

Converting SEM Bids to Electricity Balancing Guideline Standard Products

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Introduction

This information note is intended to highlight the ongoing work between the TSOs and SEM RAs to develop a conceptual approach for the conversion of SEM bids into standard products for the balancing energy platforms, and to outline high level details of that approach.

This note is limited to the approach for converting SEM bids into standard products and does not deal with all changes required to comply with the EU Electricity Balancing Guideline (EB GL). There is ongoing work by the TSOs and SEM RAs to ensure the approach to imbalance pricing and settlement in the SEM is compliant with all aspects of EB GL. Depending on outputs from this work, changes may be required to the existing market design; this area is not covered in this note.

This note does not represent a decision to implement this approach, rather it is intended to assist participants in understanding the interactions possible between the SEM and the European balancing market platforms, and their developments under EB GL.

Overview of EB GL and SEM

The Electricity Balancing Guideline (EB GL) (COMMISSION REGULATION (EU) 2017/2195) entered into force on 18th December 2017. The guideline's aim is to create a market which enables resources to be shared and exchanged between Transmission System Operators (TSOs) in system balancing timescales. The guideline contains numerous obligations for TSOs and market participants, with potentially the biggest change being the introduction of European balancing platforms.

The purpose of these balancing platforms is to enable Europe-wide competition on balancing service provision through:

- common principles on the procurement and settlement of balancing reserves (capacity and energy); and
- a common methodology for the activation of Frequency Restoration Reserves and Replacement Reserves.

This is similar in concept to market coupling through EUPHEMIA and XBID in the day-ahead and intraday market arrangements, except for incremental and decremental Bid Offer Acceptances at different points in the balancing timeframe.

The primary benefits of this are:

- Cheaper balancing actions from another market could be used if the interconnector capacity is available, rather than a more expensive action which would be taken if only local balancing is possible; and
- Local Balancing Service Providers (BSPs) have access to provide balancing energy to other markets if the interconnector capacity is available, and

therefore access to additional revenues than would be the case if only local balancing is possible.

For balancing energy, central European platforms will be set up, into which TSOs submit their needs for balancing energy and submit bids from BSPs in their area. The central platforms will then determine the bid volumes to be cleared, and the price at which they should be cleared, to meet each TSO's need.

The platforms are divided in line with the different classifications of reserves, which are defined in the System Operation Guideline (COMMISSION REGULATION (EU) 2017/1485) as follows:

- FCR – Frequency Containment Reserves;
- aFRR – Automatic Frequency Restoration Reserves;
- mFRR – Manual Frequency Restoration Reserves; and
- RR – Replacement Reserves.

While FCR balancing energy is within the scope of EB GL in terms of standard methodologies for settlement etc., it is not centrally activated and therefore no balancing platform is being developed for this type of service. The balancing platform projects currently in development are as follows:

- The project for the aFRR platform is called PICASSO – Platform for the International Coordination of Automated Frequency Restoration and Stable System Operation;
- The project for the mFRR platform is called MARI – Manually Activated Reserves Initiative;
- The project for the RR platform is called TERRE – Trans European Replacement Reserves Exchange, with the platform itself called LIBRA;
- There is a separate process, known as Imbalance Netting (IN), which involves netting off the aFRR demand from participating TSOs (i.e. netting demand for positive aFRR and demand for negative aFRR). The IN platform is called IGCC – International Grid Control Cooperation.

Participation in a platform is mandatory for all TSOs who use the relevant process (e.g. if a TSO uses the Replacement Reserve process, the RR platform is mandatory). EirGrid and SONI do not currently use aFRR, and as such implementation of PICASSO and IGCC is not mandatory. EirGrid and SONI are, therefore, at this time only considering the need to implement the mFRR and RR (MARI and TERRE) platforms. To facilitate the exchange of energy via these balancing platforms, TSOs are obliged to propose a number of standard balancing energy products, with common characteristics.

The aim of EB GL is for TSOs to balance their systems as much as possible through using these standard products. Given that it is unlikely that all TSOs will be able to use solely standard products to operate their systems, EB GL provides for the existence of “specific products”. EB GL also allows for TSOs operating central dispatch systems to use the integrated scheduling process. This means an iterative process using integrated scheduling process bids (containing bid price/cost and the

technical data of each provider), as well as the latest control area need and operational security limits, in order to determine which providers are dispatched by the TSO. This is the mechanism currently used for balancing the system within the SEM, with integrated scheduling process bids being synonymous with the Commercial Offer Data (COD) and Technical Offer Data (TOD) submissions under the SEM Trading and Settlement Code.

EB GL requires for TSOs of central dispatch systems to convert integrated scheduling process bids into standard products for submission into the balancing platforms. EirGrid and SONI, alongside the SEM RAs, are currently carrying out work to develop a “straw man” position on what such a conversion process could look like. The remainder of this note summarises the main features of that potential conversion process.

High level intentions for the conversion process

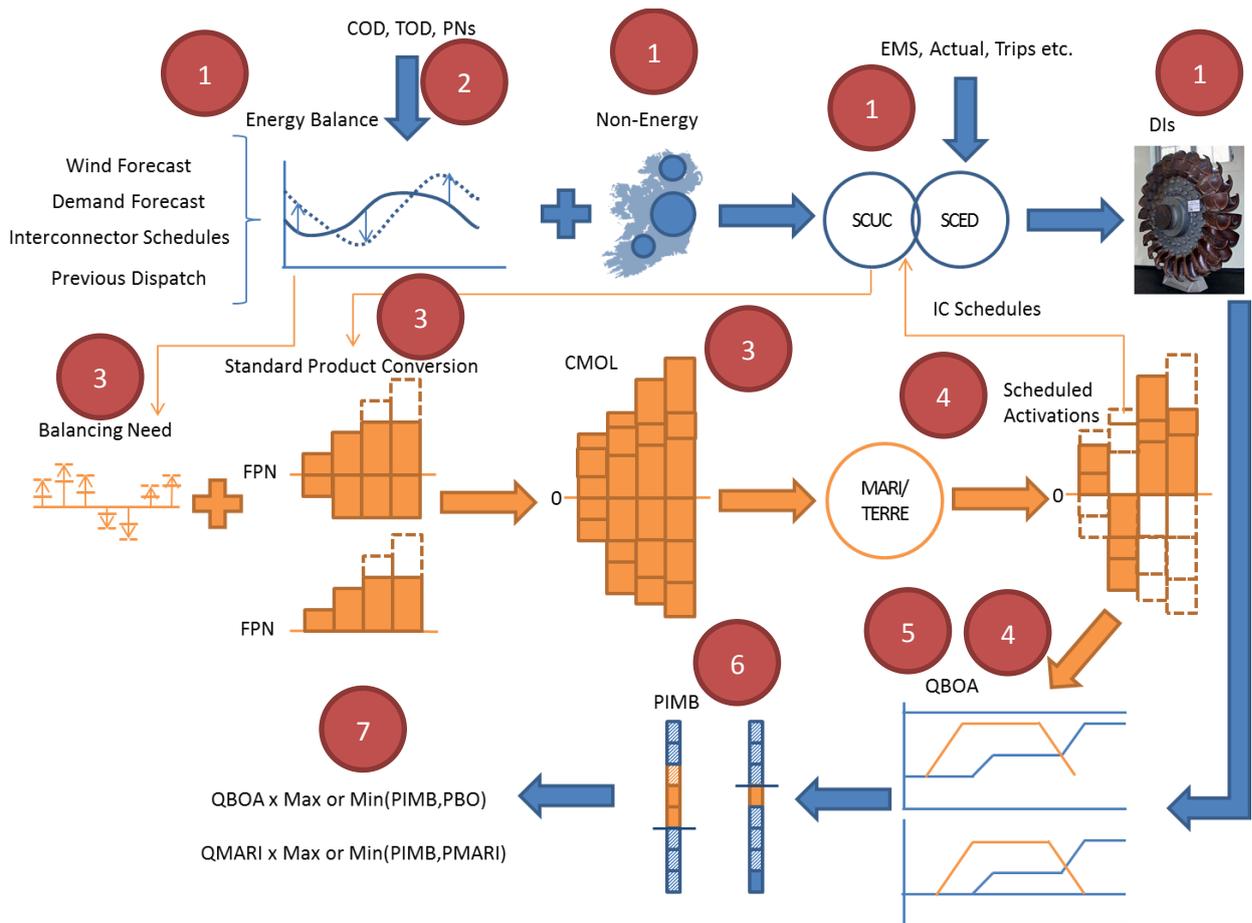
The “straw man” concept of the conversion process was developed with the following intentions:

- Comply with EB GL through conversion of integrated scheduling process bids for participation in cross-border exchange of standard products for balancing energy, thus introducing additional efficiencies through the use of cross-border flows as a means of economically managing imbalances;
- Do so through layering the additional arrangements or requirements on top of what has already been delivered as part of the I-SEM project;
- This approach would entail closer to real-time changes in the physical interconnector flows due to cross-border trading of balancing energy arising from platform results (which would have second order effects on the scheduling and dispatch of local units);
- Manage this new model primarily through submitting to the platforms information which would be equivalent to that used locally in scheduling and dispatch to the extent possible, with the assumption that if all things were equal the same results should occur with both once the changes in cross-border flows from the platforms are incorporated into the local processes. This would negate the need to have a direct relationship between a standard product being activated on the platforms and a dispatch instruction needing to be issued to directly enact it, other than for dispatching cross-border flow changes. TSO actions to maintain both energy balance and system security limits can continue being based on the single local co-optimised scheduling tool;
- The primary changes then would be related to calculating the correct prices to relate to the correct quantities of balancing energy. In particular, any differences between physical dispatch and the position implied through cleared standard products would be managed through the calculation of local-only Bid Offer Acceptance Quantities in pricing and settlement timeframes;
- The conversion concept is designed in such a way that it should have minimal or no impact on the business processes of Participants. Their data

submissions should be the same, with steps taken to convert them and process them in the Central Market Systems as required by EB GL, and the intention would be to provide the resulting information in as close as possible a format to the current. The main impact would be that participant's Bid Offer Acceptance Quantities and Prices being reported and used in pricing and settlement would be based on the results of two additional European platforms in addition to the local calculations.

High level conversion process features

The following table, along with the accompanying diagram, provides a high level representation of the main SEM balancing market features (in blue), and the additional new features considered in this conversion process for participation in the EB GL platforms (in orange), with explanations on the table matching up with the numbers on the graph (in red):



Area	Conceptual Approach
(1) Scheduling and Dispatch	Where possible maintain current integrated scheduling process approach and tools for co-optimising scheduling and dispatch of both energy and non-energy actions. Only changes in interconnector position due to balancing energy activations on platforms have direct link to scheduling and dispatch process, but this drives implicit changes to scheduling and dispatch of local units. If an interconnector is scheduled to export more or import less, then either more local generation needs to be increased, or system-long imbalance is being satisfied without local generation being turned down. If an interconnector is scheduled to export less or import more, then either more local generation needs to be decreased, or system-short imbalance is being satisfied without local generation being turned up.
(2) Local Energy Bid Submission	Participants continue submitting integrated scheduling process bids as today.
(3) Platform Bid Conversion and Submission	Convert all eligible integrated scheduling process bids to individual unit standard products with volumes based on technical characteristics, physical notifications, and system limits. Calculate TSO balancing need based on forecast imbalance, and loss of availability of units if available. Submit these to Common Merit Order List (CMOL) on platforms for activation.
(4) Local Platform Processing	Incorporate change in cross-border scheduled flows into local scheduling. Calculate equivalent to local profiles, volumes, and prices of the cleared standard product bids on all of the platforms. Calculate additional local balancing energy volumes as difference between actual dispatch and schedule after balancing platform results.
(5) European Platform Processing	MARI and TERRE Platform optimisation processes run to clear combination of balancing energy standard product submissions and TSO needs, setting centrally cleared price, sending volumes and prices which successfully clear to the TSOs to be processed in local Imbalance Pricing and Settlement processes, or settled between TSOs via the platform for the cross-border flows.
(6) Imbalance Pricing	Include local equivalent to cleared platform bids at cleared platform price, and additional local activations at the integrated scheduling process Bid Offer Price, in the ranked set and complete steps to calculate Imbalance Settlement Price.
(7) Settlement	Settle all volumes as per the local cash flow equations, including local equivalent to cleared platform bids with their Bid Offer Price considered to be the cleared platform price, and additional local activations at the integrated scheduling process Bid Offer Price.

Other considerations

This information note is intended to outline a conceptual approach which could be taken for the conversion of SEM data into standard products for the balancing energy platforms. It is not intended to outline an approach which includes all changes required to comply with EB GL.

The EB GL sets out timelines for the implementation of the TERRE and MARI platforms, these timelines are based on the date of approval of the related proposals regarding these platforms. It is envisaged that with the actual time required to implement the above strawman design, it will not be implemented within these timelines and derogations will need to be sought. In particular it is envisaged that the high-level timeline to implement the above strawman design would not be completed before Q4 2021. The timing of the implementation of this proposed design will be contingent on any outcomes from ongoing work by the TSOs and RAs to ensure the current approach to imbalance pricing and settlement in the SEM is compliant with all aspects of EB GL. As this work is advanced and any possible required changes are identified, updates around these timelines will be communicated to industry.

This document is also not intended to represent a decision to implement a set of systems or a particular system approach. This document is intended to outline what EirGrid and SONI believe to be an EB GL compliant approach to converting products, while any decisions to actually implement this or another approach need to be taken in a wider context. If decisions are made about timelines and initiating the implementation of solutions on this topic, this will be communicated in the future.