Increase Process

The following process is operated by CORESO on behalf of RTE

- ✓ If the ATC FR<>BE is below 500 MW, a request for increase of 300MW is sent, nothing otherwise
- ✓ If the ATC FR<>DE is below 1000 MW, a request for increase of 200MW is sent nothing otherwise
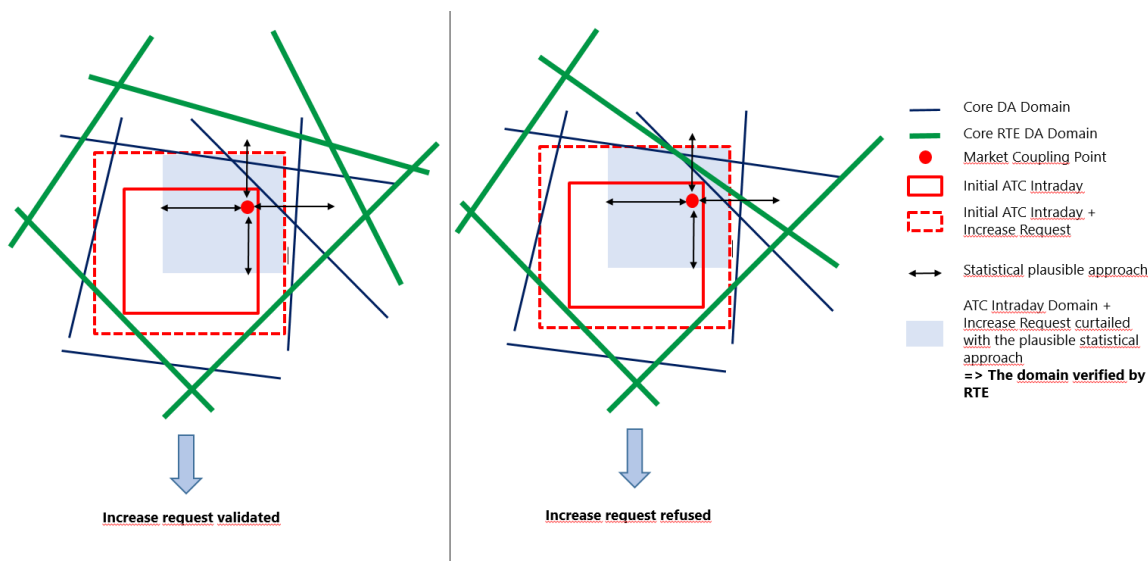
Assessing the feasibility of the consolidating increase requests:

The requests are tested on the Core Flow Based Domain containing only the RTE CNECs, the final PTDF and the Remaining Available Margin (RAM_ID) taken into account for the ID ATC extraction process of Core Day Ahead, therefore this process is based on the D2CF CGM used for the Core Day Ahead process. When Extended LTA inclusion is "on", the LTA margin is recomputed and taken into account in the RAM_ID, to ensure that RTE provide an assessment with the inclusion of the LTA.

The ATC domain with the increased capacity is combined with a statistical plausible approach. This ATC domain is curtailed to the maximum activity already observed in the ID process by Market Participants.

If, on the corners of this ATC domain combined with statistics approach, no French CNECs are overloaded therefore the increase requests are accepted, otherwise there is a rejection.

The square in light blue represents the ATC domain combined with a statistical plausible

Increase request validated   Increase request refused

approach. This statistical plausible approach is the maximum activity by market parties observed per frontier over a certain period of time.

The domain delimited by the green CNECs represents the Final FlowBased domain containing only the RTE CNECs.

On the left, the light blue domain is included inside the RTE Green domain so the requests are accepted, on the right, the requests are rejected because some French CNEC will be overloaded on some corners of the light blue domain.

The assessment of consolidated increase/decrease requests is done once per day, in the evening of the D-1.

4.4.2 Decrease Process

This functionality is not foreseen to be used on RTE's side

4.5 Tennet DE

4.5.1 Increase Process

There is no local process to ask for increase requests in operation. Increase requests for TenneT DE borders are performed by other CWE TSOs/RSCs according to the agreed rules about maximum increases.

The increase requests are assessed starting from DA CGM and the D-1 clearing point. Maximum utilization of potential ID ATCs (total of initial ATCs, decrease notifications and increase requests) is simulated via CWE GSKs for the most likely combinations of simultaneous exchanges on all five borders (hereafter referred to as likely corners). Security assessment is performed for all defined likely corners using AC load flow security analysis and CNECs of TenneT DE. If the network security assessment fails for at least one likely corner, the PTDF of each border is checked against a threshold (currently 5%) and the security assessment is repeated with reduced increase requests for those borders with PTDF higher than the threshold in order to check for the possibility of partial acceptance. Borders with PTDF lower than the threshold remain unchanged to not prevent increases on non-impacting borders for concerned CNECs.

The assessment of increase requests takes place for all MTPs simultaneously once per day using the merged DA CGMs.

Note: there might be changes needed due to ALEGrO, i.e. 6 borders instead of 5, increasing to corners further. The impact assessment is not finalized yet.

4.5.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment.

4.6 Tennet NL

4.6.1 Increase Process

TenneT NL sends every day an increase request for the borders BE-NL and DE-NL in both directions. By default it's always the maximum capacity increase per border and direction. The request only deviates if a decrease situation occurs (see Decrease Process). After D-1 18:00 TenneT NL validates the increase request from each border via a TTC (Total Transfer Capacity) computation. The loadflow application calculates the max feasible transfer capacity per border and direction against the following components:

- Most recent Common Grid Model (CGM), DACF or IDCF

- Newest forecast information from market parties

- Only 380kV Critical network elements from the Dutch are taken in to account (impact only on own grid)

- Left over capacity from Flowbased DA (Intraday ATC)

- Validations steps with rounding (50MW)

- Depending on the grid situation, TenneT NL validates min. 4 times till 6 times per business day. It respects the gate opening and closures timing from the ID CMT.

4.6.2 Decrease Process

Based on 2 possibilities a decrease can be applied:

- *Critical Grid Situation* (CGS) according to ENTSO-E definitions.
- Unplanned outage in the 380kV grid or on Dutch HVDC interconnector(s)

If one of the possibilities occur before D-1 18:00 than the grid operator analyses the unexpected grid situation. Based on the outcome, the operator can decide to reduce the left-over intraday ATC till it's minimum capacity.

The Intraday ATC without virtual capacity is seen as the minimum capacity which can be given to the market based on the information available.

The $\Delta flow_{A \to B}$ will be provided to the ID CMT as decrease request.

if $\text{ATC(without virtual capacity)}_{A \to B} > \text{ATC(left over capacity)}_{A \to B}$ then

$\Delta\text{flow}_{A \to B} = 0$ else

$$\Delta\text{flow}_{A \to B} = -(\text{ATC(left over capacity)}_{A \to B} - \text{ATC(without virtual capacity)}_{A \to B})$$

4.7 TransnetBW

4.7.1 Increase Process

There is no local process to request an increase of capacity in operation. Increase requests for TransnetBW borders are performed by other CWE TSOs/RSCs.

Assessing the feasibility of the consolidating increase requests:

For assessing the feasibility of the increase requests, local validations are performed per Business Day with a load flow tool which uses Day Ahead Common Grid Models which contain all RAs known at this moment in time as basis. Shortly after the CGMs are available the ID assessment process starts with a simultaneous check of the increase requests if they can be granted. In case a full acceptance is not possible, the process is repeated with the partial increase requests according to the common rules.

The current process will be exchanged with a new process based on linear sensitivities similar to the flow based process. The calculation of PTDFs is based on a common grid model. The local tool calculates the zonal PTDF at the CWE borders for the base case and relevant n-1 cases.

The load flow changes from zona A to B with the increase request $request_{A \to B}$ and the available transfer capacity on the border $ATC_{A \to B}$ can be described as:

$$\Delta flow_{A \to B} = PTDF_{A \to B} \cdot (request_{A \to B} + ATC_{A \to B})$$

During the calculation positive PTDF Factors are considered to determine the maximum influence on each CNE. At the end of the process the individual influences are added up to gain the total additional flow for each critical network element with a certain contingency (CNEC)

$$\Delta TotalFlow = \sum_{j=1}^{\substack{number\ of \\ ATC\ border}} \Delta flow_j$$

If the total additional flow overloads a given CNEC the initial request will be reduced until no CNEC is overloaded.

The reduction of increase requests is performed successively for all borders applying the same partial acceptance steps (200 MW, 100 MW, 50 MW) followed by a full rejection (0 MW). If different increase request for several borders are requested, the increase requests are curtailed to a common level before all borders are reduced. This prevents discrimination among increase requests of different borders.

4.7.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment. However, when network security is endangered on TransnetBW grid or surrounding borders which could be eliminated by a decrease of ID ATC on the border DE/LU-FR, DE/LU-AT the TransnetBW operators may inform Amprion or APG operators that a decrease of capacities is necessary to ensure grid security.

Explanatory Note on individual CWE TSO's increase/decrease process for Intraday Capacity Calculation

Version	2.0
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Contents

1 Management summary

1.1 Purpose of the document

The purpose of this explanatory note is to explain the individual increase/decrease process of the ID ATC after flow-based market coupling process as described in the *CWE Methodology for capacity calculation for the Intraday timeframe*.

2 Overview Table

TSO	INCREASE PROCESS	DECREASE PROCESS	How many assessment for Increase/Decrease Process
Amprion	No local process to ask for increase requests in operation. Increase requests for Amprion borders are performed by other CWE TSOs/RSCs. Feasibility of increase requests is checked by local tool considering the latest DA and ID CGMs available. Two validations are performed per Business Day using linear sensitivities similar to a Flow Based approach.	Local process to send decrease notifications before increase/decrease deadline is in operation. Decreases of capacities for Amprion borders during the increase/decrease process on request by other TSOs is also possible.	2 (Based on DACF/IDCF)
APG	An automatic import/export increase request is generated internally, if the FB day ahead leftover in combination with the NP is below a certain threshold. APG then assesses this internal increase requests with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point. The security assessments considers the DA CGM and models the impact of capacity increases via linear sensitivities. The assessment of increase requests for all MTPs takes place when the DACF files are available.	APG does not have a local tool to assess decreases based on schedules or ATCs/day ahead leftovers. After the DACF load flow calculation process to ensure possible increase requests, a unilateral decrease by APG is possible.	1 (Based on DACF)
ELIA	An increase of 300 MW is requested for one or both directions of the Belgian borders. Market directions may be prioritised. 2 assessments are performed per business day. Increase requests are evaluated by performing a detailed security analysis for a set of representative timestamp/corner combinations.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	2 (Based on DACF/IDCF)

RTE	Automatic increase request sent in case of FB day ahead leftover in combination with the NP is below a certain threshold on FR-DE and FR-BE frontiers; Feasibility of the increase requests based on some verification of the absence of overload on the French CNEC on the Final flow Based Domain.	Functionality not foreseen to be used on RTE's side	1 (Based on D2CF)
TenneT DE	No local process to ask for increase requests in operation. Increase requests for TenneT DE borders are performed by other CWE TSOs/RSCs. Likely Comers for Increase Requests are checked for likely corners and TenneT DE CNECs via load-flow calculations. In case of an overload the partial acceptance steps are checked for the concerned corner until no overload is detected anymore or the increase request is zero.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	1 (Based on DACF)
TenneT NL	Semi-automatic increase request (max feasible value) is sent for the borders BE-NL and DE-NL in both directions.	Based on 2 possibilities a decrease can be applied: • *Critical Grid Situation* (CGS) confirm ENTSO-E definitions. • Unplanned outage in the 380kV grid	4 to 6 (Based on DACF/IDCF)
Transnet BW	No local process to ask for increase requests in operation. Increase requests for TransnetBW borders are performed by other CWE TSOs/RSCs. Feasibility of increase requests is checked by local tool considering the latest CGMs available. Currently with likely corners approach but planned to be exchanged in the future to a linear sensitivity analysis similar to a flow based approach.	No local process to assess decreases before increase/decrease deadline is foreseen at the moment.	1 (Based on DACF)

3 Maximum Increase request on borders

The maximum increase request for borders involving Belgium is 300 MW (e.g. BE <-> FR, BE <-> DE, BE <-> NL), for other border it's 200 MW (e.g. DE <-> FR, AT <-> DE, DE <-> NL).

4 Individual Increase/Decrease Process for ID ATC Extraction

4.1 Amprion

4.1.1 Increase Process

There is no local process to ask for increase requests in operation. Increase requests for Amprion borders are performed by other CWE TSOs/RSCs.

Assessing the feasibility of the consolidating increase requests:

To assess the feasibility of increase requests, two local validations are performed per Business Day using linear sensitivities similar to a Flow Based approach. The assessment is performed by a local tool considering the latest DA and ID CGMs available before starting the assessment~~before~~ which contains all integrated RAs at this moment in time.~~.~~

1. h01-h09: DACF CGM (D-1)

2. h10-h24: IDCF CGM (D)

The local validation tool computes the sensitivities (zone2zone PTDFs for the CWE ATC borders) and initial loadflows for each critical network element of Amprion in a basecase or n-1 situation.

Possible loadlflow changes from zone A to zone B due to increase request and leftover ATCs can be described as

$$\Delta flow_{A \to B} = PTDF_{A \to B} \cdot (increase\_request_{A \to B} + ATC_{A \to B})$$

Only positive PTDF factors are considered for the dedicated critical network element. Both directions of a critical network element are evaluated seperately.

The additional flow for one critical network element can be determined by the sum of the delta flows of each ATC border

$$additional\, flow = \sum_{j=1}^{\substack{number\, of \\ ATC\, borders}} \Delta flow_j$$

In case the additional flow leads to an overload of a critical network element for a basecase or n-1 situation after respecting a security margin (FRM), the initial increase requests will be reduced until no overloads occur anymore. If no overloads occur, the request is fully accepted.

The reduction of increase requests is performed successively for all borders applying the same partial acceptance steps (200 MW, 100 MW, 50 MW) followed by a full rejection (0 MW). If different increase requests for several borders are made, the increase requests are curtailed to a common level before all borders are reduced. This ensures non- discriminatory among increase requests for all borders.

4.1.2 Decrease Process

Local process to send decrease notification before the increase/decrease deadline is in operation and can be triggered in case of security concerns e.g. unplanned outages. Decreases of capacities for Amprion borders during the increase/decrease process on request by other CWE TSOs is possible.

However, when network security in Amprion's, RTE's or TransnetBW's network is endangered, the operator at Amprion's control centre may decide at any time to reduce capacities. When another TSO informs Amprion's control centre via telephone about capacity decreases, Amprion's operator will decide whether or not to apply a capacity reduction.

4.2 APG

4.2.1 Increase Process

Capacity increases are only requested by APG for the Austrian-German border.

An import/export increase of 200 MW is generated internally until 6 pm D-1, if the FB day ahead leftover in combination with the NP is below a certain defined threshold for import/export. These thresholds are based on historical data and can vary due to seasonal effects or based on new knowledge gained in the course of using the increase / decrease process.

APG then assesses this internal increase request with a load flow tool that uses day ahead models (DACF) and the D-1 market clearing point. The security assessments considers the DA CGM and models the impact of capacity increases via linear sensitivities. Remedial actions are taken from DACF, acceptance criteria is n-1 security.

In detail, for every APG CNEC and MTU, the maximal possible increase (for import/export) is calculated by the formula:

$$Inc_{\max i} = \frac{F_{\max i} - F_{DA\,i}}{PTDF_i}$$

$Inc_{\max i}$ ... maximum possible increase on a certain CNEC i
$F_{\max i}$ ... maximum thermal capacity of a certain CNEC i
$F_{DA\,i}$ ... Flow on a certain CNEC i after FB DA MC
$PTDF_i$ ... Power Transfer Distribution Factor for a certain CNEC i for the Border DE/AT based on DACF

After that, the CNEC with the smallest Inc_{max} of a MTU which had an aggregated increase request ≠ 0 MW defines the maximum increase for this MTU by the following formulas:

$200\,MW < Inc_{max} \rightarrow$ accepted increase = 200 MW
$100\,MW < Inc_{max} < 200\,MW \rightarrow$ accepted increase = 100 MW
$50\,MW < Inc_{max} < 100\,MW \rightarrow$ accepted increase = 50 MW
$Inc_{max} < 50\,MW \rightarrow$ accepted increase = 0 MW

At the end of the process, the operators are in charge to finally accept or decline the import/export increase for every MTU, which was provided by the local tool.

4.2.2 Decrease Process

APG does not have a local tool to assess decreases based on schedules or ATCs/day ahead leftovers.

After the DACF loadflow calculation process to ensure possible increase requests, a unilateral decrease by APG is possible.

4.3 ELIA

4.3.1 Increase Process

Increase requests

Capacity increases are requested by Coreso on behalf of Elia. An increase of 300 MW is requested for one or both directions of the Belgian borders. Market directions may be prioritised.

Assessing the feasibility of the consolidated increase requests

The local validation of CWE ID ATC increase requests is performed by Coreso on behalf of Elia. 2 assessments are performed per business day:

1. Evening Process:

   ▪ Increase requests for period [00h00-09h00] are evaluated

   ▪ Assessment is based on DACF information.

   ▪ Results are sent to CMT before 21h45 in D-1.

2. Nightly Process:

   ▪ Increase requests for period [09h00-24h00] are evaluated.

   ▪ Assessment is based on IDCF information.

   ▪ Results are sent to CMT before 05h30.

The approach for both processes is the same:

Step 1: Selection of representative timestamps/corners

   Considering the already allocated capacity, the initial ATC and the ID ATC increase requests per oriented CWE border, a set of representative timestamp/corner combinations is determined. Different sets of likely corners are evaluated. This is done by making use of sensitivity coefficients which reflect the impact of each CWE commercial exchange on the physical flows in the network.

   Corner variations consider both initial ATC and ID ATC increase requests. If the initial ATC is very high for a specific border, it will be capped to a more realistic value based on the ID nominations observed in the past. This is done to avoid being too conservative in the assessment of the ID ATC increase requests.

   The selection of the representative timestamp/corner combinations is cross- checked with the Elia operator.

Step 2: Detailed security analysis

   A detailed security analysis is performed for the selected timestamp/corner combinations. The same set of acceptance criteria and remedial actions than the ones used locally at Elia for the DACF/IDCF processes is considered. Both preventive and curative RA are taken into account.

Step 3: Validation of results

   Coreso calls the Elia operator to present the results. Overloaded CNEC pairs are reported for each timestamp/corner combination which was analysed. The Elia operator can overrule the result in specific situations (i.e. incident has occurred, adequacy issues, voltage issues, …). Based on the studied timestamps, the ID ATC increase requests for the full period are either accepted or rejected.

Step 4: CMT upload

   Coreso uploads the Elia feedback for the different ID ATC increase requests to the CMT.

In exceptional situations, Elia can ask Coreso to split the period of the Evening Process or the Nightly Process into 2 sub-periods.

4.3.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment.

4.4 RTE

4.4.1 Increase Process

The following process is operated by CORESO on behalf of RTE

- ✓ If the ATC FR<>BE is below 500 MW, a request for increase of 300MW is sent, nothing otherwise
- ✓ If the ATC FR<>DE is below 1000 MW, a request for increase of 200MW is sent nothing otherwise
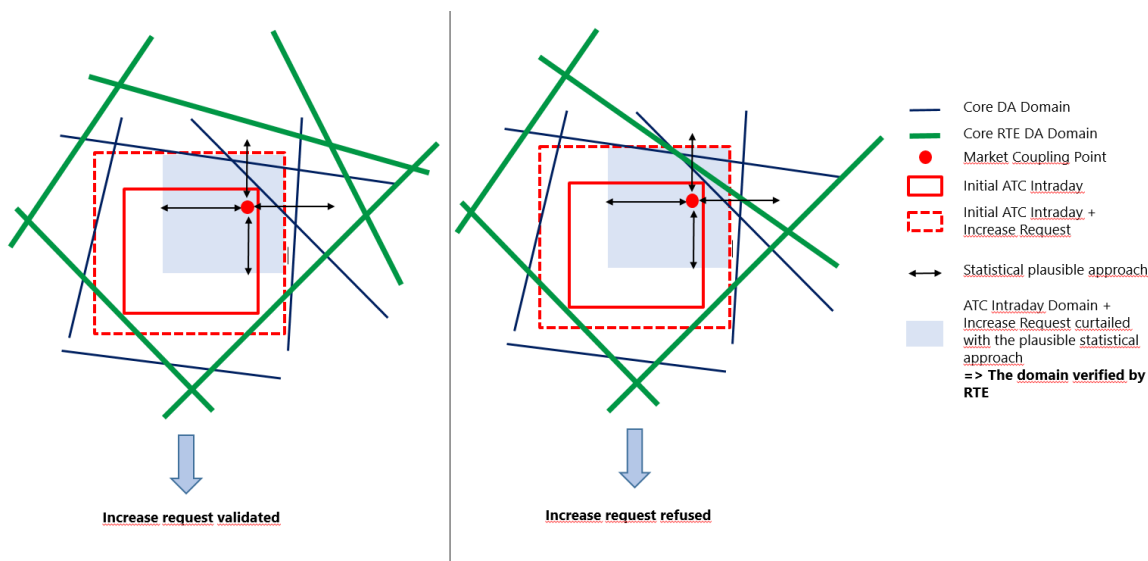
Assessing the feasibility of the consolidating increase requests:

The requests are tested on the Core Flow Based Domain containing only the RTE CNECs, the final PTDF and the Remaining Available Margin (RAM_ID) taken into account for the ID ATC extraction process of Core Day Ahead, therefore this process is based on the D2CF CGM used for the Core Day Ahead process. When Extended LTA inclusion is "on", the LTA margin is recomputed and taken into account in the RAM_ID, to ensure that RTE provide an assessment with the inclusion of the LTA.

The ATC domain with the increased capacity is combined with a statistical plausible approach. This ATC domain is curtailed to the maximum activity already observed in the ID process by Market Participants.

If, on the corners of this ATC domain combined with statistics approach, no French CNECs are overloaded therefore the increase requests are accepted, otherwise there is a rejection.

The square in light blue represents the ATC domain combined with a statistical plausible

	Core DA Domain
	Core RTE DA Domain
●	Market Coupling Point
	Initial ATC Intraday
	Initial ATC Intraday + Increase Request
↔	Statistical plausible approach
	ATC Intraday Domain + Increase Request curtailed with the plausible statistical approach **=> The domain verified by RTE**

Increase request validated   Increase request refused

approach. This statistical plausible approach is the maximum activity by market parties observed per frontier over a certain period of time.

The domain delimited by the green CNECs represents the Final FlowBased domain containing only the RTE CNECs.

On the left, the light blue domain is included inside the RTE Green domain so the requests are accepted, on the right, the requests are rejected because some French CNEC will be overloaded on some corners of the light blue domain.

The assessment of consolidated increase/decrease requests is done once per day, in the evening of the D-1.

4.4.2 Decrease Process

This functionality is not foreseen to be used on RTE's side

4.5 Tennet DE

4.5.1 Increase Process

There is no local process to ask for increase requests in operation. Increase requests for TenneT DE borders are performed by other CWE TSOs/RSCs according to the agreed rules about maximum increases.

The increase requests are assessed starting from DA CGM and the D-1 clearing point. Maximum utilization of potential ID ATCs (total of initial ATCs, decrease notifications and increase requests) is simulated via CWE GSKs for the most likely combinations of simultaneous exchanges on all five borders (hereafter referred to as likely corners). Security assessment is performed for all defined likely corners using AC load flow security analysis and CNECs of TenneT DE. If the network security assessment fails for at least one likely corner, the PTDF of each border is checked against a threshold (currently 5%) and the security assessment is repeated with reduced increase requests for those borders with PTDF higher than the threshold in order to check for the possibility of partial acceptance. Borders with PTDF lower than the threshold remain unchanged to not prevent increases on non-impacting borders for concerned CNECs.

The assessment of increase requests takes place for all MTPs simultaneously once per day using the merged DA CGMs.

Note: there might be changes needed due to ALEGrO, i.e. 6 borders instead of 5, increasing to corners further. The impact assessment is not finalized yet.

4.5.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment.

4.6 Tennet NL

4.6.1 Increase Process

TenneT NL sends every day an increase request for the borders BE-NL and DE-NL in both directions. By default it's always the maximum capacity increase per border and direction. The request only deviates if a decrease situation occurs (see Decrease Process). After D-1 18:00 TenneT NL validates the increase request from each border via a TTC (Total Transfer Capacity) computation. The loadflow application calculates the max feasible transfer capacity per border and direction against the following components:

- Most recent Common Grid Model (CGM), DACF or IDCF

- Newest forecast information from market parties

- Only 380kV Critical network elements from the Dutch are taken in to account (impact only on own grid)

- Left over capacity from Flowbased DA (Intraday ATC)

- Validations steps with rounding (50MW)

- Depending on the grid situation, TenneT NL validates min. 4 times till 6 times per business day. It respects the gate opening and closures timing from the ID CMT.

4.6.2 Decrease Process

Based on 2 possibilities a decrease can be applied:

- *Critical Grid Situation* (CGS) according to ENTSO-E definitions.
- Unplanned outage in the 380kV grid or on Dutch HVDC interconnector(s)

If one of the possibilities occur before D-1 18:00 than the grid operator analyses the unexpected grid situation. Based on the outcome, the operator can decide to reduce the left-over intraday ATC till it's minimum capacity.

The Intraday ATC without virtual capacity is seen as the minimum capacity which can be given to the market based on the information available.

The $\Delta flow_{A \to B}$ will be provided to the ID CMT as decrease request.

if $\text{ATC(without virtual capacity)}_{A \to B} > \text{ATC(left over capacity)}_{A \to B}$ then

$\Delta\text{flow}_{A \to B} = 0$ else

$$\Delta\text{flow}_{A \to B} = -(\text{ATC(left over capacity)}_{A \to B} - \text{ATC(without virtual capacity)}_{A \to B})$$

4.7 TransnetBW

4.7.1 Increase Process

There is no local process to request an increase of capacity in operation. Increase requests for TransnetBW borders are performed by other CWE TSOs/RSCs.

Assessing the feasibility of the consolidating increase requests:

For assessing the feasibility of the increase requests, local validations are performed per Business Day with a load flow tool which uses Day Ahead Common Grid Models which contain all RAs known at this moment in time as basis. Shortly after the CGMs are available the ID assessment process starts with a simultaneous check of the increase requests if they can be granted. In case a full acceptance is not possible, the process is repeated with the partial increase requests according to the common rules.

The current process will be exchanged with a new process based on linear sensitivities similar to the flow based process. The calculation of PTDFs is based on a common grid model. The local tool calculates the zonal PTDF at the CWE borders for the base case and relevant n-1 cases.

The load flow changes from zona A to B with the increase request $request_{A \rightarrow B}$ and the available transfer capacity on the border $ATC_{A \rightarrow B}$ can be described as:

$$\Delta flow_{A \rightarrow B} = PTDF_{A \rightarrow B} \cdot (request_{A \rightarrow B} + ATC_{A \rightarrow B})$$

During the calculation positive PTDF Factors are considered to determine the maximum influence on each CNE. At the end of the process the individual influences are added up to gain the total additional flow for each critical network element with a certain contingency (CNEC)

$$\Delta TotalFlow = \sum_{j=1}^{\substack{number\ of \\ ATC\ border}} \Delta flow_j$$

If the total additional flow overloads a given CNEC the initial request will be reduced until no CNEC is overloaded.

The reduction of increase requests is performed successively for all borders applying the same partial acceptance steps (200 MW, 100 MW, 50 MW) followed by a full rejection (0 MW). If different increase request for several borders are requested, the increase requests are curtailed to a common level before all borders are reduced. This prevents discrimination among increase requests of different borders.

4.7.2 Decrease Process

No local process to assess decreases before increase/decrease deadline is foreseen at the moment. However, when network security is endangered on TransnetBW grid or surrounding borders which could be eliminated by a decrease of ID ATC on the border DE/LU-FR, DE/LU-AT the TransnetBW operators may inform Amprion or APG operators that a decrease of capacities is necessary to ensure grid security.