CORE - Publication Tool for DA CCM
Publication Handbook

Summary
The handbook contains an overview of the data that is published, along with the relevant information required to utilize the Publication tool.

Version
1.8

Date
December 2022
<table>
<thead>
<tr>
<th>Version History</th>
<th>Change description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8.</td>
<td>Explanation of remedial actions impact on the domain data added</td>
</tr>
<tr>
<td>1.7</td>
<td>Adjusted publication timings</td>
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</tbody>
</table>
| 1.6             | - The URLs for Core Publication Tool Go-live and API are included  
|                 | - The description of the Monitoring tool is updated |
| 1.5             | Publication Tool was updated in May 2022 with  
|                 | - Release of the monitoring tool  
|                 | - Implementation of Ext LTA inclusion approach in the Core market view |
| 1.4             | Version released Apr 2022 integrating the post-coupling pages as well as  
|                 | following improvements/precisions to the pre-coupling pages:  
|                 | - UCT time in download  
|                 | - Core market view: explanation how to model ALEGrO as part of DE-BE exchanges and hub positions  
|                 | - Explanation data sources RefProg  
|                 | - Updated references to cross-zonal capacities being the combination of final FB domain and final BEX restrictions  
|                 | - Explanation on IVA capping and how it plays out in the pre-final and final FB domain  
|                 | - Scope of network elements that can be found in the domain pages  
|                 | - Caveat on the minRAM_target_Core parameter |
|                 | Please note the introduction of the following functionalities is deferred to a next release  
|                 | - Monitoring tool  
|                 | - Core market view: explanation on extended LTA inclusion approach added yet correct implementation to follow in a next release |
| 1.3             | Version released Nov 2021 mainly focused on the pre-coupling pages |

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1 Background

The Core Day-ahead Capacity Calculation Methodology CCM Article 25 – “Publication of data” describes the publication obligations that TSOs need to fulfil. This encompasses the set-up of a dedicated online communication platform, and a handbook (this document) to enable market participants to have a clear understanding of the different published data.

The dedicated online communication platform is named the Core Publication Tool and can be accessed via the following link: https://publicationtool.jao.eu/core/

2 Navigation

Various publications are structured in multiple pages and listed in the vertical navigation bar. The navigation bar is visible at all times allowing users to easily switch between the different available publications.

Also present in the vertical navigation bar are filters which allow users to:

- Filter for a specific (i) business day and if needed a specific (ii) MTU;
- Filter on specific (iii) hubs or (iv) borders

The filter functionality allows users to target their dataset of interest, and is beneficial in terms of performance.
3 Downloading data

Users are able to download data in two formats (CSV or XML) via the “Download” button on the right upper corner. Users may opt to download data covering a range of days or a single day. If preferred, further filtering option to download specific time period is also available. A download option for the Border Data Overview page is not planned as it is an overview page.

The main date filter in the navigation bar allows users to select and display data for a given day. Displaying multiple days in the GUI is not foreseen due to large volume of data (especially for domain pages).

The download option allows users additional filter functionality, users have an option to:

- Download a larger dataset (>24 hours)
- Download a shorter dataset (<24 hours)
Note: the UCT time convention applied in the downloads, and hence can differ from the value observed in the GUI which is based on CEST time

Please consider download the Data for small batches of time (less than 30 days).

4 Filter functionality: Domain pages

In the Domain pages (Initial, Pre-Final and Final), users are able to filter within following fields:

- Pre-solved - Check box allowing user to select true or false
- TSO – picklist allowing user to select TSO(s)
- Hub from / Hub to - picklist allowing user to select multiple hubs (from/to)
- CNE – keyword based search
- Contingency – keyword based search

The filter selection will not have an effect on the downloading of data, here all the results are downloaded depending on the selected time period.
5 Publication Overview

Core MarketView
The Core Market View page enables market participants to evaluate the interaction between cross-zonal capacities and cross-zonal exchanges between bidding zones. It is split in two sections.

Max Volume: publication of “Max net position” and “Max exchanges (Maxbex)” for the MTU under consideration. Although this information is published on separate pages too, it is embedded in this page to facilitate the utilisation of the “check volume” part.

Check Volume: an interactive section where users can insert volumes of commercial trades (in terms of hub-to-hub exchanges or hub net export positions) in order to test their feasibilities. The feasibility is assessed for the selected business day and MTU as explained below.

(i) Hub-to-hub

To test the feasibility of trades, users can enter for each border the volume of exchanges they are willing to trade (positive values for direction indicated and negative values if the user wants to test in the other direction) and click in the adjacent box (i) to run the test.

The tool will then test, as per the Ext LTA inclusion methodology implemented in Euphemia, whether the hub-to-hub exchanges fit within the union of the Final FB domain and the Final Bilateral Exchange Restrictions.

If the trades are feasible the cell turns green text “Trades feasible” is displayed. If the trades are not feasible, the cell turns red and the text “Constrained Transmission System” is displayed.

Note: the value for the DE-BE border in the max volume section represents an exchange between the German and Belgian hubs where both the ALEGrO direct DC interconnector as well as the AC grid pathways are used. Whilst the value to fill in the ‘check volume part’ for the DE-BE (DC) row corresponds to the direct exchange between Germany and Belgium through the ALEGrO interconnector, thus a range between -1000 and +1000 MW.
Users are able to check the feasibility of Hub positions (import/export positions).

- **Test 1:** The tool will check if the sum of Hub positions equals to zero (ii).
- **Test 2:** The tool will check whether the specified Hub positions are feasible or not by checking whether the hub positions fit within the union of the Final FB domain and the Final Bilateral Exchange Restrictions

Note: when filling in the hub positions, please be aware about the following relationship between the BE, DE, ALBE and ALDE hubs:
- The ALBE and ALDE hubs represent the contribution of the ALEGrO interconnector and have to be filled in symmetrically. For example, if ALDE is filled in with 1000 MW then ALBE should be filled in with -1000 MW to configure a 1000 MW export on the German side and a 1000 MW import on the Belgian side of the ALEGrO interconnector.
- The BE and DE hubs represent the net positions aside from ALEGrO. Double-counting is to be avoided. For example, to model a 3000 MW Core net import for Belgium where 1000 MW comes from ALEGrO, one has to fill in -1000 MW in ALBE row and -2000 MW in the BE row. Similar, to model a 5000 MW Core net export for Germany where 1000 MW is exported through ALEGrO, one has to fill in 1000 MW in the ALDE row and 4000 MW in the DE row.

Note 2: the check on hub-to-hub exchanges and the check on the hub positions are independent from another. This means that the hub positions specified are not taken into account when testing the feasibility of the specified hub-to-hub exchanges, and vice versa.
Core MarketGraphs
The “Core Market Graphs” illustrates for each Core hub, a graph with the “Min/Max net pos” and “Max exchanges (Maxbex)” for the 24 MTUs of the selected day. Users are able to de/select specific hubs on top of the page.

Publication time: 10.30 am (D-1)

5.1 Core Map
The “Core map” displays the maximum possible bilateral exchanges between each border and the minimum and maximum net positions of each hub on a map representing the Core configuration. The data corresponds to the MTU and Business Day as selected in the filter from the final flow-based computation.
5.2 Border Data Overview

This page displays the following information for a selected border:

- The ATC in MW offered for the Day-ahead market coupling (for the non-CORE borders)
- The allocated capacity (or SEC) in MW after Market coupling
- The Price Spread in €/MWh
- The Congestion Income in €
- The nominated volume of the long term allocated product (LTN) in MW
- The Shadow Auction ATC, being the ATC that would be provided to a shadow auction mechanism, in MW
- The Intraday ATC, being the left-over capacity after the FBMC expressed as initial ATC, in MW.

Please note that for the Core internal borders, the ATCs and Congestion Income are not available on a border basis and for the other borders, the long-term nominations, the Shadow Auction ATCs and the intraday ATCs will not be available.
Publication time: As soon as data is available (D-1)

5.3 Max Net Positions

These page displays the minimum and maximum Core net positions in MW of each hub for each MTU of the day. These indicators are extracted from the union of the final flow-based domain and final bilateral exchange restriction which together describe the cross-zonal capacities provided to the market coupling.

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Publication time: 10.30 am (D-1)

5.4 Max Exchanges (Maxbex)

This page displays the maximum bilateral exchanges between two CORE hubs with the assumption that the other net positions are zero. These indicators are extracted from the union of the final flow-based domain and final bilateral exchange restriction which together describe the cross-zonal capacities provided to the market coupling.
5.5 Initial Comp.(VirginDomain)

This page contains the flow-based parameters of the selected business day and MTU of the initial flow-based computation (virgin domain, RefProg balanced).

Details of each column:

- **Date**: Business Day and MTU
- **Information on the CNE:**
  - **TSO**: Indicating the TSO defining the CNE
  - **CNE_Name**: The human readable name of the CNE as per the naming conventions defined in 10.1
  - **EIC_Code**: EIC Code of the Critical Network Element
  - **Direction**: Direction of the flow [DIRECT] or [OPPOSITE]
  - **Hub From**: The Hub the CNE is connected from
  - **Hub To**: The Hub the CNE is connected to
  - **Substation From**: The location (substation the CNE is connected from)
  - **Substation To**: The location (substation the CNE is connected to)
  - **ElementType**: Asset Type of the CNE, e.g. Busbar, DC-Link, Generation, Line, Load, PST, Tieline, Transformer
  - **FmaxType**: The Method for determining the Imax i.e. Type of maximum admissible power flow, e.g. Fixed, Dynamic, Seasonal

Please note: External constraints are also displayed in this page, e.g. NL_import

**Information on the Contingency:**

- **TSO**: Indicating the TSO defining the Contingency
- **Contingency Name**: The readable name of the Contingency indicating [Hub from – Hub to]
- **BranchName**: In case of multibre branch contingency the name of each branch
- **EIC_Code**: EIC Code of the Critical Network Element
- **Hub From**: The Hub the Contingency is connected from
- **Hub To**: The Hub the Contingency is connected to
- **Substation From**: The location (substation the Contingency is connected from)
- **Substation To**: The location (substation the Contingency is connected to)
- **ElementType**: Asset Type of the CNE, e.g. Busbar, DC-Link, Generation, Line, Load, PST, Tieline, Transformer
In case a Contingency consists of multiple branches, each branch is displayed as one row associated to the CNE to which the Contingency is applied.

**Detailed breakdown of RAM:**

- Presolved: if the value is TRUE then the corresponding CNEC constrains the flow-based domain, FALSE means a redundant CNEC not constraining the flow-based domain
- RAM: remaining available margin in MW
- Imax: the maximum admissible current in A
- U: reference voltage of the CNEC in kV
- Fmax: the maximum allowable power flow of the corresponding CNEC in MW
- FRM: flow reliability margin in MW
- F_{(ref,init)}: the reference flow calculated during the initial flow-based calculation in MW
- F_{nrao}: expected flow change due to non-costly remedial actions optimisation in MW
- Fcore: the flow per CNEC in the situation without commercial exchanges within the Core CCR in MW
- F0all: the flow per CNEC in a situation without any commercial exchange between bidding zones within Continental Europe and between bidding zones of other synchronous areas in MW
- F_uaf: the flow resulting from assumed commercial exchanges outside the Core region in MW
- AMR: Adjustment for minimum RAM in MW
- LTA\_margin: Flow margin for LTA inclusion where LTA\_margin=max(F_{LTAmax} + FRM-AMR-Fmax; 0) in MW
- CVA: coordinated value adjustment resulting from coordinated validation process in MW
- IVA: individual value adjustment resulting from individual TSO validation process in MW
- F_{total\_LTN}: flow after consideration of LTN (F_{total\_LTN}=(F0,core+F\_LTN)) in MW
- One column per hub with the Power Transfer Distribution Factor value

Please note the attributes F_{nrao}, AMR, LTA\_margin, IVA, CVA, F_{total\_LTN} are empty/zero because these are determined later on in the capacity calculation process, and hence only relevant for the Pre-Final Computation and Final Computation pages.

Please note the attribute IVA is capped by the Core CCCt in order to ensure a non-negative RAM value. The capped IVA value can differ between the pre-final FB domain and the final FB domain because in the pre-final FB domain the RAM is expressed against a zero-balance reference, whilst in the final FB domain the RAM is expressed against a reference where zero-balance is shifted to the long-term nominations.

**Scope of network elements:** please note that the list of NECs (network elements combined with a contingency) displayed in the domain pages contains more than only CNECs. Hereby an enumeration of other network elements currently displayed:
Network elements which got filtered out following the 5% ptdf rule. These are monitored network elements according to the CCM and are not part of the pre-solved dataset;

- Network elements with Imax = 9999 and that can appear at first sight as duplicates of CNECs. These CNECs relate to borders between Core and non-Core countries and are technically part of the dataset as they are needed to calculate the non-core exchanges KPI;
- Technical parameters to properly bound the FB domain and thus part of the pre-solved dataset
  - 4 external constraints related to ALEGrO: External Constraint BE_AL_export, External Constraint BE_AL_import, External Constraint DE_AL_export, External Constraint DE_AL_import
  - 4 equality constraints

Publication time: 01.15 am (D-1)

5.6 Remedial Actions (Preventive/Curative)

This page displays the Remedial Actions split between curative RA’s and preventive RA’s.

Users are able to switch between two pages, where one page displays the Preventive RA’s that are applied and the other, the Curative RA’s that are applied when nRAO was used in the process. If a MTU was not optimized by nRAO this is also shown with the information that “Given hour was not optimized in NRAO). If no data is available for a specific hour, this is also displayed, this could occur due to failing of nRAO in the process;

Baseline means the Tap position of a PST in the CGM before nRAO Application.

More information on the applied RAs can be found in the Handbook for the static grid model here.

1 Link will be functional in December, 2021
5.7 Validation Reductions

This page lists CNECs and the TSO:

- for which capacity has been reduced as an outcome of the validation processes, including a justification for this reduction
- that have been added to the final list of CNECs during the validation processes, including a justification of the reasons of why adding a CNEC to ensure operational security. In this case the ‘Returned Branch’ attribute will contain a value.

The CNEC Name consists of the CNE / Contingency.

Please note that the justification is sent by the TSOs themselves.

The TSOs 50 Hertz, Amprion, APG, TNG, TTG, TTN run the individual validation process commonly with a centralised tool DAVinCy thus resulting in common justifications.  

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2 A short description of the approach of the 6 TSOs (50 Hertz, Amprion, APG, TNG, TTG, TTN): When the pattern of net positions represented by an analysed vertex of the flow-based domain cannot be realised within operational security limits while taking into account all available RAs, the domain must be contracted by applying IVA on a subset of CNECs. Normally, these would be the CNECs that are adjacent to the vertex. But a TSO can apply IVA only on its own CNECs. When one or more of the CNECs do not belong to the TSO(s) performing the individual validation, the required contraction of the domain can only be achieved by applying IVA on own CNECs that are not adjacent to the vertex. Since these “substitute” CNECs are not presolved, i.e., are “outside” of the FB domain, a first part of the IVA is needed just to shift them into the analysed vertex. Only the remainder of the IVA effectively contracts the domain.
5.8 Pre-Final (EarlyPub)

This page displays the pre final flow-based parameters of the selected business day and MTU before long term nominations (zero balanced).

The detailed data items are the ones described under 5.5 Initial Computation (Virgin Domain), plus the following data items describing the minimum capacity targets in relation to CEP70 implementation (70%, action plan, derogation):

- **R_amr %**: describes the target for the totality of market exchanges incl. non-Core exchanges
- **R_amr justification**: optional attribute through which Core TSOs can share additional information on how the R_amr has been calculated
- **minRAM target Core %**
  - Objective: describe the capacity for Core exchanges by deducing the non-Core exchanges from the R_amr
  - Currently implemented
    - In case AMR > 0: the value is correctly displaying minRAM_target_Core = R_amr – Fuaf
    - In case AMR = 0: the value shown is the RAM as percentage of Fmax ➔ will be fixed in a future release so that it also represents R_amr – Fuaf

**Scope of network elements**: please note that the list of NECs (network elements combined with a contingency) displayed in the domain pages contains more than only CNECs. Hereby an enumeration of other network elements currently displayed:

- Network elements which got filtered out following the 5% ptdf rule. These are monitored network elements according to the CCM and are not part of the pre-solved dataset;
- Network elements with Imax = 9999 and that can appear at first sight as duplicates of CNECs. These CNECs relate to borders between Core and non-Core countries and are technically part of the dataset as they are needed to calculate the non-core exchanges KPI;
- Network elements with slightly different RAM values that can appear at first sight as duplicate CNECs. These CNECs have the same name, but slightly different parameters as they represent the results of remedial actions application. Both entries are valid for the flow-based calculation.
- Technical parameters to properly bound the FB domain and thus part of the pre-solved dataset
  - 4 related to ALEGrO: External Constraint BE_AL_export, External Constraint BE_AL_import, External Constraint DE_AL_export, External Constraint DE_AL_import
  - 4 equality constraints

**Publication time**: 10.30 am (D-1)
This page displays the nominated capacity from long-term auctions in MW, per border in both directions. Most of the borders make use of FTR (financial transmission rights) thus no capacity is nominated. The borders using PTR may have physical nominations.

<table>
<thead>
<tr>
<th>Long Term Nomination</th>
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</tr>
<tr>
<td>2021-01-03</td>
</tr>
</tbody>
</table>

Publication time: 10.30 am (D-1)

5.10 Final Computation

This page contains the final flow-based parameters of the selected business day and MTU following long term nominations (Ltnom balanced).

The detailed data items are the ones as described under 5.5 Initial Computation (Virgin Domain) plus the following data items describing the the minimum capacity targets in relation to CEP70 implementation (70%, action plan, derogation):

- R_amr %: describes the target for the totality of market exchanges incl. non-Core exchanges
- R_amr_justification: optional attribute through which Core TSOs can share additional information on how the R_amr has been calculated
- minRAM target Core %
  - Objective: describe the capacity for Core exchanges by deducing the non-Core exchanges from the R_amr
  - Currently implemented
    - In case AMR > 0: the value is correctly displaying minRAM_target_Core = R_amr – Fuaf
    - In case AMR = 0: the value shown is the RAM as percentage of Fmax ➔ will be fixed in a future release so that it also represents R_amr – Fuaf

Scope of network elements: please note that the list of NECs (network elements combined with a contingency) displayed in the domain pages contains more than only CNECs. Hereby an enumeration of other network elements currently displayed:

- Network elements which got filtered out following the 5% ptdf rule. These are monitored network elements according to the CCM and are not part of the pre-solved dataset;
- Network elements with Imax = 9999 and that can appear at first sight as duplicates of CNECs. These CNECs relate to borders between Core and non-Core countries and are technically part of the dataset as they are needed to calculate the non-core exchanges KPI;
- Network elements with slightly different RAM values that can appear at first sight as duplicate CNECs. These CNECs have the same name, but slightly different parameters as they represent the results of remedial actions application. Both entries are valid for the flow-based calculation.
- Technical parameters to properly bound the FB domain and thus part of the pre-solved dataset
  - 4 related to ALEGrO: External Constraint BE_AL_export, External Constraint BE_AL_import, External Constraint DE_AL_export, External Constraint DE_AL_import
  - 4 equality constraints

Publication time: 10.30 am (D-1)

5.11 LTA
This page displays the in the long term (yearly/monthly) allocated capacity in MW, per border in both directions.
The LTA domain is introduced with the Extended LTA Approach where cross-zonal capacities consist of a flow-based domain without LTA inclusion and a LTA domain.

**Publication time:** 10.30 am (D-1)

### 5.12 Final Bilateral Exchange Restrictions

This page displays:

- In case of normal operation: the LTA domain shifted with the effect of long-term nominations (LTN). Together with the final flow-based domain it represents the cross-zonal capacities provided to the market coupling.
- In case of the day-ahead capacity calculation fails to provide the flow-based parameters in three or more consecutive hours: the default FB parameters (in MW). As per Core CCM Art 4(4) the default FB parameters are defined based on the LTA capacity for each Core oriented bidding zone border, increased by the minimum of the two adjustments provided by the TSO(s) on each side of the bidding zone border. The adjustments reflect part of the LT capacity which is reserved for day-ahead, if such practice is applicable on the concerned bidding zone border. The values displayed represent the default FB parameters including the effect of long-term nominations (LTN).
5.13 Allocation Constraints

As per the Core CCM, Belgium, Poland and the Netherlands are allowed to use external constraints.
5.14 D2CF

This page publishes the aggregated assumptions from the grid models for each MTU on TSO and Hub level: Vertical load, generation (production) and net position in MW for each CORE hub and TSO if it differs from the hub level.

For capacity calculation purposes, each Core TSO generates one individual grid model per MTU. Please note that the published load, generation and net positions are based on an AC loadflow solved grid model. Therefore, the generation + load is not necessarily equal to the net position of the hubs due to losses in the AC grid.

- “Vertical load” is the load as seen from the transmission grid in MW in the Individual Grid Model
- “Generation” is the generation in MW in the Individual Grid Model
- “Core net position” is the forecast of the overall balance of the countries in MW in the Individual Grid Models

5.15 Refprog

The RefProg page display the exchange data per border that are used for merging of the European grid models including HVDC-interconnectors within the synchronous area in MW. Multiple data sources are used:

- Exchanges between two Core hubs are derived from the Core net positions in the CGM thus representing the result of the merging step of the Core capacity calculation process;
- Exchanges on DC links are taken over from the IGMs;
- Exchanges on Core-Swiss and Core-Italian borders are forecasted by the Net Position Forecast tool deployed in Core;
- For other exchanges between a Core and a non-Core hub or between two non-Core hubs, a reference day approach is applied thus using historical scheduled commercial exchanges from a previous working day / weekend / bank holiday.

5.16 Reference Net Position

This page displays the reference net position assumed for creating the CGM for non-core hubs in the common grid model which are the global Net Positions of this hubs.
When external constraints are expressed as a limitation on the Core net position, they appear as part of the FB parameter set. This practice is applied by the Netherlands.

When external constraints are expressed as a limitation on the SDAC net position, they are send as a separate data flow to the market coupling, called Allocation Constraints. This practice is applied by Belgium (import direction) and Poland (import and export direction). The Allocation Constraints page thus displays the Allocation constraints in MW send by Elia and PSE.

Note: there exist also 4 external constraints related to the DE-BE HVDC interconnector ALEGrO (BE_AL_import, BE_AL_export, DE_AL_import, DE_AL_export). These external constraints are of a different nature i.e. they describe the 1000 MW technical capacity of the interconnector.

**Publication time:** 10.30 am (D-1)

### 5.17 ATCs on CORE external borders

This page displays the ATC values in MW made available for the Day-Ahead market coupling and this for the two directions of the concerned borders.
Publication time: 10.30 am (D-1)

5.18 ShadowAuction ATC

This page displays the ATC for SDAC fall-back procedure (Shadow Auctions) per border in the two directions.

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</table>

Publication time: 10:30 am (D-1)

5.19 ShadowPrices

This page displays the binding constraints (CNECs) after Market Coupling, with its shadow price. The shadow price represents the increase in social welfare resulting from making 1 MW more capacity available to the market on this element. The structure of the page is the same as for the initial/final Computation page cf. 5.14 with the exception that the column “pre-solved” is replaced with the shadow price the limiting CNEC has.

Publication time: 13:00 pm (D-1)
5.20 Congestion Income

This tab gathers the net congestion income per hub and per TSO for the CORE region, and the gross congestion income (without UIOSI taken into account) for the non-CORE borders in €.

Publication time: 15:00 pm (D-1)

5.21 Scheduled Exchanges

This page displays the capacity allocated by the market coupling algorithm in two directions for defined borders in MW.

Publication time: 15:50 pm (D-1)

5.22 Net Position

This page displays the CORE net positions after Market Coupling in MW.
5.23 Intraday ATC

This page displays the remaining capacity left after the Day-Ahead capacity allocation, expressed as initial ID ATCs for two directions of the CORE borders in MW.

The initial ATC takes into account how each Core TSO defines the parameters wrt virtual capacity. As defined in the Core ID CCM, Core TSOs are allowed to remove virtual capacity prior to extracting the left-overs.

The initial ATCs are subject to decrease/increase actions. As for the former CWE borders a reporting solution for this decrease/increase was in place, it has been kept in the Core Publication Tool. A full overview of the resulting ID ATCs for all Core borders as applied in XBID can be consulted on the ENTSO-E transparency platform.
### Price Spread

This page indicates the market price spread in €/MWh for the two directions of the defined borders.

<table>
<thead>
<tr>
<th>Price Spread</th>
<th>Date</th>
<th>Initial AT</th>
<th>Initial SE</th>
<th>Decrease AT</th>
<th>Decrease SE</th>
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<th>SE-AT</th>
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</tbody>
</table>

### Spanning/DFP

This page displays MTUs in which a fallback was applied during capacity calculation like spanning or default flow-based parameters due to technical or other issues in the daily process.

#### Spanning / DFP

<table>
<thead>
<tr>
<th>Date</th>
<th>Computation</th>
<th>Type</th>
<th>Initial</th>
<th>Final</th>
<th>Pre-Final</th>
</tr>
</thead>
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</table>

**Publication time:** when available
6 Monitoring Tool

The Monitoring Tool is part of the continuous monitoring implementation in line with Art 26(2) of the Core DA CCM. It provides a dashboard reflecting the data completeness for each of the data items (pages) that can be consulted through the Publication Tool.

The dashboard displays the Date, Page, Status and Follow up action initiated for the selected Business Day. The Status can be one of the following values:

- **Expected**: the publication of the page has not yet reached the target time
- **Received**: the publication of the page has been completed
- **Pending**: the publication of the page has not yet been completed whilst the target time for the publication is reached
- **Spanning/DFP**
  - In case Spanning/DFP is detected, the Spanning/DFP label is applied to those pages which are impacted.
  - In such case, the Spanning/DFP page itself will be marked as Received
  - The Spanning/DFP page itself is left blank by default. Only in case Spanning/DFP is detected, it will be filed in and marked as ‘Received’

The column ‘Follow up action initiated’ is marked with a green check to signal that publication has not been done by target time and an automatic alarm is sent to JAO operators, so that corrective measures can be done to retrieve the data for publication. As soon as the data publication is done, the Status label will change from Pending to Received, to signal data has been updated.

The Monitoring Tool allows to download the historical overview per page in csv file format and is available through the Monitoring button in the Publication Tool landing page.

7 Backup Tool

In case a critical issue occurs with the Core Capacity Calculation Tool, a Backup Tool is used to generate the capacity calculation outputs for the Market Coupling. In such case, a more limited set of information is published on the Publication Tool, namely for the concerned business day data is published on the following pages whilst the other pages will remain empty:

- **Spanning/DFP** – indicating the concerned Business Day consists of Default FB parameters
- **Final Bilateral Exchange Restrictions** – in this case representing the Default FB parameters
- **Allocation Constraints**
- **LTA**
- **LTN**
8 Web Service

On [https://publicationtool.jao.eu/core/api](https://publicationtool.jao.eu/core/api), users will find:

- **Endpoint (drop down):** Displays the different available publications.
- **Request-tab:** Displays the parameter structure which will be needed to retrieve the data, as it is a GET-method it will be needed to append the parameters to the URL
- **Response-tab:** displays how the response will be structured
- **Test-tab:** what the URL looks like with the provided parameters.

### API

- **GET** https://publicationtool.jao.eu/core/api/core/maxExchanges/index

<table>
<thead>
<tr>
<th>Date (UTC)</th>
<th>Request</th>
<th>Response</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022-06-08T23:00:00.000Z</td>
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</table>

**REQUESTED URL (GET)**

https://publicationtool.jao.eu/core/api/core/maxExchanges/index?date=2022-06-08T23%3A00%3A00.000Z

**REQUEST HEADERS**

```json
{
  "Authorization": "Bearer ***Enter Your Personal Token Here (Optional for now)***"
}
```

**RESPONSE HEADERS**

```json
{
  "content-type": "application/json; charset=utf-8",
  "date": "Fri, 10 Jun 2022 18:32:08 GMT",
  "transfer-encoding": "chunked",
  "x-frame-options": "DENY"
}
```

9 Publication tool (underlying architecture)

The publication tool website is developed with a .netCore backend and a react frontend, communicating via rest-api. A .netCore service runs on a separate server saving all data retrieved via FTP into an SQL-database.
10  Annex

10.1  Naming Convention for CNECs

Core TSO have defined the following naming conventions for CNECs.
- Line: “AVELGEM-HORTA 380.101”
- PST: “PST ZANDVLIET 1”
- Tripod line: “Y-DELLMENSINGEN-HOHENECK-VÖHRINGEN rot”, where
  - The Y stands for the node connecting all three branches of the tripod.
  - The firstly mentioned substation after the Y defines the branch of the tripod that is monitored i.e. Dellmensingen to the Y-node in this case
- TSOs harmonize the descriptive name of cross-border network elements with their neighbors

10.2  Naming Convention for RAs

10.2.1  Remedial Action Naming conventions

For Remedial Actions, the agreed naming conventions are:

10.2.2  Topological
- Opening a line: TOP_OPEN_SubstationA_SubstationB_ElementIdentifier, Example: TOP_OPEN_Mercator_Horta_73
- Closing a line: TOP_CLOSE_SubstationA_SubstationB_ElementIdentifier, Example: TOP_CLOSE_Mercator_Horta_73
- Split in multiple nodes: TOP_#NODE_S_Substation, Examples: TOP_2N_Dellmensingen; TOP_3N_VIGY

10.2.3  Complex action
TOP_COMPLEX_SubstationA_SubstationB_SubstationC_...
- Example: TOP_COMPLEX_GYOR_LITR_GABC

TSOs may include an optional suffix ‘_PRA’ or ‘_CRA’ in case the RA is specifically designed to be applied only as PRA or CRA. The example should read: TOP_COMPLEX_GYOR_LITR_GABC_CRA

10.2.4  PST taps
PST_SubstationName_Enumeration Example: PST_DIELE_441; PST_VANYK_2

10.2.5  Miscellaneous
- Special protection schemes that are applied in case of tripping of network elements are indicated with prefix “SPS” e.g. “SPS1_Pleinting_St. Peter Tr3_CRA”.
- Transformers with angle regulation are indicated with prefix “AT” e.g. “AT_Mikulowa_1_PRA”, “AT_Mikulowa_2_PRA”, “AT_Mikulowa_1_CRA”, “AT_Mikulowa_2_CRA”. Their impact as remedial action is implemented as a change of the phase angle between the coupled grids (400/220kV).