

# I-SEM

# Energy Trading Arrangements – Markets Response

If you have any questions in relation to our response, please don't hesitate to contact me at [connor.powell@sse.com](mailto:connor.powell@sse.com)



Kevin Hagan  
 Commission for Energy Regulation  
 The Exchange  
 Belgard Square North  
 Tallaght, Dublin 24

Kenny Dane  
 Utility Regulator  
 Queens House  
 14 Queen Street  
 Belfast, BT1 6ED

Dear Kevin, Kenny

Thank you for the opportunity to respond to the RAs consultation paper on the detailed design of the energy trading arrangements within I-SEM. SSE is a utility with customers and assets in both Ireland and Great Britain – we have operated under a number of different electricity trading and transmission arrangements. We have tried to reflect this experience in our response.

## Summary

Our consultation response follows the structure of the consultation paper, with responses to most of the questions listed within the consultation. A summary of our preferred design is outlined below, followed by detailed responses to each of the questions listed in the consultation paper.

### SSE preferences for the ETA

<p><b>System Operation</b></p>	<ul style="list-style-type: none"> <li>• <b>Early TSO actions</b> are not desirable for clear reasons – they distort imbalance pricing and scheduling and incentives to balance.</li> <li>• Rule-based limitations and frequent, detailed reporting offer the most promise in <b>minimizing distortive early TSO actions</b>.</li> <li>• However, this does not need to be codified now – <b>a separate workstream should be put in place to look at TSO rules and governance</b>.</li> </ul>
<p><b>Ex-Ante Markets</b></p>	<ul style="list-style-type: none"> <li>• The best contingency would be to put in place arrangements that would <b>couple Ireland and GB IDM</b>.</li> <li>• We are not convinced that <b>regional ID auctions</b> would add any additional value.</li> </ul>
<p><b>Physical Notifications</b></p>	<ul style="list-style-type: none"> <li>• <b>Notifications should be continuous</b> and reflect any expected change from the previous PN submission.</li> <li>• <b>Minute by minute PNs</b> are achievable – any higher resolution adds no value.</li> <li>• <b>Demand PNs</b> should not be required.</li> <li>• <b>Wind PNs</b> should be an option, not an obligation.</li> <li>• <b>PNs linked to contracted positions at Gate Closure</b> and <b>delinked physical notifications</b> should both work.</li> <li>• An <b>information imbalance charge</b> is unlikely to correct the behavior it seeks to fix.</li> </ul>

<p><b>Form of Offers, Bids and Acceptances</b></p>	<ul style="list-style-type: none"> <li>• The <b>MW Relative</b> option is preferred – it respects physical constraints and market expectations.</li> <li>• <b>Block bids</b> are a better format than unbundled start costs.</li> <li>• <b>Undo prices</b> are useful for the TSO and participants.</li> <li>• <b>Closed instructions</b> introduce more relevant information into the market than open instructions.</li> </ul>
<p><b>Interactions between the BM and IDM</b></p>	<ul style="list-style-type: none"> <li>• The <b>substitutive PN changes</b> option gives precedence to participants in balancing the system.</li> <li>• The <b>premium option</b> is preferred – it focuses participants on balancing the system, rather than beating a bilateral acceptance.</li> <li>• (Exploitative) <b>trading in the opposite direction</b> should be addressed under local market power provisions as an exception rather than an assumption.</li> </ul>
<p><b>Treatment of System Services</b></p>	<ul style="list-style-type: none"> <li>• Units constrained on for <b>operational reserve</b> shouldn't be constrained in ID.</li> <li>• <b>Market power</b> should be addressed through the market power workstream, rather than being codified in energy market rules.</li> <li>• If a TSO is in the position where it might need to constrain on plant prior to the <b>opening of the Balancing Market</b>, it should simply use the offers from the previous trading day to call the plant.</li> </ul>
<p><b>Imbalance Pricing</b></p>	<ul style="list-style-type: none"> <li>• <b>Tagging and flagging</b> would be challenging on the all-island system.</li> <li>• The <b>Simple Stack</b> option is too simplistic and incompatible with a complex system such as the Balancing Market represents.</li> <li>• Both <b>unconstrained imbalance price stack and unconstrained stack from actual dispatch</b> have merit.</li> <li>• A transition to <b>fully marginal imbalance pricing</b> is required.</li> </ul>
<p><b>Imbalance Settlement</b></p>	<ul style="list-style-type: none"> <li>• <b>Firm Access for demand</b> doesn't need to be resolved in this decision paper.</li> <li>• For <b>curtailment</b>, a variation of Option 2, in which generators without ex-ante market transactions are uncompensated and generators with ex-ante trades are partially compensated would place the correct incentives on generators.</li> <li>• TSO concerns regarding wind decremental offers need to be properly explained.</li> <li>• <b>Uninstructed imbalance</b> pricing is still necessary.</li> <li>• At the point of I-SEM go-live, <b>imbalances should be calculated on an hourly basis</b> with some form of averaging of the imbalance prices across that period.</li> </ul>

<p><b>Other Issues</b></p>	<ul style="list-style-type: none"><li>• For <b>global aggregation</b>, we would recommend that the cost of the residual error is estimated for a 12 month period and tariffed out.</li><li>• Balancing market systems procurement should include an option for <b>bid mitigation</b>.</li><li>• SSE is concerned by the <b>metering proposals</b> – MDPs will effectively lead a workstream in which they define their own obligations to the market</li><li>• <b>Metering obligations</b> need to be effectively codified in I-SEM.</li><li>• We cannot comment on the <b>instruction profiling</b> issues referenced in the paper.</li><li>• <b>Units under test</b> should receive explicit priority dispatch status.</li><li>• <b>Governance</b> should be expanded beyond a general forum, with specialist standing groups.</li></ul>
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## System Operation

Specifically, comment is sought on:

- 1 What are the impacts of early action by the TSOs on the Intraday Market?
- 2 What measures can be taken to minimise early actions by the TSOs?

### Impacts of early TSO action

As the consultation notes:

*“The Electricity Balancing Network Code (EBNC) defines the BM as the market for balancing capacity and energy that is utilised post ‘Balancing Energy Gate Closure Time’ (one hour ahead of the delivery hour). Prior to the ‘Balancing Energy Gate Closure Time’ the TSOs will schedule and dispatch participants to manage system security [...] these [actions] will be taken in a timeframe in advance of the BM as strictly defined in the Electricity Balancing Network Code.”*

We can see the reasons why the HLD opens the Balancing Market prior to ‘Balancing Energy Gate Closure Time’ – increased visibility of actions taken by the TSO and a preference for the TSO to contract through an open market rather than bilaterally to resolve system constraints.

However, any early energy actions taken by the TSO will conflict with at least two of the I-SEM HLD principles; **liquid and transparent centralized short term physical markets that are coupled with European trading mechanisms, and are exclusive routes to physical scheduling and balance responsibility for all participants to ensure that their notifications of generation or demand best reflect their actual expectations.**

Any early energy intervention by EirGrid will necessarily:

- Distort the physical schedule produced by trades between generators and suppliers of energy within the short term physical markets.
- Reduce or increase the incentives that should lead individual market participants to resolve their own imbalances.
- Prevent the actual balancing market that operates *post ‘Balancing Energy Gate Closure Time’* from producing an accurate price for the energy the system needs to buy or sell in every given imbalance settlement period.

So, early TSO interventions are not desirable, hence limitations in nearly all European electricity systems that limit the use of balancing markets until one hour ahead of delivery. This is a fairly blunt (but relatively effective) means of partially excluding TSO actions taken before that period from imbalance pricing and settlement. If I-SEM will not apply this method, it will need to find alternative means to prevent imbalance ‘pollution’.

### Minimising early TSO energy actions

While early TSO interventions are generally bad, they may occasionally be necessary. In markets where the TSO cannot utilise the balancing market until one hour ahead of delivery,

it may be forced to bilaterally or anonymously contract<sup>1</sup> with market participants. The key is setting rules that separate the *absolutely necessary* from the *potentially necessary*, or worse, the *potentially useful*.

The consultation doesn't seem to get this separation correct:

*"A significant number of generation plant in the SEM have start up and ramp times in excess of one hour. Hence, there will be scenarios where, for energy actions, the TSOs will need to call a plant before IDM gate closure. **However, there will also be a decision in respect of the economics of calling a plant for an energy action i.e. typically a unit called during the IDM with longer start times is more economical than calling a fast response unit within the last hour before real time.**"*

The first sentence suggests that Ireland is unique in this respect, but it is not – plenty of systems have lots of plant with start-up and ramp times in excess of one hour. The final sentence suggests that the TSO will act on behalf of market participant(s) to resolve issues that could be resolved within the Intraday Market by the participants that had under contracted for power in a forthcoming period<sup>2</sup>.

However – this is not an issue that needs to be fully resolved within the I-SEM ETA Detailed Design decision. We believe that:

- A defined rule set based around the TSO taking actions only when the market schedule falls outside certain pre-agreed tolerances (MWh, MW or time to delivery) would be preferable to a loosely defined set of balancing principles.
- Regular monthly reporting on balancing services providing information on TSO procurement across all substitutable balancing products<sup>3</sup>.
- An independent annual report on balancing services procured by the TSO reviewed by the RAs and published to the market.

However – these do not have to be included in an *I-SEM Trading and Settlement Code* document, and therefore do not need to be defined at this stage. **SSE would recommend that a separate workstream on the rules and governance structure for TSO operation in the Balancing Market is put in place in the central I-SEM project plan<sup>4</sup>.**

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<sup>1</sup> National Grid would utilise Power Exchange Trades, Forward Energy Trades and Energy Balancing Contracts with a number of Counterparties – these are all reported publicly and summarised monthly.

<sup>2</sup> Or worse, a TSO deciding that the physical schedule and units that had been/were going to be contracted for energy reasons didn't match its own unit preferences and needed adjustment.

<sup>3</sup> The Monthly Balancing Services Summary produced by National Grid details services procured via Market Arrangements, Non-Tendered Bilateral Contracts and Forward Trading offering a breakdown by non locational volume and BMU specific volume bought and sold.

<sup>4</sup> This should include a workshop, consultation, draft decision, subsequent workshop and final decision.

## Ex-Ante Markets

Specifically, comment is sought on:

- 1 Which of the three options put forward for interim IDM arrangements is most appropriate?
- 2 Should intraday auctions be implemented in I-SEM? Are there any advantages to those auctions not described in this paper?

### What are the interim arrangements if XBID is not delivered?

XBID has seen continual delays, even though delivering the functionality – shared order books and a capacity management module – is comparable in difficulty to the complex functionality already delivered in EUPHEMIA. The User Group Meetings<sup>5</sup> suggest the following timeline:

Phases	2015						2016						2017					
	Feb	Apr	Jun	Aug	Oct	Dec	Feb	Apr	Jun	Aug	Oct	Dec	Feb	Apr	Jun	Aug	Oct	Dec
Specification		01.04. – 31.07.																
Development				01.04.15 – 29.02.16														
FAT							01.03.-31.05.											
3rd party support							6.12.-17.06.											
PXs IAT								20.06.-22.07.										
IAT TSO								13.06.-22.07.										
Pre-UAT Performance										22.07.-05.08.								
UAT																		
Go Live Prep.																		

Assuming that I-SEM go-live remains Q4 2017; it seems unlikely that XBID will be available at the point at which the new Irish market arrangements are in place. A contingency would be sensible, and the best contingency would be to put in place arrangements that would couple Ireland and GB IDM. The other alternatives have clear flaws:

- An Ireland only IDM would remove one of the most flexible sources of balancing energy from participants (cross zonal capacity) and likely require complex market power arrangements to be developed on an interim basis.
- Interim regional intraday auctions with GB would not fulfill compliance with the CACM Network Code which states that: *“The process for single day-ahead and intraday coupling is similar, with the exception that the intraday coupling should use a continuous process throughout the day and not one single calculation as in day-ahead coupling”*. Ireland would have to develop a continuous process in addition to negotiating the development of intraday regional auctions with GB<sup>6</sup>.

<sup>5</sup> <http://www.nordpoolspot.com/How-does-it-work/European-Integration/cross-border-intraday-market-project-xbid/>

<sup>6</sup> The existing market making windows developed through Ofgem’s Secure and Promote are not structured in a way that would be easily compatible with an IE-GB intraday auction.

## Should intraday auctions be implemented?

The CACM regulation sets out the terms for developing complementary regional auctions in Article 60:

- *“Regional auctions shall not have an adverse impact on the liquidity of the single intraday coupling;*
- *all cross-zonal capacity shall be allocated through the capacity management module;*
- *the regional auction shall not introduce any undue discrimination between market participants from adjacent regions;*
- *the timetables for regional auctions shall be consistent with single intraday coupling to enable market participants to trade as close to possible to real-time;*
- *Regulatory authorities shall have consulted the market participants in the Member States concerned.”*

While we recognise that auctions are ‘more familiar’ in a SEM context – continuous full reoptimisation of the market rather than individual adjustments matched according to First-Come First-Served – we cannot see what additional value they bring. The paper states that they may:

*“[A]ssist smaller players and could act to increase and focus liquidity. They could also provide a more robust price setting mechanism (including capacity pricing) and provide a more efficient allocation of cross border capacity.”*

Auctions simply reallocate trading volume from continuous periods into an auction – they do not create additional trading volume, particularly as the benefits of reoptimisation are smeared across the market rather than fully allocated to participants that match trades in continuous trading. In fact, continuous trading is more likely to result in intraday liquidity because it places a stronger incentive on participants to reoptimise their position.

Given the RAs experience with the ‘intraday auctions’ developed in SEM<sup>7</sup>, we think a detailed Cost Benefit Analysis would need to be developed by all relevant NRAs<sup>8</sup> before any decision to attempt another intraday solution is taken.

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<sup>7</sup> The SEM intraday solution is clearly imperfect and is underutilised because it does not allow individual participants to capture the benefits of trading on new information as it is revealed. It has also been designed to limit actions within the periods where market participants would gain most value from reoptimisation – peaks.

<sup>8</sup> CBA analysis should include Ofgem.



## Physical Notifications

In particular, the SEM Committee welcomes respondents' views on:

- 1 The timing of PN submissions to the TSOs
- 2 The removal of the requirement on wind generation and non-dispatchable demand to submit PNs
- 3 How PNs from participants should be linked to their ex-ante trades and their opinions on which of the three options outlined in this chapter is optimal for I-SEM. The three options outlined are:
  - a. PNs Linked to Ex-ante Trades at All Times;
  - b. PNs Linked to Ex-ante Trades at Gate Closure Only; and
  - c. PNs Reflecting the Best Estimate of Intended Generation or Demand.
- 4 The potential for the inclusion of an information imbalance charge. In addition, comment is sought as to whether this issue is best addressed under the generator performance incentives.

### Timing of PN submissions

The debate on physical notifications in the Rules Liaison Groups was caught up in debates over any commercial implications they may have. This was unfortunate – ultimately, the applications of PN are:

- For conventional units, the information they provide to the TSO (and market participants) in terms of unit by unit expectations of running and aggregated supply/demand balance.
- For variable/demand units, an indication to the TSO that they are willing to vary their production or consumption through bid offer acceptances.

Given that changes to PNs must take place through the balancing market (or occasionally through separate bilateral contracts) requiring the submission (by participants) and acceptance (by the TSO) of price and volume, the commercial implications of PNs are usually limited. Choices around their composition and provision should therefore focus on the information they should introduce into the market. The paper notes that:

*“The aim of the process should be to get the best information to the TSOs as early as possible, without putting requirements on participants that are too onerous.”*

We'd agree – given that the IDM (and plant operation) is continuous, any submission requirement that relates to an hourly period or particular intraday trade would introduce an arbitrary barrier to the update of information. **We would prefer that notifications were continuous and reflect any expected change from the previous PN submission** – in either option a) or option c), you could have a scenario in which a market participant has notified the market of a forced outage under its REMIT obligations but has not yet notified the TSO/market through a PN.

### Granularity of PN submissions

In GB, physical notifications are different – they are provided on half hour by half hour basis – the TSO knows the physical characteristics of the units and translates into dispatch instructions if required. For a participant in Ireland, the level of granularity suggested in the consultation paper options would mean that participants have to translate a commercial position into expected running through something equivalent to an internal instruction profiler.

Given that the range of technical characteristics of plant within Ireland, **we'd suggest that spot data points of a high resolution seem sensible** – this would ensure that the TSO and the market has access to information on the expected running of short notice plant like pumped storage, hydro and OCGT units during imbalance periods. For a 'typical' conventional unit, the higher resolution shouldn't be an issue – the data points would just be a linear extrapolation from the known technical characteristics of the plant.

### Demand physical notifications

Going back to the purpose of physical notifications – to provide information on running to the market and to indicate flexibility available to the TSO – a physical notification from non-dispatchable demand introduces no new information. **SSE would recommend that PNs are not required from non-dispatchable demand.**

### Wind physical notifications

For a wind unit, a physical notification may have some value in indicating flexibility in production to the TSO. However, most of the time, a wind unit would merely want to generate at maximum output because the structure of existing support schemes incentivises metered energy. The consultation paper states that:

*“A wind generator may be able to submit an FPN and any additional available output above that would not have priority dispatch.”*

We would agree – additional available output above or below the FPN submitted by a wind unit is the non-priority energy available to the TSO at the bid/offer price submitted by the unit. Giving wind the option to indicate flexibility and opt out of priority dispatch for some volume necessitates also giving wind the option to indicate a lack of flexibility under priority dispatch. **PNs for wind should therefore be optional, rather than mandatory.**

### Link between physical notifications and trading

The idea that participants may attempt to incur exposure to imbalance prices is ultimately down to the design of the ex-ante markets. Strict links between ex-ante trades and physical notifications will not change this – an open demand position<sup>9</sup> that has not been fulfilled through an ex-ante trade is a simple means of arbitrage between the different markets.

If the ex-ante and balancing markets are properly designed, any decision to incur an imbalance will be the result of participants expecting to contribute to the resolution of a system energy imbalance that has not been resolved at the point of gate closure. Punishing helpful system actions to fulfil a strict interpretation of the I-SEM HLD would be a perverse design outcome.

Looking at the three options in turn:

- Physical notifications being linked to ex-ante trades at all times would provide a debatable benefit to the TSO – they would be able to see commercial positions from the point of publication of the Day Ahead Market results. However, the TSO isn't looking for commercial information through PNs – they are looking for best

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<sup>9</sup> Admittedly, a physical non-dispatchable demand position is subject to more error than a dispatchable physical supply position.

expectations of physical running. Given an unclear benefit and the concerns listed within the consultation<sup>10</sup>, this option cannot be pursued.

- Physical notifications linked to ex-ante trades at gate closure only wouldn't impose any restrictions on trading in ex-ante markets, which would mean that participants could shape their profile through a series of trades, rather than trading physically feasible blocks of power. **We think this option could work, although we are concerned that participants might be forced into imbalance despite best endeavours to trade.**
- Entirely delinked physical notifications make PNs operational and trades commercial beyond gate closure – participants could choose a different running regime to their traded position. **We wouldn't see any significant risks in delinked PNs – properly designed liquid markets which reveal system information in good time shouldn't make it desirable for a participant to deviate from its traded position.** We do not think that participants should be punished for resolving a system imbalance just to avoid 'self-dispatch' terminology and TSO/participant sensibilities, especially if they have made best endeavours to trade out their position intraday<sup>11</sup>.

### Information imbalance charge

If the RAs dismiss Option 1, PNs will primarily be physical, operational information rather than commercial information. If expectations of physical running do not turn out to be 'best expectations' and the TSO finds itself in a position where PNs deviate substantially from reality, this would be better dealt with through the Grid Code or GPs rather than a separate information imbalance charge – if the market is producing incentives to provide inaccurate information to the TSO it is unlikely that:

- The incentives would be calculable in any given period.
- The incentives would be universal across participants in any given period.

A universal, calculated information imbalance charge is therefore not going to be the best solution to correct behaviour – it probably won't be big enough in the trading periods in which it is required and would probably impose arbitrary costs on participants in every other period.

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<sup>10</sup> Misleading information, limitations on IDM activity etc

<sup>11</sup> If you take an example in which a participant needs to cover an increase in demand, or a fall off in wind – they have plant available to cover this position which they could offer into the market, and they could submit a bid to buy. We assume that the two 'internal' trades cannot be matched (although we would appreciate clarification from the RAs on this) – and no other participant has offered energy at a reasonable price. In this example, the system should not be forced into unnecessary and expensive imbalance.

## Form of Offers, Bids and Acceptances

Comment is sought on:

- 1 Which of the proposed formats should be used for bids and offers for deviating from PNs?
  - a. Simple MWh
  - b. Relative MWh
  - c. Absolute MWh
- 2 How should fixed costs be represented within bids and offers?
  - a. Explicit start up contracts
  - b. Block bids
  - c. Explicit start-up (and no load) costs
- 3 Should it be possible to rebid offer and bid prices following an acceptance? Three options are proposed:
  - a. Fixing prices of accepted bids and offers
  - b. Undo prices
  - c. Freezing all prices
- 4 Should open or closed instructions be used to move participants away from their PN?

### Format of Bids and Offers

#### Referential Integrity to Physical Constraints

The consultation paper discounts Option 1: Simple MWh, on the basis that it will lead to poor representation of the actual costs incurred by units, particularly thermal units. SSE agrees with this summation. The inability to provide a reference to incremental costs, in our view, entirely undermines the attraction the simplicity of the method presents. Given the decision in the High Level Design that the Balancing Market will be unit-based, the Simple MWh method fails to provide for this, being essentially a mechanism for providing varying volumes of electricity, rather than for regulating electricity plants.

#### Referential Integrity to Market Expectations

Options 2: MW Relative and 3: MW Absolute, both offer units the controls required to maintain referential integrity to the technical constraints of their respective technologies, a feature that will be unequivocally vital in a market with dynamic intra-day trading activity.

There is however a difference between the two options. The paper alludes to this when it notes that the MW Absolute approach eliminates the ability to unambiguously label a price as being an offer or a bid. This in our view is the more compelling difference between the two options. Incremental costs are not necessarily equivalent to decremental costs; decremental costs are more likely to reflect market income expectations. Hence the inability to explicitly reflect the two divergent paths, in our view marks the MW Absolute option as too simplistic.

#### 'Enhanced' MW Absolute Option – 2 Separate Cost Curves

The provision of 2 cost curves is offered as a means of offsetting the inability of the MW Absolute option from reflecting the divergent underlying economic drivers of incremental and decremental costs. This 'enhanced' MW Absolute option is much more economically

equivalent to the MW Relative option and is a much more worthy comparator. However there is a 2-stage regulatory decision required for the enhancement and on that basis SSE discounts it.

### **‘Information Burden’ Criteria**

For the MW Relative option, the ability to link incremental<sup>12</sup> costs to physical constraints comes with the trade-off of an increased information requirement – re-declaration of bid and offer prices. This requirement to resubmit information, the consultation paper posits as the key differentiator between the MW Relative and MW Absolute options, which are deemed to be economically equivalent. Thus, the option with the lower information burden is deemed preferred – in this case MW Absolute.

However in the highly systemised trading that is the norm, this redeclaration requirement is likely to be an automated feature within participant systems. In our view this is not sufficient reason to discount this option.

### **Our recommendation**

The MW Relative option provides both referential integrity to physical constraints (ability to reflect unit incremental costs) and to market expectations (ability to distinguish between divergent incremental and decremental costs). The ‘enhanced’ MW Absolute achieves the same, but requires a 2-stage regulatory decision. **Consequently SSE recommends the MW Relative option.**

### **How should fixed costs be represented in bids and offers?**

#### **Rationale for Start Costs Requirement**

The analysis of options under this section have been made on the basis that start costs are required, in a disaggregated fashion, by the TSO to inform its real-time activity. The debate then falls on whether those costs should be explicitly provided the TSO or ‘bundled up’ and have the TSO ‘untangle’ it. This argument provides casus belli for reaching a preference – in this case Option 3: Explicit Start-up Costs.

While the TSO is no doubt an important actor in the markets, it is not the only actor. Consequently an assessment of options will require an examination of the requirements of other market actors.

A whole range of market participants, particularly demand response units, would much rather have sight of total (‘bundled’) costs, against which they can take appropriate action. Having prices disaggregated into components, which are recomposed, not in a linear fashion, but algorithmically, means that no true signal exists to base decisions in the very short-term, i.e. for immediately upcoming trading periods. Bearing in mind the Vision 2020 for Demand Side Participation, this is a glaring oversight.

#### **Balance Responsibility – Most Appropriate Consideration for Information Use**

In the I-SEM, the most appropriate basis for assessing the information requirement should be the extent to which it assists the market in balancing – this is the primary activity of the market. To the extent that market participants can correct imbalances, this reduces the need

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<sup>12</sup> “Incremental” in this discussion also covers “decremental” where the context requires it

for the TSO to take second-order action to correct imbalances. Granted that the section mentions that the TSO's need here is largely for non-energy actions, but as it is the same information that will be used in energy actions and hence determining the Balance Market prices, the primary need supersedes the secondary requirement.

### **Our recommendation**

Given the forgoing discussion, it is SSE's view that explicit costs, i.e. disaggregated costs, do not provide the proper economic signals required by market participants to take the most appropriate actions in the very short-term. The jump by the paper to action that the TSO needs to take totally discounts this primary function of the market. **In our view, block bids allow participants to provide packaged costs which reflect their total view of costs and provide explicit signals to the market.**

### **Rebidding of offer and bid prices**

With the lengthy open times in the I-SEM Balancing Market, as predicted under Option's Theory, the probability of significant volatility will be high. On that basis, all options that eliminate flexibility, in full ("Freezing all prices") or in part ("Fixing prices of acceptances"), will be highly disadvantageous to the proper functioning of the market. **On that basis, having the ability to 'undo' prices will be vital.**

On the question of quantity bands, the ability to achieve truer representation of costs trumps ostensible symmetry.

### **Open or closed instructions**

The paper outlines a number of advantages to adopting closed instructions, including:

- greater clarity to participants as to the intended duration of TSO actions, thereby informing the participant's trading position in the intraday electricity and fuel markets;
- the anticipation that, under the European Target Model, cross-border balancing actions will follow a closed instruction format.

Yet it tries to counter that option by positing a counter-factual that if the TSOs are uncertain of the required duration of a TSO action, they may issue an initial closed instruction for a short period and then extend the implied bid-offer acceptance, if required, with subsequent instructions, ultimately resulting in a greater number of instructions compared to the open format for the same requested output profile.

This is mere cherry-picking. Another counter-factual would be that the TSOs may issue an initial closed instruction for a long period and then issue a reverse trade closer to the relevant period to return. This reverse trade granted will involve a cost to the Balancing Market, but that can serve as an explicit incentive to the TSO to manage its actions around this prudently. Neither open or closed (with extensions) options offer this built-in incentive, but **the closed (with reverse trades) option we have just outlined both provides participants with greater clarity regarding TSO actions, while at the same time place a 'value', and thus an incentive, on TSO revision actions.**

## **Interactions between the Balancing Market and Intraday Market**

Specifically, comment is sought on:

- 1 Which of the options put forward should apply to participation in the IDM in the event that the TSOs take a balancing action pre-gate closure:
  - a. Freeze PNs
  - b. Additive PN Changes
  - c. Substitutive PN Changes
- 2 If the substitutive PN Changes option is taken, there are two further options for swapping out or netting IDM trades against bid-offer acceptances:
  - a. If the participant wishes to trade in the IDM and substitute the bid-offer acceptance they will need to achieve a more advantageous price in the IDM than the bid-offer acceptance price
  - b. Implement a methodology which sees the unit lock in the premium above or below the imbalance price through the bid-offer acceptance
- 3 Which of the three options put forward for dealing with “Trading in the Opposite Direction” should be implemented:
  - a. No specific consideration of this would be reflected in the market design
  - b. Implementing a rule that would prohibit PN changes that increase the quantity of any offer or bid acceptances
  - c. Permit PN changes in either direction but, in the settlement of the offer or bid acceptances, to limit the quantity on which the premium is payable, such that a change in PN cannot increase this quantity

### Balancing actions pre-gate closure

To this question, we call to mind again a distinction we made earlier in our response – that market participants’ trading activity is the primary function of the market, the TSO’s activity being secondary, and for balancing purposes, only necessary to the extent that participants do not fully satisfy the primary function – achieving system balance. Applying that criterion, any option that offered preference to TSO activity over participants’ trading activity would have to be discounted. On that basis the Freeze PNs option is removed.

To some extent, the previous criteria also applies to the Additive PN Changes option, however this can be ameliorated, as suggested in the consultation paper, by paying an early energy action taken by the TSO the higher of the offer price and the imbalance price. This however is an inelegant solution. **Together with the other failings outlined in the consultation paper, to which we subscribe, we view that this option is inferior to the Substitutive PN Changes option, which is our recommendation.**

The Substitutive PN Changes option gives true precedence to participants’ primary action to balance the system. Where the TSO has, so to say, “jumped the gun” by taking an early action, this option allows any subsequent participant action roll back the TSO’s earlier action. This in our view is most in line with the spirit of the I-SEM market as defined in the HLD principles.

### Substitution

The option of achieving a more advantageous price in the IDM than the bid-offer acceptance price creates a ‘closed loop’ where a participant is essentially trying to best itself. This appears not to offer an enabling environment, where participant actions, independently, but in aggregate, work towards achieving system-wide benefits. In contrast the second option,



which offers a premium against the imbalance price, appears to set up a trading situation where trading activity is against a system-wide signal, in this case expectations of the imbalance price.

**In our view, the premium option aligns individual participant interests to a single objective and their aggregate actions, in the long run, should achieve a better overall outcome for the system.**

### Trading in the opposite direction

The issue outlined in this section describes a possible behaviour that could outturn in the I-SEM as the unintended consequence of adopting either an Additive or Substitutive Change option. It may be all well and good to identify this, and this is to be encouraged, if for nothing else for cataloguing. However it may not possibly reflect all the potential ways that market rules could be 'misapplied'. Trying to apply rules to account for these myriad ways will simply be an exercise in futility. Besides, the 'active' proposals to address it may also give rise to their own unintended consequences, which in turn may have to be addressed.

Such behavioural susceptibilities are best addressed in exception, not by design constraints, where participants in general may be penalised for a potential that they may no inclination or capability to exploit. As stated earlier, an exercise to identify these potential 'misapplication' of rules should indeed be conducted and a catalogue built up. **However these should be addressed under local market power provisions in the exception.** Only where through market experience these become normative patterns should rule modifications then be sought to address them.



## Treatment of System Services

Specific comments are sought on:

- 1 The proposal whereby a unit that is deployed for reserves should be constrained to the minimum extent possible in the IDM
- 2 Are there any market power issues that need to be specifically addressed in relation to System Services?
- 3 Which of the two approaches should be utilised where the TSOs have to schedule a plant before the opening of the Balancing Market:
  - a. A system services framework would be used to contract with those generators that need to be scheduled prior to the BM opening.
  - b. The TSOs would use incremental offers and decremental bids from previous trading day to call a plant pre-BM.

### Operational Reserves

It is difficult to disagree with the RA proposals on Operational Reserves. The paper states that:

*“[I]t is proposed that where a generator is deployed for reserves, it should be constrained in the IDM to the minimum extent possible. In other words, where the TSOs issue an instruction to dispatch down to a specific level from the submitted PN or where a generator is instructed to start up from a PN of zero, that generator should to the extent possible still be able to trade in the IDM normally.”*

We would agree – and suggest that the substitutive PN approach would be most compatible with an unconstrained IDM, given that the TSO will be able to rely on an additional buffer of ‘super positioning’ before the unit moves its physical notification above the TSOs intended set point<sup>13</sup>.

### Market Power

The concerns that apply to market power being exercised in relation to the provision of system services are not unique – they are the same as the concerns applying in the case of system requirements that can only be resolved by units in a certain location. This should be addressed through the market power workstream, rather than through energy market rules.

### Pre Balancing Market Actions

The paper states:

*“As discussed previously, it is expected that PNs will be delivered to the TSOs by participants at around 14:00 with the trading day commencing at 23:00. This leaves a time lag of nine hours between the first submission of PNs and the start of the trading day.”*

**9 hours is a long time**, and realistically, the TSO has much longer – it is very difficult to see situations in which gas plant would require a TSO instruction at 23:00. Other units, like coal,

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<sup>13</sup> One of the issues TSOs sometimes face when taking a balancing actions to provide operational reserve is that once a unit has been constrained on, it may find that the TSO action can effectively be considered an ‘investment’ that helps the unit to clear a startup cost hurdle and move back to operation at base load – substitute PN are better than additive PNs in resolving this.

peat or oil plants might require pre balancing market instructions but this should be in exceptional circumstances. In GB, warming contracts are only used for coal and oil plant – there is an expectation that gas plant will be available (certainly within the longer window for balancing market action that the Irish TSO enjoys).

The I-SEM HLD includes clear preferences for visibility of actions and for the TSO to contract through market mechanisms rather than bilaterally – we understand that this is the reason for the Balancing Market to be open prior to '*Balancing Energy Gate Closure Time*' as defined by the Balancing Network Code. **If a TSO is in the position where it might need to constrain on plant prior to the opening of the Balancing Market, it should simply use the offers from the previous trading day to call the plant.**

## Imbalance Pricing

Specifically, comments are sought on each of the following options:

- 1 **The Tagging and Flagging Approach.** A “cause” based method for identifying energy and non-energy actions with the imbalance price being set only on energy actions.
- 2 **Simple Stack.** With this approach there would be a simple stack of the available bids and offers and the price would be set based on the net imbalance volume.
- 3 **Unconstrained Stack with Plant Dynamics Included.** There are two key additions that this option would have over the simple stack:
  - a. **Plant Dynamics**
  - b. **An Optimisation Time Horizon.**
- 4 **Price Based Method - Unconstrained Unit from the actual dispatch.** A price based methodology for distinguishing between energy and non-energy actions but shares a number of characteristics with the cause based flagging and tagging method.
- 5 **The SEM Committee is also seeking comment on whether the key concern is of the potential for transitional issues when moving between SEM and I-SEM or whether there is a more fundamental belief that a PAR is needed, and if so why?**
- 6 **Comment is also sought on whether the concerns expressed by participants regarding sharper marginal prices for imbalance pricing relate primarily to the transition between the SEM and I-SEM, or whether there are other, broader concerns.**

### Tagging and Flagging

While the tagging and flagging approach has been in operation for considerable time now in GB and thus would be a very familiar methodology, the consultation paper does put out a number of challenges to implementing this approach in the I-SEM. Chief amongst these is the higher level of constraints on the all-island system in comparison to GB, a situation identified by the paper which could result in insufficient energy actions to set an imbalance price. While the non-energy actions of the TSO will no doubt be crucial to maintaining system stability, achieving this at the risk of impairing the signalling that comes from the pricing of imbalances is not a credible concession.

### Simple Stack

In our view the Simple Stack option is too simplistic and incompatible with a complex system such as the Balancing Market represents. Sight must not be lost that the imbalance price is not just a settlement variable, it also serves as an economic signal used in investment decisions. Where this price is divorced from ‘reality’, ‘reality’ in this case representing true technical capability of plants to resolve an unwanted situation – system imbalance – it loses the information complement implicit in its formulation. In the long run, this will be detrimental to the system.

### Unconstrained imbalance price stack

There is significant merit in this option for a number of reasons. It addresses the shortcomings of the Simple Stack option. It eliminates the need for a detailed identification process of energy and non-energy actions, and the attendant ex-post re-adjustments and reconciliations, a process potentially fraught with subjectivity. The fact that under this option imbalance prices will be algorithmically determined lends it greater objectivity and

replicability. Furthermore, that feature feeds back into the signalling quality of imbalance prices, increasing its inherent value.

### Unconstrained unit from actual dispatch

This is another option with significant merit. Apart from the stated benefits of being established international practice and having no need for detailed identification of non-energy actions, its potential to produce close-to-real-time prices will be of immense benefit to a system moving towards greater dynamism – more variable generation, greater demand side participation. In our view, the perceived disadvantages outlined in the consultation paper are not strong enough to discount this option and we would recommend it for further detailed consideration.

### Marginal pricing

The concerns market participants have around moving to fully marginal pricing are twofold:

- Experience operating in balance responsible energy markets isn't the same as experience operating in a balance responsible all-island market. Balancing markets are unique – they are a combination of market structure, operational performance and plant dynamics. Participants and the TSO are moving to a radically different set of trading arrangements – the level of imbalance exposure facing participants is orders of magnitude above that in SEM.
- The balancing energy market is concentrated, both in terms of scheduled and dispatch volume. Flexible plant primarily sits within one portfolio. Opportunities to shape and reoptimise are likely to come from balancing energy offered at the less concentrated GB-IE border – this means participants will be unusually dependent on the performance of two subsea interconnectors for balancing energy<sup>14</sup>.

The first issue is a transitional problem – **it can be resolved by transitional arrangements, which we would emphatically recommend.** The second issue is an enduring problem – it can only be resolved by structural (or proxy structural) changes.

The paper states that:

*“[T]here could be the potential for unintended consequences and a distortion of signals across the markets if any significant averaging (above what's inherent in the pricing) were to take place.”*

We would agree – the imbalance price should be considered an economic signal used in investment decisions. However, the alternative, in which market power can be exercised in balancing can also lead to unintended consequences and a distortion of signals. **The RAs need to properly factor the decision to introduce marginal pricing into the market power workstream<sup>15</sup>.**

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<sup>14</sup> Both of which have operational constraints in SEM, and one of which is seeing its export capacity substantially reduced from 2017 onwards.

<sup>15</sup> SEM does not really provide an exact guide to which plant will be consistently used for balancing energy – behaviour in a balance responsible system will likely be different. Dominance in plant that can change its physical position at low cost will clearly provide an advantage in balancing markets though.

## Imbalance Settlement

Views are sought from respondents on all the issues discussed in this chapter.

### Firm Access for Demand

The consultation notes that:

*“In principle, Firm Access Quantities could be defined for the demand-side, as they are for generation.  $Q_{FA}$  would be a negative quantity representing the most negative  $Q_M$  that would be guaranteed, such that the premium on an accepted offer would be limited to the maximum of  $Q_{FA}$  and  $Q_{FPN}$ .”*

We assume that the reason the idea of a demand-side Firm Access has been prompted by the ongoing discussions regarding DSU congestion issues. We would suggest that this issue is not addressed in the I-SEM markets design decision, as it would preempt any recommendations the DSU Joint Grid Code Review Panel Working Group makes.

### Settlement of Curtailment

We would reiterate the views expressed in our response to the I-SEM Building Blocks consultation paper:

- That we agree with the SEM Committee’s opinion that *“not compensating for DAM and IDM trades could act as a disincentive for wind to partake in these markets. Were this to be significant, the resulting omission of zero marginal cost wind from the DAM could act to increase the DAM price [...] Creating disincentives to trade in the DAM could affect the liquidity of that market and could ultimately have detrimental effects on the integrity of price formation.”*
- Compensation for DAM and IDM trades must be allowed – any realistic solution cannot introduce imbalance risks that can only be effectively managed by withholding volumes from ex-ante markets.
- As a second order issue; if you don’t distinguish between price making and price taking volumes in imbalance, you remove incentives for wind to offer any flexibility during periods in which curtailment is expected.

Therefore, a variation of Option 2, in which generators without ex-ante market transactions are uncompensated and generators with ex-ante trades are compensated would be SSE’s preference.

### Settlement of Variable RES when constrained down

The consultation paper states that:

*“Price is not currently taken into account in the dispatch of wind. Therefore a new economic dispatch tool for dispatching-down wind would be required by the TSOs if wind units were to submit FPNs and decremental bid prices. The wind farms themselves would also need staff and systems at each unit in order to hold each unit at its FPN and respond to dispatch instructions from the TSOs when decremental bids were accepted.”*

We would appreciate further clarity on this statement from the RAs and the TSO – as we understand the dispatch process for wind, the TSO can put in place a set point at any controllable wind farm which would facilitate the decremental dispatch instruction – this

would not require staff or systems at the unit and should not pose a barrier to wind units offering to buy back energy through decremental bids. **A requirement for systems investment by the TSO in an economic dispatch tool should not be a reason to prevent one subset of participants (wind) from offering flexibility and balancing energy in the same way that any conventional or demand side unit can.**

### Uninstructed Imbalance

Uninstructed Imbalance specific treatment in pricing would be required in both a central pool market and a central dispatch exchange based market – the TSO needs to expect that the dispatch instructions that it places with participants will be adhered to (unless the generator trips etc).

Whether the Discount for Over Generation (DOG) and Premium for Under Generation (PUG) parameters should be reviewed is a second order question – a % discount/premium on price will remain the correct means to do this.

### Settlement of multiple acceptances

We are assuming that undo prices will be provided for in the I-SEM detailed design – if they are available to the TSO, the refined proposal is clearer than the initial proposal for multiple acceptances.

### Quarter/half/hourly settlement

The consultation paper acknowledges that at XBID go-live, there will no 15 minute products available on the I-SEM-GB border. However, regardless of whether a 15 minute product has been *specified* by a Local Implementation Product, it needs to be traded in sufficient volume for market participants to be able to consider that it will generally be *available* to shape their position.

Based on the I-SEM design decisions to date<sup>16</sup>, we can only assume the Day Ahead Market is the only market in which participants can be assured of reasonable liquidity – with trading periods of one hour at the DA stage, **we would therefore recommend that at the point of I-SEM go-live, imbalances are calculated on an hourly basis with some form of averaging of the imbalance prices across that period.**

There will still be incentives for short duration products to develop, but given that the primary sources of flexibility and balancing energy will either sit at the I-SEM/GB border or within a specific market participant portfolio, a cautious approach to introducing imbalance that requires short duration products should be taken by the RAs.

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<sup>16</sup> While incentives to trade intraday are being considered in this consultation, we still have limited visibility of any measures that may be put in place through the *market power* and *forwards & liquidity* workstreams.

## Other Issues

### Global Aggregation

The I-SEM HLD does warrant a change to the existing global aggregation. With imbalance prices in I-SEM necessarily being more volatile than all-in SMP prices in SEM, **we would recommend that the cost of the residual error is estimated for a 12 month period and tariffed out.** This offers a number of advantages:

- It provides an open and transparent solution to global aggregation that can be independently reviewed and audited to the RAs in a similar manner to other levies.
- It would minimize the risk for suppliers (and therefore end customers) of forecasting and procuring the NDLF volumes, particularly through in a market which is producing more volatile and accurate price signals.
- While some elements of the residual error could be characterised as ‘predictable’, the effort required to accurately forecast and procure NDLF volumes would outweigh the benefit for smaller suppliers and new entrants.

### Local Market Power

The existing BCOP works as a very simple, elegant solution to local market power. In I-SEM, while each market (excluding ID) has been defined as uniform price<sup>17</sup>, local market power cannot be dismissed so simply.

We believe that the powers under pillar one of REMIT<sup>18</sup> should effectively deal with local market power, in particular the definitions under price positioning<sup>19</sup>:

*“Abusive squeeze (also known as “market cornering”): This involves a party or parties with a significant influence over the supply of, or demand for, or delivery mechanisms for a wholesale energy product and/or the underlying product of a derivative contract exploiting a decisive position in order materially to distort the price at which others have to deliver, take delivery or defer delivery of the instrument/product in order to satisfy their obligations.”*

Market power measures should be defined through the market power workstream, but the bid mitigation measures suggested in the consultation paper have merit. **SSE would agree that the balancing market systems procurement should include an option for local market power measures.** The use of bid mitigation should be rule or review based rather than placed at the discretion of the real-time TSO operator.

### Metering

The metering framework put in place by the meter data providers for SEM has not functioned particularly well – the obligations and governance arrangements for metering are limited and not fully codified under the TSC:

- Although SEM is theoretically a harmonized all-island market, some MDPs provide information to some participants under bilateral arrangements for validation

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<sup>17</sup> Removing some incentives to guess opportunity cost.

<sup>18</sup> Prohibition of market abuse and related disclosure obligations

<sup>19</sup> ACER, Guidance on the application of Regulation (EU) No 1227/2011

purposes that other MDPs do not – there is no universal set of requirements defined across all 4 MDPs.

- The existing metering requirements under the TSC deal with the provision of data to SEMO rather than market participants – this cannot continue in a market in which market participants are actively trading on the basis of revealed information.
- Obligations and service level agreements (or equivalent) need to be created between market participants and the MDPs if they are to be properly accountable to market participants rather than the NEMO (who faces no commercial risk from the actions of the MDP).

While we acknowledge that *“most issues relate only to meter data providers and not the wider industry”*, **SSE would be concerned that the MDPs dictate a workstream in which they define their own obligations to the market.** This is likely to lead to similar outcome to SEM, with limited accountability for MDPs formally codified. We would recommend that the RAs should:

- Involve market participants, not just the NEMO in defining detailed metering requirements.
- Ensure that metering information is opened up to market participants where possible.
- Codify requirements and obligations for the MDPs.
- Ensure that the Governance Arrangements for the finalized code include a group that looks at metering issues.

### Instruction Profiling

We have not (yet) experienced the cooling boundary or ramp rate issues referred to in the consultation paper – our experience is that the technical offer data is sufficient for the technical characteristics of most standard units.

### Units under Test

SSE believes that the first approach is the better of the two – priority dispatch status would ensure that the testing profile is respected by the TSO. If priority dispatch status is effected by incremental and decremental offers of PCAP and PFLOOR respectively, this may occasionally filter into imbalance pricing – as has happened with ‘sleeper bids’ in the GB balancing arrangements.

### Governance Arrangements

The Modifications Committee has functioned well in SEM, but we think there would be value in specialist standing groups (metering being one example) introduced in the I-SEM Governance arrangements, particularly at market go-live. There are likely to be a considerable volume of complex operational issues that require resolution by industry specialists, in addition to the general modifications with primarily commercial implications discussed at the Modifications Committee.