



Integrated Single Electricity Market (I-SEM)

Ramping Constraints on Euphemia Algorithm

Information Note

SEM-17-067

07 September 2017

BACKGROUND

To maintain system security, a system ramp rate limit of 10 MW/minute is used to set the maximum rate of change of flow on the Moyle and EWIC interconnectors. This ramp rate limit is set by the TSOs (EirGrid and SONI) at a level that reflects the reliable and secure ramping capability of the all-island system. The ramp rate limit is apportioned equally among the two interconnectors (i.e. 5 MW/minute each for Moyle and EWIC).

In the context of the new I-SEM cross-zonal arrangements¹, allocation of capacity of these interconnectors to the market needs to be adopted to the European target model.

The I-SEM market coupling algorithm Euphemia will establish the volumes and direction of flows across both Interconnectors (Moyle/EWIC). Discrepancies in the interconnector schedule from market coupling and calculated interconnector flow instructions are created by the difference between the form of ramp limit used in Euphemia for a market auction and the form of system ramp limit applied by the SEM TSOs in calculating interconnector flow instructions. That is, the Euphemia algorithm assumes a step change in interconnector flows between each trading period, but in reality this step change is not achievable given the physical system ramp rate limit. These discrepancies result in imbalance volumes in both the SEM and GB markets.

To manage these imbalances a 'step change limit' will be placed on Euphemia whereby the maximum volume by which the day-ahead interconnector schedule can change from one hour to the next is limited. The optimal approach to minimising these imbalances is to implement a change to Euphemia to allow the algorithm to reflect the minute-by-minute system ramp rate limit of the SEM system. Due to time constraints, this change will not be implemented before I-SEM go live date. Hence, in the meantime, a Euphemia step change limit has to be introduced as an interim approach.

DECISION

In taking the decision on what interim Euphemia step change limit to be introduced, the SEM Committee took several key factors into consideration:

- the impact on the market in terms of efficiency (production costs, economic surplus, social welfare);

¹ The I-SEM arrangements refer to the process and methodology for TSOs to determine the interconnector capacity available to be allocated by the day-ahead and intra-day market coupling process.

- the impact on congestion rents for the interconnector owners;
- the estimate of potential imbalance prices and costs;
- potentially a view as to the affected value or quantity of the Financial Transmission Rights;
- Other important factors requiring consideration are the impact on system operation, the need for the TSO to take balancing actions and the practicality of this, and market stability and the impact on the DAM and IDM if the balancing market is distorted through high or volatile imbalance volumes, and
- Knowledge that an interim Euphemia step change limit is required pending implementation of the enduring changes to Euphemia.

On balance, with consideration of the EU regulation objectives, analysis provided by the I-SEM Project, feedback from the interconnector owners, and its own independent advice, the decision of the SEM Committee is to set Euphemia step change limit of 300 MWh/h per interconnector for market start.

Next Steps

1. SEMOpx will be the entity tasked to implement the SEM Committee's decision by inputting the approved ramping restriction on Euphemia.
2. SEMOpx has also submitted a change request to the PCR group which, when implemented, will allow the Euphemia algorithm to reflect the physical ramping capability of the SEM system.
3. The target for the implementation of the change on the algorithm is 12 months after I-SEM go live (May 2019).