Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling – Explanatory Note

13 December 2016

Disclaimer

This explanatory document is approved by All TSOs, but only submitted to all relevant NRAs by 'TSOs which intend to calculate Scheduled Exchanges", for information and clarification purposes only accompanying the DA Scheduled Exchanges Calculation Methodology in accordance with Article 43 of the Regulation 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management

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1. Introduction

1.1 Purpose and Structure of the Methodology

Article 43(1) of the Commission Regulation 2015/1222 establishing a Guideline on Capacity Allocation and Congestion Management (hereinafter referred to as 'Regulation 2015/1222') requires that, by 16 months after the entry into force of Regulation 2015/1222, all Transmission System Operators ("TSOs") which intend to calculate Scheduled Exchanges resulting from single day-ahead coupling shall develop a proposal for a common methodology for this calculation.

The common calculation methodology (hereinafter referred to as "DA Scheduled Exchanges Calculation Methodology") shall be subject to approval by all regulatory authorities of the concerned region as per Article 7(d) of the Regulation 2015/1222. According to Article 9 of the Regulation 2015/1222, the DA Scheduled Exchanges Calculation Methodology proposal shall be submitted to ACER in parallel with the submission to all regulatory authorities of the concerned regions. ACER may issue an opinion on the DA Scheduled Exchanges Calculation Methodology only if requested by the National Regulatory Authorities ("NRAs").

This document is an explanatory note accompanying the DA Scheduled Exchanges Calculation Methodology and describing the technical background which forms the basis for the All-TSO approved proposal. The document is structured as follows. The legal requirements for the DA Scheduled Exchanges Calculation Methodology and their implications are presented in Chapter 2. Chapter 3 provides an explanation of some of the definitions and the list of information required from the relevant NEMOs. In Chapter 4 the uses of Scheduled Exchanges are described and Chapter 5 introduces the establishment of the Scheduled Exchange Calculator. The calculation methodology is explained within Chapter 6. Finally Chapter 7 describes the plan for implementation. Annex 1 contains the List of TSOs which intend to calculate Scheduled Exchanges using the Scheduled Exchange Calculator. Annex 2 contains the DA Scheduled Exchanges Calculation Methodology public consultation responses and reactions.

Capitalised terms used in this document are understood as defined Regulation 2015/1222, Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity (hereafter referred to as "Regulation (EC) No 714/2009"), Commission Regulation (EU) 543/2013 and the DA Scheduled Exchanges Calculation Methodology proposal.

1.2 Current Situation

In order to create a clear understanding of the requirements laid out in Article 43 of Regulation 2015/1222, the current situation across Europe shall be described.

The majority of TSOs across Europe currently use the scheduling information provided by the market coupling algorithm. This "scheduling information" is used as bilateral Scheduled

Exchanges between bidding zones to feed into the shipping, scheduling and congestion income distribution processes.

Currently, only a subset of the TSOs of the 'CORE' region ('previously Central West Europe region and Central East Europe region) perform a separate calculation of Scheduled Exchanges, using the scheduling information from the market coupling algorithm as a basis, in order to introduce Scheduling Restrictions, namely intuitiveness, which is required to ensure that Bilateral Scheduled Exchanges are defined from low price to high price areas.

Via Article 8(2)(g), Regulation 2015/1222, allows for the current situation to continue for TSOs who choose to accept the "allocated capacities, in the form of allocated flows" from the market coupling algorithm (or scheduling information). Alternatively, Regulation 2015/1222 enables "TSOs which intend to calculate" Scheduled Exchanges to establish Scheduled Exchange Calculator(s) ("SECs"). The SEC(s) shall use the common calculation methodology described in the DA Scheduled Exchanges Calculation Methodology proposal for those TSOs "which intend to calculate Scheduled Exchanges".

While the approach of TSOs which do not intend to use the DA Scheduled Exchanges Calculation Methodology is out of scope of this document, information pertaining to these TSOs is included in the Calculation Methodology and the Explanatory Note as it is relevant to the calculation of the 'SEC Net Position within a CCR'.

2. Requirements and Common Criteria for Scheduled Exchanges Calculation

2.1 Legal Framework

Where reference is made to "TSOs which intend to", these TSOs are understood as entities certified as TSOs in accordance with the Third Energy Legislative Package and can be members or non-members of ENTSO-E. In order to identify the TSOs obliged to fulfil certain obligations of the Regulation 2015/1222, in the countries with more than one certified TSO, the so-called "*multiple TSO provision*[1]" will apply.

To achieve the targets set in the Regulation 2015/1222 to promote the completion and efficient functioning of the internal market and ensure the optimal management, coordinated operation and sound technical development of the electricity transmission system in Europe, EC, TSOs and ENTSO-E acknowledge the importance of involving non-EU TSO members of ENTSO-E, especially the ones responsible for electricity systems physically connected to EU Member States, in the development of this proposal. This was ensured by providing the opportunity for non-EU TSO members of ENTSO-E to participate in the development of the proposal.

3. Definitions & Requirements

[1] According to Article 1(3) of the Regulation 2015/1222 the following applies: "*In Member States where more than one transmission system operator exists, this Regulation shall apply to all transmission system operators within that Member State. Where a transmission system operator does not have a function relevant to one or more obligations under this Regulation, Member States may provide that the responsibility for complying with those obligations is assigned to one or more different, specific transmission system operators.*"

Articles 2 and 3 of the DA Scheduled Exchanges Calculation Methodology proposal introduce a number of new definitions / interpretations as well as a list of information which shall be provided by the relevant NEMOs.

3.1 Definitions/Interpretations

'Scheduling Area' - The term '"Scheduling Area" shall be defined as an area within which the TSOs' obligations regarding scheduling apply due to operational or organisational needs.

'Geographic Areas' - The term 'Scheduled Exchange' is defined within Article 2 of Regulation 2015/1222. For the purposes of the day-ahead and intraday Scheduled Exchange Calculation Methodology Proposals, the term 'geographic areas' is interpreted as meaning both Scheduling Area as defined above, and Bidding Zone as defined in Commission Regulations (EU) 543/2013. The notion of 'NEMO Trading hub' is required in order to ensure proper functioning of post market coupling processes under market settlement regimes where multiple NEMOs are active in a Bidding Zone or Scheduling Area in accordance with the requirements contained within Article 45 of Regulation 2015/1222.

"NEMO Trading Hub" - The term 'NEMO Trading Hub' shall be defined as 'a combination of a NEMO and a Scheduling Area (where applicable Scheduling Area is a Bidding Zone)'. To provide additional information on this term, it could also be described as a NEMO within a geographic area such as a bidding zone and/or scheduling area, characterised by a set of bids and orders submitted by the market participants.

'TSOs which intend to…' – 'TSOs which intend to calculate Scheduled Exchanges' shall be defined as 'the group of TSOs, according to Article 43(1) from Regulation 2015/1222, who shall use the Scheduled Exchange Calculator and the Day-ahead Scheduled Exchange Calculation Methodology in order to calculate Scheduled Exchanges."
The remaining TSOs shall use the scheduling information resulting from the day-ahead market coupling algorithm (i.e. allocated capacities in the form of allocated flows) following validation.

'Scheduled Exchange Calculator (hereafter referred to as "SEC") Net Position per Capacity Calculation Region (hereafter referred to as "CCR")' – The term "SEC Net Position per CCR" refers to net position of the SEC within a defined CCR which is the aggregated netted sum of the net positions of the Bidding Zones or Scheduling Areas or NEMO Trading Hubs within the CCR adjusted by the borders where TSOs do not intend to calculate Scheduled Exchanges resulting from single day-ahead or intraday coupling.

'Bidding Zone SEC Net Position within a CCR' refers to the SEC Net Position of a Bidding Zone within a particular CCR which is calculated pursuant to Article 7.1 of the DA Scheduled Exchanges Calculation Methodology.

A very simple illustration of this 'Bidding Zone SEC Net Position within a CCR' concept is included below.

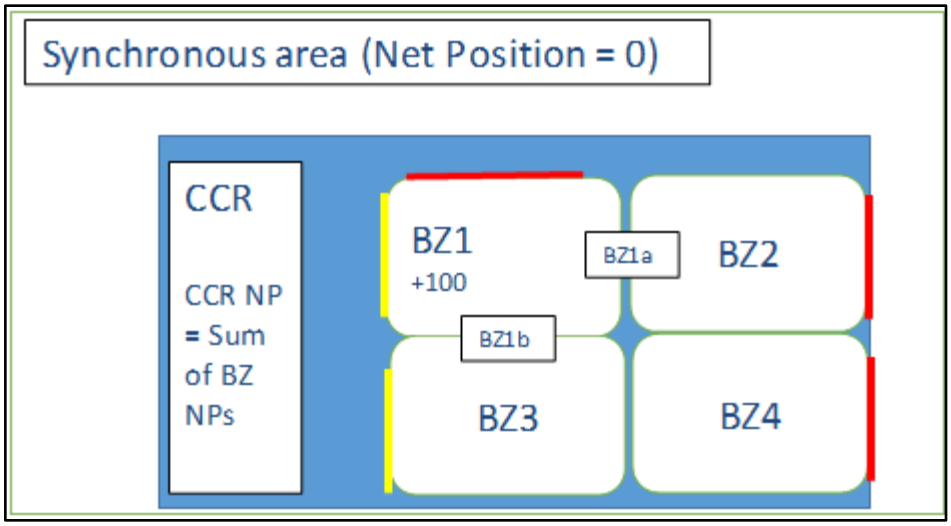

Figure 1 - Illustration of SEC Net Position within a CCR

Key	Description
	On borders with a red line, TSOs choose to use the allocated capacities in the form of allocated flows received from the Relevant NEMOs under Article 3 of the DA Scheduled Exchanges Calculation Methodology without further modification
	On borders with a yellow line, there is only a DC network elements. The DC network elements shall use the allocated capacities in the form of allocated flows received from the Relevant NEMOs under Article 3 of the DA Scheduled Exchanges Calculation Methodology.

The Net Position of the Synchronous Area equals 0. The Net Position of the CCR shall equal the aggregated sum of the Net Positions of the Bidding Zones within the CCR.

- The Net Position of BZ1 = +100.
- Allocated capacity in the form of allocated flows associated with the DC Interconnector (*yellow line)* on the BZ1 border = -200.
- Allocated capacity in the form of allocated flows provided by the Market Coupling Algorithm and validated by TSOs without further modification (*red line)* on the BZ1 border = +100.
- The Bidding Zone (BZ1) SEC Net Position within a CCR is therefore calculated using only the Scheduled Exchanges associated with the BZ1a and BZ1b borders.
- Therefore the Bidding Zone (BZ1) SEC Net Position / CCR is:
    - +100 = -200 +100 +BZ1a +BZ1b
    - BZ1a + BZ1b = +200
    - Bidding Zone (BZ1) SEC Net Position within a CCR = +200

Bidding Zone SEC Net Position within a CCR is the aggregation of the Scheduled Exchanges for that particular Bidding Zone border which need to be calculated by the Scheduled Exchange Calculator.

‘Scheduling Area SEC Net Position within a CCR’ refers to the SEC Net Position of a Scheduling Area within a particular CCR which is calculated pursuant to Article 7.1 of the DA Scheduled Exchanges Calculation Methodology. This calculation is based on the concept of proportionality.

‘NEMO Trading Hub SEC Net Position within a CCR’ refers to the SEC Net Position of a NEMO Trading Hub within a particular CCR which is calculated pursuant to Article 7.1 of the DA Scheduled Exchanges Calculation Methodology. This calculation is based on the concept of proportionality.

‘Scheduling Restrictions’ - The term ‘Scheduling Restrictions’ shall be defined as restrictions applied by the Scheduled Exchange Calculator in order to calculate Scheduled Exchanges resulting from market coupling, in such a way that the results are unique and do not impact on the market coupling results. These “Scheduling Restrictions” create the boundary conditions for the calculation methodology.

‘Scheduling Restrictions’ may include:
a. Prioritisation Path: the prioritisation of a given path among all possible paths to transfer a net position from a source area to a sink area;
b. Shortest Path: the minimisation of a number of areas involved in transferring a net position from a source area to a sink area;
c. Intuitiveness: the requirement that net positions are always transferred from low price areas to high price areas.

’Bilateral Scheduled Exchanges’ shall be defined as ’Scheduled Exchanges between one Bidding Zone, Scheduling Area or NEMO Trading Hub and another neighbouring Bidding Zone, Scheduling Area or NEMO Trading Hub’’.

’Multilateral Scheduled Exchange’ shall be defined as a ’Scheduled Exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs’. TSOs calculating Multilateral Scheduled Exchange shall be obliged to use the Scheduled Exchange Calculator for this calculation.

‘Neighbouring Scheduling Areas / Bidding Zones’ shall be defined as ‘a Scheduling Area or Bidding Zone directly connected to another Scheduling Area / Bidding Zone via at least one AC or DC interconnector’.

‘Neighbouring NEMO Trading hub’ shall be defined as ‘a NEMO Trading hub connected to another NEMO Trading hub, either as part of the same Scheduling Area or Bidding Zone, or as part of a Neighbouring Scheduling Area or Bidding Zone’.

3.2 List of Information required from Relevant NEMOs

As per Article 43(3) of the Regulation 2015/1222, the Scheduled Exchange calculation shall be based on net positions for each market time unit.

According to Article 48(1)(a), all NEMOs performing MCO functions shall deliver the single day-ahead coupling results: to all TSOs, all coordinated capacity calculators and all NEMOs. At least these results should be:
- A single clearing price for each Bidding Zone and market time unit in EUR/MWh
- A single net position for each Bidding Zone and each market time unit

Article 43(2) of the Regulation 2015/1222 stipulates that the DA Scheduled Exchanges Calculation Methodology proposal shall 'list the information which shall be provided by the relevant NEMOs to the Scheduled Exchange calculator'.

Therefore, in the DA Scheduled Exchanges Calculation Methodology, 'Relevant NEMOs' shall be defined as 'NEMOs responsible for the market coupling operator function'.

The Relevant NEMOs shall provide the following information, resulting from the single day-ahead coupling to the Scheduled Exchange Calculator(s) and all TSOs, for each market time unit, in order for the Scheduled Exchange Calculator(s) to perform the DA Scheduled Exchanges Calculation:

- Rounded and unrounded net position per Scheduling Area;
- Rounded and unrounded net position per Bidding Zone;
- Rounded and unrounded net position per NEMO Trading hub;
- A single clearing price for each Bidding Zone and market time unit in EUR/MWh
- Allocated capacities, in the form of allocated flows into and out of individual relevant DC network elements (difference in flows in/out reflecting losses where applicable);
- Allocated capacities, in the form of allocated flows on relevant Bidding Zone/Scheduling Area borders (flows in/out reflecting losses where applicable)

It is important to note that for borders which do not intend to use the DA Scheduled Exchanges Calculation Methodology, the allocated capacities in the form of allocated flows on relevant Bidding Zone borders or on individual DC network elements (flows in/out reflecting losses where applicable) shall be used as Scheduled Exchanges following validation. It is necessary to note this information relating to the borders which will not apply the DA Scheduled Exchanges Calculation Methodology as it is essential for the calculation of the 'SEC net position within a CCR'.

The information requirements listed above are essential for both the calculation of Scheduled Exchanges by the Scheduled Exchange Calculator and the post calculation verification tasks to ensure that the aggregated sum of all Scheduled Exchanges per Bidding Zone, Scheduling Area border or between NEMO Trading Hubs is equal to the net position of that Bidding Zone, Scheduling Area or NEMO Trading Hub. These information requirements are also in line with Article 39(2) of the Regulation 2015/1222. Furthermore, this information is already being provided by NEMOs to TSOs on a daily basis.

In general, DC network elements shall use the output of the Day Ahead coupling processes (allocated capacities, in the form of allocated flows into and out of individual relevant DC network elements (difference in flows in/out reflecting losses where applicable)) rather than a separate Scheduled Exchange Calculation Methodology. For example, this is the implementation planned for the SEM-GB[2] border where there are two DC network elements on the same bidding zone border. The relevant NEMO(s) will provide an output from Day Ahead algorithm post-processing reflecting the flows on each DC network element relative to each bidding zone. The difference between the bidding zone values will reflect the different loss factors on each DC network element. The implementation also ensures validation of the data through related processes such as results verification.

[2] SEM-GB: Borders Great Britain-Ireland and Great Britain-Northern Ireland

4. Downstream Uses for Scheduled Exchanges

There are three identified uses for Scheduled Exchanges (resulting from either single day-ahead or intraday coupling) as shown in Figure 2 below.

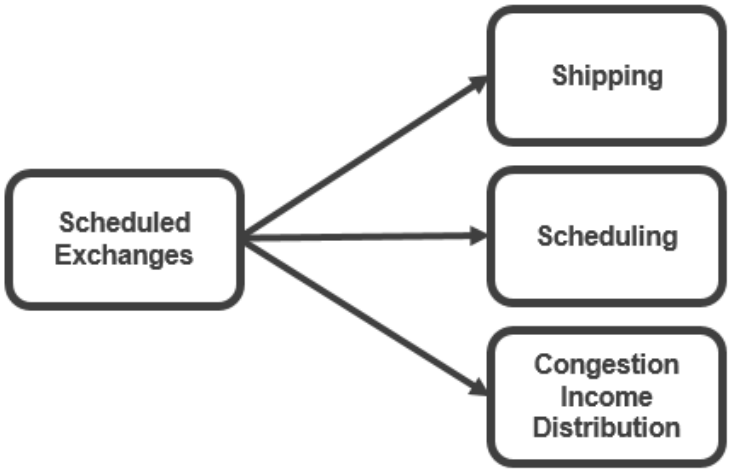

Figure 2 - Downstream Uses for Scheduled Exchanges

4.1 Shipping & Scheduling

As described above, the results of the market coupling process are at least net positions per Bidding Zone and Bidding Zone prices while cross-border schedules (usually referred to as Scheduled Exchanges) are derived in the post coupling phase. These Scheduled Exchanges serve as a basis for the shipping process, in which financial (commercial) and physical exchanges take place on the respective Bidding Zone or Scheduling Area border. Tasks related to cross-border physical and financial shipping could be performed together or separately by any legal entity, which could be different entities on each border, i.e. by CCPs or Scheduling Agents (of a Shipping Agent).

- Physical shipping in general means the task of transferring net positions between different Central Counter Parties in different scheduling areas in a form of Scheduled Exchange. The Scheduled Exchange is equal to the net position as long as no other additional bilateral exchanges (in AC and/or DC) for this scheduling area and for this market coupling process occur. The Shipping process may consist of local (internal) and cross-border (external) shipping phase.
- Financial shipping means all activities related to the financial clearing and settlement of Scheduled Exchanges between two different Central Counter Parties. Shipping fees and congestion income are based on this shipping information.

There are two possible interpretations for the delivery of the single day-ahead coupling results specified under Article 48(1) and pertaining to Article 39(2) of the Regulation 2015/1222:

- Each TSO receives the net position for each Bidding Zone, each Scheduling Area and each NEMO Trading Hub and then each TSO must forward the net positions to other TSO process coordination entities (e.g. Scheduled Exchange calculators)

- Each TSO receives the net positions for each Bidding Zone, Scheduling Area and NEMO Trading Hub and TSO entities (e.g. Scheduled Exchange calculators) also receive net positions for each Bidding Zone, Scheduling Area and NEMO Trading Hub.

In line with Article 3(f) of Regulation 2015/1222, the Scheduled Exchange calculator(s) will be developed on the assumption that each TSO shall receive all net positions for each Bidding Zone, Scheduling Area and NEMO Trading Hub and TSO entities shall receive all net positions for each Bidding Zone, Scheduling Area and NEMO Trading Hubs. This assumption is made on the basis that Regulation 2015/1222 ensures and enhances the transparency and reliability of information. The information flow is shown in Figure 3Figure 2 below.

In addition, any items listed by TSOs as a requirement from NEMOs in Article 3 of the DA Scheduled Exchanges Calculation Methodology shall be delivered to each TSO and TSO entities e.g. “Allocated capacities in the form of allocated flows” resulting from the market coupling algorithm.

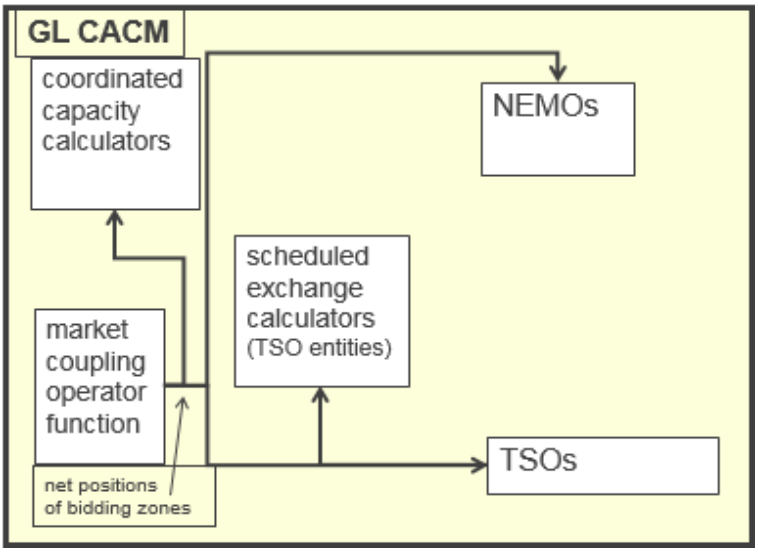

Figure 3 - Information flow from MCO function

According to Article 8(2g), the TSOs shall establish Schedule Exchange Calculators for calculating and publishing Scheduled Exchanges on borders between Bidding Zones. Upon completion of the Scheduled Exchanges calculation, the Scheduled Exchange Calculator, in line with Articles 8, 49 and 61, shall notify relevant NEMOs, central counter parties, shipping agents and TSOs of the agreed Scheduled Exchanges. This is illustrated in Figure 4 below.

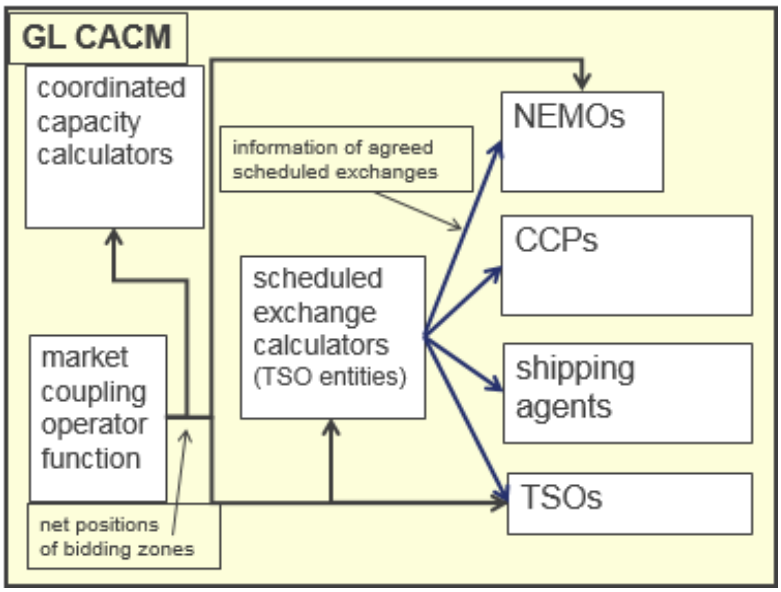

Figure 4 - Information flow from Scheduled Exchange Calculator

According to Article 2(43) of the Regulation 2015/1222, the shipping agent's role is to transfer the net position(s) between different central counter parties.

A separate role 'Scheduling agent' is required to notify (or nominate) schedules to TSOs. This creates a link between the market operation and the system operation. Figure 5 below illustrates the role of the scheduling agent in relation to the CCPs and the shipping agents.

Both the internal commercial trade schedules between shipping agents and CCPs and the internal commercial trade schedules between shipping agents and other shipping agents are nominated to the TSOs responsible for operating the scheduling area. In addition, the external commercial trade schedules are nominated to the TSOs operating the scheduling area, by the scheduling agents of the shipping agents, as:

- Multilateral exchanges between the scheduling area and a group of other scheduling areas
- Bilateral exchanges between the scheduling area and another scheduling area;

Scheduled Exchanges determine the volumes to be settled between NEMOs both physically and financially. This means that Scheduled Exchanges determine the cross border nominations to be taken into account by TSOs.

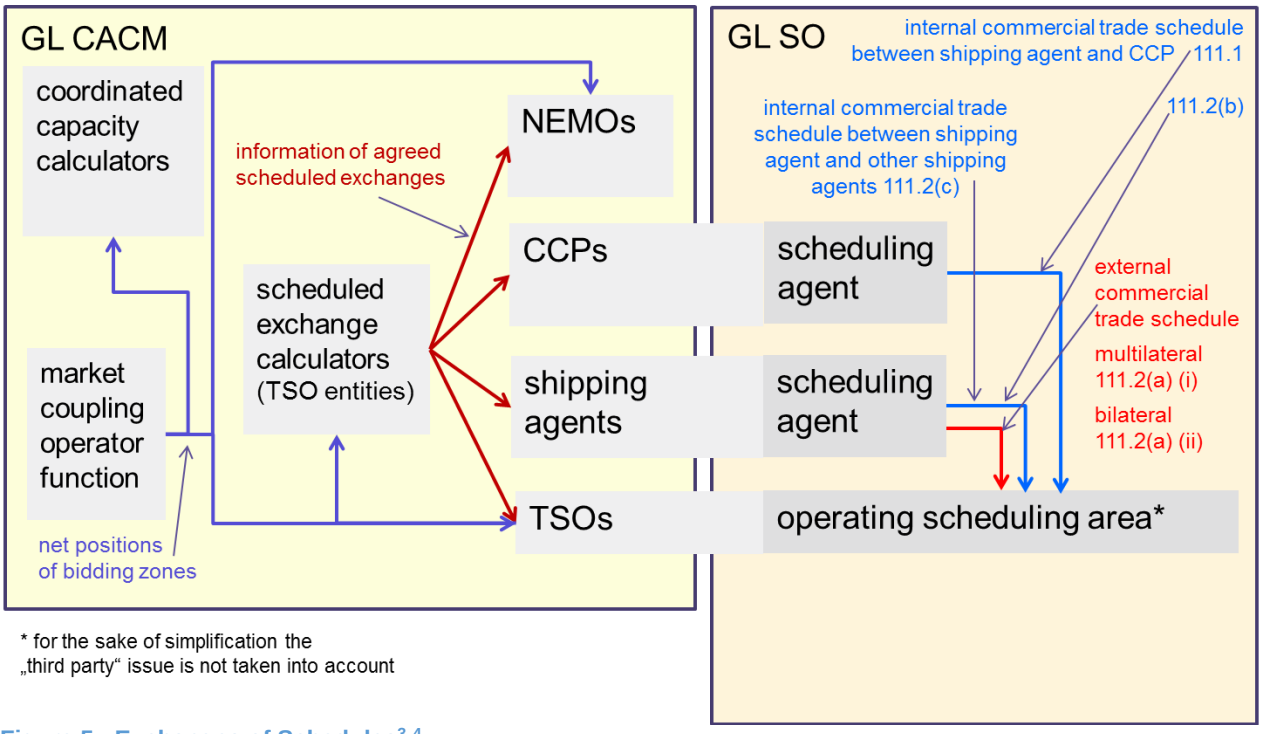

Figure 5 - Exchanges of Schedules[3],[4]

4.2 Congestion Income Distribution

In Regulation 2015/1222, Congestion Income is defined as “the revenues received as a result of capacity allocation”. Congestion Income originates in the situation where transmission capacity between Bidding Zones or on Critical Network Elements is not sufficient enough to fulfil the demand.

‘Market Congestion’ means a situation in which the economic surplus for single day-ahead or intraday coupling has been limited by cross zonal capacity or allocation constraints.

For the day-ahead and intraday market timeframes according to the Regulation 2015/1222 (Article 68(8)), Congestion Income will be collected by Central Counter Parties or Shipping Agents (in case of implicit allocation) or by allocation platforms (in case of explicit allocation where applicable).

After the collection by the above mentioned entities, based on the rules described in the CID Methodology, the Congestion Income is assigned to each Bidding Zone border and then, it is distributed to the TSOs on each side of a Bidding Zone border or, via the relevant TSOs, to third party asset owners. This is illustrated in Figure 6 below.

[3] SO GL stands for the Draft System Operations Guideline
[4] References to 111.1 and 111.2 relate to Articles 111 of the Draft System Operations Guideline. The references are required in order to clearly illustrate the links between the Regulation 2015/1222 and the SO GL

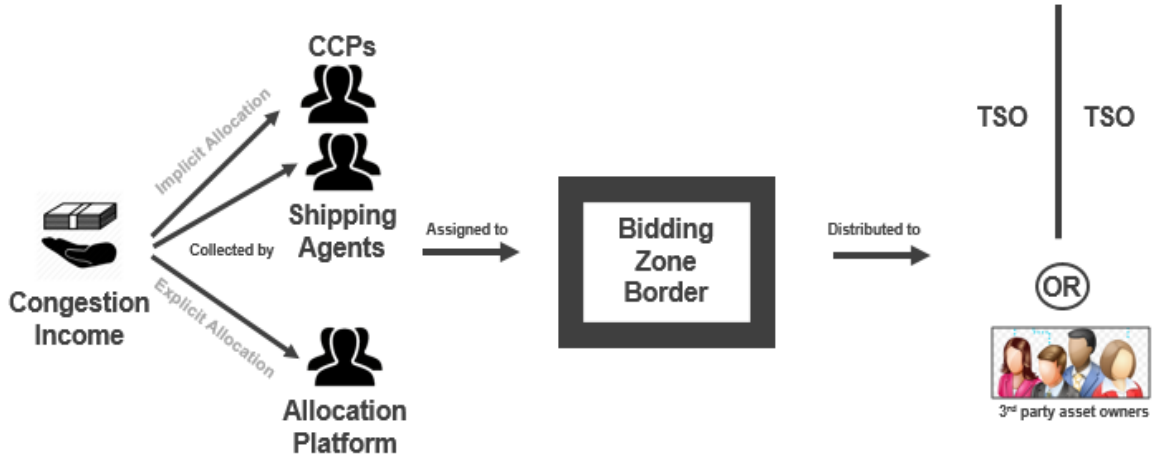

Figure 6 - Congestion Income Collection and Distribution

The Commercial Flow is introduced in order to calculate the Congestion Income per Bidding Zone border. "Commercial Flow" means the flow over a Bidding Zone border resulting from single day-ahead coupling or single intraday coupling where it is distinguished as follows:

- for CCRs applying Coordinated Net Transmission Capacity (CNTC) Approach it means the schedules exchanged over the Bidding Zone border and/or per DC network element (where applicable); and
- for CCRs applying the Flow-Based Approach it means:
  - either the additional aggregated flow (AAF) between two adjacent Bidding Zones where the AAF means the flow between two Bidding Zones and is calculated based on the FB parameters and the results of the Capacity Allocation within respective day-ahead or intraday market timeframe; or
  - a calculated value per Bidding Zone border where the sum of these values per Bidding Zone are equal to the respective net position of the same Bidding Zone to the extent this net position is a result of the Capacity Allocation based on the Flow Based Approach.

The two approaches (including the relevance of Scheduled Exchanges) are illustrated in Figure 7 and Figure 8 below:

Figure 7 - CNTC Approach for Commercial Flow Calculation

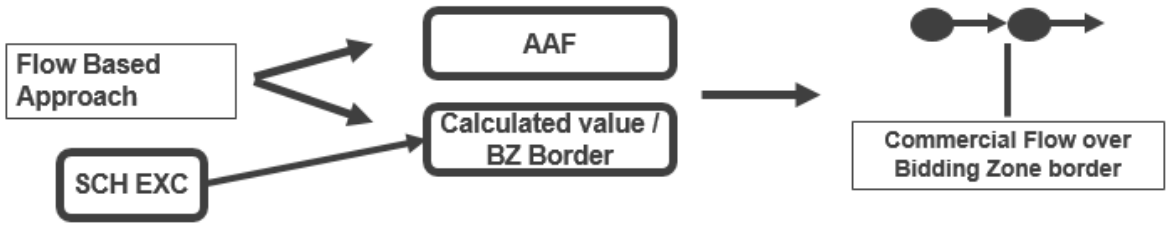

Figure 8 - Flow Based Approach for Commercial Flow Calculation

The term commercial flow is thus broader than Scheduled Exchanges, especially when considering Flow-Based allocation. For CNTC, the term commercial flow corresponds to the Scheduled Exchanges. However calculation of Scheduled Exchanges via the Scheduled Exchanges Calculator shall not impact the congestion income attributed to a Bidding Zone border.

In relation to CNTC: Congestion Income arises when there are price differences. If price differences arise, due to exhausted bilateral Available Transmission Capacity (ATC), it means that the whole ATC is being used. In such cases, allocation of congestion income for the congested border is directly given by the price difference and the ATC. At the same time, the Scheduled Exchanges will be equal to the ATC (as the ATC is fully used). If another allocation constraint is limiting exchanges over a Bidding Zone Border (e.g. ramping constraints of an HVDC interconnector), then a price difference may arise even if not all available capacity is used. However, in such case the Scheduled Exchanges shall be equal to the allocated capacity on the Bidding Zone Border.

In general, if an allocation constraint is limiting exchanges, then this allocation constraint will have a shadow price (i.e. the marginal increase in welfare for a marginal relaxation of the constraint). In such a case, a price difference between two Bidding Zones will exists and congestion income will be generated[5]. The Scheduled Exchange Calculator shall use the allocated capacities coming from the MCO when congestion income is generated over a Bidding Zone Border.

In relation to Flow Based: Congestion Income arises when there is a price difference between the different hubs applying a flow based approach. If there is a price difference, this means that at least one Critical Branch (or the intuitiveness constraint) is limiting exchanges. The congestion income resulting from the congestion is then assigned per Bidding Zone Border. The Congestion Income Distribution leaves flexibility to define the sharing keys to assign Congestion Income to Bidding Zone Borders.

Scheduled Exchanges are therefore relevant for the calculation of Congestion Income under the CNTC Approach. Scheduled Exchanges are also relevant for the calculation of Congestion Income under Flow-based Approach relating to the calculated value per Bidding Zone border.

However, the Scheduled Exchanges calculation methodology, in usual cases, does not impact on the allocation of Congestion Income to Bidding Zone borders in the context of Regulation 2015/1222. The Scheduled Exchange Calculator will only impact the schedules on non-congested borders i.e. there is no impact on congestion income allocation and distribution.

[5] The congestion income will equal the shadow price of the allocation constraint for a specific bidding zone border times the flow over the Bidding Zone Border.

Section 4.2 of this explanatory note only aims to provide information regarding the impact (or not) of Scheduled Exchanges on Congestion Income.

5. Scheduled Exchange Calculator(s)

According to Article 8(1g), the TSOs shall, where required, establish Scheduled Exchange calculators for calculating and publishing Scheduled Exchanges on borders between Bidding Zones.

As assessment of 5 different levels was carried out in Table 1 to determine the optimal level for the establishment of the Scheduled Exchange Calculator. Based on this assessment, the Scheduled Exchange Calculator shall be established at least at Capacity Calculation Region level.

Level	Advantages	Disadvantages
Pan-European	In line with the day-ahead market development and the Pan European Verification Function (PEVF) No coordination required between different SECs as there will only be one	Cannot address exhaustively all relevant local specificities
Capacity Allocation level (or Market Coupling level)	Results in a limited and defined number of Calculators	Cannot address exhaustively all relevant local specificities Coordination between SECs required
Synchronous Area level	Results in a limited and defined number of Calculators	Cannot address exhaustively all relevant local specificities Coordination between SECs required
At least at Capacity Calculation Region level	Results in a limited and defined number of Calculators Can address all relevant local specificities Similar to the current situation	Coordination between SECs required
Bidding Zone Level		By definition, the SEC could not be at Bidding Zone level. It is required to calculate Scheduled Exchanges on borders between Bidding Zones and therefore it needs to be at a higher level.

Table 1 - Assessment of appropriate level for establishment of SEC

5.1 Time Limits for Delivery of Information

According to Article 47 of Regulation 2015/1222, the day-ahead market gate opening time shall be at the latest 11:00 market time day-ahead. The day-ahead market gate closure time in each

Bidding Zone shall be noon market time day-ahead. In line with the Day Ahead Algorithm Requirements, the day-ahead market coupling algorithm shall be capable of finding results normally within 10 minutes. The Scheduled Exchange Calculator(s) should receive the list of information outlined in Article 3 of the DA Scheduled Exchanges Calculation Methodology Proposal by 13:00 market time day-ahead but not later than 15.30 market time day-ahead.

6. Calculation Methodology

The Calculation Methodology shall be framed by the following principles:

Scheduled Exchanges already validated by relevant TSOs on non-relevant[6] Bidding Zone or Scheduling Areas borders and between NEMO Trading Hubs shall not be impacted by the DA Scheduled Exchanges Calculation. For each border, either a Scheduled Exchange Calculator shall be appointed or the allocated capacities in the form of allocated flows shall be used as the Scheduled Exchanges across the border. Duplicate calculations of Scheduled Exchanges on Bidding Zone or Scheduling Area borders or between NEMO Trading Hubs shall not be carried out.

All constraints described in the DA Scheduled Exchanges Calculation Methodology shall be respected. Outputs of the DA market coupling operator function shall be respected. Scheduling Restrictions, namely the Intuitiveness Principle (applied to ensure that prices flow from areas of low prices to areas of high prices), have been described in the DA Scheduled Exchanges Calculation Methodology. Any additional 'Scheduling Restrictions' shall be justified by the relevant TSOs and communicated in a transparent way to relevant stakeholders.

There are situations where there are multiple Scheduling Areas within a Bidding Zone. This can result in situations where there are multiple Scheduling Areas on one side of a border and a single Bidding Zone on the other side of the border. In these situations, the aggregated netted sum of the Scheduled Exchanges for the multiple Scheduling Areas shall equal the Scheduled Exchanges calculated for the Bidding Zone border.

It is relevant to note that a Net Position and a Scheduled Exchange could be either positive or negative reflecting the import or the export of the electricity transfer.

Article 6 of the DA Scheduled Exchanges Calculation Methodology describes a step-wise approach for the calculation of the Scheduled Exchanges per Bidding Zone, Scheduling Area and NEMO Trading Hub by the Scheduled Exchange Calculator:

1. Calculate the 'SEC Net Position of a Bidding Zone, Scheduling Area and NEMO Trading Hub within a CCR'
2. Apply the optimisation algorithm including the Scheduling Restrictions to the 'Bidding Zone SEC Net Position within a CCR' in order to determine the Scheduled Exchanges per Bidding Zone border
3. Apply the optimisation algorithm including the Scheduling Restrictions to the 'Scheduling Area SEC Net Position within a CCR' in order to determine the Scheduled Exchanges per Scheduling Area border
4. Apply the optimisation algorithm including the Scheduling Restrictions to the 'NEMO Trading Hub SEC Net Position within a CCR' in order to determine the Scheduled Exchanges per NEMO Trading Hub

[6] Non-relevant refers to those borders which shall not use the DA Scheduled Exchanges Calculation Methodology as per Article 43 of Regulation 2015/1222

5. If requested by the TSOs, the Scheduled Exchange Calculator shall calculate the Multilateral Scheduled Exchange per Bidding Zone, Scheduling Area and NEMO Trading Hub by aggregation of the relevant Bilateral Scheduled Exchanges.

6.1 Calculation of Scheduled Exchanges per CCR

6.1.1 Calculation of Input Parameters: Bidding Zone SEC Net Position per CCR

The 'Bidding Zone SEC Net Position within a CCR' is determined by the net position of the Bidding Zone reduced by the allocated capacities in the form of allocated flows of all Bidding Zone borders not being part of this CCR, as provided by the relevant NEMOs.

Where losses are defined as allocation constraints between bidding zones they are considered in determining the value of BSE_{calc} in *Equations 5 and 6*.

The Net Position of the Scheduled Exchange Calculator for a Bidding Zone within a CCR should only include the borders where the DA Scheduled Exchanges Calculation Methodology will apply.

6.1.2 Calculation of Input Parameters: Scheduling Area SEC Net Position per CCR

The 'Scheduling Area SEC Net Position within a CCR' is determined proportionally to the ratio between:

- the corresponding Bidding Zone SEC Net Position within this CCR
- the corresponding Bidding Zone Net Position.

Equation 1

$$SEC\ NP_{SA}/CCR_j = NP_{SA} \times \frac{SEC\ NP_{BZ}/CCR_j}{NP_{BZ}}$$

$SEC\ NP_{SA}/CCR_j$= Scheduling Area SEC Net Position within a CCR j

NP_{SA}= Net Position of the Scheduling Area

$SEC\ NP_{BZ}/CCR_j$= Bidding Zone SEC Net Position within a CCR j

NP_{BZ}= Net Position of the Bidding Zone

It is noted that in most cases the Scheduling Area will equal the Bidding Zone. In specific cases where there are multiple Scheduling Areas contained within a Bidding Zone, the aggregated netted 'Scheduling Area SEC Net Positions within a CCR' shall equal the 'Bidding Zone SEC Net Position within a CCR'.

6.1.3 Calculation of Input Parameters: NEMO Trading Hub SEC Net Position per CCR

In specific cases, there may be efficiency gains (e.g. reduction in costs) possible if schedules between the same NEMO across Bidding Zone or Scheduling Area borders are prioritised. These shall be considered in advance of the calculation of the 'NEMO Trading Hub SEC Net Position within a CCR'.

Following this, the 'NEMO Trading Hub SEC Net Position within a CCR' is determined proportionally to the ratio between:

- the corresponding Bidding Zone or Scheduling Area SEC Net Position within this CCR
- the corresponding Bidding Zone or Scheduling Area Net Position.

The calculation of a 'NEMO Trading Hub SEC Net Position within a CCR' on a Bidding Zone or Scheduling Area level can be described by the following formulas:

Equation 2

$$SEC\ NP_{NTH}/CCR_j = NP_{NTH} \times \frac{SEC\ NP_{BZ}/CCR_j}{NP_{BZ}}$$

$SEC\ NP_{NTH}/CCR_j$= NEMO Trading Hub SEC Net Position within a CCR j

NP_{NTH}= Net Position of the NEMO Trading Hub

$SEC\ NP_{BZ}/CCR_j$= Bidding Zone SEC Net Position within a CCR j

NP_{BZ}= Net Position of the Bidding Zone

Equation 3

$$SEC\ NP_{NTH}/CCR_j = NP_{NTH} \times \frac{SEC\ NP_{SA}/CCR_j}{NP_{SA}}$$

$SEC\ NP_{NTH}/CCR_j$= NEMO Trading Hub SEC Net Position within a CCR j

NP_{NTH}= Net Position of the NEMO Trading Hub

$SEC\ NP_{BZ}/CCR_j$= Scheduling Area SEC Net Position within a CCR j

NP_{BZ}= Net Position of the Scheduling Area

6.1.4 Calculation of Input Parameters: General Statement

In general, it shall be emphasised that the 'SEC Net Position within a CCR for a given Bidding Zone, Scheduling Area or NEMO Trading Hub' is equal to the netted aggregation of the Scheduled Exchanges across the relevant Bidding Zone or Scheduling Area borders or between the relevant NEMO Trading Hubs within this CCR. Non relevant borders are seen as borders where the DA Scheduled Exchanges Calculation Methodology is not applied.

Equation 4

$$SEC\ NP/CCR_j = \sum_{m=1}^{n} SCHEX_{OUT_{f\rightarrow m}}$$

$SEC\ NP/CCR_j$= Scheduled Exchange Calculator Net Position of a Bidding Zone, Scheduling Area or NEMO Trading Hub within a particular CCR j

m = Variable representing individual Bidding Zones, Scheduling Areas or Nemo Trading Hubs m→n which have borders with Bidding Zone, Scheduling Area or NEMO Trading Hub (f) and for which TSOs intend to calculate Scheduled Exchanges

n = Total Number of Bidding Zones, Scheduling Area or NEMO Trading Hubs which have borders with Bidding Zone, Scheduling Area or NEMO Trading Hub (f) and for which TSOs intend to calculate Scheduled Exchanges

$SCHEX_{OUT_{f\rightarrow m}}$ = Scheduled Exchanges per Bidding Zone border or Scheduling Area border or between NEMO Trading Hubs, $m \rightarrow n$, which TSOs intend to calculate using the Scheduled Exchange Calculator.

6.2.1 Calculation of Scheduled Exchanges per Bidding Zone border

After the 'SEC Net Position of a Bidding Zone within a particular CCR' has been determined, the Scheduled Exchanges Calculator shall calculate the Scheduled Exchanges between the Bidding Zones of the CCR using the 'Bidding Zone SEC Net Position within a CCR'. This calculation shall optimise the Scheduled Exchanges between the Bidding Zones according to Scheduling Restrictions defined per CCR.

The calculation problem shall be defined in such a way that congestion income distribution as described in the Congestion Income Distribution Methodology provided according to Article 73 of the Regulation 2015/1222 is not impacted. When considering the Coordinated Net Transmission Capacity (hereafter referred to as "CNTC") Approach, where a price difference exists between two Bidding Zones either the available capacity has been fully used or another allocation constraint (e.g. ramping constraint) was active. Hence, if there is a price difference between two Bidding Zones, within a CCR applying CNTC, the Scheduled Exchanges shall be equal to the allocated capacity.

The optimisation of the Scheduled Exchanges shall aim to minimise the Scheduled Exchanges between the involved Bidding Zones. For this minimisation, the Scheduled Exchanges within the CCR for which TSOs intend to calculate Scheduled Exchanges (BSE_{calc}) shall be used as a set of variables to minimise the target function while respecting the defined constraints, Scheduling Restrictions and the scheduled exchanges on the non-relevant borders[7].

Equation 5

$$minimise\ Target\ Function(BSE_{calc}), so\ that\ BSE_{calc}\ respects\ the\ constraints$$

[7] non-relevant borders are the borders for which the Scheduled Exchanges are not calculated according to the approach defined by Article 43 of Regulation 2015/1222 but the allocated capacities are provided by the relevant NEMOs

For this target function, the Scheduled Exchanges shall be multiplied by a set of linear and quadratic cost coefficients.

Equation 6

$$Target\ Function(BSE_{calc}) = \sum(|BSE_{calc}| * Linear\ Cost\ Coefficient + BSE_{calc}^2 * Quadratic\ Cost\ Coefficient)$$

The summation takes into account all Scheduled Exchanges within the CCR for which TSOs intend to calculate Scheduled Exchanges (BSE_{calc}). The definition of the cost coefficients used in the target function should be dependent on the Scheduling Restrictions defined within the CCR e.g. the application of the prioritisation path would mean that the cost coefficients for certain Bidding Zone Borders differ from the others so that the rules imposed by the CCRs are met by the target function. Furthermore, the linear cost coefficients could be set to one and the quadratic cost coefficients could be set to zero so that only the total sum of Scheduled Exchanges, for which the TSO intend to perform the calculation, is minimised.

The constraints defining the optimisation problem include requirements noted in Article 5, Article 6 and Article 7 of the DA Scheduled Exchanges Calculation Methodology. The calculated BSE_{calc} should be consistent with the 'SEC net positions within a CCR'.

The intuitiveness scheduling restriction between Bidding Zone A and Bidding Zone B is described in Equation 7 below. The intuitiveness principle ensures that prices flow from areas of low price to areas of high price.

Equation 7

$$(Price_{BZ\ B} - Price_{BZ\ A}) * Bilateral\ Exchange_{A \to B} \geq 0$$

6.2.2 Calculation of Scheduled Exchanges per Scheduling Area border

Where the Scheduling Area equals the Bidding Zone, the results from Section 6.2.1 shall apply.

If there is more than one Scheduling Area within a Bidding Zone then:

a. The Scheduled Exchange Calculator(s) shall calculate the Scheduled Exchanges between the Scheduling Areas of the CCR using the 'Scheduling Area SEC Net Position within a CCR'. This calculation shall optimise the Scheduled Exchanges between the Scheduling Areas according to Scheduling Restrictions defined per CCR. For this calculation, a similar optimisation problem shall be defined as for the Bilateral Exchanges between Bidding Zones with additional requirements described in point b.

b. If there are multiple Scheduling Areas on one (or both) side(s) of the Bidding Zone Border, then the Scheduled Exchanges between the Scheduling Areas, over the Bidding Zone Border, shall be attributed to each Scheduling Area Border proportionally to the installed thermal capacity of the interconnections.

6.2.3 Calculation of Scheduled Exchanges between NEMO Trading Hub

After the calculation of the Scheduled Exchanges between Bidding Zones and Scheduling Areas within the CCR, the Scheduled Exchanges between the NEMO Trading Hubs can be calculated. These Scheduled Exchanges shall be calculated so that they respect the aforementioned Scheduled Exchanges. Therefore, two main principles have been determined:

- The 'NEMO Trading Hub SEC Net Position within a CCR' shall be settled proportionally within a Bidding Zone or Scheduling Area, depending if Bidding Zone equals Scheduling Area or if multiple Scheduling Areas exist within the Bidding Zone. This implies that if there are multiple NEMOs within a Bidding Zone / Scheduling Area, the NEMOs with the same sign of 'NEMO Trading Hub SEC Net Position within a CCR' (i.e. a NEMO Trading Hub has a positive net position (exporting) within a Bidding Zone with a positive net position (exporting)) shall first schedule an exchange with each of the NEMOs with an opposite sign to the 'NEMO Trading Hub SEC Net Position within a CCR'. This exchange should be proportional to the NEMO Trading Hubs contribution to the 'Bidding Zone's SEC Net Position within a CCR' or the 'Scheduling Area's SEC Net Position within a CCR'.
- The cross border Scheduled Exchanges between NEMOs of the CCR shall respect the Scheduled Exchanges calculated between the Bidding Zones and Scheduling Areas of the CCR and shall prioritise Scheduled Exchanges between the same NEMOs over Bidding Zone or Scheduling Area borders.

7. Implementation

The DA Scheduled Exchanges Calculation Methodology is currently aligned with the All NEMOs' (draft) Proposal for the price coupling algorithm, incorporating a common set of requirements for the price coupling algorithm in accordance with Article 37(4) of Regulation 2015/1222. All TSOs highlight that there is a risk associated with the difference in time frames between the deadline for submission of the DA Scheduled Exchanges Calculation Methodology and the All NEMOs Proposal for the price coupling algorithm. The List of Information Required from Relevant NEMOs as provided in Article 3 of the DA Scheduled Exchanges Calculation Methodology is essential for the DA Scheduled Exchanges Calculation Methodology. This risk shall be mitigated by ensuring that the All NEMOs Proposal includes the List of Information Required from Relevant NEMOs as outlined in Article 3 of the DA Scheduled Exchanges Calculation Methodology.

The DA Scheduled Exchanges Calculation Methodology is currently implemented by a subset of TSOs as described in Section 1.2 above. Amendments may be required to this DA Scheduled Exchanges Calculation Methodology based on, but not limited to, the following list:

- capacity calculation methodology developments and obligations in accordance with Article 20 of the Regulation 2015/1222;
- the Multi-NEMO Arrangements in accordance with Article 45 of the Regulation 2015/1222;
- the All NEMOs' Proposal for the price coupling algorithm in accordance with Article 37(5) of the Regulation 2015/1222; and
- developments to the day-ahead market coupling operator function in accordance with Article 7(3) of the Regulation 2015/1222.

Additionally, as per Article 43 of Regulation 2015/1222 no later than two years after the approval by the regulatory authorities of the concerned region of the DA Scheduled Exchanges Calculation Methodology, TSOs applying Scheduled Exchanges shall review the methodology. All TSOs shall partake in this review.

ANNEX 1 - List of TSOs which intend to calculate Scheduled Exchanges resulting from Single Day-ahead Coupling

Country	TSO	I will use allocated capacities from the market coupling algorithm… (Y/N)	On which borders?	I will use Scheduled Exchanges from the SEC… (Y/N)	On which borders?
Austria	APG - Austrian Power Grid AG	N	n/a	Y	AT-IT, AT-SI
Austria	VÜEN-Vorarlberger Übertragungsnetz GmbH	n/a	n/a	n/a	n/a
Belgium	Elia - Elia System Operator S.A.	N	n/a	Y	all relevant CCR borders
Bosnia Herzegovina (non EU)	NOS BiH - Nezavisni operator sustava u Bosni I Hercegovini	n/a	n/a	n/a	n/a
Bulgaria	ESO – Electroenergien Sistemen Operator EAD	Y	BG-GK, BG-RO	N	N/A
Croatia	HOPS - Croatian Transmission System Operator Ltd	Y	SI-HR*, HU-HR* *once it is coupled	N	N/A
Cyprus	TSO Cyprus - Cyprus Transmission System Operator	n/a	n/a	n/a	n/a
Czech Republic	ČEPS, a.s.	Y	All	N	n/a
Denmark	Energinet.dk	Y	All	N	n/a
Estonia	Elering - Elering AS	Y	All	N	n/a
Finland	Fingrid - Fingrid OyJ	Y	All	N	n/a
Finland	Kraftnat Aland Ab	n/a	n/a	n/a	n/a
France	RTE - Réseau de Transport d'Electricité, S.A	N	n/a	Y	All

Country	TSO	I will use allocated capacities from the market coupling algorithm… (Y/N)	On which borders?	I will use Scheduled Exchanges from the SEC… (Y/N)	On which borders?
Germany	Amprion	Y	DE-FR, DE-NL	Y	DE-FR, DE-NL
Germany	TransnetBW			Y	DE-FR
Germany	TenneT TSO GmbH	Y	DE-DK, DE-CZ	Y	DE-NL
Germany	50Hertz Transmission GmbH	Y	DK (& SE**) ** Once HBP goes live	Y* * once flow-based is applied	PL* & CZ*
Greece	IPTO - Independent Power Transmission Operator S.A.	Y	GR-IT, GR-BG	N	
Hungary	MAVIR ZRt. - MAVIR	Y[1,3] 1) 4M MC solution 3) MRC solution once 4M MC is coupled with MRC on NTC basis	SK-HU[1,3], RO-HU[1,3]; AT-HU[3], HR-HU[3,4], (SI-HU[3,5]); 4) Once HR and HU are coupled 5) Once it is commissioned	N[2] 2) In case quality of scheduled exchanges from market coupling algorithm will be sufficient for flow based market coupling as well	n/a
Iceland (non EU)	Landsnet - Landsnet hf	n/a	n/a	n/a	n/a
Ireland	EirGrid - EirGrid plc	Y	GB-SEM	N	n/a
Italy	Terna - Terna SpA	Y	SI-IT, GR-IT	Y	FR-IT, AT-IT
Latvia	AS Augstsprieguma tïkls	Y (only when at least two NEMOs will start operations in Baltic CCR)	All borders	N	

Country	TSO	I will use allocated capacities from the market coupling algorithm… (Y/N)	On which borders?	I will use Scheduled Exchanges from the SEC… (Y/N)	On which borders?
Lithuania	LITGRID AB	Y	All borders	N	n/a
Luxembourg	CREOS Luxembourg S.A.	N	n/a	Y	LU-BE *once it is coupled
Montenegro (non EU)	CGES	n/a	n/a	n/a	n/a
Netherlands	TenneT TSO - TenneT TSO B.V.	Y	DK1-NL (future), GB-NL, NO2-NL	Y	BE-NL, DE-NL
Netherlands	BritNed (as a certified TSO in the Netherlands)	Y	GB-NL	N	n/a
Norway (non EU)	Statnett - Statnett SF	Y	NO2-NO1, NO2, NO5, NO1-NO5, NO5-NO3, NO1-NO3, NO3, NO4, NO2-DK1, NO1-SE3, N03-SE2, NO4-SE2, NO4-SE1, NO2-NL	N	n/a
Poland	PSE - PSE S.A.	Y	PL-SE4/**, PL-LT** ** may change due	Y	PL-DE/LU*, PL-CZ*, PL-SK* * Upon implementatio

Country	TSO	I will use allocated capacities from the market coupling algorithm… (Y/N)	On which borders?	I will use Scheduled Exchanges from the SEC… (Y/N)	On which borders?
			to final Multi-Nemo Arrangements		n of flow-based
Portugal	REN - Rede Eléctrica Nacional, S.A.	Y	PT-ES	N	n/a
Romania	C.N. Transelectrica S.A.	Y	All borders	N	n/a
Serbia (non EU)	EMS - JP Elektromreža Srbije	n/a	n/a	n/a	n/a
Slovak Republic	SEPS	Y* *In case required exchanges produced by the market coupling algorithm will be in sufficient quality	CZ-SK, SK-PL, SK-HU	N* *In case exchanges produced by market coupling algorithm will be in sufficient quality	n/a
Slovenia	ELES	Y	SI-IT, SI-AT, SI-HR* *once it is coupled	N	N/A
Spain	REE - Red Eléctrica de España S.A.U	Y	PT-ES , FR-ES	N	n/a
Sweden	Affärsverket Svenska Kraftnät	Y	All	N	n/a
Switzerland (non EU)	Swissgrid AG	n/a	n/a	n/a	n/a
The former Yugoslav	MEPSO - Macedonian Transmission System Operator	n/a	n/a	n/a	n/a

Country	TSO	I will use allocated capacities from the market coupling algorithm… (Y/N)	On which borders?	I will use Scheduled Exchanges from the SEC… (Y/N)	On which borders?
Republic of Macedonia (non EU)	AD				
United Kingdom	National Grid Electricity Transmission plc	n/a	n/a	n/a	n/a
United Kingdom	SONI - System Operator for Northern Ireland Ltd	Y	GB-SEM	N	
United Kingdom	BritNed (as a certified TSO in the UK) MOYLE NGIL (IFA) SHE Transmission SP Transmission EWIC	Y Y Y Y	GB-NL GB-SEM GB-FR GB-SEM	N N N N	

ANNEX 2 – DA Scheduled Exchanges Calculation Methodology public consultation responses and TSO reactions

Question	NEMO Committee - Comment	All TSO Response
Please provide us with general comments on the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling.	1. The scope and purpose of Regulation 2015/1222 is cross-zonal capacity management and congestion allocation, where cross-zonal refers to bidding zones. Scheduling areas (which are not defined in the Regulation 2015/1222, but appear to be where there are multiple TSO control areas within a single bidding zone) are not associated with cross-zonal capacity management and congestion allocation and consequently fall outside the scope of Regulation 2015/1222 and this methodology. 2. Scheduling exchanges between scheduling areas is a local issue to be managed by the relevant TSOs, supported as necessary by the relevant NEMOs. This is currently how scheduling areas are supported today in Germany/Austria (the only bidding zone with multiple scheduling areas/control areas). The power exchanges request market participants to indicate in which scheduling area they wish to be nominated in, as part of the post-matching process. There is today, no obligation on market parties to offer capacity in the control area it is located and an offer in any of the five control areas returns the same execution. Therefore, the way market parties are bidding on the Day-ahead in Germany/Austria does not necessarily coincide with the location of the physical asset that are offering to the market – indeed the large majority of trades are typically nominated in just one of the scheduling areas. Consequently, this information has little or no bearing on actual physical flows. 3. The methodology describes necessary but not sufficient conditions for calculating scheduled exchanges. Consequently, it does not fulfill the requirement for the methodology as set out in Article 43. In particular, the equations do not explain how individual scheduled exchanges per bidding zone or NEMO hub are determined – instead they simply provide some general definitions of schedule exchanges at different geographical levels. 4. The calculation of scheduled exchanges is a TSO responsibility based on Article 8(2)(g) of the CACM Regulation 2015/1222 and the scheduled exchange calculator is assigned the task of calculating scheduled exchanges as per definition Article 43. NEMOs on a local/regional basis are, nonetheless, willing to evaluate the feasibility of providing a calculation service to the TSOs on a regional basis. This would require TSOs to provide a detailed specification of their requirements, a technical/cost assessment by NEMOs and the establishment of suitable project frameworks (including proper contractual arrangements, governance and cost recovery). 5. If the necessary detail on the calculation methodology is not yet available or may need to be modified in the future, the methodology could perhaps address the governance process for managing the detailed requirements and any changes thereto.	1. According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology. 2. Your comments are noted. 3. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a clear methodology for the calculation of Scheduled Exchanges resulting from Day-ahead coupling. 4. Article 3 of the updated Day-ahead Scheduled Exchanges Calculation Methodology includes only net positions, clearing prices and allocated capacities in the List of Information Required from Relevant NEMOs. The Day-ahead Scheduled Exchanges Calculation Methodology is not requesting a calculation service from NEMOs. 5. Your comments are noted. As per Article 1 of the update Day-ahead Scheduled Exchanges Calculation Methodology, a governance framework for specific roles and responsibilities is out of scope for this Methodology.
Please provide us with your specific comments on the 'Whereas' section of the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling.	Whereas 5: "That the DA Scheduled Exchanges Calculation Methodology shall consider situations with one or multiple scheduling areas per bidding zone" should be out of scope. This methodology should address cross-zonal exchanges calculation, not cross-scheduling area, which is a local issue.	According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology.
Please provide us with your specific comments on Article 1 - Subject Matter and Scope of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	1. The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology. 2. "It is acknowledged that the market coupling operator shall calculate Scheduled Exchanges as part of the market coupling operator function": where is this acknowledged? Certainly, this is not acknowledged in Regulation 2015/1222, and consequently not in the previously submitted MCO Plan. On the contrary, the CACM Regulation establishes the Scheduled Exchanges Calculation to be part of TSOs' tasks (see Articles 8(2)(g), 49 and 56). The argument of TSOs that that acknowledgement is based on Algorithm Requirements is not valid since these have not been agreed – indeed, NEMOs unanimously rejected such an implied transfer of responsibility in the draft of Algorithm Requirements. In the CWE region it is currently quite the opposite situation, with bilateral exchanges being calculated by the TSOs (and no proposal to change this has been received or discussed). The proposed methodology cannot impose or transfer responsibilities beyond the mandate of CACM Regulation.	1. According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology. 2. Agreed - The methodology no longer states that the market coupling operator shall calculate Scheduled Exchanges as part of the market coupling operator function. The calculation of Scheduled Exchanges shall be a task for the Scheduled Exchange Calculator.

Please provide us with your specific comments on Article 2: Definitions and Interpretations of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	1. 2(1)(a), definition of Scheduling Area: not very well defined – does it mean where there are multiple, independently controlled TSOs within a single bidding zone? Or would it also apply if an individual TSO chose to create multiple control areas within a single bidding zone? 2. 2(1)(e), definition of Multilateral Scheduled Exchange: not clear what is the relevance of a schedule from a bidding zone to a group of bidding zones. Is this term even necessary? Is such a concept used or anticipated to be used anywhere? 3. 2(1)(f), definition of NEMO Trading hub: should be defined as 'the set of orders submitted by the market participants to a specific NEMO within a bidding zone'. The MCO function does not recognise scheduling areas. 4. 2(2): defining "geographic areas" as meaning both scheduling areas as well as bidding zones is not justified under Regulation 2015/1222. This considers bidding zones as the only relevant geographic area (with the sole exception of "control areas" with regard to redispatching or countertrading).	1.2(1)(a) - As per Artice 2 (1a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, a 'Scheduling Area' shall be defined as an area within which the TSOs' obligations regarding scheduling apply due to operational or organisational needs. This definition is in line with the draft System Operations Guideline. 2.2(1)(e) - As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline. 3.2(1)(f) - As per Article 2(1)(c) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, the 'NEMO Trading Hub' shall be defined as 'a combination of a NEMO and a scheduling area (where applicable scheduling area is a bidding zone)'. Additional information is provided in the Explanatory Note i.e. it could also be described as a NEMO within a geographic area such as a bidding zone and/or scheduling area, characterised by a set of bids and orders submitted by the market participants. 4.2(2) - The term 'Geographic Areas' is not defined under Regulation 2015/1222. According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology.
Please provide us with your specific comments on Article 3: List of Information required from Relevant NEMOs of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	1. The provision of information on the Net position per Scheduling Area is a local issue and outside the scope of this methodology. This could instead be addressed via the Multi-NEMO Arrangements being developed by the relevant TSOs in cooperation with the relevant NEMOs (i.e., those directly impacted). It is neither efficient nor reasonable to make this the responsibility of all NEMOs (the consequence of the definition of "relevant NEMOs" in Article 2). 2. The allocated capacities and scheduled exchanges are the results of the scheduled exchange calculator, not input information. It is wrong to treat these items under Article 3: they are the outputs from the Scheduled Exchange Coordinator and a TSO responsibility. This responsibility cannot be simply transferred to NEMOs by redefining the calculated allocated flows and scheduled exchanges as mere "information requests". 3. The argument of TSOs that the CACM Regulation, Article 46 does not specify which input data could be required from NEMOs and hence TSOs are allowed to require whatever data they wish in the methodology clearly contradicts CACM which in its other parts explicitly makes TSOs responsible for the Scheduled Exchange Calculation.	1) Article 3 of the updated Day-ahead Scheduled Exchanges Calculation Methodology still includes the provision of rounded and unrounded net position per Scheduling Area in the List of Information Required from Relevant NEMOs. The provision of net position per Scheduling Area is essential in order to support the calculation of scheduled exchanges between Scheduling Areas. 2) The updated Day-ahead Scheduled Exchanges Calculation Methodology does not include Scheduled Exchanges in the List of Information Required from Relevant NEMOs. Scheduled Exchanges are a TSO responsibility and not a NEMO responsibility. Allocated capacities, in the form of allocated flows into and out of individual relevant DC network elements and on relevant Bidding Zone borders (flows in/out reflecting losses where applicable) shall remain in the List of Information Required from Relevant NEMOs. This is information which the TSOs (and Scheduled Exchange Calculators) require in order to calculate Scheduled Exchanges. 3) Article 43(2) of the Regulation 2015/1222 states that 'The methodology shall describe the calculation and shall list the information which shall be provided by the relevant NEMOs to the scheduled exchange calculator'. The updated Day-ahead Scheduled Exchanges Calculation Methodology describes the calculation of Scheduled Exchanges. The List of Information included in Article 3 of the update Day-ahead Scheduled Exchanges Calculation Methodology is required in order for the Scheduled Exchange Calculator to carry out the calculation methodology.
Please provide us with your specific comments on Article 4: Scheduled Exchange Calculator of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology.	As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline.

Please provide us with your specific comments on Article 5: General Principles for the Calculation of Scheduled Exchanges.	The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology.	As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline.
Please provide us with your specific comments on Article 6: Methodology for calculating scheduled exchanges per Scheduling Area / Bidding Zone resulting from single day-ahead coupling.	1. The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology. 2. The method for calculating the scheduled exchanges is inadequate and does not fulfill the requirement for the methodology as set out in Article 43. It describes necessary but not sufficient conditions for calculating scheduled exchanges. In particular, the equations do not explain how individual scheduled exchanges per bidding zone are determined – instead they simply provide some relationships between net positions and exchanges flows. In addition, the treatment of losses is ambiguous.	1. As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline. 2. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a clear methodology for the calculation of Scheduled Exchanges resulting from Day-ahead coupling.
Please provide us with your specific comments on Article 7: Methodology for Calculating Scheduled Exchanges per NEMO Trading Hub resulting from single day-ahead coupling	1. The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology. 2. The MCO function does not recognise scheduling areas: NEMO Trading hubs relate to bidding zones only. 3. The method for calculating the scheduled exchanges is inadequate and does not fulfill the requirement for the methodology as set out in Article 43. It describes necessary but not sufficient conditions for calculating scheduled exchanges. In particular, the equations do not explain how individual scheduled exchanges per bidding zone are determined – instead they simply provide some relationships between net positions and exchanges flows. In addition, the treatment of losses is ambiguous.	1. As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline. 2. According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology. On the other hand, NEMO Trading hubs cannot be interpreted as 'Geographic Areas'. The updated Day-Ahead Scheduled Exchanges Calculation Methodology incorporates the calculation of Scheduled Exchanges between NEMO Trading Hubs. The calculation of Scheduled Exchanges per Bidding Zone and/or Scheduling Area border and between NEMO Trading Hubs are required in order to ensure proper functioning of post market coupling processes under market settlement regimes where multiple NEMOs are active in a Bidding Zone or Scheduling Area. 3. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a clear methodology for the calculation of Scheduled Exchanges resulting from Day-ahead coupling.
Please provide us with your specific comments on Article 8: Implementation Date from the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling.	1. The calculation of Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas is a local issue and out of the scope of this methodology. 2. Only those local NEMOs directly involved can be deemed “relevant” for supporting local scheduling calculations between scheduling areas.	1. As per Article 2(1)(a) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, 'Multilateral Scheduled Exchange' shall be defined as a 'scheduled exchange between one Bidding Zone, Scheduling Area or NEMO Trading Hub and a group of other Bidding Zones, Scheduling Areas or NEMO Trading Hubs. The DA Scheduled Exchanges Calculation Methodology, through its construction comprising of bilateral scheduled exchanges, as well as multilateral scheduled exchanges, facilitates the efficient long-term operation and development of the European transmission system. Mulitlateral Scheduled Exchanges may be used in future by TSOs who choose to apply the Scheduling in Net Positions approach. Multilateral Scheduled Exchanges are included in this Methodology in order to maintain alignment with the draft System Operations Guideline. 2. Your comment is noted. According to Article 2 of the update Day-ahead Scheduled Exchanges Calculation Methodology, 'Relevant NEMOs' shall be defined as 'NEMOs responsible for the market coupling operator function'.

Question	EDF SA Comment	All TSO Response
Please provide us with general comments on the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling.	In the frame of the implementation of CACM Regulation 2015/1222, it is foreseen that stakeholders shall be consulted on several draft methodologies to be developed by TSOs. Stakeholders' involvement is indeed of paramount importance to ensure the transparency and accountability of the choices made by TSOs during the whole CACM implementation process. EDF welcomes, therefore, the launch of the present ENTSO-E public consultation on the TSOs' draft methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling. EDF regrets, however, the lack of explanation provided with the consultation document and requests further details and descriptions of the methodology: •If stakeholders are consulted to provide feedbacks and inputs, TSOs should make their best efforts to explain in a pedagogical way what is the context and the objectives pursued by TSOs to understand the purpose of a common Scheduled Exchanges calculation methodology. We consider that the present consultation document does not explain the need for Scheduled Exchanges calculation in the day-ahead coupling process, separately to the market coupling operator. The proposed methodology should therefore be accompanied by further explanation, for example by adding a detailed explanatory document. •Furthermore, ENTSO-E should describe in detail the calculation methodology itself, to be transparent towards market participants and to enable them to provide useful and relevant inputs or comments during the consultation process. Otherwise, a public consultation of stakeholders is a purely formal exercise. In the present case, EDF regrets in particular the fact that the draft methodology is limited to very high level principles, without clearly explaining how the Scheduled Exchanges are computed. In particular, the formulas are not very clear and too general to be able to replicate the calculation and understand the results. These two comments constitute EDF's major general concerns about the draft methodology. The responses to the following questions only aim at providing examples of the crucial need for further explanations and for a more detailed description of the methodology itself.	1) As requested a detailed Explanatory Note has now been provided with the updated Day-ahead Scheduled Exchanges Calculation Methodology. The Explanatory Note provides details around the need for Scheduled Exchanges calculation in the Day-ahead coupling process. 2) Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling.
Please provide us with your specific comments on the 'Whereas' section of the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling.	On the Whereas 7 (page 4), could you please clarify why you indicate that the DA Scheduled Exchange Calculation Methodology "may facilitate trading between multiple NEMOs within a Bidding Zone"? Could you please elaborate using examples? Or did you mean that where multiple NEMOS are active in the same Bidding Zone, this computation may highlight the contribution of each NEMO to the trading executed within this Bidding Zone?	This statement has been removed from the updated Day-ahead Scheduled Exchanges Calculation Methodology. The aim of the original sentence was to emphasise that the proposed methodology allows and supports multi-NEMO arrangements.
Please provide us with your specific comments on Article 1 - Subject Matter and Scope of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	•Concerning the Article 1, the Article 43 paragraph 2 of CACM Regulation recalls that "the methodology shall describe the calculation". We regret that the description of computation process is not really carried out thereafter. •In the last paragraph of Article 1, it is acknowledged that this DA Scheduled Exchanges Calculation Methodology shall apply to TSOs which intend to calculate Schedules Exchanges separately to the market coupling operator calculation of Scheduled Exchanges. For the sake of transparency towards market participants, we recommend to describe in an explanatory document, which European TSO intend to do so and for which reason and purpose.	1. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling. 2. The List of TSOs which intend to calculate Scheduled Exchanges is now included in the Explanatory Document. When dealing with a more complex flow-based approach to market coupling, for some TSOs the optimal solution for the calculation of Scheduled Exchanges is via the Scheduled Exchange Calculator.
Please provide us with your specific comments on Article 2: Definitions and Interpretations of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	Please find below some remarks on several definitions included in the proposed methodology: •Are "NEMO Trading hubs" missing from the definition of "d) Bilateral Scheduled Exchanges", and "e) Multilateral Scheduled Exchanges" respectively defined as follows: "Scheduled Exchanges between one Scheduling Area/Bidding Zone and another Scheduling Area/Bidding Zone" and "Scheduled Exchanges between one Scheduling Area/Bidding Zone and a group of other Scheduling Area/Bidding Zone. " •Furthermore, the definition of "f) NEMO trading hub" does not seem to be fully consistent with the definition of Scheduled Exchanges in the CACM Regulation. "NEMO trading hub" is namely defined here as: "the set of orders submitted by the market participants to a specific NEMO within a geographic area", while "Scheduled Exchanges" pursuant to CACM Regulation, are necessarily transfers "between geographic areas" and not between a set of orders. We therefore recommend the following new wording of the definition: "'NEMO trading hub' shall be defined as the geographic area where a specific NEMO gathers a set of orders submitted by market participants". •The definition of "h) Neighbouring NEMO Trading hub" defined as "a NEMO Trading hub connected to another NEMO Trading hub, either as part of the same Neighbouring Scheduling Area or Bidding Zone, or via at least one AC or DC interconnector" is not consistent with the current definition of NEMO trading hub being "the set of orders submitted by market participants […]". A set of orders cannot concretely be connected via one AC or DC interconnector. We therefore suggest again the above mentioned reformulation of the definition of "NEMO trading hub" to explicitly refer to a geographic area. •Finally, the Article 2 paragraph 3 a) "unless the context requires otherwise : a) the singular indicates the plural and vice-versa[…] does not make a lot of sense for the purpose of the present DA Scheduled Exchange calculation methodology.	1. Yes - the definitions of Bilateral Scheduled Exchanges and Multilateral Scheduled Exchanges have been modified in the updated Day-ahead Scheduled Exchanges Calculation Methodology. 2. According to Regulation 2015/1222, Article 2(32), a 'scheduled exchange' means an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction. Scheduling Areas are interpreted as 'Geographic Areas' as per Article 2(2) of the updated Day-Ahead Scheduled Exchanges Calculation Methodology and therefore are within scope of Regulation 2015/1222 and this methodology. On the other hand, NEMO Trading hubs cannot be interpreted as 'Geographic Areas'. The updated Day-Ahead Scheduled Exchanges Calculation Methodology incorporates the calculation of Scheduled Exchanges between NEMO Trading Hubs. The calculation of Scheduled Exchanges per Bidding Zone and/or Scheduling Area border and between NEMO Trading Hubs are required in order to ensure proper functioning of post market coupling processes under market settlement regimes where multiple NEMOs are active in a Bidding Zone or Scheduling Area. As per Article 2(1)(c) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, the 'NEMO Trading Hub' shall be defined as 'a combination of a NEMO and a scheduling area (where applicable scheduling area is a bidding zone)'. Additional information is provided in the Explanatory Note i.e. it could also be described as a NEMO within a geographic area such as a bidding zone and/or scheduling area, characterised by a set of bids and orders submitted by the market participants. A NEMO Trading Hub is explicitly not a 'geographic area'. 3. As per Article 2(1)(c) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, the 'NEMO Trading Hub' shall be defined as 'a combination of a NEMO and a scheduling area (where applicable scheduling area is a bidding zone)'. As per Article 2(1)(m) of the updated Day-ahead Scheduled Exchanges Calculation Methodology, the 'Neighbouring NEMO Trading Hub' definition has been amended to 'a NEMO Trading Hub connected to another NEMO Trading Hub, either as part of the same Scheduling Area or Bidding Zone, or as part of a Neighbouring Scheduling Area or Bidding Zone'. 4. Partially agreed. 'Unless the context requires otherwise' shall remain. However, the point 'the singular indicates the plural and vice-versa' has been removed from the updated Day-ahead Scheduled Exchanges Calculation Methodology.
Please provide us with your specific comments on Article 3: List of Information required from Relevant NEMOs of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	Concerning the list of information required from relevant NEMOs in Article 3, the inclusion of the following items raise questions: - "Allocated capacities, in the form of allocated flows between relevant adjacent Bidding Zone/Scheduling Area borders (flows in/out reflecting losses where applicable) -Scheduled Exchanges resulting from single day-ahead market coupling, in the form of: o Bilateral and Multilateral Scheduled Exchanges between Scheduling Areas o Bilateral and Multilateral Scheduled Exchanges between Bidding Zones o Bilateral and Multilateral Scheduled Exchanges between NEMO Trading hubs ». This list seems to correspond to the Scheduled Exchanges computation results, which does not help to understand the purpose and the role of the Schedule Exchange Calculator.	The List of Information Required from Relevant NEMOs in Article 3 of the updated Day-ahead Scheduled Exchanges Calculation Methodology has been modified. The new list only contains net positions, clearing prices and allocated capacities which are all required for the calculation of Scheduled Exchanges by the Scheduled Exchange Calculator.
Please provide us with your specific comments on Article 4: Scheduled Exchange Calculator of the proposed Methodology for the Calculation of Scheduled Exchanges resulting from single day-ahead coupling.	Concerning Article 4, we suggest to reformulate "Bilateral Scheduled Exchanges per DC Interconnector, per Scheduling Area border, per Bidding Zone border and per NEMO Trading hub " by replacing "per NEMO Trading hub" either by "[…]per NEMO trading border" or by "[…] between NEMO Trading hub".	We have modified Article 4 in the updated Day-ahead Scheduled Exchanges Calculation Methodology and we have incorporated your comment regarding 'between NEMO Trading Hubs'.

Please provide us with your specific comments on Article 5: General Principles for the Calculation of Scheduled Exchange.	We recommend to define the acronym "SEC" (Scheduled Exchanges Calculator) before using it.	Agreed - the SEC is now defined in Article 2 (first use) of the updated Day-ahead Scheduled Exchanges Calculation Methodology.
Please provide us with your specific comments on Article 6: Methodology for calculating scheduled exchanges per Scheduling Area / Bidding Zone resulting from single day-ahead coupling.	The formulas are not clear and too general and broad to be able to replicate the calculation and understand the results. •For example, all the formulations such as "m·n" are ambiguous. It is preferable to only use the letter "m" in the equation. •Equations 1 and 2 are necessary conditions of the calculation methodology but are not enough to compute and obtain the distribution of Scheduled Exchanges per border. Could you clarify what is the objective function used. There is namely an infinite number of solutions to these equations and the rule as well as the constraints considered are not described in the draft methodology. For example, in CWE region, there is a computation rule to determine MX values that minimizes the square values of bilateral exchanges. •Concerning Equation 2 and 4: oit is not clear the reason for the use of the symbol "±" ; oand could you also explain if there could be multiple groups of scheduling areas? •Finally, for the sake of clarity, we suggest to reformulate the following wording "AC/DC Bilateral Scheduled Exchanges between Scheduling Area j and any Neighbouring Scheduling Area with Scheduling Area j, from the perspective of Scheduling Area j " as follows: "AC/DC Bilateral Scheduled Exchanges between Scheduling Area j and Scheduling Area b which belongs to the set of Scheduling Areas being neighbour to Scheduling Area j".	Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling. Article 7.2 of the updated Day-ahead Scheduled Exchanges Calculation Methodology describes the Target Function which aims to minimise the Scheduled Exchanges between the involved Bidding Zones. The same principle is applied to Scheduling Areas and NEMO Trading Hubs. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling. Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling.
Please provide us with your specific comments on Article 7: Methodology for Calculating Scheduled Exchanges per NEMO Trading Hub resulting from single day-ahead coupling	Here again, the formulas are too general and broad to be able to replicate the calculation and understand the results. Paragraph 1 of Article 7 is recalling that calculating Scheduled Exchanges between NEMO trading hubs is based on single day-ahead coupling algorithm outputs "and subject to specific constraints, where relevant". For the sake of transparency towards market participants, we would expect a detailed description of these additional constraints that could be added by TSOs if needed. As for Article 6, Equations 5 and 6 raise several similar questions described below: •All the formulations such as "m·n" are ambiguous and that it is preferable to only use the letter "m" in the equation. •Concerning Equation 6 : ocould there be multiple groups of NEMO trading hub? oIt is not clear why "+" is used instead of "±" as in the equations 2 and 4. •Concerning Equation 5, do you compute the NPTH as the sum of accepted sell volumes minus the sum of accepted buy volumes of this NEMO Trading Hub? Could you explain the purpose and usefulness of BXTH computation?	Articles 5, 6 & 7 of the updated Day-ahead Scheduled Exchanges Calculation Methodology now provide a methodology with a detailed explanation of the Scheduled Exchanges calculation resulting from Day-ahead coupling.
Please provide us with your specific comments on Article 8: Implementation Date from the proposed Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling. - Accessible	Concerning the Implementation Date, it is not very clear on which date this methodology will be applied by TSOs. It is indicated in the last paragraph of Article 8 that "TSOs which intend to calculate Scheduled Exchanges resulting from single day-ahead coupling shall apply the DA Scheduled Exchange Calculation Methodology from initiation of single day-ahead coupling per Bidding Zone border". As far as "single day-ahead coupling" is defined in CACM Regulation as the process of market coupling itself, and namely: "the auctioning process where collected orders are matched and cross-zonal capacity is allocated simultaneously for different bidding zones in the day ahead market", we would recommend to apply the agreed and approved final methodology of Scheduled Exchanges calculation as soon as bidding zone borders are coupled in day-ahead markets. It means that the methodology would be applied immediately after its regulatory approval to regions already coupled at EU level and would be extended to any new Bidding Zone border which intend to implement the single day-ahead coupling. This progressive implementation seem to be the most appropriate one. The consultation document could also be accompanied by a timetable showing the expected date of adoption by all TSOs of this proposal and the subsequent NRAs' approval. This would provide an indication on the date of its potential entry into force.	Article 8 of the updated Day-ahead Scheduled Exchanges Calculation Methodology states that the Methodology is currently implemented by a subset of TSOs. In accordance with Article 43(4) of the Regulation 2015/1222, no later than 2 years after approval of the methodology by the relevant regulatory authorities, the TSOs applying Scheduled Exchanges shall review the DA Scheduled Exchanges Calculation Methodology. All TSOs will take part in this review, not only those TSOs 'which intend to....'. In addition, further implementation of all processess related to the single day-ahead coupling may result in amendments to this methodology. Only the TSOs 'which intend to...' as per Article 43 of the Regulation 2015/1222 shall submit this methodology for approval to their relevant NRAs. The List of TSOs 'which intend to...' is included in the Explanatory Document which accompanies the methodology.