



**Energia response to Commercial Phase
Report as published on 31/05/2016**

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1. Introduction

Energia welcomes this opportunity to comment upon the Commercial Phase Report on the SEMO EUPHEMIA trialling for I-SEM. Energia welcomed the testing of the proposed EUPHEMIA implementation for I-SEM and observe that it has informed participants but, more importantly, highlighted a significant number of false assumptions that were made during the HLD process regarding the functioning of the algorithm. EUPHEMIA is an established algorithm, whereas key areas of the wider I-SEM design are unique and remain untested – e.g. parallel opening of the IDM and BM, substitutive PNs, the imbalance pricing methodology, etc. ***Energia therefore concludes that the EUPHEMIA trialling process has clearly demonstrated the need for rigorous, robust testing of the wider I-SEM design and we recommend that a similar, industry inclusive, approach is taken in other key areas, including the intra-day market, balancing market and scheduling and dispatch processes.***

2. General Comments on the Implementation of EUPHEMIA for I-SEM

2.1 Loss of Governance

Energia observes that it was a conscious decision taken by the SEMC in the HLD to make EUPHEMIA the exclusive route to a contract position within the day-ahead timeframe. This is not a requirement for compliance with CACM. This results in a significant loss of control by the SEMC over the functioning of the I-SEM market. This loss of control is already evidenced by the fact that the SEMC cannot determine the order formats available to I-SEM participants at the day-ahead stage. Furthermore, Energia observe that the decisions on the order formats permissible in I-SEM will be determined on the basis of their impact on the performance and functioning of the EUPHEMIA algorithm by the price coupling of regions (PCR) initiative, rather than the optimal outcomes for I-SEM participants, and ultimately consumers.

2.2 Limitations of the EUPHEMIA Trials

Under the current SEM arrangements generators submit costs and technical parameters to the market and the market software optimises their positions relative to demand. Under I-SEM this dynamic changes and participants are required, to a significantly greater degree, to predetermine an optimal position, and then submit their desired traded position to EUPHEMIA - i.e. their optimal running schedules, their minimum cost recovery and/or the price elasticity of their demand (based on expectations of imbalance pricing). While this approach works well in large markets, with sufficiently large volumes of flexible generation (e.g. hydro) that can be scheduled around the desired fixed

generation patterns of less flexible thermal units, the requirement to pre-optimize positions is problematic within the context of I-SEM because of the large volume of intermittent renewable generation, combined with very limited volumes of flexible generation. This combination makes determining optimal running schedules for thermal generation assets difficult to predict, and even if predicted, to secure through EUPHEMIA. The difficulty of pre-optimising trading positions has been further complicated by the implementation decisions taken in relation to imbalance pricing, whereby imbalance pricing is likely to be significantly impacted by TSO dispatch decisions, potentially making it difficult to forecast. Energia observe that the EUPHEMIA trials provide only a limited indication of the commercial risks, market inefficiencies and potential costs to consumers that may result from these dynamics, which essentially arise from attempting to use EUPHEMIA to centrally schedule the day-ahead market under the I-SEM design.

2.3 Information Asymmetry

Without full transparency, at a unit level, around the bids and offers submitted to the DAM Energia are concerned that it will be extremely challenging for non-dominant participants to effectively pre-optimize their desired trading positions¹. This is because they will not have sufficient information to determine optimal offer and / or bid strategies relative to ESB². Energia observe that this creates serious competition concerns given ESB will enjoy a significant information advantage relative to other participants in the market when pre-optimising their trading position, given they own the only large, fuel diverse generation portfolio in the market. We note this competition issue would be significantly amplified if vertical ring fencing of ESB was removed, as this would then allow free co-ordination between generation and supply positions. The issue of information asymmetry is not limited to the DAM but also applies in the IDM, BM, CRM and any potential DS3 auction. Energia observe that the EUPHEMIA trials did not explore the potential seriousness of this issue given they predominantly proceeded upon an assumption of perfect foresight.³ We therefore request that the RAs ensure there is full

¹ The Market Power Mitigation Decision Paper (SEM-16-024) states in paragraph 8.12.22 that “it is likely that only anonymised aggregate bid curves for the ex-ante markets in I-SEM but greater clarity will be forthcoming on this in the coming months”.

² The I-SEM Market Power Mitigation Decision Paper (SEM-16-024) shows that ESB has 46.6% of the generation (MSQ) market share in 2016 and the I-SEM Market Power Mitigation Discussion Paper (SEM-15-031) shows that Electric Ireland has a retail market share of 39% over the period Sept13-Aug-14. Modelling results published by the RAs in I-SEM Market Power Mitigation Decision Paper, SEM-16-024 demonstrate that ESB will remain a dominant player until at least 2024.

³ Energia acknowledge and welcome the unscripted trials that were completed but observe that the number of days trialled was significantly less than the scripted phase (28 days compared to 350 days). Furthermore, only a high level analysis of the results from the

transparency around the bids and offers submitted to the DAM, published at a unit based level, as originally envisaged under the HLD.

2.4 Risk Management

2.4.1 Price Formation

EUPHEMIA trialling has clearly indicated potential issues in price formation for I-SEM without active participation of price making demand, particularly when de-coupled, or when interconnectors are fully congested. What is not clear is what the basis of this price making demand participation will be under the I-SEM energy trading arrangements. Given the trading arrangements exclude bilateral physical contracting there will not be any generation bidding in the day-ahead market to try to buy back their contractual positions at, or below, their SRMC. Therefore it seems reasonable to assume that any price making bid-side participation will have to come from suppliers, and be determined by their risk appetite and future expectations of the imbalance price. However, decisions taken on the imbalance pricing methodology (particularly when combined with the proposed approach to scheduling and dispatch) are likely to make it very difficult for suppliers to accurately forecast the imbalance price at the day-ahead stage. This could result in suppliers having to choose between potential exposure to intra-day prices⁴ / imbalance prices, or paying excessively high day-ahead prices. In combination with the uncertainties arising from managing a large, and increasing, volume of intermittent generation, with less flexible, relatively large, thermal generation, this could make it difficult for the market to reach a stable equilibrium. Such an outcome would result in a market design that imposed excessive commercial risks on suppliers, which could undermine retail competition (i.e. lead to market exit / deter market entry), and therefore significantly increase costs for consumers. Again, because the EUPHEMIA trials were predominantly based upon an assumption of perfect foresight they have not fully explored the impact of this potential issue.⁵

2.4.2 Technical Feasible Scheduling

Leaving aside the commercial risks associated with the requirement to pre-optimize trading positions under the I-SEM design, the requirement for

unscripted phase was provided in the report. We therefore believe there would be significant benefit in conducting further unscripted testing of EUPHEMIA prior to market trials.

⁴ Assuming a liquid IDM exists. Our concerns regarding the I-SEM IDM are set out in section 2.4.2 below.

⁵ Energia acknowledge and welcome the unscripted trials that were completed but observe that the number of days trialled was significantly less than the scripted phase (28 days compared to 350 days). Furthermore, only a high level analysis of the results from the unscripted phase was provided in the report. We therefore believe there would be significant benefit in conducting further unscripted testing of EUPHEMIA prior to market trials.

generators to achieve technically feasible contract positions results in significant commercial risk for generators given the order formats available in EUPHEMIA.⁶ To manage this risk (i.e. to avoid imbalance exposure) generators will be relying on the liquidity of the IDM.⁷ However, there are significant concerns regarding the delivery of a liquid intra-day market because of the delay to XBID, the dominance of ESB and the unique (and currently untested) market design choices taken by the SEMC – e.g. the parallel opening of the IDM and BM combined with substitutive PNs amongst others. If a fully functional, liquid intra-day market is not delivered it could result in a market design that imposes excessive commercial risks on generators, which would undermine competition in the generation sector (i.e. lead to market exit / deter market entry) and therefore significantly increase costs for consumers. Because conclusions drawn from the EUPHEMIA trials assume a liquid IDM they do not fully explore the impact of this potential issue on participants.

2.4.3 Scheduling Risk (Paradoxically Rejected Orders)

Energia observe that the trialling has demonstrated the reality of scheduling risk in EUPHEMIA. For example, in session 201502081 two units submitted orders which were identical in terms of structure and volume in each hour, but with different pricing. However, the order which was at a c€4/MWh premium to the cheaper order however was executed. This solution is sub-optimal and raises significant commercial risks management concerns for participants. We note concerns regarding paradoxically rejected orders have been raised by participants in other regions.

3. General Observations on the EUPHEMIA Trialling Process

The utility of the EUPHEMIA trialling process was greatly reduced due to resourcing constraints. Resourcing constraints led to significant data management issues and restricted the range of dates that could be trialled – e.g. despite having the ability to run 350 data sets only 5 SEM dates were modelled in EUPHEMIA. We would recommend significantly increased resourcing for any future testing activities.⁸

⁶ This is a requirement regardless of whether PNs are linked to contract positions or not. The requirement for PNs to be technically feasible means that generators will carry exposure to imbalance prices if their contract positions are technically infeasible.

⁷ The trialling has demonstrated that if a generator tries to impose constraints on its schedule through EUPHEMIA it increases the risk of its order not being accepted, whereas if it does not, it increase the risk that the schedule received is infeasible. Either way the generator requires a liquid, fully functional intra-day market to manage the potential commercial risks.

⁸ We would strongly emphasise that the issues being highlighted are a direct result of the volume of resources allocated to the trialling process, and should not be considered as a criticism of any SEMO staff who were directly involved. Energia would like to take this

4. Need for Further Testing of the I-SEM Design

Energia would welcome further trialling of EUPHEMIA prior to market trials to explore in more detail the issues highlighted in section 2 above. We also request access to the input and output data generated by the testing being carried out by the price coupling of regions (PCR) initiative in order to determine the day ahead order formats that will be made available in the I-SEM.

5. Conclusions

Energia observe that the EUPHEMIA trialling process has demonstrated that a significant number of false assumptions were made during the HLD process. Furthermore we would emphasise that EUPHEMIA is an established algorithm, whereas other key areas of the wider I-SEM design are unique and remain untested – e.g. parallel opening of the IDM and BM, substitutive PNs, the imbalance pricing methodology, etc. ***Energia therefore conclude that the pressing need for rigorous, robust testing of the I-SEM design has been clearly demonstrated, and recommend that a similar, industry inclusive, approach is taken to testing other key areas, including the intra-day market, balancing market and scheduling and dispatch processes.***

opportunity to thank those individuals for their hard work in supporting the EUPHEMIA trialling process on behalf of industry.