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Response to the Market Power Mitigation Consultation Paper (SEM-15-031)

To:

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1. Introduction

Invis Energy welcomes the opportunity to provide feedback to the joint Regulatory Authorities (RAs) in relation to the consultation on Market Power mitigation measures. Invis Energy would like to commend the RA's intent to highlight and address the issue of market power in the I-SEM wholesale market, and believe it is important that a holistic approach is taken in the design of mitigation measures for each aspect of the I-SEM.

Invis Energy was established in 2011 as a joint venture between Invis Energy's Renewable Energy Fund and the Craydel Group, an Irish engineering company for the development, construction and operation of onshore windfarms in Ireland. Invis Energy currently has 87MW across two wind farms in operation, 65MW under construction and a substantial project pipeline of over 500MW representing around a quarter of the windfarms expected to be built in Ireland through to 2020.

Invis Energy believe that the issue of market power is the one of the most pressing concerns in the I-SEM wholesale market design, and the mitigation measures design by the RAs will have a major impact on the successful operation of the I-SEM.

Invis Energy believes that the potential for market power exertion has been present in the SEM and will continue to be present in the I-SEM to some extent, and must be mitigated as much as possible by promoting transparency and competiveness. Invis Energy does however believe that transparency measures such as the Bidding Code of Practice (BCoP) and the Market Monitoring Unit (MMU) have helped mitigate market power in the SEM and similar initiatives should be in place in the I-SEM

The Irish power system is a small, physically constrained market with ever-increasing levels of wind generation. As wind penetration levels continues to rise towards 2020 targets and wind becomes the largest contributor to the dispatch stack, significant reliance will be placed on the remaining thermal generators who will frequently find themselves in positions where they can influence prices as a result. Invis Energy believes that this will be a particular issue in the shorter timeframe markets of the Balancing Market and Intraday Market due to illiquidity. In the Balancing Market scenarios will arise where the TSO will be forced to accept participant's bids regardless of the price in order to enforce system security. Invis Energy have included some example scenarios to aid discussion on this topic.

Note on examples: in this response Invis Energy have worked through some scenarios to give examples of how market power could be exerted in the new market, and the ramifications of such scenarios. Invis Energy are aware that the many variables which could impact the validity of these scenarios remain undefined, such as ETA detailed design and the DCENR decision on REFIT in the I-SEM. These simplified examples are meant to be illustrative only, to help highlight conditions where market power could be exerted based on certain design options currently under consultation.

2. Market Power in the SEM

Measures such as the Bidding Code of Practice (BCoP) and the Market Monitoring Unit (MMU) have certainly discouraged the exertion of market power in the SEM and Invis Energy would agree with the RA's assertion that the SEM has been relatively free of incidences of market power exertion. Invis Energy does, however, believe that the potential for market power does exist in the SEM and must be addressed in the I-SEM design. Invis Energy is of the opinion that as the incumbent vertically-integrated utility on the island of Ireland, ESB is in an advantageous position compared to the rest of the market and can potentially exert significant market power. As highlighted by Figures 1 and 2 taken from SEM-15-031, ESB are the most dominant entity on both the generation and supply side of the market which gives them a significant information advantage over competitors.

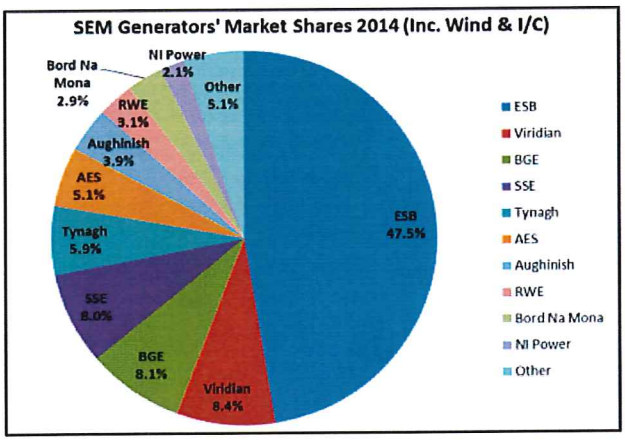

Figure 1

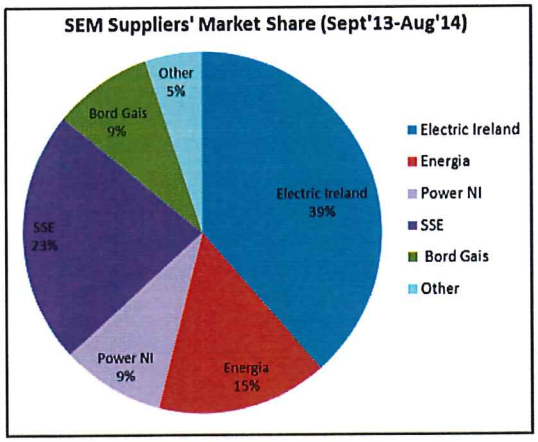

Figure 2

Furthermore, ESB's large generation portfolio contains units which are present in all levels of the merit order, including wind generation, hydro, baseload coal, mid-merit gas and peaker units. The ESB fleet also has a wide locational spread across the island of Ireland, as demonstrated by Figure 3 below.

Figure 3: Map of ESB's Irish generation fleet

This large and diverse generation gives ESB the ability to influence the SEM in many different ways, such as in the spot and forwards markets and even market entry. Regardless of whether ESB have or have not taken advantage of this position in the SEM, their capability to exert market power is undeniable and must be addressed in the I-SEM design.

3. Market power in the Short-Term Markets

Invis energy believe there will be significant opportunity for the exertion of market power in the short-term markets, particularly in the shorter term timeframes of the Balancing Market and Intraday Market due to the fragmentation of liquidity across the two.

The exertion of market power will cause undue distortion of prices in the Balancing and Intraday Markets, which will have a wider impact on the successful operation of the entire I-SEM. Invis Energy have included some scenarios in the following discussion to highlight the impact market power can have on market operation and consumer costs.

3.1. Market Power in the Balancing Market

Invis Energy strongly believes that the emerging Balancing Market (BM) design will result in a market which will be significantly exposed to the influence of market power. The Irish transmission system is small, highly constrained and has a large volume of wind generation connected which continues to increase year-on-year. Due to these factors certain generator units are important to the TSO due to their ability to solve constraints such as voltage control or ramping capability. Thus in times of system stress, these generators will be able to take advantage of the TSO's reliance by submitting uncompetitive incremental and decremental prices, aware of the fact that the TSO will be forced to accept regardless of the price to maintain system security. Such uncompetitive prices and practices will force undue volatility and extremely high or low imbalance prices, which will directly increase costs to the end consumer. It will be important the proper measures are designed so that particular

attention is paid to dynamics where price variations become unduly exaggerated, and allow the RAs to address the cause of such activity.

To illustrate, consider the following simplified scenarios as examples of how such generators can exert market power in the Balancing Market to the detriment of the end consumer.

Example 1: High wind generation forecast overnight, outturn wind is higher still:

- Extremely high levels of wind are forecasted overnight when demand is low
- Only 4 thermal generators are dispatched to meet the residual demand
- Outturn wind generation levels are higher than forecast
- 2 of the 4 online units are priority dispatch CHP and are therefore unwilling reduce output levels, submitting extremely low decremental bids as a result
- The remaining 2 generators are in a position of market power and also submit extremely low decremental bids to the BM
- The TSO must now accept one or more of these bids, resulting in depressed imbalance prices in the Balancing Market, meaning the surplus unforecasted wind generation is penalised with unduly low prices

Comment: These low imbalance prices result in increased balancing cost for participants in balancing market, which in this scenario is largely made up of wind generators who must sell their imbalance at extremely reduced prices. Many of these generators will be supported by REFIT subsidies from the PSO pot, thus these exacerbated balancing costs will be placed on the end consumer through increased PSO levies, casting further scrutiny on supported generation.

Example 2: Forced Outage in a constrained location on transmission grid, reliance on another local generator:

- A generator unit with a DA position in an area with local transmission constraints trips and remains unavailable on forced outage
- Transmission constraints mean that a local plant must be dispatched to resolve the sustained local energy deficient
- A local unit aware of position of power submits extremely high incremental offer bids
- TSO must accept this participants incremental price to maintain system security, paying them "as bid" for the non-energy constraint action

Comment here: The Irish transmission system contains several of these constrained areas, such as this example where line capacity is limited and local generators are required to meet local demand and support voltage levels. It is therefore possible that scenarios like the one described here where a unit has local market power in stress conditions will not be infrequent, and as they will be paid "as bid", will incur considerable constraint costs to the end consumer.

Example 3: Unconstrained DA algorithm schedules large mid-merit plant in area of limited transmission export capacity

- A mid-merit gas plant with low offer price is scheduled to full output for the entire day in the unconstrained DA auction.
- This plant is located in an area of the transmission system with limited export capacity (e.g. due to a transmission line outage) and therefore it will be unfeasible for the unit to export all its power to the grid

- This participant is aware that the local transmission constraints will likely require their asset to be constrained down from their DA position, so they submit an extremely low decremental bid to the Balancing Market
- The TSO is forced to accept this offer and pays the generator "as bid" to solve the non-energy constraint, again incurring considerable constraint costs

Comment: Dispatching this economical gas plant to full output is optimal in an unconstrained optimisation algorithm, however the DA algorithm cannot recognise the expensive balancing costs the entire market will incur when the TSO are forced to constrain down the plant to a feasible level, regardless of decremental bid price. This highlights the increased cost implications of having day ahead schedules which are not bound within the feasible constraints of the Irish transmission system.

Example 4: Portfolio participants with few wind assets negatively influencing market prices during high wind:

- Over a long time frame, portfolios who have large thermal asset volumes but little or no wind asset volumes could influence the market price in favour of thermal assets:
- When wind levels are low and it is more likely that their thermal assets will be dispatched, the participant submits higher offers for its thermal assets to the market
- When wind levels are high and it is less likely that their thermal assets will be dispatched, the participant submits lower offers for their thermal assets
- The end result is that market prices will be higher when the participant's thermal assets are dispatched, and lower when wind generation is high

This is an example of market power being exerted over a long time frame, using unclear transparency over offer prices to subtly weigh offer and market prices towards times when wind is low. While the time-weighted market price could appear the same in this scenario, the wind weighted average price could be adversely depressed.

These scenarios highlight some of the many ways market power can distort the Balancing Market by unduly increasing or decreasing the imbalance price. Imbalance prices will set expectation of participants in the ex-ante and forwards market, thus the uncertainty that such a volatile Balancing Market would generate would be extremely detrimental to the successful operation of the entire I-SEM. It should be noted that additional remuneration will be available from capacity payments and ancillary service payments, and that minimising cost and price volatility in the BM and imbalance prices will directly result in lower cost to consumers.

It is important that the RAs implement measure which prevent these scenarios from occurring, such as some form of BCoP which prevents units with market power submitting uncompetitive incremental and decremental prices to the BM. Invis Energy also supports the presence of a Market Monitoring Unit in the I-SEM who could retroactively highlight and address such activities.

3.2. Market Power in the Intraday Market

Invis Energy believes there is potential for market power to be exerted in the Intraday Market (IDM) due to wind forecasting errors and potentially low liquidity levels. It is likely that wind generators who take a position in the Day Ahead Market based on a DA forecast will have some level of forecast error they may try to trade out in the IDM due to being balance responsible. This becomes an issue when numerous wind participants all use similar wind forecasts and thus are all on the same side of

the market when their forecasts are wrong. This puts participants on the other side of the market in such scenarios at a competitive advantage, particularly in scenarios of low liquidity and high wind levels, where there will be large volumes of wind in the IDM and potentially very few other participants present for wind participants to trade with.

Example 5: Wind is over-forecasted DA, wind participants attempt to balance in the Intraday Market

- *High wind day, so the majority of generation dispatched is wind*
- *Wind participants trade and achieve a position in the DA auction based on their forecasts*
- *The forecasts provided have over-estimated outturn wind levels, therefore there are numerous wind participants who are in a short position in the market*
- *These participants, being balance responsible, wish to flatten their position by buying back the excess DA power they sold in the IDM*
- *The remaining few non-wind participants with a DA position could therefore be in a position of market power in where they can offer extremely high prices to the wind participants*
- *In the IDM there is therefore a very high volume of wind bids, and a low volume of non-wind offers at extremely high prices*
- *The end result is that wind must buy back power at these inflated prices, again incurring large balancing costs which the end consumer will be subject to under the REFIT tariff*[1].

With increased wind generation levels towards 2020, such scenarios where there is an imbalance of supply and demand combined with illiquidity in the short term markets will not be uncommon, and will result in volatile market prices and increased costs. It is imperative that the proper measures are put in place to prevent participants on the "right side" of the market from exerting market power in such scenarios.

3.3. Market Power in the Day Ahead Auction

It is hoped that the DA market will be the least susceptible to market power due to depth of competition and the auction format. However Invis Energy agrees with the RA's assertion that the new EUPHEMIA bid format may reduce price transparency as starting and no-load costs will be incorporated into the offer price. Invis Energy also agrees that the flexibility of offering variable prices throughout the day could enable certain participants with market power to drive up prices during certain periods. Invis Energy believe that these issues of price transparency could be alleviated in the new DA market by modifying the EUPHEMIA algorithm to suit the unique physical constraints of the Irish system, for example the SNSP constraint and locational transmission constraints. This would result in realistic DA schedules (as mandated in the I-SEM High Level Design), reducing TSO balancing actions and reduce costs for the end consumer. Example 3 in Section 3.1 highlights the potential issues with an unconstrained DA schedule.

Invis Energy also believe that a new EUPHEMIA order type which includes a fixed ("per start"), hourly ("no load") and incremental ("per MWh") component. Such an offer format would allow participants to represent their assets in a simple and efficient manner and enable greater price transparency, thus mitigate the potential for market power exertion. Invis Energy would point to the fact that there is precedence of such changes to the algorithm to accommodate new Price Coupling of Region

[1] As discussed in the introduction in Section 1, Invis Energy are aware that this is subject to the design of the REFIT in I-SEM

(PCR) members. For instance, the EUPHEMIA algorithm was modified when the Iberian market joined the PCR to accept the unit-based bids which that market used before coupling.

4. Market Power in the Forwards Market

An efficiently functioning Forwards Market will be crucial for the new I-SEM market, allowing participants to hedge out positions and reduce risk. It is therefore extremely important that the new Forwards Market is liquid, competitive and not vulnerable to market power. The current CfD market is dominated by the presence of ESB, who made up 85% of the market in 2013. This, combined with a convoluted collateralisation process, has resulted in poor liquidity and a lack of competition in the SEM forwards market, forcing RA intervention through Directed Contracts.

Invis Energy is of the opinion that the RAs should follow the rest of Europe by implementing a centrally-cleared futures exchange. A centrally cleared exchange would increase liquidity by encouraging foreign players to enter the market and by extension mitigate the dominant position held in the market by ESB. A centrally cleared exchange would also have the additional benefit of reducing the administrative and financial burdens of the current bilateral collateralisation process in the SEM.

5. Capacity Remuneration Mechanism & DS3 System Services

It is difficult to comment on the possibility of market power in the Capacity Remuneration and System Services mechanisms, as the designs are at such and early conceptual stage, for example nothing is known about the format of the Reliability Option strike prices or auction format.

Invis Energy would therefore simply state the importance that measures are in place in both mechanisms to promote transparency and competitiveness.

6. Response to RA Questions

Q1. Are the market power concepts and examples provided appropriate and sufficient for I-SEM?

The concepts discussed cover most facets of market power, however Invis Energy would like to impress the considerable potential for market power across the short term time frames, as highlighted by the examples in Section 3.

Q2. Are the potential constraints on market power referred to in this section appropriate for I-SEM?

At this point in time, the constraints discussed appear adequate for mitigating market power without knowledge of the market dynamics that will prevail in the I-SEM.

Q3. Given the emerging I-SEM design, including closer integration to European electricity markets and a number of energy trading timeframes, what is the appropriate geographic market(s) and/or trading period(s) definition for the measurement of market power and determination of a mitigation strategy in I-SEM?

Invis Energy believe that close consideration must be given to the size of each market timeframe in terms of volumes traded and the relative size of dominant participants in each timeframe. There cannot be a one-size-fits-all approach to the design of mitigation measures – they should be tailored to the dynamics and size of each market timeframe.

Q4. Are the various (other) market design issues referred to in this section and their potential impacts on market power captured appropriately and fully?

It is difficult to comment on the possibility of market power in the Capacity Remuneration and System Services mechanisms, as the designs are at such and early conceptual stage, for example nothing is known about the format of the Reliability Option strike prices or auction format. The potential for market power should be carefully considered as the design of these mechanisms develops.

Q5. What is the appropriate approach to measuring market power when developing a mitigation strategy for I-SEM?

Invis Energy is supportive of both measurement techniques suggested, however it is important that going into the I-SEM that the techniques used should be more transient by measuring market dynamics as they vary with time. Measurement techniques should also understand system constraints, locational factors, etc.

Q6. Should the measure be determined at a snapshot in time or based on historical or potential future trends in market share (or both or all three)?

All three, also refer to Q5.

Q7. How effective have the SEM market power mitigation strategy and measures been?

See Section 2.

Q8. To what extent is the strategy and measures applicable to I-SEM?

Invis Energy support any measures that will promote transparency and competitiveness. Measures such as the BCoP and MMU have been successful in the SEM, however features of the I-SEM such as complex bidding and multiple trading timeframes will pose a challenge to market monitoring.

Q9 Are there other market power mitigation measures worth considering in the context of I-SEM?

Invis Energy believe that particular mitigation measure must be placed on ESB as the dominant incumbent on the island.

Invis Energy would like to note the lack of competition in the PPA market which has existed for a considerable time, not just in the run up to the I-SEM. Invis Energy believe that it is important that routes to market such as PPAs are readily available to encourage new entrants to the market.

Q10. What are the barriers to entry for non-asset backed traders in the SEM financial forwards market?

As outlined in Section 4, the current Forwards market in the SEM suffers from serious inefficiencies such as a convoluted sign-up process and the dominant position of ESB. This has seriously inhibited new entrants and has resulted in poor liquidity.

Invis Energy believe that a liquid, functioning forwards market will benefit all participants and would like to commend the approach being taken by the RAs to achieve this through the Market Power and Forwards & Liquidity work streams

Q11. Are the principles of market power mitigation outlined in this section appropriate?

Invis Energy would disagree with the assertion that there are few barriers to entry in the Irish market. For wind generation there are considerable barriers such as limited grid access for new connections, physical transmission constraints due to inadequate transmission infrastructure and potential disqualification from certain revenue streams such as the CRM and DS3 System Services.

Q12. How should theses or other principles be applied in I-SEM?

- The BCoP and MMU for transparency of prices
- Retroactive replacement of bid curves with cost curves where participants are deemed to have market power
- Expedient release of market information such as forecasts and outages to prevent insider knowledge
- Expedient publishing of Imbalance Prices for visibility on the state of the market and to inform trading for all participants regardless of portfolio size
- Certain obligations on ESB as dominant market player (e.g. in the Forwards Market).

7. Conclusion

The Irish power system is a small, physically constrained market with ever-increasing levels of wind generation. As wind penetration levels continues to rise towards 2020 targets and wind becomes the largest contributor to the dispatch stack, significant reliance will be placed on the remaining thermal generators who will frequently find themselves in positions where they can influence prices as a result.

Combining this with ESB's dominant market position and the fragmented nature of the new market timeframes, Inivis Energy believe there is considerable potential for market power to cause serious issues in the I-SEM in many different ways. Invis Energy strongly believes the mitigation of market power is therefore on of the most important design issues in the I-SEM. Each design decision taken by the RAs should give consideration to the issue of market power and seek to promote transparency and competiveness in all aspects of the market design.

Invis Energy looks forward to continued collaboration with the RAs on the design of market power mitigation measures in the I-SEM through further consultation and public forums.

Yours sincerely,

Emma Tinker

For and on behalf of **Invis Energy**