XBID Intraday Implicit Cross-Border allocation on the BE-NL border & the BE-FR border

Description of the allocation mechanism

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Contents

1   General Context

As specified in Article 5 of the MCO plan of the NEMOs the continuous trading matching algorithm shall be based on the XBID solution.

Key aspects of ID algorithm:

- comprises a shared order book (SOB) module and a capacity management module (CMM). The SOB module manages order entry, order management and order matching, while the capacity management module manages transmission capacity management and allocation
- enables multiple NEMOs to connect to the central SOB module. Orders are entered in the local trading solutions; market participants are not entitled to access the shared order book directly
- SOB matches orders (including from the same area). NEMOs are entitled to match local orders locally outside the SOB module if a similar product is not available in SOB.
- SOB module determines the local view of all orders that can be executed in the selected delivery area –i.e., local orders plus orders from connected delivery areas where there is available transmission capacity.
- where a cross-zonal trade is identified in the SOB, a request to CMM is made to reserve the associated cross-zonal capacity. Requests to reserve capacity shall be queued and treated in time sequence. If the necessary cross-zonal capacity is not available, the trade is not matched.

This document outlines the implementation of the XBID solution for the Belgian-Dutch and the Belgian-French border.

This document brings together a certain number of important analytical elements and provides a description of all the processes, between the transmission system operators (hereafter "TSO") ELIA, TenneT and RTE, and the Nominated Electricity Market Operators (hereafter "NEMOs") relevant for the delivery areas, namely Nord Pool, EPEX Spot Belgium and EPEX Spot.

2   Description of the solution

2.1.   General

The **XBID solution** that was chosen for intraday implicit allocation consists of three modules:

- SOB – Shared Order Book
- CMM – Capacity Management Module
- Shipping Module

The external service provider that has been chosen to develop the XBID solution is DBAG.

The XBID solution is a trading solution designed to enable the market participants, through the NEMO trading solutions, to trade energy contracts seamlessly across different geographies in a transparent, efficient and cost effective manner. It aims at creating an integrated trading platform based on the shared order book concept of trading module (SOB), the Capacity Management Module (CMM) and the Shipping Module (SM). The combined entity allows market participants from multiple exchanges in different geographical areas to trade cross border energy contracts continuously on a 24 by 7 basis on a centralised platform.
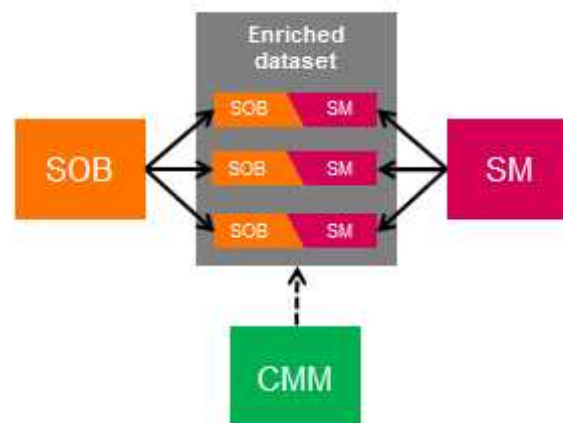
Capacity Management Module: CMM
Capacity Management Module refers to a capacity allocation module which offers the ability to allocate cross border capacity to users continuously all through the year on a 24 by 7 basis.

Shared Order Book Module: SOB
The Shared Order Book Module or Trading Module is a commodity trading system catering to the requirements of the energy markets. The trading system is designed to offer trading services to the market participants continuously all through the year on a 24 by 7 basis. It supports a wide range of energy products and contract types.

Shipping Module: SM
The SM of the XBID Solution provides information from trades concluded within XBID to all relevant parties of the post-coupling process. The SM receives data from the SOB about all trades concluded:
- Between two different Delivery Areas (DAs)
- In the same DA between two different NEMOs

The data from the SOB and the CMM are enhanced with relevant TSO, CCP and Shipping Agent data from the SM and transferred to the parties at the configured moments.

The cross-border allocation mechanism implemented is based on separate delivery areas which are connected to each other subject to capacities being available. The possible amount of transactions concluded between these areas is constrained by the capacity limits on the interconnector. Concluded cross-border transactions decrease the available capacity in one direction and increase the available capacity in the opposite direction since the principle of netting is implemented.

2.2. Detailed description of the solution

The solution can schematically be represented as in Figure 2 here below.
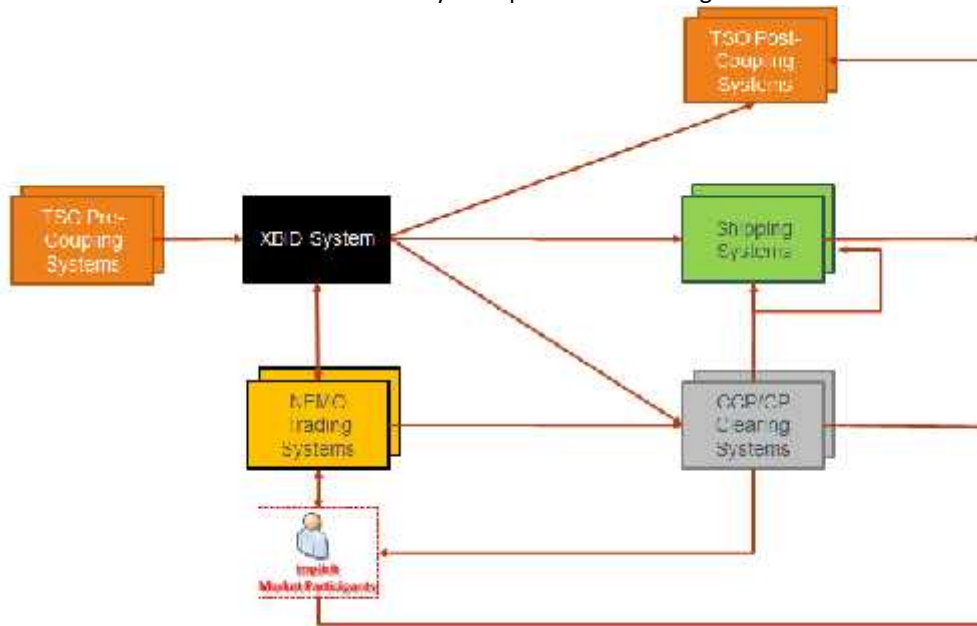
Figure 2 : High Level Architecture

Intraday trading through the XBID – SOB module will start on the basis of the confirmed intraday capacities calculated by the TSOs according to the current processes with their current systems and security of supply principles in place.

2.3. Intraday capacity calculation

The current intraday capacity calculation process will be used and is not affected by this implementation project which only aims at improving the capacity allocation process.

2.4. Submission of capacity values

2.4.1. General procedure

In order to enhance the competition between the different orders of the hubs, the intraday capacities must be made available for cross-border trading. It has been agreed upon that Elia will provide the available capacities for the Dutch-Belgian border and RTE will provide the available capacities for the Belgian-French border to the XBID platform – CMM module.

Once the intraday capacity values have been agreed upon by the TSOs, the process for submitting the values to the XBID – CMM module can start.

As soon as possible, the TSO's system sends the intraday capacity values to the XBID - CMM module. It is the goal to have uploaded and published the intraday capacity values to the platform by gate opening time set for the NL-BE border and BE-FR border in both directions. The gate opening time at Go-Live is 22hours on the day before delivery, until the implementation of the proposal for the intraday cross zonal gate opening time following Article 59 of the CACM Regulation.

If the normal procedure fails for transferring and confirming capacity values, there are back-up procedures. These include alternative ways of data transfer or confirmation/activation of intraday capacity values from the TSO's system to XBID - CMM module.

2.4.2. Principle of netting

All cross-border trades done on XBID - SOB module are implicitly utilizing cross-border capacity. Available cross-border capacity for intraday trading is automatically updated in XBID after each executed trade. Every time a trade is made, the transmission capacity decreases in the direction of the trade and increases in the opposite direction.

Example:

Initially there is 100 MW of available transmission capacity for both BE→NL and NL→BE. A participant in The Netherlands buys 20 MW from a Belgian participant. This will result in an export of 20 MW from Belgium to The Netherlands, which causes the capacity from BE→NL to decrease to 80 MW. However, at the same time the capacity from NL→BE increases to 120 MW.

2.4.3. Capacity modification

The TSOs may at any point in time change capacities input to the platform, if so required due to grid circumstances. TSOs have direct access to the platform for this purpose in real time. The capacity can be reduced, for security reasons. If no problems are encountered on the grid, all market participants view all orders of the different hubs (depending on the available capacity) and there is one market. If congestions occur and the capacity is reduced, the number of orders visible to the market participants will be decreased and if this capacity is zero, only national/local orders will be visible to the market participants. If the capacity has been reduced by the TSOs the CMM screen will be automatically updated.

2.4.4. Firmness

The intraday capacities provided by the TSOs to the NEMOs for the sake of implicit allocation is firm except:

a. the TSOs may at any point in time reduce the non-used (remaining) intraday capacities values in the XBID - CMM module

b. in cases of emergency or force majeure as defined in Article 2(45) of the CACM.

Notwithstanding the situation as referred to under b) above, this implies that all cross-border trades are firm with respect to the cross-border capacity (it being understood of course that the net sum of cross-border trades may never exceed the intraday capacity values; this is being dealt with/safeguarded by XBID algorithm). The change of capacity does not affect the cross-border transactions that have already been concluded.

2.5. Description of Local Trading Solutions of NEMOs

The following figure reflects the relation between market participants' and the XBID solution and the LTS of NEMOs.
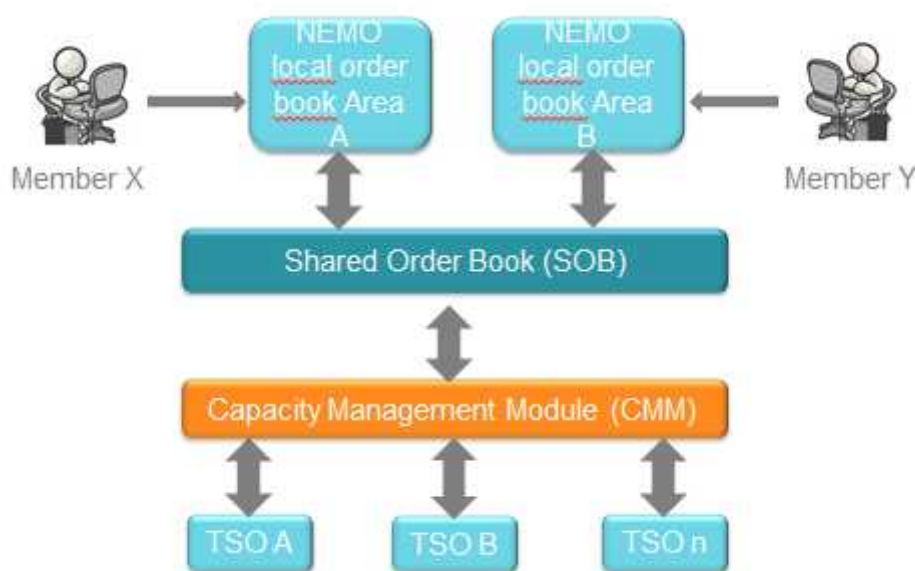

Figure 3 : Market Participants' position within the XBID and LTS solution

Market participants do not directly connect to the XBID solution. Market participants will connect through the Local Trading Solution (LTS) systems of the NEMOs to the XBID solution. More information regarding the LTS systems used for the intraday markets by the NEMOs can be found on the websites of EPEX Spot/EPEX Spot Belgium and Nord Pool. The systems used by EPEX Spot/EPEX Spot Belgium and Nord Pool have proven to be robust and flexible.

2.6. Description of the different products

The products available to market participants through the LTS systems of NEMOs are described below.

More information regarding the different products can be found at the websites of NEMOs.

Order Types

The type of an order determines the general characteristics of an order. All orders entered in the XBID system are limit orders. For buy orders this means that they can be executed at the mandatory price limit specified by the user while for sell orders, they can be executed as from a mandatory price limit specified by the user.

- Regular Orders: Orders with the order type "Regular" are the basic order type for continuous trading.

- Iceberg Orders: Iceberg orders are limit orders of which the quantity that is visible to the market is only the part of their total quantity that is not matched yet, while their full quantity is exposed to the market for matching.

Execution Restrictions

Depending on order type and market model, a market participant with respective rights can optionally select an execution restriction type when entering an order. By default, orders are entered without execution restriction and are subsequently either executed immediately or stored and displayed in the order book.

- NON (None): An order submitted with the execution restriction NON is either executed immediately, or, if the order cannot be matched right away, entered into the order book. Partial order executions are allowed and NON orders can be executed against multiple other orders and create multiple trades.

- IOC (Immediate-or-Cancel): An order submitted with the execution restriction IOC is either executed immediately, or, if the order cannot be matched, deleted without entry in the order book. Partial executions are allowed and IOC orders can be executed against multiple other orders and create multiple trades. An order with execution restriction IOC cannot have a validity restriction.

- FOK (Fill-or-Kill): An order submitted with the execution restriction FOK is either executed immediately and with its full quantity or, if the order cannot be matched with its entire quantity, deleted without entry in the order book. FOK orders can be matched against multiple existing orders in the order book. FOK orders cannot have a validity restriction.

- AON (All-or-Nothing): An order submitted with the execution restriction AON is either executed against exactly one other order with its full quantity or entered into the order book. Partial executions are not allowed. The execution restriction AON is only allowed for orders in the user-defined market.

Validity restrictions

Orders can be submitted with a validity restriction, which defines when an order should be deleted by the system (if it isn't matched).

- GTD (Good-till-Date): Orders entered with the validity restriction GTD are deleted at an explicitly defined date and time entered by the user.

- GFS (Good-for-Session): An order with the validity restriction GFS is not deleted by the system except at contract expiration time.

Market model

In continuous trading, orders are entered into a public order book and are matched against best orders by price-time-capacity priority criterion.

The price-time-capacity priority criterion is the following:

- Price: Orders are always executed at the best price

- Time: A timestamp (assigned at entry into SOB) is used to prioritize orders with the same price limit (earlier means higher priority)

Cross-border orders in the local views will be displayed and executed up to the available cross-border capacity; hence orders can be shown and matched with partial volume (depending on the execution restriction chosen by the user).

The continuous trading model features two different market segments:

- Predefined market: Contracts are automatically generated and made visible prior to their delivery period.

- User-defined market: Unlike contracts in the predefined market, the contracts tradable in the user-defined market are not automatically generated at a specific time, but only on-demand. User-defined contracts are always user-defined combinations of predefined market contracts.

While in the predefined market only orders with a predefined delivery period can be traded, the user-defined market allows trading of orders with a user-defined delivery period.

The following aspects are identical in both the predefined- and user-defined model:

• Matching logic

• Trading phases

• Order entry requirements

Orders can only be entered exclusively for one of the two market segments and cannot match against orders of the other model.

Basket Orders

Multiple orders can be submitted at once by the same user with a common attribute called "basket execution instruction (BEI)", which is valid for all orders. All orders in the basket can be for the same or different contracts, products, delivery area and market areas. A basket can be submitted with the execution instructions: None, Valid or Linked

While all orders are submitted at the same time, the processing of all orders inside a basket is done sequentially. Basket orders can be executed against orders inside the same basket, except if the basket execution instruction is "linked".

- None: The orders contained in the basket are processed as if they would have been submitted separately. Orders that are not accepted by the system because one or more order entry validations failed do not influence the validity of other orders.

- Valid: If one or more orders cannot be entered because of a failed order entry validation, no order in the current basket is entered. This means that either all orders in the basket are accepted or rejected. If all orders are accepted, orders are entered in the order book and remain there until they are matched, deactivated or deleted.

- Linked: All orders (only execution restriction: FOK see further) in the basket must be executed immediately with their entire quantity or no order of the current basket will be executed at all. If one or more orders of the basket cannot be executed against existing orders in the order book all orders will be deleted.

Summary

As described in the preceding paragraphs the XBID system supports a variety of order types and restrictions for continuous trading. More information regarding which order types and restrictions for continuous trading are applicable for the Belgian, Dutch and French markets can be found on the websites of NEMOs.

2.7. Gate system and nominations at the TSOs - Specificities on the BE-NL border and the BE-FR border

2.7.1. General

The number of gates for the implicit intraday allocation via XBID solution is 24 gates. This means a gate every hour. The aim of this section is to provide a detailed description of all the processes between ELIA and TenneT and between ELIA and RTE.

Each gate contains different phases and deals with all the remaining hours of the day (i.e. the delivery period). The different phases are:

2.7.2. (Cross-border) trading

The implicit intraday trading system, XBID, allows cross-border and local trading. The point in time the trading ends depends on the kind of energy trade (local or cross-border trade) and the local hub. Trading through the XBID solution through the LTS systems of the NEMOs will start on the day before delivery after closure of the day-ahead market. Cross-border trading on the XBID solution through the LTS systems of the NEMOs by the market participants will start based on the confirmed intraday capacities in XBID – CMM module (the gate opening time at Go-Live is 22hours on the day before delivery and the gate closure time is 60 minutes before the start of the delivery period on BE-NL border and on the BE-FR border) and will be continuously possible. The XBID solution reduces/nets the intraday capacities with the volumes traded and will only show on the platform deals remaining within the available capacities. After the cross-border trading is ended, only local trading on the XBID solution through the LTS systems of the NEMOs is possible for the market participants until local trading ends. Local trading and cross-border trading end as described hereunder:

    a. Cross-border trading is possible until 60 minutes before the beginning of the delivery period;

    b. Local trading on the XBID solution through the LTS systems of the NEMOs on the Belgian hub is possible until 5 minutes before the beginning of the delivery period or otherwise as specified by NEMOs;

    c. Local trading on the XBID solution through the LTS systems of the NEMOs on the Dutch hub is possible until 5 minutes before the beginning of the delivery period or otherwise as specified by NEMOs; and

    d. Local trading on the XBID solution through the LTS systems of the NEMOs on the French hub is possible until 30 minutes before the beginning of the delivery period or otherwise as specified by NEMOs.

2.7.3. Nominations to the TSOs

After the (cross-border) trading on XBID solution through the LTS systems of the NEMOs, the nominations need to be submitted to the TSOs.

a. Cross-border nominations must be received before the delivery (ex-ante). The process will be performed by the TSOs on behalf of the shipping agent based on information received by the TSOs from the XBID – SM module;

b. Hub nominations in Belgium by Belgian market participants: ELIA must receive nominations before 14h00 D+1 (ex-post);

c. Hub nominations in The Netherlands by Dutch market participants: TenneT must receive nominations before 10h00 D+1 (ex-post); and

d. Hub nominations in France are directly transmitted by NEMOs to RTE on behalf of the market participants.

The period after the nomination deadline and the start of the delivery is defined as "the neutralization time", which is a kind of waiting time

The gates on the Belgian borders

The implicit allocation of intraday cross-border capacity on the Belgian - Dutch border has a 24-gate scheme. The different gates are shown in Table 1 below. The end of the cross border trading is one hour before the start of the delivery period. Each gate deals with all the remaining hours of the day (i.e. the delivery period). This means that cross-border trades for the delivery period from 23h00 till 24h00, may be concluded during the whole day, but at the latest before 22h00. However cross-border trades for the delivery period 00h00-01h00 must be concluded at the latest before 23h00 on D-1.

XB trading is closed in XBID	Scope of the gate (delivery period)
23h00	next day (00h -> 24h)
00h00	next day (01h -> 24h)
01h00	current day (02h -> 24h)
02h00	current day (03h -> 24h)
03h00	current day (04h -> 24h)
04h00	current day (05h -> 24h)
…	…
18h00	current day (19h -> 24h)
19h00	current day (20h -> 24h)
20h00	current day (21h -> 24h)
21h00	current day (22h -> 24h)
22h00	current day (23h -> 24h)

Table 1 : Gate system at TSOs for the Belgian borders

During normal procedures, the XBID – SM module will keep data on all transactions. The cross-border information will be sent to the TSOs, who will integrate the data in their nominations' systems. The TSOs will create a cross-border nomination on behalf on the shipping agent.

2.7.4. Firmness of allocations

Elia and TenneT for the BE-NL border and Elia and RTE for the BE-FR border will accept cross-border allocations as a result of cross-border trades from the XB shipper, put at the disposal of the NEMOs for the sake of implicit continuous allocation.

As for nominations in respect to long term of day-ahead capacities, intraday allocations are firm, except in case of Force Majeure and emergency situations. In accordance with Art. 16 (2) of Regulation (EC) N° 714/2009 the TSOs will deploy, within the requirements/imperatives of grid operational security, operational measures such as countertrading and/or redispatch measures to assure the firmness of intraday allocations. The TSOs herewith assume that the costs which may arise to assure the firmness of these intraday allocations (i.e. to guarantee the actual availability of the allocated capacity) can be recovered by the congestion revenue following section (6a) of the same Art. 16 of Regulation (EC) N° 714/2009.

In situations of Force Majeure and emergency situations where the firmness of nominations is affected, the TSOs will:

- o First use all of the normal available means (as balancing reserve, counter-trading and redispatching...), then,
- o Either curtail intraday, day ahead, and long term capacity pro rata
- o And/or curtail injections and/or loads in the respective control areas, as needed in the framework of emergency or defence plan measures and in accordance with the contracts governing the relations between balancing parties and TSOs.

The XB-shipper will buy/sell energy across the border, and the TSOs will create cross-border nominations on its behalf. In this respect the clearing house performs a task in the general interest of implicit capacity allocation and hence may not be financially impacted as a consequence of curtailment of nominations.

In case the balance perimeter of the XB-shipper is affected as a consequence of curtailment of nominations, TSOs will not send an imbalance invoice/credit note, hence assuring "financial firmness".

2.8. Back-up arrangement

Back up procedures covering the different stages/processes of the allocation process as described in this note to swiftly deal with technical issues are in place.

3   Contractual architecture for the Market Participant

To be able to participate to this intraday allocation mechanism on the XBID solution and to be able to nominate the transactions to the TSOs, a market participant needs

- on the Belgian hub:
    - o to have an ARP-contract concluded with Elia
    - o to be a Participant of a LTS system of a NEMO

- on the Dutch hub:
    - o to have an PV-contract concluded with TenneT
    - o to be a Participant of a LTS system of a NEMO

- on the French hub:
    - o to have signed a Participation Agreement to the Import/Export Rules and BRP Rules with RTE
    - o to be a Participant of a LTS system of a NEMO