Aughinish Alumina Limited

Response

Integrated Single Electricity Market (I-SEM)

Trading Arrangements
Detailed Design
Markets Consultation Paper

SEM-15-026

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This response is non-confidential

Background

AAL operate an Alumina Plant in West Limerick; the Alumina Plant is a Large Energy User with a 45MW baseload demand. The two generating units Sealrock 3 (SK3) and Sealrock 4 (SK4) were built following deregulation of the electricity market in Ireland; they operate within a trading site to satisfy the onsite power needs and substitute the steam (375MW) needs of the onsite Alumina plant. They produce 80% efficient power and are certified as High Efficiency Combined Heat and Power (CHP) plants. The site can generate 160MW and consumes 45MW of power, excess power generation is exported to the grid by way of the 130MW Maximum Export Capacity.

Decision making process

Aughinish propose the SEMC publish a proposed decision for this consultation in advance of a final decision.

> The outcome of this consultation paper is expected to result in a SEM Committee decision in September 2015 based on the published work plan in May. Considering no firm decisions have been made, the possible market design options are still infinite. Because of this it is not possible to reliably offer an opinion on some aspects which are dependent on other open questions e.g. invoice settlement is fully dependant on the up-stream market design.
>
> The items consulted on in this paper are core to the I-SEM trading and settlement code. To avoid market changes before the market goes live Aughinish suggest an informed consultation on proposed decisions is a minimum requirement.

Primary Comment's relation to I-SEM Energy Trading Arrangements

Trading sites

Trading site treatment has been consulted upon in detail by Aughinish as part SEM/15/011 the Building Blocks Consultation Paper. From the outset the Regulators have held to the principle that participants should not be disadvantaged in the move from SEM to I-SEM. Today the SEM nets generation and demand power from trading site. The main two points are reiterated here:

1. Net settlement of trading sites is necessary to ensure Aughinish is not disadvantaged in the I-SEM compared with the current net settlement.
2. De-minimis dispatch control level for HE CHP operating within a trading site such that the TSO cannot turndown generation below the on-site demand matching load. In limiting market participation to unit based participation the TSO has dispatch control not only over Aughinishs exported power but also over the self-supplied power consumed on site. This control is a risk to the useful steam consumed by the Alumina plan and is effectively a demand side response not on offer to the market. Aughinish propose that some form of de-minimis level in which the CHP cannot be switched off should apply i.e. the higher of Minimum Stable Generation ("MSG") or the minimum useful heat requirements of the alumina plant. This is the Aughinish interpretation of Part 6 of SI no. 426 of 2014 for the implementation of the Energy Efficiency Directive (2012/27/EU) in Ireland.

The reply to this consultation is based on the presumption that Aughinish as a single site trading site is not disadvantaged in the I-SEM

Priority dispatch (PD)

Aughinish support the proposed treatment of Priority Dispatch generators in the SEM/15/011 Building Blocks Consultation Paper.

In order to allow CHP priority dispatch units offer beneficial flexibility to the system it is vital that the volume of available flexible generation from CHP units can be accommodated in the TSO's economic dispatch tool whilst still protecting the useful heat which is the raison d'etre of the CHP unit.

As part of this consultation paper on the market design Aughinish would ask the SEM committee to consider the effect of their decisions on all PD units. Ireland is unique in having very poor uptake of HE CHP, Aughinish should not be disadvantaged because they are the only participant in the SEM with a HE CHP plant.

Also the SEM committee should consider a Final Physical Nominations gate closure time for PD units. An unnecessary early gate closure would penalise flexibility offered to the market.

Physical Nomination

All participants must have PNs submitted, this is key to the HLDs intention that participants are balance responsible. Smaller participants and demand participants should also submit PN or have them submitted by an aggregator or nominated representative. It is important that the AOLR role is only as a last resort and not seen as a default position. Perhaps only financial costs should be recoverable for units operating under the AOLR.

Aughinish as a high efficient CHP power generator require :

- Fully delinked physical nominations
- A gate closure for the Final Physical Nomination to be at or close to real time.

Transparency

Transparency has served the SEM well and should be maintained as a priority. The I-SEM balancing market will serve a greater purpose than just balancing long and short positions. A lot of power is going to be traded in this market so the form of Bids and Offers will have an effect on market liquidity and market power manipulation.

The SEMC must design a balancing market which allows for the recovery of a real market price free from out of market support dilution and open to small independent participants. The Irish electricity market has a small number of dominant integrated participants therefore ongoing transparency is essential if the I-SEM is to succeed particularly in the absence of a BCoP.

2.2 SYSTEM OPERATION IN THE I-SEM (CHAPTER 2)

Question	Answer
1. What are the impacts of early action by the TSOs on the Intraday Market?	Aughinish recognise that the TSO will need to intervene in the market before the closure of the IDM. At all costs the security of the system should not be put at risk in a drive to allow markets solve energy issues. The SMO is responsible for maintaining the security of the system in real time. This responsibility commences with ensuring the model is accurate and that the data used for determining the dispatch instructions are the most current available so that the targets are set as reliably as possible. The dispatched targets are fixed and should only be deviated from by the TSO or the participant as a last resort. The TSO has the responsibility to acquire and use operating reserves / ancillary services to the best advantage of the market and the security of the power system however there must be some monitoring of performance to ensure the TSO responds appropriately to market requirements and does not over compensate for insufficient information or performance. The TSO should not be relying on thermal priority dispatch generators to reduce generation as a back stop to inefficient scheduling. As pointed out in the consultation the TSO has an obligation to maintain a safe and secure electricity system, the TSO also has a legal obligation to ensure priority access to the system for some generation technologies and to ensure heat demand is taken into account when dispatching High Efficient CHP plant. Therefore although the TSO is under no obligation to facilitate the energy on the system that may or may not have an ex-ante position the meaning of "further consideration" of priority dispatch is of concern to Aughinish and we seek assurances from the RAs that the concerns regarding priority dispatch and heat demand raised by Aughinish in this and other consultations are addressed. It is possible that early intervention by the TSO could result in a lower cost dispatch and a more secure system. This is in the interest of power consumers. The alternative is to rely on very expensive peaking plant or demand side response to balance the markets and to take increased risk that they do not deliver when required.
2. What measures can be taken to minimise early actions by the TSOs?	Commentators have expressed surprise at the technical constraints on some SEM generators, sometimes much greater than equivalent units in other jurisdictions. Incentivising shorter start up times and other beneficial technical characteristics should be a priority. This would allow the TSO to delay BM offer acceptances. Proposal 3 (annual reporting on all early TSO actions) is necessary and

	should be used in conjunction with all actions undertaken by TSO (Energy and Non-Energy).

2.3 EX-ANTE MARKETS (SECTION 3)

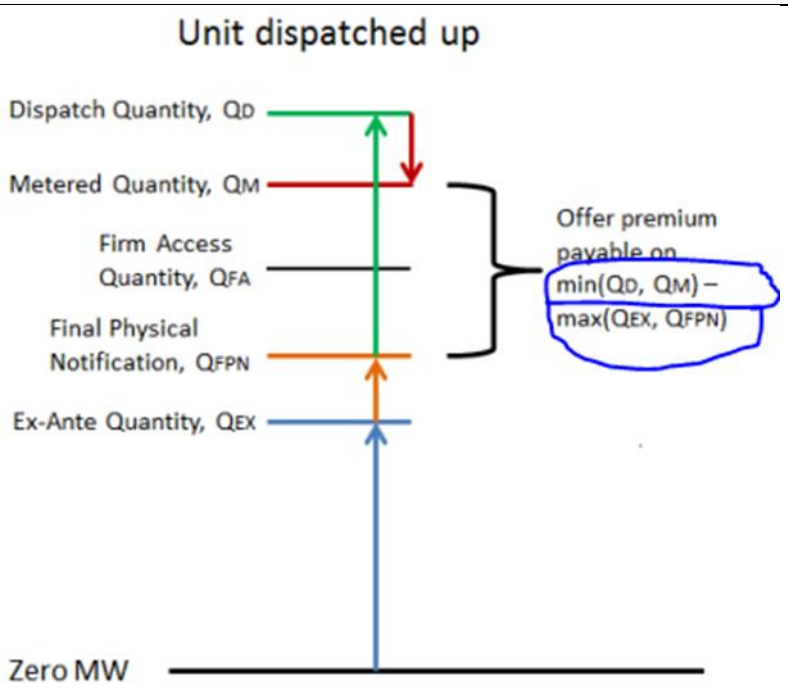
Question	Answer
1. Which of the three options put forward for interim IDM arrangements is most appropriate?	If the I-SEM goes live before the European intraday market design is finalised, a simple, low cost interim solution should be put in place. Option 1 with its I-SEM only IDM could use countertrading not too dissimilar to today's system to correct interconnector flows after the DAM closure. This is the simplest option and would operate efficiently for the I-SEM.
2. Should intraday auctions be implemented in I-SEM? Are there any advantages to those auctions not described in this paper?	The BM should be correctly designed to remove the need for intraday auctions. Market liquidity should not rely on short-term auctions. If Intraday auctions are deemed suitable then they should be phased into the I-SEM design. Already the I-SEM date has slipped and with so many market changes including capacity and DS3 requirements, it would be prudent to get these changes implemented and operating successfully before the introduction of additional auctions.

2.4 PHYSICAL NOTIFICATIONS (SECTION 4)

Question	Answer
1. What are your views on the timing of PN submissions to the TSO	Resolutions less than 1 hour should be informed by the TSO and be justified through a cost benefit analysis. Aughinish agree that PN resolution of less than 1 minute is unnecessary.
2. What are your views on the removal of the requirement on wind generation and non-dispatchable demand to submit PNs	REQUIREMENTS ON DEMAND TO SUBMIT PHYSICAL NOTIFICATIONS PN will be needed for demand units the same as generators units. At a high level it would seem appropriate that the TSO could perform this function for non-dispatachable units, however there is financial risk to the participant depending on their PN. • If the TSO were to submit PN on behalf of a participant could they be held liable for costs? • How would a participant react if there was a TSO software malfunction? • Could we end up with balancing market disputes and resettlements? • Would the conflicting objectives of the TSO affect its impartiality or perception of neutrality? • Would the TSO need to spend additional moneys in adding backup systems which in turn costs all consumers more? <u>Perhaps a separate entity or aggregator would be more appropriate.</u> The TSO could still make public its best information but it would be at an arm's length from cost liability based on its information. REQUIREMENTS WIND PARTICIPANTS TO SUBMIT PHYSICAL NOTIFICATIONS Similar to above the TSO should not be forced into a position where its impartiality could be drawn into question or where it must spend additional money for the benefit of selective generation types. • FPN from wind generators with priority dispatch should be accepted up to real-time. • This would allow a price taker facility for any power not already traded in the earlier markets. • This would virtually eliminate imbalance risk between Meter Generation and FPN assuming the TSO do not constrain or curtail the wind units. • PN for small participants should be completed by the relevant aggregator or nominated responsible party.

3. What are your views on how PNs from participants should be linked to their ex-ante trades and what are your opinions on which of the three options outlined in this chapter is optimal for I-SEM.	Physical nominations should be fully delinked
	
	PARTICIPANT PHYSICAL NOTIFICATIONS AND EX-ANTE TRADES
	It is imperative that Aughinish have the ability to submit 'fully delinked physical nominations' (or PNs Reflecting the Best Estimate of Intended Generation or Demand).
	
	Aughinish agree with the consultation that PNs are an important source of information for the TSOs. The PNs will allow generators assist the TSO in balancing the system well in advance of real time. For CHP plants the TSO has dispatch control over the useful steam generated on site, it is important that CHP plants have a communication system to advise the TSO of local constraints. The TSO has an obligation to take such constraints into consideration so long as system security is not jeopardised. Due to the unique interaction between dispatch instructions and the host of a CHP plant it is also necessary that the PN communication tool is available to participants up to real time.
	
	Sealrock 3 and Sealrock 4 are high efficient CHP plants, in recognition of the environmental benefits in this technology they qualify as Priority Dispatch plant. For most periods in a year Aughinish could offer some flexibility through these units to aid the TSO in balancing the system. However under the SEM there is no market mechanism to allow this flexibility to be offed as a PD generator trading as a Predictable Price Taker Generator. The alternative is to register as Predictable Price Maker Generator but this gives the TSO unlimited dispatch control over the units and resultantly over the alumina plant steam supply, this is not an attractive alternative. The current SEM has no communication portal to allow Aughinish to offer flexibility to the system.
	
	CHP plant needs:
	• 'fully delinked physical nominations' and
	• A gate closure for the Final Physical Nomination of priority dispatched plant to be at or close to real time. This could be a PD-FPN to facilitate the priority dispatch right of this type of plant
	
	Comments from the public workshop 13th May:
	• Delinked bids are effectively self-dispatch and contra the HLD
	  • No, PNs are a communication tool between participants and the TSO.
	  • PN will better inform the TSO of potential supply imbalances
	  • The TSO will have the ability to dispatch units away from their PN position in the mandatory balancing market.
	• Delinked bids could lead to market abuse
	  • If a unit choses a PN different from their physical market position (attained in the DAM or IDM) they are effectively

	submitting a price taker offer for the spill amount. The market exposure between the physical market position and PN is borne solely by the participant whom is out of balance. • The limitations on the DAM design could leave units with a market position which physically cannot be achieved. A delinked PN will better serve the TSO in this instance. • In the absence of delinked bids units might chose to spill their full volume as price takers and thereby ignore market price signals. This would result in the TSO making additional constraints when the market creates an energy imbalance. **Spill into the BM** It would be unlikely that large scale infra-marginal participants would spill into the BM. If they did it would be conceivable that the BM price would turn negative and participants would be motivated to enter the DAM and IDM to secure a better position. This of course is true of participants who rely on the I-SEM to recover revenue. Out of market supports and their reference market would affect this whether the plant is in-merit or not.
4. What are your views on the potential for the inclusion of an information imbalance charge. In addition, comment is sought as to whether this issue is best addressed under the generator performance incentives.	Aughinish are of the opinion that the information imbalance charge would not be necessary if uninstructed imbalance (DQ – MG) were maintained in the I-SEM. This would have the additional benefit of simplifying some of the algebra in energy invoicing. In the settlement example below revenue for an accepted INC in the BM would be paid on the lesser of the INC'ed volume or the MG less PN.



It would seem simpler to pay a unit its INCed volume multiplied by the agreed price and to separately charge the unit for any uninstructed imbalances where allowance can be made for vital system service provision (frequency control) by way of a tolerance before applying a penal rate.

Also in the SEM, generators are levied with trip and short notice re-declaration charges. It is appropriate that those creating the need for reserves pay more.

Aughinish support the incentivising of the best information possible to the TSO but would question if there is any benefit to the added complication of information imbalance charges.

There would also be a risk of double and triple penalties (BM price exposure, TSO trip charge and an information imbalance charge).

It could be argued that the energy market is not the correct forum to be proposing information imbalance charges, this would be better suited to the TSO through their role in the DS3 system or as a modified trip charges to include volatile demand offtake.

2.5 FORM OF OFFERS, BIDS AND ACCEPTANCES (SECTION 5)

Question	Answer
1. Which of the proposed formats should be used for bids and offers for deviating from PNs? • Simple MWh • Relative MWh • Absolute MWh	Absolute offers appear to be the least burdensome to participants and therefore the choice of Aughinish. Unwinding costs would be different to offer costs and should be submitted along with offers into the BM at the day-ahead stage.
2. How should fixed costs be represented within bids and offers? • Explicit start up contracts • Block bids • Explicit start-up (and no load) costs	Option 3 'explicit start-up costs' would appear appropriate to ensure the costs are not an inhibition to offer services to the market. This option should be expanded to include 'shutdown costs'. Start-up/shutdown costs to the market should be spread across the period the unit was needed for only. The alternative of spreading the costs across the total MWhs generated does not produce a price signal to encourage new entrants and technologies into the market. Multiple block bid submission would not be necessary in a well-designed market and should be avoided.
3. Should it be possible to rebid offer and bid prices following an acceptance? Three options are proposed: • Fixing prices of accepted bids and offers • Undo prices • Freezing all prices	Undo prices as part of a participants BM submission would be appropriate 1. Aughinish's start-up costs are low and to date relatively in-frequent however Aughinish would suffer very large shut-down costs if constrained down below min-gen on either generator. These costs are incurred in starting up heavy fuel oil boilers to replace the useful steam needed to maintain the alumina plant. This cost is a sunk cost so the unwinding of an instruction before real time is not cost neutral. 2. Undo costs for purchased gas should be relatively predictable as the day-ahead stage. 3. Aughinish is a small participant in the All Island Market. Small participants will not have 24hr trading desks monitoring every action taken by the TSO. It would be unnecessarily burdensome to expect small participants to re-bid their offers after every TSO offer acceptance in order to recover their sunk costs. This would be a barrier to entry in to the I-SEM market.
4. Should open or closed instructions be used to move participants away from their PN?	Open instructions should be used. • Closed instructions are of no great advantage for the TSO or the participant • The generators control rooms would get unnecessary noise as closed nominations get updated • Security of the system is divested to individual generators

	control rooms which have to remember to reverse an earlier instruction.

2.6 INTERACTIONS BETWEEN THE BALANCING MARKET AND INTRADAY MARKET (SECTION 6)

Question	Answer
1. Which of the options put forward should apply to participation in the IDM in the event that the TSOs take a balancing action pre-gate closure: • Freeze PNs • Additive PN Changes • Substitutive PN Changes	Substitutive PN Changes appears to encourage liquidity in the IDM and gives the market time to balance the system even after the TSO has accepted an offer before the end of the IDM. It would appear that this limits the distortion to the merit order in the IDM in that a unit started by the TSO would have the recover their start-up costs in the IDM before they could offer power to the market at close to their short run marginal cost.
2. If the substitutive PN Changes option is taken, there are two further options for swapping out or netting IDM trades against bid-offer acceptances: • If the participant wishes to trade in the IDM and substitute the bid-offer acceptance they will need to achieve a more advantageous price in the IDM than the bid-offer acceptance price • Implement a methodology which sees the unit lock in the premium above or below the imbalance price through the bid-offer acceptance	Aughinish would have concerns about transparency with the second option which sees the unit lock in the premium. Without strong justification for the second option Aughinish suggest the first option is preferred, where a participant would need to achieve a more advantageous price in the IDM than the bid-offer acceptance price.
3. Which of the three options put forward for dealing with "Trading in the Opposite Direction" should be implemented: • No specific consideration of this would be reflected in the market design • Implementing a rule that would prohibit PN	Gaming of a dominant market position has been highlighted as being a concern in this market. This is true of long term location constraints as well as intermittent constraints. Aughinish believe a unit trading with a view to gaining an increased offer or bid acceptance would be easily identified by a market monitor. In fact this sort of manipulation could be prevalent before the TSO makes any action in the day, it is a bigger question than just a response to an initial TSO action. This should be dealt with through local market power measures outside the market. Option A (No specific consideration of this would be reflected in

changes that increase the quantity of any offer or bid acceptances • Permit PN changes in either direction but, in the settlement of the offer or bid acceptances, to limit the quantity on which the premium is payable, such that a change in PN cannot increase this quantity	the market design) is the most appropriate solution in the consultation.

2.7 TREATMENT OF SYSTEM SERVICES (SECTION 7)

Question	Answer
1. What are your views on the proposal whereby a unit that is deployed for reserves should be constrained to the minimum extent possible in the IDM	Constraints to provide system services appear to be no different to any other system constraint. Constraints in the IDM time frame should be kept to a minimum but with due regard for system security, facilitation of priority dispatch units and keeping costs for consumers as low as is feasible
2. Are there any market power issues that need to be specifically addressed in relation to System Services?	Aughinish are not aware of any new or specific market power issues that need to be specifically addressed in relation to System Services.
3. Which of the two approaches should be utilised where the TSOs have to schedule a plant before the opening of the Balancing Market: • A system services framework would be used to contract with those generators that need to be scheduled prior to the BM opening. • The TSOs would use incremental offers and decremental bids from previous trading day to call a plant pre-BM.	Incremental offers and decremental bids from previous trading day can be adjusted by a participant up to an hour before real time. These should be appropriate where the TSOs have to schedule a plant before the opening of the Balancing Market

2.8 IMBALANCE PRICING (SECTION 8)

High level comments from Aughinish

- Imbalance pricing should reflect the true cost of stress events. Any dampening of the imbalance cost could distort earlier markets and reduce the incentive for participants to balance their position.
- The balancing market price (or a very accurate estimate of it) should be available as close to real time as possible.

The imbalance price should remain as per the HLD as a marginal price for every period. The GB system is moving back to a Price Average Referencing (PAR) of 1MW (marginal cost) from a PAR of 500MW. In the consultation paper the SEMC highlighted some of the benefits of marginal costing, Aughinish would suggest an additional benefit is that it gives a true price signal for market investment.

Support the pricing methodology principle marginal pricing for unconstrained energy actions and pay as bid for non-energy actions subject to performance monitoring of TSO and participant. It is assumed that DS3 auctions would provide some of these services under contract.

Question	Answer
1. What are your views on the Tagging and Flagging Approach. A "cause" based method for identifying energy and non-energy actions with the imbalance price being set only on energy actions.	
2. What are your views on the Simple Stack? With this approach there would be a simple stack of the available bids and offers and the price would be set based on the net imbalance volume.	
3. What are your views on the unconstrained stack	

with plant dynamics included. These are two additions that this option would have over the simple stack: • Plant Dynamics • An optimisation time horizon	
4. What are your views on the price based method – unconstrained unit from actual dispatch?	
5. What are your views on the sharpness of the marginal imbalance price? Do any concerns relate to the transition between SEM and I-SEM or are there other broader concerns?	

2.9 IMBALANCE SETTLEMENT (SECTION 9)

Question	Answer
1. What are your views on the issues set out in the imbalance settlement section?	1. How will trading sites be settled? a. The first item of concern for Aughinish is settlement on a unit basis. Thus far in the I-SEM design process it is unclear how participants on a single site with individual meters for generation and demand will be settled. The comments on this section are assuming that a fair treatment is established in the I-SEM 2. The proposed settlements do not impose any penalty on participants who do not follow their dispatch instruction. The SEMC should consider retaining uninstructed imbalance charges/payments. This might simplify the equations and eliminate the need for the suggested information imbalance levy. 3. Clarification around the imbalance split would be helpful. Aughinish are of the opinion that the "un-notified imbalance" is not the same as the "uninstructed imbalance" as is alluded to on pg124. 9.3 SETTLEMENT OF IMBALANCES AND ACCEPTED OFFERS/BIDS TAKING ACCOUNT OF PHYSICAL NOTIFICATIONS AND FIRM ACCESS pg 129 Reference G1 & G4 Similar to above non-delivery of a dispatch instruction should be penal, this volume is broadly known as 'Uninstructed imbalance' in the SEM. Aughinish disagree with the proposed treatment. Reference G2 & G6 If PN are delinked then offers accepted by the TSO should be from a single reference which is the FPN not the ex-ante traded position. It is not clear why the TSO would even be privy to a participants traded position. A participant would separately be exposed to an imbalance between the ex-ante market position and the balancing market price. Aughinish disagree with proposed treatment. Aughinish also disagree with reference G6. Participants who's decremental price is accepted by the TSO for arbitrate or energy balancing reasons should be entitled to their decremental volume * offer price, whether it has firm access or not. If the unit is constrained down due to access restriction it should be seen as an imbalance and exposed to the imbalance price.

	9.4 SETTLEMENT OF CURTAILMENT Aughinish are not taking a position in relation to the SEMC decisions paper SEM-13-010 and the non-compensation of curtailed wind. Aughinish agree with option 3 'Settled with no special rules for curtailment'. The market cannot be expected to make a generator whole for their market imbalance. This would in effect be another market support for a specific technology which would likely be levied on customers. Regulatory decisions about supports or non-payment for curtailment should be removed from the market as much as possible.
2. What are your views on the refined proposal whereby the payment rule applies only to incremental offer acceptance volumes above the PN and to decremental bid acceptance volumes below the PN?	It is important that the SEM committee recognise sunk costs which a participant must recover by the TSO undoing an earlier offer acceptance. If the refined proposal is proposed to mitigate potential gaming Aughinish are of the view that it is too earlier to be designing this into a market which is only at a high level design stage. It is not possible to comment on the new rule until more clarity is brought to some of the other detailed design issues.
3. What are your views on the possible consequences of ex-ante trades based on trading periods of different duration to the Imbalance Settlement Period (ISP) and what are your views on the options put forward in the paper.	Option 1 exposes units who are perfectly balanced for the hour to imbalance settlement every quarter of an hour, Aughinish would see the exposure of option 1 as low for the Sealrock units. Option 1 has the benefit of keeping the balancing actions and imbalances priced the same. If option 2 or 3 were employed there would be a reduction in transparency of market prices.

2.10 OTHER ISSUES (SECTION 10)

Question	Answer
1. Global Aggregation – what are your views on the current policy and the three alternative options put forward in the paper for dealing with global aggregation	The TLAF system has failed as a location signal and needs a fresh consultation outside the I-SEM. In relation to this consultation, Aughinish have no objection to option 3 fixing an estimate of residual error for a given period. This would give suppliers a level of certainty which they do not have today. The value of this certainty might be greater in the I-SEM if balancing prices are more volatile. Any changes of global aggregation need to retain the net settlement within a trading site which is the case in the SEM i.e. in-house power consumption needs to be excluded from Global aggregation.
2. Local Market Power – What are your views on whether there are any specific issues in relation to local market power which need to be considered at this stage.	The market should not be unnecessarily complicated at this early stage of design to solve Local Market Power concern which perhaps could be solved without market manipulation. In saying this Local Market Power is a concern for Aughinish one of the few independent generators who is not subsidised or have any vertical integration. The regulators must ensure operators such as Aughinish have fair access to the market. To ensure sustainability a fair long run marginal cost must be available. Market power concerns thus far are over high prices but consideration should be given to a bidding price floor as well.
3. Metering – What are your views on the proposal for metering put forward in the Consultation Paper.	Best practice turnaround of meter data should be targeted.
4. Instruction Profiling – What are your views on the instruction profiling section. In particular, is it feasible to more accurately model the precise loading of units and whether more technical characteristics need to be accommodated in	The current TOD characteristics are suitable for the Aughinish units.

the technical offer data.	
5. Units Under Test – What are your views on the two options put forward for units under test in I-SEM.	The current under test procedures are unnecessarily complicated. Notification periods do not need to be so prescriptive. The SEMC and the TSO should keep this as clear as possible in the I-SEM. The two options appear to be identical, the under test unit would be balance responsible for any volume long or short of their ex-ante trades.