



Integrated Single Electricity Market (I-SEM)

**High Level Design for Ireland and Northern
Ireland from 2016**

**Consultation Response From Alan Mulcahy
(Private Citizen)**

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1 CONSULTATION QUESTIONS

1.1 RESPONDENT DETAILS

COMPANY	Private Citizen – Alan Mulcahy
CONTACT DETAILS	<p>Alan Mulcahy, Highfield Park, Dundrum, Dublin 14</p> <p>Email: Alan.Mulcahy@upcmail.ie Mobile Phone: 087 289 5628</p>
MAIN INTEREST IN CONSULTATION	<p>Primary concern is the long term health of the electricity market to provide a platform for future prosperity, including:</p> <ul style="list-style-type: none"> • Security of Supply • Facilitating renewables (beyond the 2020 targets) • Cost to the consumer (from small consumer to large Industry) • Fair competition (retaining a fair playing field that allows a start-up supplier compete in the Irish market) <p>See Personal Background at the end of this document</p>

1.2 GENERAL COMMENTS

The SEM has been successful in delivering to a number of the goals of both RAs, including:

- Facilitating renewables (towards the 2020 targets)
- Fair competition (providing a fair playing field that allows a start-up supplier compete in the Irish market).

Ireland is unique in Europe (and the world) with:

- A small system that has avoided blackouts
- A functioning cross border market that has facilitated a competitive market
- High renewable penetration, regularly reaching 50% penetration of non-synchronous generation

The Irish system is encountering challenges (facilitation of renewables) that the main European grid may not encounter for over a decade. The integrated European market has not been designed to take account of these challenges.

There is a serious risk that by introducing a standard European market, the net effect could be contrary to the RAs' goals (Security; Renewables; Price; Competition).

There are a number of aspects of the SEM that have provided a suitable framework for the facilitation of renewables and fair competition, including:

- Gross mandatory pool, where Suppliers are price takers (facilitates Supplier competition)

- Wind being a price taker, with TSO responsibility for wind forecasting and balancing variations in wind forecast on a total system basis

There are other aspects of the SEM that may have served their course and may no longer be required, including:

- Regulated bidding for all participants (except for interconnector traders)
- Ex-post pricing (except for interconnector traders)
- Technical feasibility for traditional generators in the day ahead market

There are a number of options that could result in a new SEM that would result in an improvement in the SEM (based on the RAs' goals).

A new market with the following features would maintain the gains made by the SEM and allow the Irish market to further evolve whilst aligning to the goals:

- A day ahead market with the following features:
 - Open bidding (not regulated pricing, apart from specific market power regulation)
 - Mandatory for Generators
 - Optional for Suppliers and renewable generation
 - TSO forecasting for wind and demand (that has not opted to participate)
 - Firm Ex-Ante pricing
- A balancing market where the variability of demand and wind is appropriately socialized along with the costs of constraints & other TSO security of supply actions
- A mechanism to encourage energy storage to the point where it can be shown to reduce overall system costs (on a net portfolio basis)
- Cross border distortions removed (e.g. removing the distortions from the capacity payment to Irish interconnector traders and the impact of Carbon taxation in the UK)

Having an assumed starting point that the “market cannot be designed specifically around renewable generation” may be a significant mistake, given that the most notable feature of the Irish market (from 2016 to 2020) is the ground breaking level of non-synchronous penetration that is to be accommodated. So, having a sensible functioning market should be starting from the perspective of designing a market that both:

- Meets the spirit of the European target model
- And makes sense for 40% of the energy that is included within it (primarily wind).

In my opinion, markets should be designed with an intended lifespan of at least 10 years. So the I-SEM should be designed for a market where more than 50% of energy comes from renewable resources (currently assumed to be primarily intermittent and variable sources – e.g. wind).

However, as questioning the starting point may not be helpful for the purposes of this consultation; the rest of this document provides responses to the questions that have been asked.

Note: Section 3 discusses system considerations but has misleading graphs of energy markets. The system considerations on the SEM do not have any comparison in Europe, as the next smallest system with an open (& functioning) market is the GB system, which is 10 times its size.

1.3 PURPOSE OF THE DOCUMENT (SECTION 1)

Question	Answer
<p>1. Which option for energy trading arrangements would be your preferred choice for the I-SEM market, and why?</p>	<p>I think there are issues with each option. However, I think that the mandatory centralised market is the best starting point (of the options provided) for the design.</p>
<p>2. Is there a requirement for a CRM in the revised HLD, and why?</p>	<p>I believe that there is a requirement for a capacity remuneration mechanism in the SEM market, as there is no reason to believe (and many reasons not to) that a market only approach will result in the build out of the capacity required to provide the necessary Security of Supply). However, given the requirement to support 40%+ renewables, this requirement should be included in an incentive arrangement to ensure that the other Security of Supply considerations are also met (inertia, ramping, etc.).</p> <p>Within the timeframe available, I am concerned that the HLD may not fully resolve the design of a market that both meets the renewable challenges and is in line with the current specification of the European Energy market.</p> <p>Ireland is significantly ahead of other grids in non-synchronous renewable penetration terms and will need to lead the way in designing mechanisms that provide an overall low cost market for a grid with renewable generation availability exceeding 70% of demand on a regular basis.</p>
<p>3. If there is a requirement for a CRM in the revised HLD, what form would be your preferred choice for the I-SEM, and why?</p>	

1.4 TOPICS FOR THE HIGH LEVEL DESIGN OF ENERGY TRADING ARRANGEMENTS (SECTION 4)

Question	Answer
<p>4. Are these the most important topics to consider in the description of the HLD for the revised energy trading arrangements for the single electricity market on the island of Ireland?</p>	<p>There are a number of key questions that need to be considered, some are included in the topics, whilst others are not.</p> <p>Additional key questions include:</p> <ul style="list-style-type: none"> • How do the current arrangements in the SEM for Wind suit the market in comparison to alternatives <ul style="list-style-type: none"> ○ Suggestion: The current approach is far superior than insisting that small wind generators (100MW) play an active market role, including forecasting and taking responsibility for local imbalances. ○ The current approach for wind generators includes: Optional market involvement; TSO forecast; & TSO/Market Operator responsible for balancing; Wind generation prices fixed for a long period (REFIT – outside market) • How do the current arrangements in the SEM for Suppliers suit the market in comparison to alternatives <ul style="list-style-type: none"> ○ Suggestion: The current approach has been very successful in enabling small entrants join the market. It is unlikely that PrePayPower or Pinergy could have joined as a small player if active participation (& accurate demand forecasting) was required. ○ The current approach for Suppliers includes: Ability to hedge; TSO responsible for forecasting; TSO/market responsible for balancing; Suppliers can be passive participants • In each timeframe should bidding be regulated or open <ul style="list-style-type: none"> ○ Suggestion: The market should generally be open with participants who do not have market power allowed to bid freely. However, the balancing market should probably have regulated bidding for generators on the island.
<p>5. Are there other aspects of the European Internal Electricity Market that should form part of the process of the High Level Design of energy trading arrangements in the I-SEM?</p>	<p>Ideally, the new market would take account of the elements that are required for the market going forward (with high levels of wind energy):</p> <ul style="list-style-type: none"> • System Services (including long term incentive) • Capacity (including long term incentive) • Energy Storage (unless provided for directly by TSO) – or the service of moving energy between time periods

1.5 SUMMARY OF THE OPTIONS FOR ENERGY TRADING ARRANGEMENTS (SECTION 5)

Question	Answer
6. What evidence can you provide for the assessment of the HLD options with respect to security of supply, efficiency, and adaptability?	None. Security of Supply includes both long term security of ensuring that appropriate generation is available and the short term security of ensuring that the system (impacted by market arrangements) is operated in a secure manner. In terms of secure operations, it is important to acknowledge that individual engineers take responsibility for scheduling and operating the system to ensure security of supply on a daily basis. Assuming the market is to change, it is important to design the TSO timelines in a manner that provides engineers with time to plan the schedule in a way that takes account of human factors.

1.6 ADAPTED DECENTRALISED MARKET (SECTION 6)

Question	Answer
<p>7. Are there any changes you would suggest to make the Adapted Decentralised Market more effective for the I-SEM (for instance, a different choice for one or more of the topics or a different topic altogether)?</p>	<ul style="list-style-type: none"> • Wind generators should be insulated from wind forecast errors <ul style="list-style-type: none"> ○ Note: an all island forecast is considerably more accurate than a forecast for an individual windfarm ○ One solution is for the Day ahead energy market to meet the forecast demand net of wind forecast – with TSO balancing forecast changes (of both demand and wind until real time) • Suppliers should not be required to become experts at demand forecasting <ul style="list-style-type: none"> ○ This may be a reason why some other European electricity markets have had less success in opening up effective supplier competition than the SEM • There should be a mandatory Day ahead market • The balancing market should be mandatory s and have regulated price bidding for traditional generators
<p>8. Do you agree with the qualitative assessment of the Adapted Decentralised Market against the HLD criteria? If not, what changes to the assessment would you suggest (including the relative strengths and weaknesses of an option)?</p>	<p>I disagree with the assessment for “Equity”, “Competition” and “Environment”, as I believe that this market design is worse than the existing SEM for both supplier competition and Renewable generation. Unlike the existing SEM, this design favours balanced portfolio players.</p>
<p>9. How does the Adapted Decentralised Market measure against the SEM Committee’s primary duty to protect the long and short term interests of consumers on the island of Ireland?</p>	<p>It falls short of these goals in comparison to a minimally adjusted SEM market (remove regulated bidding at day ahead stage; firm ex-ante prices; add in market coupling & appropriate cross border balancing arrangements).</p>

1.7 MANDATORY EX-POST POOL FOR NET VOLUMES (SECTION 7)

Question	Answer
<p>10. Are there any changes you would suggest to make the Mandatory Ex-post Pool for Net Volumes more effective for the I-SEM (for instance, a different choice for one or more of the topics or a different topic altogether)?</p>	<ul style="list-style-type: none"> • By including a TSO & MRSO generated supplier demand forecast for a supplier, each supplier could “participate” in the market as a price taker. • By having the TSO have a market role (take responsibility) in forecasting wind and balancing wind, the existing protections could be maintained.
<p>11. Do you agree with the qualitative assessment of Mandatory Ex-post Pool for Net Volumes against the HLD criteria? If not, what changes to the assessment would you suggest (including the relative strengths and weaknesses of an option)?</p>	<p>I disagree with the assessment for “Competition” and “Environment”, as I believe that this market design is worse than the existing SEM for both supplier competition and Renewable generation. Unlike the existing SEM, this design favours balanced portfolio players.</p>
<p>12. How does the Mandatory Ex-post Pool for Net Volumes measure against the SEM Committee’s primary duty to protect the long and short term interests of consumers on the island of Ireland?</p>	<p>It falls short of these goals in comparison to a minimally adjusted SEM market (remove regulated bidding at day ahead stage; firm ex-ante prices; add in market coupling & appropriate cross border balancing arrangements).</p>

1.8 MANDATORY CENTRALISED MARKET (SECTION 8)

Question	Answer
<p>13. Are there any changes you would suggest to make the Mandatory Centralised Market more effective for the I-SEM (for instance, a different choice for one or more of the topics or a different topic altogether)?</p>	<ul style="list-style-type: none"> • Wind generators should be insulated from wind forecast errors <ul style="list-style-type: none"> ○ Note: an all island forecast is considerably more accurate than a forecast for an individual windfarm ○ One solution is for the Day ahead energy market to meet the forecast demand net of wind forecast – with TSO balancing forecast changes (of both demand and wind until real time) • Suppliers should not be required to become experts at demand forecasting <ul style="list-style-type: none"> ○ This may be a reason why some other European electricity markets have had less success in opening up effective supplier competition than the SEM ○ By including a TSO & MRSO generated supplier demand forecast for a supplier, each supplier could “participate” in the market as a price taker. • The IDM should not be mandatory <ul style="list-style-type: none"> ○ There is low liquidity in the IDM in some larger markets that have suitable IDM mechanisms. Forcing participants to participate in an IDM market may be against their economic interests • The balancing market should have regulated price bidding (for traditional generators)
<p>14. Do you agree with the qualitative assessment of Mandatory Centralised Market against the HLD criteria? If not, what changes to the assessment would you suggest (including the relative strengths and weaknesses of an option)?</p>	<p>I disagree with the assessment for “Equity”, “Competition” and “Environment”, as I believe that this market design is worse than the existing SEM for both supplier competition and Renewable generation. Unlike the existing SEM, this design favours balanced portfolio players.</p>
<p>15. How does the Mandatory Centralised Market measure against the SEM Committee’s primary duty to protect the long</p>	<p>It falls short of these goals in comparison to a minimally adjusted SEM market (remove regulated bidding at day ahead stage; firm ex-ante prices; add in market coupling & appropriate cross border balancing arrangements).</p>

and short term interests of consumers on the island of Ireland?	
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1.9 GROSS POOL – NET SETTLEMENT MARKET (SECTION 9)

Question	Answer
<p>16. Are there any changes you would suggest to make the Gross Pool – Net Settlement Market more effective for the all I-SEM (for instance, a different choice for one or more of the topics or a different topic altogether)?</p>	<ul style="list-style-type: none"> • Wind generators should be insulated from wind forecast errors <ul style="list-style-type: none"> ○ Note: an all island forecast is considerably more accurate than a forecast for an individual windfarm ○ One solution is for the Day ahead energy market to meet the forecast demand net of wind forecast – with TSO balancing forecast changes (of both demand and wind until real time) • Suppliers should not be required to become experts at demand forecasting <ul style="list-style-type: none"> ○ This may be a reason why some other European electricity markets have had less success in opening up effective supplier competition than the SEM ○ By including a TSO & MRSO generated supplier demand forecast for a supplier, each supplier could “participate” in the day ahead market as a price taker.
<p>17. Do you agree with the qualitative assessment of Gross Pool – Net Settlement Market against the HLD criteria? If not, what changes to the assessment would you suggest (including the relative strengths and weaknesses of an option)?</p>	<p>I disagree with the assessment for “Equity”, “Competition” and “Environment”, as I believe that this market design is worse than the existing SEM for both supplier competition and Renewable generation. Unlike the existing SEM, this design favours balanced portfolio players.</p>
<p>18. How does the Gross Pool – Net Settlement Market measure against the SEM Committee’s primary duty to protect the long and short term interests of consumers on the island of Ireland?</p>	<p>It falls short of these goals in comparison to a minimally adjusted SEM market (remove regulated bidding at day ahead stage; firm ex-ante prices; add in market coupling & appropriate cross border balancing arrangements).</p>

1.10 CAPACITY REMUNERATION MECHANISMS (CHAPTER 10)

Question	Answer
<p>19. What are the rationales for and against the continuation of some form of CRM as part of the revised trading arrangements for the I- SEM?</p>	<p>A CRD is definitely required. Given our small system and the high level of wind penetration in the system, mechanisms are required to ensure that there is adequate capacity during calm and extremely cold winter periods (which can have very high demand). It could be argued that the current CRM is generous to generators and needs to be updated.</p> <p><u>Interconnection:</u> As Ireland is connected by DC connection (and primarily to a grid that follows the same pattern of demand; wind generation; and fuel prices), the value of interconnected generation is limited. It should be noted that in system stress conditions, one of the activities performed is to close the borders (if flows are outwards). So, future system stress conditions in Ireland and GB may occur at the same time and the interconnector flow can be shut off by the TSO exporting at the time. If Capacity payments are to be made for interconnectors, they should be made for interconnector capacity (to the Interconnector Owner) rather than for Interconnector traders. Capacity payments for cross border energy, if made, should be less than for local generation that is more reliable in worst case scenarios.</p>
<p>20. Are these the most important topics for describing the high level design of any future CRM for the I-SEM?</p>	

2 PERSONAL BACKGROUND

I am a management consultant, primarily in the Financial Services and Energy industries

- Participated in the initial development of “NRGVend” which became PrePayPower. PrePayPower is a fast growing electricity supplier that provides a prepaid offering to consumers.
- Participated in the Spirit of Ireland initiative as part of the design team
- Participated in EirGrid’s East West Readiness project, helping to prepare the interconnector auction market as well as assisting other parts of EirGrid to be ready (including System Operations). Also assisted in developing options for SO counter-trading.

My interest in the energy market stemmed from a realisation (in 2005/06) that the electricity industry needed to change and that Ireland had a specific opportunity to take advantage of our natural resources (wind and wave), to lead the world in having a low cost energy system based upon renewable energy.

For the last 5 years, I have been of the opinion that Ireland should try to design a system that delivers to our renewable potential whilst being cost neutral to consumers. I believe that we can design market and regulatory frameworks that will deliver a system that is: reliable; low cost; with majority renewable generation.

My primary concern is that the long term health of the electricity market can provide a platform for future prosperity on the island. I think this requires:

- Security of Supply to be paramount
- Facilitating renewables (beyond the 2020 targets)
- A fair cost to the consumer (from small consumer to large Industry)
- Fair competition (a fair playing field that allows small suppliers or small wind generation businesses to compete in the Irish market).