Third Amendment to the All NEMO Intraday Operational Agreement (ANIDOA)

ATTACHMENT 6

Adapted Annex 6
Technical requirements

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I.- Introduction

This Annex 6 (Technical requirements) to the Agreement contains technical requirements related to the Agreement.

For the purpose of this Annex, all capitalized terms not expressly defined herein shall have the meaning attributed to them in Annex 1 (Definition list).

II. - SIDC/IntraDay Continuous Trading (SIDC/IDCT)

Section I.- Comunication Network & Rack Space

[redacted]

Section II. Technical provisions regarding PMI

Section II.1- PMI Interface

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Section II.2- PMI logger

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Section III. Technical provisions regarding day to day operation

Section III.1 Number of XBID-API SOB PMI Exchange Users

[redacted]

Section III.2 Restriction on unsupported data use

The Parties agree not to make use of any XSD messages or message fields or fields values that are not described in the [redacted] specification. In case of breach of this commitment by a Party, Article 30.2.9 of the Agreement shall apply.

Section III.3 Communications between the LTS and the XBID System

All communication between LTS and the XBID System shall be done in an anonymized manner. Data should be anonymized, based on the standards used in the single day ahead market coupling and legal requirements (e. g. the CACM Regulation).

[redacted]

Section IV. REMIT reporting

In accordance with Article 17.4 of the Agreement, the Parties shall take into account the table below when fulfilling their reporting obligations under REMIT.

Table 1 – REMIT reporting

Title	Description
Contract naming	ContractID & ContractName are unique per organised market place,as defined in Implementing Regulation 1348/2014 of 17/12/2014 on data reporting implementing article 8.2) and 8.6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity

	and transparency. As each NEMO is a separate Organised Market Place this does not have to be aligned. In case of a cross-NEMO trade, the delivery period of the linked contract must of course be the same for each NEMO.
Reporting of User defined blocks	User defined blocks (UDB) in the XBID System consist of a consecutive series of underlying hourly base contracts. When reporting orders & trades for these UDB two supported approaches are recognized: 1. Report UDB sliced to its underlying contracts This means an order/trade on a UDB will be reported as separate orders/trades on the hour contracts that the user defined block is constructed off 2. Report UDB as additional contracts This means that for every unique UDB for which at least one order/trade has been entered an extra contract is added to the REMIT report. The orders & trades on this UDB are then linked to this contract without slicing Both options are supported in REMIT reporting. NEMOs participating in SIDC should use one of these approaches in their REMIT reporting of SIDC orders and trades on UDB.
Trade > Unique transaction identifier	The unique transaction identifier, as defined in the annex to Implementing Regulation 1348/2014 of 17/12/2014 on data reporting implementing article 8.2) and 8.6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency, naming convention should be aligned between the NEMOs in case of a cross-NEMO trade. **TradeReport/uniqueTransactionIdentifier/uniqueTransactionIdentifier:** [redacted] Additionally the "additionalUtiInfo" element should be used to allow ACER to link cross-NEMO trades, where each half trade is reported by a different Organised Market Place. This element should contain the same value for all trades done in the XBID System. **TradeReport/uniqueTransactionIdentifier/additionalUtiInfo:** XBID
Trade > Transaction timestamp	The timestamp of trades must be aligned among the NEMOs. Therefore the execution time as provided by the XBID System must be used [redacted]

Section V. Monitoring of the performance of the XBID System

The performance of the XBID System will be closely monitored with regard to the SLA and/or system boundaries as well as the technical capability of the XBID System.

1. In case any underperformance is identified (at the latest based on the monthly SLA reports), the Operational NEMOs will raise the matter and organise immediately a joint discussion among the Operational NEMOs in order to identify measures which will ensure robust operation. All products and product's parameters will be subject of the discussion in the following order:The parties commit to enter in negotiations with the XBID System Service Provider to solve the issue and find a technical solution, covering all parameters which could be revised with the aim to achieve a robust operation.
2. If the underperformance is caused by a particular product or product's parameter, then the Parties agree that the products and/or modification of product's parameters causing the underperformance will be removed from operations as of the next delivery day and until a technical solution is reached.

III. - SIDC/IntraDay Auction (SIDC/IDA)

Operational Roles: Coordinator[1] –Backup Coordinator –Operator concepts

In order to synchronize the operation of all Operators and react in exceptional situations in a coordinated manner, an IDA Coordinator role is created and assigned to an Operator who is responsible of producing the results and coordinating the PCR process. The Backup Coordinator role is created for an Operator that every day acts as a backup of the Coordinator, assuming its role in case of problems. Operators may also run the matching process for internal use and verification purposes.

The Operator, being an PCR Co-Owner, in the Coordinator role has the responsibility to coordinate the market coupling at normal and abnormal situations. This becomes particularly important in case anything goes wrong in the process. All Operators' communication goes via the Coordinator. The Coordinator is the one who overlooks the entire coupling process and the first to find out what exactly went wrong in case of problems. Apart from coordinating the IDA sessions as described in the SIDC procedures for IDA, the Coordinator is also in charge of producing the final results and confirming their validity, once received the validation messages from all Operational NEMOs, directly or via servicing NEMO.

The Coordinator – Backup Coordinator – Operators roles will be distributed based on the rotational calendar which is created every year where for each day an Coordinator and an Backup Coordinator are designated.

In case that, due to an exceptional situation, Coordinator cannot perform this task, the Backup Coordinator will acquire the Coordinator role. The position in the list will rotate with the periodicity decided by the NEMO ID SC. The rotational calendar is created in a way that the following Coordinator in the list is in the previous period taking the role of Backup Coordinator.

[1] Wherever used in this document, the words "Coordinator" or "Back-up Coordinator" are meant to refer to the corresponding roles for PMB asset.

The applications (Brokers) will provide all operators information about which Operator is the Coordinator.

Coordinator roles concerning IDA CIP are described in the IDOA.

PCR Matcher and PCR Broker concept and PMB

Please note that this section is a disclaimer applying to the whole document.

Through the whole document, Broker and Matcher concept are described together with the set of functionalities that are attributed to each. The initial idea pretended to separate the different functionalities needed for the PCRin two servers leaving the communication part in one server (Broker part) and the validations part, call to the algorithm and the generation of results file in the other one (Matcher part).

The final implementation, which was called PMB, respects all the functionalities described in this section, although PMB was divided in the two parts called Communicator and Application. It is a very similar concept to Broker and Matcher but with different set of functionalities to be managed by each part. The Functional Specification document describes in detail all the functionalities and the module that implements them.

PMB allows two possible installations: All-in-one installation and Detached installation. All-in-one installation allows installing the PMB parts in one server and Detached installation allows installing Communicator part in one server and Application part in another one.

Lastly, be aware that in the final PCR concept, there is only a single PCR PMB operator. It means that a single GUI fulfills all functionalities initially assigned to PCR matcher GUI and PCR broker GUI.

High level functional architectures diagram of SIDC/IDA – Focus on PMB

The diagram presents the general high level architecture of IDA, with a focus on PMB. For simplification reasons, only 3 subjects are presented. One is the IDA Coordinator role. The second is an IDA Operator role, with function of Back-up Coordinator. Both of them are providing and receiving data and executing the matching process. They both receive capacity information from XBID CMM via IDA CIP and provide it to PCR. The CMM keeps track of the available capacity and allocated capacity on each Bidding Area border during SIDC/IDCT. It allocates capacity during SIDC/IDCT in response to implicit and explicit capacity requests.
In the context of SIDC/IDA, CMM module is playing a role in both pre-coupling and coupling:

- In the pre-coupling process, the CMM module collects all the input data provided by TSOs and it uses the data to generate one complete input data file, containing the network data information to be allocated during the SIDC/IDA for all the borders included in the IDA topology
- In the coupling process, the CMM Module validates the SIDC/IDA Market Coupling Results in the form of allocation request.

The IDA Coordinator, besides, validates the results based on the local validation of each IDA Operator. The third IDA Operator (role 3) only provides its data, receives the Results and validates locally the Coordinator result. In SIDC/IDA, all IDA Operators may execute the matching process (if technically ready to perform it), although as shown in the diagram, it would be executed by a separate system.

Where:

This second diagram presents a simplified version of these PCR flows from the point of view of an Operational NEMO. In this case, the represented IDA Operator includes also a PCR matching algorithm. The Operational NEMO connects to the PCR Cloud through the PCR Broker or the PCR Broker of the Servicing NEMO.

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- Normal PCR process for IDA

The "normal" PCR process is the process where the information flows and processing that takes place in every session in the PCR market coupling process for IDA when no incidents appear.

This process can be divided in the following sub-processes:

0 Verification of the system versions and configurations of all IDA Operators

[redacted]

1 Reception of the bids and capacities for IDA

1a. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2 Delivery of aggregated bids and capacities information

[redacted]

3 Gathering of all matching input information

3a. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

4 Uploading of information by the PCR Matcher

Step 4 is obligatory for the IDA Coordinator and the IDA Backup Coordinator.
The other operators may perform this step in case they want to run a parallel algorithm.

4a. [redacted]

[redacted]

[redacted]

4b. [redacted]

[redacted]

5 Running of the PCR algorithm

Step 5 is obligatory for the IDA Coordinator and the IDA Backup Coordinator.
The other IDA Operators may perform this step in case they want to run a parallel algorithm.

5. Algorithms run and produce results.

6 Downloading of the information in the PCR Matcher

Step 6 is obligatory for the IDA Coordinator and the IDA Backup Coordinator.
The other IDA Operators may perform this step in case they want to run a parallel algorithm.

6a. Matchers access the results of their Algorithm.

6b. Matchers validate and reformat results of their Algorithm.

6c.

7 Gathering of the results files

7a.

7b.

8 Validation of the Preliminary results

8a.

[redacted]

8b. [redacted]

8c. [redacted]

8d. [redacted]

[redacted]

8e. [redacted]

[redacted]

8f. [redacted]

9 Validation of the provisional results by external parties

9a. [redacted]

[redacted]

[redacted]

[redacted]

9b. [redacted]

[redacted]

9c. [redacted]

[redacted]

10 Confirmation of the Final results

10a. [redacted]

[redacted]

10b. [redacted]

[redacted]

[redacted]

11 Uploading of the results in the Operational NEMO IT Systems

11a. [redacted]

11b. [redacted]

[redacted]

12 Distribution of the information to the other IDA systems and to members

12a. [redacted]

12b. [redacted]

12.c [redacted]

13 Interaction with the Broker

13a. [redacted]

13b. [redacted]

14 Interaction with the PCR Matcher

14a. [redacted]

14b. [redacted]

Exceptional PCR processes applied to IDA

[redacted]

IDA Operator's Broker cannot send configuration file to the Broker Cloud (0a)

[redacted]

IDA Operator's Broker verification process of the PCR configuration for IDA fails (0b)

[redacted]

IDA Operator's Broker verification process of the PCR configuration for IDA does not validate (0b)

[redacted]

An Operational NEMO is not capable of producing or validating the aggregated curves information (2a).

[redacted]

A Operational NEMO cannot send the aggregated curves information and network data to its PCR Broker (2b) or its servicing NEMO Broker.

[redacted]

The IDA Operator's Broker validation process of the order book and network data fails (3a)

[redacted]

The IDA Operator's Broker does not validate the input files provided by an Operational NEMO (3a).

[redacted]

An IDA Operator's Broker cannot send the information (order book and network data) to the Broker Cloud (3b).

[redacted]

A Broker validation process of all order book and network data from IDA Operator fails (3c)

[redacted]

Information from one IDA Operator does not arrive to the other IDA Operators or the information is not correct(3c).

[redacted]

Broker cannot send the input data files to the Matcher (3d).

[redacted]

Matcher validation process fails before uploading the information to the algorithm structures (4a)

[redacted]

The PCR Matcher does not validate the information before uploading the information to the algorithm structures (4a)

[redacted]

The PCR Matcher cannot upload the information to the algorithm tables (4b).

[redacted]

The algorithm fails (crashes) in the process of finding the result (5).

[redacted]

The PCR Matcher cannot gather the results from the algorithm output tables (6a).

[redacted]

The PCR Matcher process validation of the algorithm results crashes (6b).

[redacted]

The PCR Matcher does not validate the results of the Algorithm(6b)

[redacted]

The PCR Matcher validation process detects that the results are outside the predefined range and imposes a particular action (6b)

[redacted]

The PCR Matcher cannot send the results to its Broker (6c)

[redacted]

One or several Brokers cannot access the results from the IDA PCR Cloud or its own algorithm (7a).

[redacted]

Broker cannot send the results to its Operational NEMO, directly or via servicing NEMO **(7b).**

[redacted]

The validation process (1st phase of validation) of IDA MC Results fails (8a).

[redacted]

The results of validation process (1st phase of validation) of IDA MC Results returns NOK (8a).

[redacted]

Operational NEMO IT System cannot send the validation results message (ie receipt) to its Broker (8b).

[redacted]

Broker cannot send the validation results message (ie receipt) to the Broker Cloud (8c).

[redacted]

IDA Coordinator Broker analysis process of validation results messages fails (8d).

[redacted]

IDA Coordinator Broker analysis process cannot validate the validation results messages(8d).

[redacted]

The IDA Coordinator cannot send the analysis of validation results message to one or several IDA Operators (8e).

[redacted]

The Broker cannot send the analysis of validation result messages produced by the IDA Coordinator to its Operational NEMO Systems (8f).

[redacted]

Validate process of provisional results (2º phase of validations) by the Operational NEMOs fails (9a).

[redacted]

Validate process of PCR provisional results (2º phase of validations) by the Operational NEMO does not validate (9a).

[redacted]

Operational NEMO cannot send the validation results message (ie receipt) to its Broker (9b).

[redacted]

Broker cannot send the confirmation message (ie receipt) to the Broker Cloud(9c).

[redacted]

The analysis of validation results messages (i.e. receipts) by the IDA Coordinator fails (10a).

[redacted]

The analysis of confirmation messages (i.e. receipts) by the IDA Coordinator does not validate (10a).

[redacted]

The IDA Coordinator cannot send the analysis of validation results messages to the Broker Cloud (10b).

[redacted]

PCR Broker interface doesn´t work (13b).

[redacted]

PCR Matcher interface with the operator doesn't work (14b).

[redacted]

Relevant issues

Management of decoupling situations

[redacted]

Analysis of the process timing

[redacted]

[redacted]

[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				
[redacted]				[redacted]e action

Treatment of the time change days

Time change days are special in the operation of the electricity markets because they present the particularity of having different hours (periods) than the normal days. In fact, on the last Sunday of March, the day has 23 hours and the last Sunday of October, 25. Different Operational NEMOs have different ways of dealing with these special days

In SIDC/IDA these days will be treated as set of consecutive periods like in a normal day, introducing 23 and 25 negotiation periods on each case. These days, all IDA Operational NEMOs will send to aggregated curves including 23 or 25 values for IDA1 and IDA2 and the usual 12 values for IDA3. They will also ensure that the capacity files under their responsibilities also include 23 or 25 values for IDA1 and IDA2 and the usual 12 values for IDA3.

If due to internal reasons one Operational NEMO does not allow for the introduction of 25 periods in their offers, it will internally introduce the necessary changes to provide IDA PCR with 25 values. If it accepts offers with 24 periods in the 23 hours day, it will eliminate the non-valid period sending only 23 consecutive values.