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# **Explanatory note on the All TSOs' proposal for amendment of the establishment of a Single Allocation Platform (SAP) in accordance with Article 49 and for the cost sharing methodology in accordance with Article 59 of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a Guideline on Forward Capacity Allocation**

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## **DISCLAIMER**

This explanatory document is submitted by All TSOs to the Agency for the Cooperation of Energy Regulators for information and clarification purposes only accompanying the All-TSOs' proposal for amendment of the establishment of a Single Allocation Platform (SAP) in accordance with Article 49 and for the cost sharing methodology in accordance with Article 59 of Commission Regulation (EU) 2016/1719 establishing a Guideline on Forward Capacity Allocation.

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## I. Introduction

The Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation (hereinafter “**FCA Regulation**”) was published in the official Journal of the European Union on 27 September 2016 and entered into force on 17 October 2016. Today’s version of the SAP Proposal from 7 April 2017 – and still into force today – took already into account the general principles, goals and other methodologies set out in the FCA Regulation. Indeed, the goal of the FCA Regulation is the coordination and harmonisation of forward capacity calculation and allocation in the long-term capacity markets, and it sets requirements for the TSOs to co-operate on a pan-European level; on the level of capacity calculation regions. The SAP Proposal lays down the functional requirements, governance, liabilities, and cost sharing methodology for the Single Allocation Platform. The SAP shall be able to perform, at least, the execution of the long-term auctions in accordance with the HAR and any associated additional tasks required in the provision of long-term auctions (such as clearing and settlement and on call support).

The revision of the SAP Proposal (“**TSO-Proposal**”) associated to this explanatory document is driven by the changes required due to the introduction of the long-term flow-based allocation (“**LTFBA**”) principle. The handling of LTFBA into the SAP is leading to changes to the allocation algorithm and new requirements for this algorithm. The NTC allocation has been included as well as it was missing from the SAP Proposal. Based on the above, all TSOs have elaborated on a draft reviewed SAP Proposal where they proposed additional needs for adjustments that resulted from experience.

In the second chapter of this document main changes applied are highlighted to ease the understanding of the reader, in order to focus on the gap-analysis between the previous version of SAP Proposal and the TSO-Proposal. In the third and fourth chapter of this document, focus is set on NTC and FB allocation – as the main changes are due to the inclusion of LTFBA, replacing for most borders the NTC allocation.

## II. Main changes

### 1 Overview table of amended articles

In the following table, please see the gap analysis between the previous version of the SAP Proposal and the newly drafted TSO-Proposal. Apart from some (minor) wording adaptation in different articles, the main bulk of changes is to be seen in the newly drafted article 39 about the algorithm principles.

| Article Number   | Topic  | Reasoning   |
|--|--|---|
| <b>Whereas (2) to (3) (new SAP)</b>  | Background information                       | Insertion of new recitals to explain the background and reasons for triggering the amendment of the SAP Proposal  |
| <b>Whereas (4) (new SAP)</b>   | Electricity Regulation                       | Insertion of a new recital to clarify that the SAP Proposal amendment also considers the principles and goals of the Electricity Regulation that was adopted meanwhile. |
| <b>From <i>Whereas (14) (old SAP)</i> to <i>Whereas 21 (new SAP)</i></b>   | Single capacity allocation algorithm         | Adaptation to reflect change from NTC to flow-based and change in the numbering of the recital from 14 to 20 following the introduction of new recitals.                |
| <b>Article 1 - Subject matter and scope</b>  | Scope  | Clarifying to which TSOs the SAP Proposal applies   |
| <b>Article 2 – Definition and Interpretation</b>   | Allocation Constraint<br>External Constraint | Addition of definitions   |
| <b>Article 13a - Cooperation of SAP CA Parties</b>   | SAP User's group                             | Adaptation of scope and description of SAP's user's group   |
| <b>Article 39. 1- 17- Allocation algorithm formulas</b>  | Algorithm principles                         | Inclusion of algorithm principles and formulas for both NTC and Flow-Based. Adaptation to reflect flow-based  |
| <b>From <i>Article 40 (new SAP) / Article 39 (old SAP)</i> to <i>Article 66 (new SAP) / Article 65 (old SAP)</i></b> | Changes in article Numbering                 | As one article (#39) was added, all subsequent articles starting from article 40 were incremented by 1.   |
| <b>Article 42 (new SAP) / <i>Article 41 (old SAP)</i></b>  | Capacity Curtailment and Nomination          | Wording changes in article title and Article 42.2   |
| <b>Article 43 (new SAP) / <i>Article 42 (old SAP)</i></b>  | Auction Results Determination                | Wording changes to improve clarity  |
| <b>Article 51 (new SAP) / <i>Article 50 (old SAP)</i></b>  | Auction cancellation                         | Clarification of use case, addition of "or due to incorrect Offered Capacity values"  |

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|              |                                       |   |
|--------------|---------------------------------------|---|
| <b>Annex</b> | Common set of requirements for LT FBA | Adaptation to reflect change from NTC to flow-based |
|--------------|---------------------------------------|---|

## 2 Detailed list of changes to already existing articles

### 2.1 Whereas

New paragraphs have been added explaining the background of- and the need for the amendment (introduction of Flow-Based).

### 2.2 Article 1 - Subject matter and scope

It was underlined that SAP Proposal shall not apply to **the bidding zone borders** where regulatory authorities decide that long-term transmission rights shall not be issued by the respective TSOs or that other long-term cross-zonal hedging products shall be made available by the respective TSOs, according to article 30(7) of FCA Regulation. In addition, it was clarified that in the specific case where there are several TSOs on the same side of a bidding zone border, the SAP Proposal shall only apply to the TSO generating an income from capacity allocation on a bidding zone border.

### 2.3 Article 2 - Definitions and interpretation

New definition has been added to enhance the methodology – “Allocation Constraints”, “External Constraints”.

Allocation Constraints means a combination of Biding Zone borders, within NTC approach, which have a common technical limit. Typically, such an Allocation Constraint was used in the past for CEE region respectively Core CCR known as a ‘Technical Profile’ for combination of BZBs of PL/CZ/SK and DE/LU. Allocation Constraints are also used for Italy Nord CCR for DA-MC as a combination of IT with FR/AT and SI BZBs.

Whereas External Constraints means a limitation in import- or export capacity for the sum of BZBs of a specific hub within flow-based approach, which have a common technical limit, creating constraint of the Objective Function. This currently is used on PL-Hub as well as for HVDC line ALEGrO between BE/DE BZB.

### 2.4 Article 13 - Cooperation of SAP CA parties

Improvement of Article 13 paragraph a), to better define “user’s groups”, such as but not limited to a consultative user group with market participant associations, and operational and technical user group dealing with feedback and requests on the IT interfaces and the SAP tasks.

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## 2.5 Other amendments

Clarifications have been made on articles on “Capacity Curtailment and Nomination” and on “Auction Results Determination”.

Besides that, the “Auction cancellation” article has been more detailed.

Several limited editorial amendments have been made to notably improve the use of defined terms.

## 3 Detailed list of new articles

### 3.1 Article 39 - Allocation algorithm formulas

New article under “Title 3 – Products, allocation methods and algorithms” detailing:

- The general principles for the calculation of the auction results (i.e. marginal price, single auction price for each BZB direction, etc.);
- the mathematical formulation for the calculation of the Auction Results by:
  1. The NTC based allocation or,
  2. The Flow-Based based allocation
  3. For the formulas given for Flow-Based, it might be necessary to complement them for the integration of HVDC interconnectors modelled under evolved flow-based. As an exact reformulation for such a situation is not agreed at the moment, it is currently considered by the formulation under footnote 2).

The reference to the new Annex with the Common set of requirements for the LTFBA algorithm.

Additional details on the algorithm or on the deterministic rules applied will be published in JAO's Information System Rules document.

### 3.2 Annex - Common set of requirements for LT FBA

1. Requirements on functionalities and performance
  - General requirements
  - Qualitative requirements with precision and price ranges
  - Performance
2. Requirements on algorithm output and deadlines for the delivery of results
  - Regarding the prices
3. Requirements related to allocation constraints

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## 4 NTC allocation

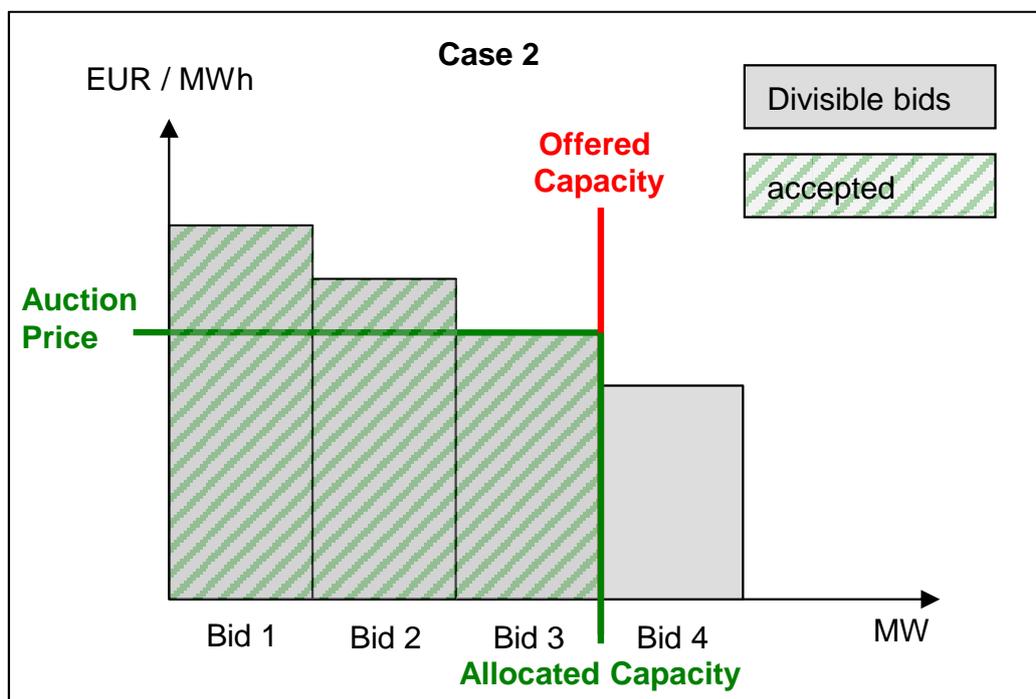
In the current methodology there is no mention how SAP shall handle NTC allocation, this has been included in the new Article 39. Further explanation on determination of auction prices can be found below.

### Determination of Auction Prices

When applying the default objective function, the *Auction Prices* are derived from the dual values of the inequality constraints, called *shadow prices (SP)*. Shadow prices represent an increase in the value of the objective function (i.e. welfare gain) connected with marginal increase of the constraint value. Their values are found as a solution of dual linear problem derived from the first optimization (first order conditions). Shadow prices are dual values of the inequality constraints that are an output of the market algorithm.

Beside of above mentioned general definition of the Shadow Price calculation following applies:

In case total demand is higher than total supply on a given Technical Profile, Shadow Price is created by the lowest accepted Bid Price.



The *Auction Price* is

$$AP(x, y) = SP(ATC_{x \rightarrow y}) + SP(ATC_{x \rightarrow y, p}) + SP(ATC_{x \rightarrow y, p, q}) + SP(ATC_{x, m \rightarrow y}) + SP(ATC_{x, m, n \rightarrow y})$$

|        |                                   |  |
|--------|-----------------------------------|--|
| Where: | $AP(x, y)$                        | <i>Auction Price</i> for Source-Sink Pair " $x \rightarrow y$ ", |
|        | $SP(ATC_{x \rightarrow y})$       | shadow price for limit $ATC_{x \rightarrow y}$                   |
|        | $SP(ATC_{x \rightarrow y, p})$    | shadow price for limit $ATC_{x \rightarrow y, p}$                |
|        | $SP(ATC_{x \rightarrow y, p, q})$ | shadow price for limit $ATC_{x \rightarrow y, p, q}$             |
|        | $SP(ATC_{x, m \rightarrow y})$    | shadow price for limit $ATC_{x, m \rightarrow y}$                |
|        | $SP(ATC_{x, m, n \rightarrow y})$ | shadow price for limit $ATC_{x, m, n \rightarrow y}$             |
|        | $m, n, p, q$                      | <i>Control Areas</i> other than $x$ and $y$                      |

### Enhancement of Basic Optimization

If there are two or more Bids with the same Source-Sink Pair and an identical Bid Price that cannot be fully accepted, the remaining capacity shall be allocated according to an improved pro-rata rule.

The optimization algorithm shall be run first, and then the equal bid price allocation mode (improved pro-rata per technical profile) shall be applied as a post-process on every technical profile (TP) with several bids with the same bid price.

Improved pro-rata rule consists on an equal allocation of the remaining capacity to the respective market participants according to number of bids with the same bid price:

If two (2) or more registered participants have submitted for one technical profile valid bids with the same bid price, that cannot be fully accepted for a total requested quantity of rights, improved pro-rata approach is applied to determine winning bids and quantity of allocated rights with regard these bids and registered participants as follows:

1. Remaining capacity which can be shared between the respective registered participants is divided by number of such registered participants and rounded down to nearest full MW;
2. In case the requested quantity of rights by registered participant is lower or equal than the share calculated according to bullet 1), the request of registered participant is fully satisfied;
3. In case the requested quantity of rights by registered participant exceeds the share calculated according to bullet 1) the request of registered participant is satisfied in amount calculated according to bullet 1) above;

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4. Remaining capacity which can be shared between the respective registered participants is recalculated, i.e. decreased by amounts allocated according to bullet 2) and 3);
5. Procedure described in the bullet 1 to 5 is repeated with registered participants mentioned under bullet 3), i.e. whose request is only partially satisfied.

All Bids are considered divisible (i.e. the Bid Amount can also be partially satisfied).

In case of Bids with Bid Price equal 0 EUR/MWh the Bid Price is replaced for optimisation algorithm purposes with a very small number not influencing the Auction Price calculation.

## 5 FB allocation

With the ACER decisions on Nordic LT CCM and Core LT CCM, a flow-based approach shall be implemented for the LT allocation process in SAP.

In the current methodology there is no mention how SAP shall handle FB allocation, this has been included throughout the methodology. The new Article 39 includes the high-level points and formulas for LT FB allocation. An Annex has been added with the requirements towards SAP for the LT FB allocation.

The FB allocation introduces the concept of External Constraints which are not used in NTC based allocation by the SAP due to the fact that auctions are evaluated individually, and the External Constraint is taken into account. a common technical limit of a hub in import- or export capacity, creating a constraint to the Objective Function.