



**Integrated Single Electricity Market (I-SEM)
High Level Design for Ireland and Northern Ireland from
2016**

Draft Decision Paper SEM-14-045

A Submission by EirGrid plc.

25 July 2014

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1 EXECUTIVE SUMMARY

EirGrid Group welcomes the publication of the draft High Level Design (HLD) for the I-SEM and the opportunity to respond to the consultation.

In our response to February's consultation paper on options for the I-SEM HLD (SEM-14-008), we noted that the market design put forward as option (3) had the potential to deliver more competition in the marketplace as well as more efficient cross border power flows, thereby offering the best longer term benefits for consumers in Ireland and Northern Ireland.

The proposed design for the I-SEM HLD is a variant of the original option (3), in that it retains financial trading only before day-ahead, uses the European markets as the exclusive route to market for day-ahead and intraday, with a balancing market in the ex-post timeframe. However the removal of the mandatory nature of the day-ahead market means that it differs significantly from the original option (3).

We welcome the use of both aggregators and marginal balancing prices; however, we believe that by removing the mandatory provision at day-ahead and allowing some participants use the imbalance arrangements as a route to market may have adverse impacts on the market design. These changes have the potential to reduce the ability of the day-ahead price to reflect the expected value of electricity and may limit its relevance as a reference price for voluntary forwards contracts. Furthermore, we believe that there may not be sufficient liquidity at day-ahead from generators and suppliers to provide a robust and realistic starting point for the creation of a day-ahead schedule.

We believe that the day-ahead market should be the main liquid market. Strong liquidity in the day-ahead market will provide the necessary certainty for economically managing security of supply, bringing added value to consumers, while also providing a strong and relevant reference price for forwards contracts.

With respect to the Capacity Remuneration Mechanism (CRM), the I-SEM needs to deliver the right level of investment in the physical capabilities necessary to provide for a reliable electricity supply to customers and to facilitate the large amounts of variable RES that are required to meet our policy objectives.

We support the decision to adopt Reliability Options, subject to the following considerations:

- that Reliability Options complement the necessary investment in system services as set in the Delivering a Secure Sustainable System (DS3) programme;
- that Reliability Options reward capacity that is physically accessible when required to meet the requirements of a secure system;
- that the role of interconnectors in providing reliability services should be considered in the detailed design; and
- that Reliability Options will be technology neutral.

We welcome the publication of the Initial Impact Assessment and the opportunity to comment on it. Given the mandatory nature of the investment in the I-SEM, it is important that the final

impact assessment focuses on and clearly presents the differences between the costs and benefits of the options. Given the wide range of uncertainty around both the costs and benefits, we support the SEM Committee's intention to be guided by the qualitative assessments of the options.

2 INTRODUCTION

2.1 EIRGRID PLC

EirGrid Group welcomes the publication of the draft High Level Design for the I-SEM and the opportunity to respond to these proposals.

Both EirGrid, and its subsidiary SONI, have been certified by the European Commission as independent TSOs, and are licenced as the market operator, for Ireland and Northern Ireland respectively.

EirGrid and SONI, both as TSOs and MOs, have roles defined within the draft EU regulations that the I-SEM is required to comply with. We are committed to delivering high quality services to all customers, including generators, suppliers and consumers across the high voltage electricity system and via the efficient operation of the wholesale power market. EirGrid and SONI therefore have a keen interest in ensuring that the market design is workable, will facilitate security of supply and compliance with the duties mandated to us and will provide the optimum outcome for customers.

This response is submitted on behalf of all of the EirGrid licensees.

2.2 STRUCTURE OF THE MAIN RESPONSE

The first part of our response provides our views on the proposed energy trading arrangements. We then provide a view on the Capacity Remuneration Mechanism proposed for the I-SEM. We conclude with some commentary on the Initial Impact Assessment provided with the draft decision paper.

3 ENERGY TRADING ARRANGEMENTS

Given the differences between the original option (3) and the variant proposed in the draft HLD, we have assessed the proposed HLD against the criteria referenced in the Next Steps Decision Paper (SEM-13-009) as we did for the initial options. The outcome of this assessment is included as an appendix to this response, with the main conclusions presented below.

3.1 MANDATORY DAY-AHEAD PARTICIPATION

In our response to SEM-14-008, we noted that a centralised market place offers stability and transparency which we believed would lead to better competition. We also noted that with “its strong liquid day-ahead market and the settlement of imbalances through a balancing market that reflects the actual cost of operating the system, of the two, option (3) has the potential to deliver more competition in the marketplace as well as more efficient cross border power flows and therefore offers the best longer term benefits for consumers in Ireland and Northern Ireland.”

It was clear that mandatory participation in the day-ahead market was a strong benefit in this design, delivering a liquid day-ahead market which would provide a strong and relevant reference price for financial contracts, as well as providing a robust and realistic starting point for the day-ahead schedule. We noted that using forecasts for variable and unpredictable participants such as renewable generation or retail supply companies would represent a challenge and was a significant change from current practices where these types of participants can act as price takers in the ex-post arrangements; however, we believed this was necessary to deliver the full benefits of option (3). We also noted how additional design elements could mitigate these issues such as allowing market aggregators for certain participants such as small scale renewables, and a less penal balancing price.

While both the use of aggregators and marginal balancing prices are adopted as part of the proposed I-SEM HLD, the mandatory requirement has been removed. This gives rise to a number of concerns. Specifically, the removal of the mandatory provision allows liquidity to split between the day-ahead and intraday market, and even considers the imbalance arrangements as a suitable route to market for smaller participants. This has the potential to reduce the relevance of the day-ahead price and will limit its usefulness as a reference price for voluntary forwards contracts, in itself impacting on the development of a liquid forwards market as alluded to in the draft decision paper.

With the TSOs no longer acting from a complete, albeit forecast derived, schedule and basing scheduling decisions on their own forecasts combined with fixed positions from the day-ahead market and nominations of expected positions from the intraday, this could result in outcomes where the market is in aggregate long or short (meaning purchases by supplier units do not cover or exceed the overall required system demand). In circumstances such as this, to determine the day-ahead schedule, the TSOs may activate balancing energy to cover gaps in the schedule. This may result in additional costs to the consumer if these actions have to be unwound after participants shift their trading into the intraday timeframe or if expected positions fail to be realised.

Allowing smaller participants to use the imbalance arrangements as a route to market raises additional complexity. This could be a significant volume in aggregate and may have the effect of depressing the balancing price as well as pushing up the day-ahead price, leading to perverse interconnector flows when the I-SEM day-ahead price goes higher than the GB price if high volumes of low cost generation wait until the balancing timeframe. This in turn could lead to countertrading by the TSOs or even curtailment of wind.

Consistent with other markets, we would recommend that all participants are required to use best endeavours to be balanced at gate closure which can be achieved either by trading at day-ahead or in the intraday gate market or by joining with an aggregator. We also believe that the day-ahead market should be the main liquid market with the intraday market used for adjusting positions based on updated information. This should result in all participants being balance responsible while also serving to minimise redispatch volumes and costs.

We acknowledge here the potentially important effect of Reliability Options on the liquidity of their reference market. Were the day-ahead market to be chosen as the reference, this would act to concentrate liquidity at this stage. Careful consideration is required here to ensure that volumes in the day-ahead market are capable of being delivered when dispatched.

We would suggest consideration is given to using the day-ahead market price as the reference price for contracts in the CRM and ReFIT. This should encourage more liquidity into this important timeframe.

3.2 SECURITY OF SUPPLY

EirGrid expects all participants to use best endeavours to be balanced at intraday gate closure and would recommend that all participants regardless of size are required to trade ahead of intraday gate closure, either directly or through an aggregator. In this light, we believe that imbalance settlement should not be used as a route to market. While we accept that wind forecasts at day-ahead may contain a level of forecast error, we still believe that a strong liquid day-ahead market will provide for the most relevant market prices, enabling demand side participants to make informed decisions. We believe the decision to use marginal pricing in imbalance settlement reduces the risk of being in imbalance as volumes are settled at cost reflective prices and not penal ones.

It is our view that system security can be attained in the proposed I-SEM design; however, this will require the TSOs to have the necessary tools to enable timely redispatch of plant to maintain system security. These tools may include right to access long notice plant in the forward timescales, the ability to procure reserve in advance of day ahead and the ability to operate countertrading arrangements similar to those in place today. EirGrid believes that the proposed market design does not eliminate the need for countertrading for priority dispatch generation. While the design provides solutions for managing forecast errors in the intraday market, it does not provide a solution for situations where the volume of wind cannot be accommodated due to system non-synchronous penetration, or similar, limitations. The TSOs will still issue dispatch instructions to be followed, based on feasible nominations submitted by market participants.

3.3 THE ROLE OF AGGREGATORS

We believe more emphasis needs to be placed on the role of aggregators in the day-ahead and intraday markets as a solution for small wind generators and other similar small participants.

We welcome the inclusion of aggregators in the I-SEM design, including the aggregator of last resort. We believe that the aggregator of last resort may be required on an enduring basis. While wind generators become more sophisticated and adopt more active trading strategies, an aggregator of last resort may still be required for new wind generators that join the market.

We concur with the SEM Committee's view that the TSO will likely perform the aggregator of last resort role.

3.4 EUPHEMIA AS THE DAY-AHEAD UNIT COMMITMENT SOLUTION

The draft decision paper acknowledges the discussions held between the RA Project Team and SEMO, which were exploratory and conceptual in nature with SEMO putting forward its understanding of the different bid structures that can be used in EUPHEMIA noting how some of these could be used to model the behaviour of SEM generators. While the work completed so far has not included processing test cases through EUPHEMIA, based on our understanding of the algorithm and how it is operating currently across Europe, we have no reason at this juncture to consider that the algorithm will not be suitable. As we stated in our response to SEM-14-008, option (3) as a proposed market design does not exist anywhere in Europe. This statement holds true for the proposed I-SEM design as set out in the draft decision paper. While the Iberian market does participate at unit level in the day-ahead market, the results of EUPHEMIA are not used to determine the starting point for the initial day-ahead schedule. Instead, generators submit complex bids along with balancing incremental and decremental prices, and reserve bids, to the TSOs and these are used to determine the day-ahead dispatch schedule.

While SEM-14-008 placed emphasis on the Iberian complex conditions (such as Minimum Income Condition as a proxy for inclusion of start-up or no load costs), SEMO have worked with the SEM RA Project Team identifying other bidding structures that may also be suitable. This work, however, is only conceptual at this point and commercial orders of this sort have yet to be run through the algorithm. As such, we would recognise that testing of the algorithm is important to demonstrate that scheduling risk concerns are managed correctly.

3.5 CONCLUSION – ENERGY TRADING ARRANGEMENTS

We believe the removal of the requirement for mandatory participation in the day-ahead market has the potential to reduce a number of the positive elements in option (3) as put forward in SEM-14-008. The new proposed I-SEM design has the potential to create distortions in the day-ahead price for the I-SEM if significant volumes of low production cost generators opt out, as well as impacting on the price in the balancing market. These distortions at day-ahead may lead to inefficient scheduling of interconnector flows with significant activity required by the TSOs in the balancing market to adjust for generation that does not actively trade. This will obviously act against the interests of consumers.

We believe that allowing participants to use the imbalance arrangements as a route to market is not desirable and would prefer to see all participation either in the day-ahead or intraday markets. All participants who opt to participate in the I-SEM should be mandated to trade in these markets, either directly or through an aggregator.

Aggregators are an important part of the I-SEM design and the concept of an aggregator of last resort may need to be an enduring feature and not only transitional as indicated in the draft decision paper.

Measures to encourage participation in the day-ahead market should be explored as part of the detailed market design. This will assist the TSOs in the development of a feasible day-ahead schedule and assist participants by developing a strong and relevant day-ahead reference price for forward contracting.

4 CAPACITY REMUNERATION MECHANISM

The I-SEM needs to deliver the right level of investment in the physical capabilities necessary to continue to provide for a secure and efficient electricity system and to deliver on our RES policy objectives. Reliability options have been implemented in other markets in recent years; however, the application of this mechanism to a system with high levels of variable renewable will require careful consideration.

We are broadly supportive of the draft decision on the proposed CRM, subject to the following important considerations:

- That Reliability Options complement the necessary investment in system services as set in the Delivering a Secure Sustainable System (DS3) programme. In our view, the auction of Reliability Options offers the necessary degree of freedom to reflect the capability based system services payments. Similarly, the Energy Trading Arrangements could reflect the dispatch based system services payments. In this manner, even if the value of system services was fixed for the initial period, the overall outcome could be market based.
- That Reliability Options reward capacity that is physically accessible when needed to meet the requirements of a secure system and take into account the impacts of a physical dispatch that must consider issues such as system non-synchronous penetration, priority dispatch and firm access.

Interconnectors have a role in providing reliability services including balancing services and this should be considered in the detailed design. The interaction between Reliability Options, FTRs and the physical Capacity Arrangements in GB is an area that requires careful consideration also.

4.1 I-SEM AND SYSTEM SERVICES

A reliable system requires both capacity and system services remuneration mechanisms; the former to attract adequate capacity, the latter to attract the system services to ensure secure operation. In order to achieve this, the combination of energy, system service and capacity revenues themselves need to be adequate and reasonably secure from an investment perspective.

In our response to SEM-14-008, we recommended a centralised quantity based CRM (either option 3 or option 5a). The difference between option 3 and 5a in theory is that one is a physical obligation whereas the other is a financial derivative of the energy price. In practice, however, the difference is often less clearly defined, with capacity obligations containing varying degrees of financial penalties for non-performance and reliability options requiring some degree of

physical presence to qualify. As such, it is in the detailed design that the character of the product is brought into sharper focus.

We believe that the draft HLD decision contains the kernel for a set of arrangements that has the potential to reflect Ireland and Northern Ireland's position at the vanguard of global efforts to integrate variable renewables. This opportunity relies on energy, system services and capacity being considered as dynamic components of the same commodity: reliable electricity.

These components can be valued using market mechanisms where there is a level of credible competition for that component. Where there is not, administered pricing mechanisms may be more appropriate until sufficient competition emerges. Market mechanisms are currently in place for energy in the SEM. The proposed I-SEM design extends the use of market mechanisms to the capacity arrangements. The approach for valuing system services is under consideration; however, we would caution against introducing several market mechanisms at this stage beyond the new capacity mechanism. It may be difficult to ensure efficient outcomes with so many variables moving at the same time. Following the implementation of the I-SEM and system services under DS3, as greater levels of competition emerge in the system services arena, similar market mechanisms could be extended to these components of reliable electricity.

As such, we would continue to recommend that procurement of system services be based on fixed prices as recommended previously through the DS3 process. If Reliability Options and the Energy Trading Arrangements are able to reflect the capability and dispatch based payments respectively, the combined remuneration of energy, system services and reliability options would be market based.

4.2 RELIABILITY OPTIONS

While we are broadly supportive of the development of Reliability Options as the proposed approach for the I-SEM CRM, we would like to highlight areas that we believe are key to its success.

It is extremely important that the problem that the CRM is trying to solve is clearly specified and understood. Then, generator/demand-side capacity can be rewarded to the extent that they contribute to solving this problem. If the CRM is intended to solve a MW adequacy problem then generators/demand side units should be rewarded in line with their contribution to MW adequacy. If designed well, generators/demand side units' offers should reflect their expected availability in the periods required but be cognisant of the potential consequences of not being available during these periods.

Careful consideration is required for variable renewables and demand side resources given their importance to broader policy objectives. Nevertheless, we would encourage a mechanism that is technology neutral insofar as possible. With a level playing field in the market that is technology neutral, policy instruments may be used to encourage or discourage certain resources accordingly, in line with their contribution to policy objectives; however, if the particular nature of different technologies is embedded in the design, it becomes very complex

to develop the mechanism in the future in a manner that does not introduce potential unintended consequences.

The amount of capacity to be procured in the auction is an important consideration and we welcome the proposal to review the capacity requirement during the detailed design.

Finally, transitional arrangements are important to the overall change from SEM to I-SEM and it is not clear from the draft decision how this is intended to proceed. Depending on the length of the lag time between auction and the reference period, there may be a period where transitional capacity arrangements are required. All efforts should be made to minimise the impact of the transition on the overall investment environment. Consideration on the impact of retail tariff timelines is also important here.

5 RESPONSE TO I-SEM INITIAL IMPACT ASSESSMENT

5.1 OVERVIEW

EirGrid welcomes the opportunity to comment on the Impact Assessment for the I-SEM at this early stage. We note that this assessment is still being developed and our comments are aimed at ensuring that the future market arrangements are underpinned by a robust impact assessment.

We concur with the SEM Committee's opinion that where there are wide ranges of uncertainty associated with costs and benefits of the alternative options, as is the case here, the decision makers should rely more on the qualitative analysis than the quantitative assessment.

5.2 METHODOLOGY

A transparent and robust methodology is essential to ensure that the impact assessment can be communicated to the stakeholders affected by the decision. The choice of assessment time frame can have a significant impact on the overall outcome of a quantitative analysis, and the rationale for the choice of 14 years for the I-SEM Impact assessment is not obvious from the information currently available. How this relates to expected asset lives or the recovery of the costs through tariffs is also unclear.

Over the period being considered in this assessment, there will be substantial investments in energy infrastructure across Ireland and Northern Ireland, which will combine with the I-SEM market design and market infrastructure to deliver substantial benefits for consumers. The impact assessment should focus only on the differential costs and benefits to ensure that there is no double counting between the I-SEM impact assessment and the assessments undertaken for the other investments that contribute towards the overall goal of a lower carbon, more efficient electricity industry on the island.

5.3 BENEFITS

When assessing the benefits that can be obtained from further market integration, it is absolutely essential that only those benefits created by the market design are considered. There are a number of other policy initiatives in both jurisdictions that are subject to cost benefit analysis and it is essential that the benefits provided by these are not included within this assessment, unless the costs are also reflected. In particular we would be concerned that the benefits associated with the following initiatives are included in the impact assessment, while the associated costs are not specified in the report:

- Network investments to support renewable generation;
- Further interconnection between the two jurisdictions;
- Support mechanisms for renewable generation;
- Investments in interconnections with other markets, including the repair/replacement of the Moyle Interconnector;
- The DS3 programme.

The scenarios presented include levels of variable non-synchronous generation that will pose significant operational challenges. Unless there is a commensurate investment in necessary performance capability, similar to that presented throughout the DS3 System Services review, then these scenarios may not be feasible. In these cases, it may not be appropriate to use them as a basis for SEM impact assessment. A scenario considering an average contribution from renewable generation of 40% and a DS3 System Services decision similar to EirGrid's recommendation may improve the robustness of the impact assessment.

We would also caution that some aspects of the detailed design could increase or reduce the benefits obtained from further integration. The treatment of losses across interconnectors and how these are reflected in bids into the I-SEM could potentially distort arbitrage opportunities. We note the range of sensitivity analyses undertaken to reflect these uncertainties around detailed design issues.

We have not had an opportunity to review the Pöyry model used to quantify the benefits of each market design, and trust that this has been subject to appropriate peer review. Overall, it is the differential benefits between the options that are important in an impact assessment of a mandatory investment. The differential benefits presented here are intuitively appropriate and would not contradict any assessments we have undertaken of the relative merits of the options.

5.4 COSTS

Many factors will determine the final costs incurred to facilitate further market integration. These include:

- The approach to risk sharing with vendors;
- The certainty of the design at the time the tender is issued;
- The approach to change control during implementation;

- Detailed design issues that have not been considered at this high-level stage;
- The number of contractual interfaces to be managed;
- The time available to deliver the solution, compressed timeframes being more costly.

These items are currently unknown. In a situation such as this, it is the differential costs that are relevant for the impact assessment. This response is therefore limited to generic comments related to the nature of the costs expected to be incurred and differential between the options.

While we cannot concur with the individual cost lines stated in the initial impact assessment, we consider the overall differentials between the options for market design and CRM systems to be broadly appropriate. The choices still to be made by the RAs during the detailed design phase will impact both central costs and those incurred by participants.

We will continue to work with the RAs to ensure that the investments made to implement the I-SEM deliver both compliance with the target model and value for consumers.

5.5 CONCLUSION

Given the mandatory nature of the investment in the I-SEM, it is important that the final impact assessment focuses on and clearly presents the differences between the costs and benefits of the options. Given the wide range of uncertainty around both the costs and benefits, we support the SEM Committee's intention to be guided by the qualitative assessment of the options.

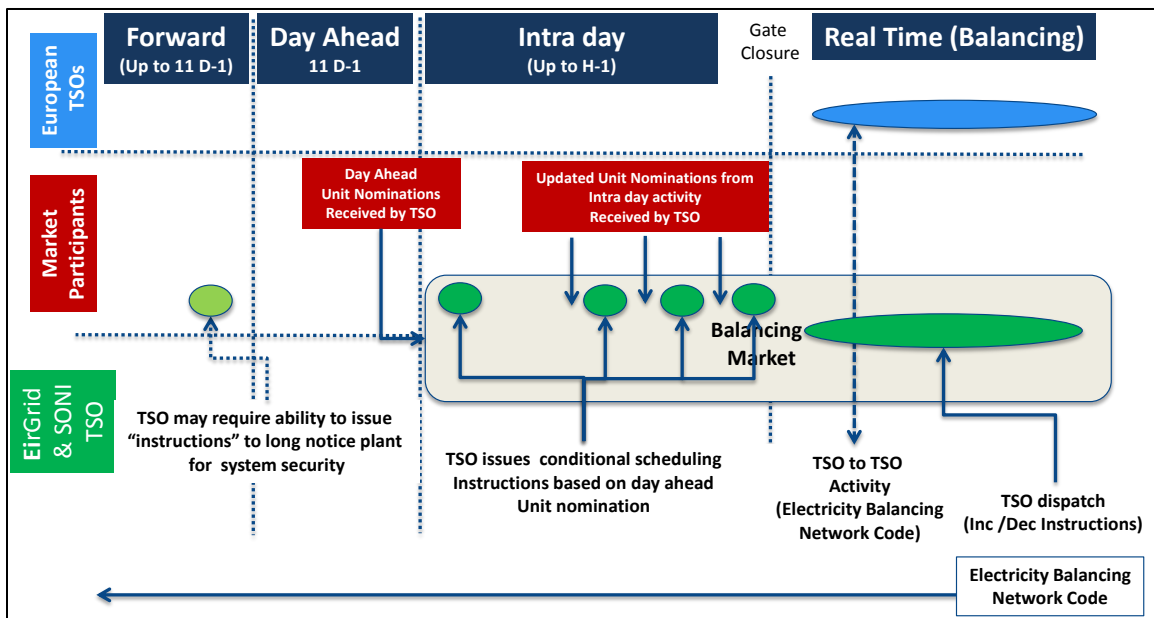
6 APPENDIX 1 - ENERGY TRADING ARRANGEMENTS

In considering the proposed market design, we note that it is closest to option (3) but with a number of modifications. One principle revision is the removal of the mandatory requirement for participation by all generators and suppliers in the day-ahead market. This means that key elements of the option (3) model, elements which we supported (such as a robust starting point for the day-ahead scheduling by the TSOs, a strong liquid day-ahead market), are potentially diluted in the proposed I-SEM design.

Given this, we believe it is appropriate to review the new proposal against the nine assessment criteria.

6.1 SECURITY OF SUPPLY

With the day-ahead market no longer mandatory, this market design introduces additional uncertainty for the TSOs in economically managing security of supply. The figure below highlights the periods where activity may take place.



In the forwards timescales, the TSOs may require the ability to access long notice plant for system security.

At day-ahead, it is uncertain if there will be enough liquidity from generators and suppliers to provide a robust starting point for analysis from the unit nominations that are received by the TSOs. While the TSOs will use their own forecasts and generators can submit their expected nominations (i.e. where they intend to have traded before gate closure), the TSOs will have increased uncertainty around the accuracy of the information being provided.

If renewable generation in particular limits their participation in the day-ahead market, the initial starting point for analysis by the TSOs could:

- have interconnector flows that are not reflective of actual system cost;
- have significantly more conventional plant running than will occur in real-time which could
 - hide constraints that only materialise across intraday when conventional plant change nominations;
 - create constraints that do not materialise as the conventional plant change nominations;
- have significant volume of generation that has not traded in day-ahead or intraday and has to be managed within the balancing market; or
- a combination of all the above subject to price differentials between I-SEM and BETTA.

In addition, if the demand side does not fully participate in the day-ahead then the TSOs may see a gap between demand and supply at day-ahead stage as suppliers wait until the intraday. All of the above potential uncertainty may lead to the TSOs taking actions that in hindsight were not needed which could lead to increased costs and unnecessary volatility in redispatch to reach a feasible secure solution.

EirGrid therefore believes that the day-ahead market should be the main liquid market to give a robust starting point for security of supply.

The intraday market allows participants to refine their positions, e.g. trade against updated forecasts and manage unexpected events such as generator trips. In parallel is the mandatory balancing market where all participants should make themselves available to the TSOs for dispatch. It is a requirement that accurate availability information is provided to TSOs.

The TSOs expect all participants to use best endeavours to be balanced at gate closure as the short timescales from gate closure to real-time (1 hour) limit the TSOs' ability to redispatch. To ensure that participants are balance responsible, EirGrid would recommend that all participants are mandated to either trade ahead of gate closure or join an aggregator who will perform that role for them.

It should also be stressed that while participants submit their feasible expected nominations, the TSOs will still be issuing dispatch instructions if only to confirm that the feasible nominations are acceptable. In addition, the Network Code on Electricity Balancing will not be fully implemented for I-SEM go-live and hence at some point in the future, Automatic Generator Control (AGC) may be required to automate the dispatch process for real-time balancing.

6.2 STABILITY

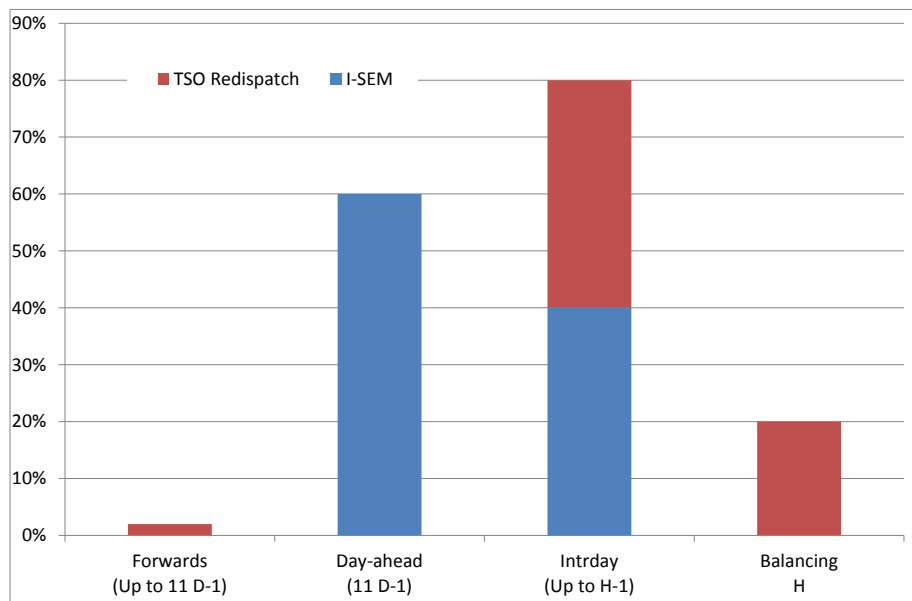
Similar to the original option (3), the proposed I-SEM design makes strong use of the European market coupling arrangements as a principle route to market. While the focus is removed from the day-ahead market, using both day-ahead and intraday arrangements from Europe would appear to make this a stable design subject to EU governance.

As with option (3), there is no working example of this type of market today in Europe. While taking the emphasis away from the day-ahead market could result in this looking closer to other

models than the MIBEL model as originally considered, the MIBEL arrangements are the only ones that make use of unit based participation. The lack of a current example does pose some degree of risk to the stability of the market as the I-SEM will be developing a set of arrangements unseen and untested in Europe. Given the current level of detail, we believe this market can be implemented; however, a number of key policy elements which are expected to remain in the I-SEM are not consistent with the design of EU power markets. These represent challenges that must be resolved in the upcoming detailed market design phase. Failure to address these issues in an appropriate and consistent manner may result in obstacles to an efficient market that will only become apparent after go-live and will lead to market change to correct these.

6.3 EFFICIENCY

The volume of redispatch required by the TSOs due to transmission system constraints and reserve requirements is difficult to quantify at this stage.



A qualitative assessment is shown above based on assumptions of where participants could trade (shown in blue). This is highly subjective and could change significantly depending on the rules and incentives in place.

This market design has no forward physical trading and hence the TSOs do not have ability to resolve transmission system constraints in forward timescales. However, it is anticipated that the TSOs on occasions may need to instruct long notice plant that is not available in the balancing market.

With the day-ahead market no longer mandatory, the volume that will trade in this timeframe is unclear. However, as described, it is anticipated that there will be a split between day-ahead and intraday. A material volume of participants may also not trade and hence need to be managed by the TSOs in the balancing market.

From the day-ahead, the TSOs will take the expected feasible nominations submitted by participants and, combined with forecasts for demand, renewable generation and interconnector flows, determine redispatch actions that are required to maintain system security. It should be noted that the TSOs will make minimum changes to the market nominations via redispatch actions in the balancing market.

The TSOs consider that redispatch volumes are likely to be higher than currently experienced under SEM. Drivers for this are the following:

- while participants will send the TSOs expected feasible nominations at day-ahead (even if they have not yet traded in that market), there may be a higher error with the data than if day-ahead was mandatory. This may lead to the TSOs making dispatch decisions that in hindsight may not have been required;
- SEM utilises complex bids with a complete optimisation of all technical and commercial data against full load and wind forecasts with all generation available;
- not all participants may trade in day-ahead or intraday and hence are to be managed in the balancing market.

The costs of these redispatch actions will depend on the incremental and decremental prices submitted by participants and the changes in these prices up to when dispatched. With no bidding code of practice (BCoP), changes in prices submitted by participants in the balancing market may result in higher redispatch costs than envisaged. The TSOs anticipate that all incremental and decremental prices (along with changes) would be published to support transparency. Potentially some form of BCoP could be developed for pricing in the balancing market to minimise costs to end consumers.

There are a number of recommendations that we would make to reduce redispatch volumes and costs (some of which have already been mentioned in the section on [Security of Supply](#) above).

The first is to ensure that the day-ahead market is the dominant market thereby giving a robust starting point to analyse and make initial redispatch decisions for system security. While TSOs will use their own forecasts of demand, generation and interconnector flows, a strong liquid day-ahead market with participants providing expected feasible nominations will ensure stability for redispatch. The intraday is then a market where participants refine positions rather than determine their starting point, i.e. market volume activity generally declines the closer real-time approaches.

A second recommendation is for all participants to either trade themselves or join an aggregator who will perform the role for them. This should result in all participants being balance responsible and reduce redispatch volumes and costs.

Reserve is a large constraint on the island (due to the size of largest infeed relative to demand) and hence tools that provide reserves are recommended in reducing redispatch volumes. For example, if reserve is procured in advance of the day-ahead market then this would be reflected in the feasible nominations from participants and serve to reduce redispatch volumes and costs.

The current countertrading undertaken by TSOs on SEM interconnectors has delivered economic benefits to consumers in SEM. A mechanism to allow TSOs to continue delivering these economic benefits under I-SEM would reduce costs and redispatch volumes.

In relation to the SEM Interconnectors, it is currently uncertain if all the benefits of coupling will be realised due to the relative size of I-SEM relative to BETTA which results in physical ramp rate limitations. At times, this may result in physical flows being in the opposite direction to market flows. The effect would be increased redispatch volumes and costs to consumers in I-SEM to manage. Across Europe, it is normal for ramp rate limitations to be set on interconnectors.

6.4 PRACTICALITY/COST

Consistent with our review of the four options in the February consultation paper, we believe that it is difficult to consider that any option would be more cost effective than any other, given the level of information provided at that time. This view applies equally to the proposed I-SEM HLD as it did to the four options consulted upon.

6.5 EQUITY

Given the freedom that exists in the proposed design for participants to trade in any of the three market places, this design may not result in an equitable allocation of production costs. This can arise where a suppliers' exposure to the market costs is dependent on where the liquidity pools and where they themselves opt to trade. For example, if a supplier trades all their volume in the day-ahead market they are exposed to the production costs of the generators that trade in that market which may not be the most cost efficient. Thereby, this supplier may be exposed to a higher production cost than a supplier active in one of the other market timeframes.

If variable renewable generators elect to use the imbalance arrangements as their selected route to market, the socialisation of balancing costs could distort the equity of this option as only suppliers with imbalance positions are exposed to these.

6.6 COMPETITION

While the proposed I-SEM design makes use of centralised market arrangements across Europe, removing the mandatory participation requirement from the day-ahead market has the potential to reduce the liquidity of this market. This will have a knock on effect on the transparency within the I-SEM as well as the strength of the reference price from the day-ahead or balancing market. Because intraday trading is based on contract matching rather than a marginal pricing algorithm, there is no public intraday price per se. While the market will have an evolving visible price, each matched contract will be for a price and volume that are unique to it. Therefore, while the price may be visible, the contract associated with the price will be anonymous.

Measures can be added to the design to mandate some levels of participation in the day-ahead. These can be targeted as certain participant types or even specific participants. However, this

introduces levels of regulatory intervention in the operation of the market, elements that were considered drawbacks in discussions around options (1) and (2) as noted in the Regulatory Authorities' workshop presentation of June 17th. Careful consideration needs to be applied with respect to adopting an approach that targets one technology over and another as this could result in undesirable outcomes in the market.

EirGrid argues that the success of the I-SEM requires that the imbalance arrangements should not be used as a legitimate route to market. One of the attractive points of option (3) was that generators and consumers did not have the option to simply arrive in the balancing timeframe. We believe generators and consumers should be required to trade in either the day-ahead or intraday markets, either directly by themselves or through an aggregator.

While we accept that wind forecasts between 12 and 36 hours out may contain a level of forecast error that may not be acceptable to some participants, the market should facilitate and encourage participation at day-ahead to ensure a strong day-ahead price and a liquid market. Variable resources should make best endeavours with respect to their trading. This will allow them access to better prices in the day-ahead than may be available in the intraday and balancing market. A large volume of generation waiting for this market may have unintentional effects on balancing prices, potentially resulting in negative prices. The use of marginal pricing in the balancing timeframe also reduces price risk for variable generators.

6.7 ENVIRONMENTAL

The design of the balancing arrangements including a single balancing price (and avoiding penal top-up and spill type pricing) hope to provide a cost reflective market for generation whose output is more difficult to forecast.

We would expect that generators that are subject to control requirements would be required to trade in the European markets in advance of local balancing. This is either through the day-ahead arrangements or by trading closer to real time in the intraday arrangements. As the day-ahead is designed as a pay-as-cleared auction, whereas the intraday is designed as a pay-as-bid mechanism, this may make it more attractive to participate in the day-ahead market rather than the intraday as better prices may be available.

We welcome the inclusion of aggregators in the I-SEM. We believe the aggregator of last resort may be required on an enduring basis.

Finally, the current approach to priority dispatch under SEM is well known and understood. However, it is unclear if this approach can be maintained under I-SEM as the market design gives all participants the opportunity to trade up to 1 hour ahead of real-time and hence effectively manage their own positions.

6.8 ADAPTIVE

As in our response to the February consultation paper, we consider that the adaptive nature of a market is based on our ability to represent change in the market design. The level to which the

proposed design of the I-SEM is reliant on European arrangements has a bearing on this criterion. Both the day-ahead and intraday markets will be under the governance arrangements to be defined in the Network Code for Capacity Allocation and Congestion Management. As such, our ability to influence change in these market places is limited to how successfully we manage our interactions at European level. This also means that the I-SEM is subject to changes that can come from other countries also.

6.9 THE INTERNAL ELECTRICITY MARKET

As this market retains a lot of the Target Model elements of the original option (3), it promises to be a compliant market design; however, by allowing participants to use the imbalance arrangements as a route to market and not requiring best endeavours participation at day-ahead, it may not be as efficient a model.

We understand that the mandatory nature of the day-ahead market in the original option (3) presented issues for variable and unpredictable resource and we believe the revisions presented in the proposed HLD are intended to address this; however, allowing wind generators to avoid participation at day-ahead and even intraday will impact on the efficiency of cross border flows as the markets will couple without considering what has the potential to be a large volume of low cost generation. While there would have been a similar risk around the flows in the original option (3) arising from forecasting errors, by not requiring participation this has the potential to be the equivalent of a 100% forecast error for small wind generators in the day-ahead market. In aggregate this could be a significant error, higher than one that would result from inaccurate forecasting.

We believe that the inclusion of marginal pricing in the balancing arrangements reduces the risk of small wind generators being exposed to penal balancing prices due to forecast errors. The inclusion of aggregators in the market design provides an additional route to market for smaller participants. We consider that these additions should adequately address the concerns around mandatory participation at day-ahead.

Financial Transmission Rights (FTRs) have been proposed for trading across interconnectors to GB. While FTRs offer benefits as described, adopting this approach when the majority of Europe is focused on harmonizing PTRs seems counterintuitive in the context of the goal to create an internal energy market across Europe. In general, customers using interconnectors express a preference for coordinated and combined solutions which will not be the case if I-SEM adopts FTRs.