ESB Generation Response to CER Consultation Paper CER/03/230, "Market Arrangements for Electricity - Margadh Aibhléise na hÉireann (MAE)"

Executive Summary

ESB welcomes the opportunity to comment on the recent consultation paper CER/03/230 of 12 September 2003, covering the Market Arrangements for Electricity – Margadh Aibhléise na hÉireann (MAE). We note that this document does not cover a number of areas of the market design – such as those relating to FTRs. We believe that these issues are important and should be subject to consultation

A lot of detail has been added to the outline proposals previously consulted on, and we have taken the opportunity to comment on this detail in addition to the five specific questions raised. The detail which has been added is significant, and has a number of implications for the operation of the market, significantly in terms of:

- The regulatory risks that result and hence the ability of Ireland to attract investment in new generation.
- The internal consistency of the document
- Potential bias against certain types of plant;
- Efficiency (and hence low cost) of plant operation; and

There is a critical need to attract more investment into independent generation in Ireland. This will only be achieved in an environment where the investor can understand and manage the risks to its investment. **This argues for a degree of certainty and transparency over the way the market will work and be regulated**. There are a number of areas of the consultation document that imply this certainty and transparency will not feature in the proposed market, with significant issues being:

- That the CER can apply penalties for invalid offers or re-declarations. At present there is no clarity over what constitutes a valid offer, or the basis for determining penalties; and
- That the CER is able to change the market design at will. It is more normal for changes to the market design to be overseen by a panel which is at least part staffed from the industry.

The document itself contains a number of material inconsistencies, leaving it open to interpretation. Given the significance of the proposed changes, it is important that these inconsistencies are resolved preferably through a re-issue of the document. We summarise these inconsistencies in our detailed response, with examples being:

- Statements in several places implying that generator bids should reflect to cost characteristics of the plant, even though doing so would mean price never rose high enough to attract a new entrant, so that the market failed; and
- An implication that all generation is paid at the clearing price for its node, with a separate statement that "reserve" will be paid at a different price.

A potential bias is introduced into this market as a result of a number of features:

- the issuing of despatch instructions close to real time means that plant will have to incur costs in getting ready to generate in advance of being instructed to do so. Those costs are at risk should the plant not be required. This risk is greater for the operators of plant with significant costs of starts, or that typically takes a long time to prepare to start (typically the case for steam plant); and

- Scheduling decisions are based on prices per MWh of energy produced, entirely ignoring the costs to start-up a unit, meaning that generators have to guess how long they will run for, to work out the price that will recover their start-up costs. This places a risk on generators, which is greater for plant with significant start-up costs, again biasing the market against marginal plant.

The efficiency of plant operation directly flows from the design of the Market Clearing Engine, which determines the operation required from each generation plant. The detailed specification of this engine states that a number of simplifications have been made. We suspect these relate to how closely the engine models the real world constraints on the operation of specific generation plant, and on the power flows in the transmission system. These imperfections will have to be corrected by participants and the system operator leading to potential increases in the costs of system operation.

In addition to our detailed comments, we have responded to the five questions raised in the consultation paper. A summary of our responses is set out in the following table.

Question	**Key points of response**
Demand Participation	• Option 1 is preferred (no explicit payments to demand side bidders) • ESB believe that Option 2 is open to gaming from demand side bidders that threaten to turn their load on if not paid not to do so
Access to information	• ESB supports the open release of all information that supports the efficient operation of the power market without placing any party at an undue disadvantage • ESB believe that the SMO should inform a participant where it has over-ridden its offers (e.g. to fix the output of a unit) as a result of a security constraint
Node design	• A node is not a busbar. ESB's understanding of the word busbar is any conductor of electricity in the transmission system, whilst a node is a specific point on the transmission system at which users are connected. • The definition of node needs to be corrected
Pumped storage	• ESB agree that additional rules are required to allow pumped storage plant to submit both generation and demand offers • ESB is happy to contract with the SMO for services provided by pumped storage, provided those contracts adequately reflect the value of that pumped storage plant to the SMO and to ESB.
Charging for reserve costs	• ESB does not agree with the principle that those that give rise to reserve costs should pay the costs of those reserves on the basis that there will be a large degree of discretion on how these cost are allocated.

1. Principles

There are a number of areas where the consultation paper sets out some high level principles for how the proposed market should work. In the main the intent of these principles seems correct; however, we have comments on the detailed implementation of those principles. The three specific areas are as follows:

- Market Clearing
- That Market should emulate despatch
- Despatch instructions issued close to real time

1.1. Market clearing

We agree that the market should clear on a half hour basis. That is, **payments made by demand should match payments made to generators (excluding payments for Ancillary Services) on a half hour by half hour basis.**

The above principle is implicit in the consultation paper and earlier communications from the CER, and has been translated in numerous places as "demand will be charged the demand weighted average of the locational marginal prices at the withdrawal nodes of the network". This is a suggested detailed way to meet the principle of a cleared market; however, we are concerned that it could fail to meet that principle. This would be the case when generation prices approach or reach VoLL leading to the price of Demand Nodes being capped at VoLL[1]

We suggest that the CER should clarify that demand will be charged at a price sufficient to cover the monies paid to generators in respect of despatch instructions.

1.2. Market should emulate despatch

Section 4.3 of the Consultation paper clearly states that the market should as far as possible emulate despatch. We agree this is correct given the decision to implement a nodal priced market, so believe that this should be the over-riding principle for the design of the scheduling elements of the Market Clearing Engine.

We note that the consultation paper gives a detailed view of a design for a Market Clearing Engine based on the usage of a linear programme. We are aware that this type of model is unable to accurately model the power flows and constraint on an AC power system, so may generate a set of despatch instructions that are infeasible given the characteristics of that AC system. This would mean that despatch instructions had to differ from those indicated by the MCE, which is clearly at odds with the principle stated in 4.3. The question of whether the MCE as specified gets as "close as possible" to the actual despatch has not been covered in the paper, and it would be interesting to understand whether more sophisticated despatch software, as provided by various vendors, could better meet this criteria, whilst still providing nodal pricing data.

Notwithstanding whether the specified MCE is the best possible, we have a number of comments arising from the detailed design specified for that engine. These specifically relate to:

- Rules for choosing which generator should run when the MCE is otherwise indifferent;
- Accounting for plant operational characteristics and
- Implications for the validity of offers

These issues are discussed in more detail below:

1.2.1. Arbitrary choices of generation

Any scheduler has to choose which production units to use to meet the demand for electricity, whilst honouring constraints on unit and system operation. There will always be times when this

[1] Sub-Section 2.4 of the consultation paper states that a price cap of VoLL will be applied to all nodes for settlement purposes.

choice is arbitrary – as the scheduler is indifferent to which generator is chosen. This would happen, for example, if two generators were located at the same node and had the same price and operating characteristics. Some criteria will need to be developed and agreed to cover how this indifferent choice is resolved to ensure that it does not result in a bias in the market towards specific generators.

The consultation paper hints at the need for such criteria in the last sentence of section 2.2.3, which states that "To differentiate between reserve offers that are made at the limit (-VoLL or +VoLL) additional parameters may be required to allow prioritisation". Our observations on this are:

- These additional parameters are required any time that the Market Clearing Engine is unable to differentiate between offers – not just for offers at the limit;
- Any parameters should ensure that they do not introduce a systemic bias for or against any party in the market; and
- Ideally, these parameters should be developed through an open and collaborative consultation process with the industry.

1.2.2. Accounting for plant operational characteristics

The formulation of the MCE, as stated in the consultation paper, includes constraints "representing limitations on the ramp rates from the unit status at the commencement of the trading interval". We believe that, consistent with the MCE matching despatch as closely as possible and in common with off-the-shelf scheduling tools, it should contain a comprehensive set of plant constraints. This would include, for example:

- Ramp rates that are able to vary with the condition of the plant (plant can change load faster when it is hot than it can when it comes on from cold);
- The minimum level of generation at which a plant can operate;
- The minimum time that a plant must operate before it can be shut down; and
- The minimum time that a plant must be "switched off" before it can be re-started.

We suggest that CER should consult with all parties ensures on the list of plant characteristics are ensure that the agreed list is included in the MCE specification compiled by NG.

1.2.3. Implications for the validity of offers

The consultation paper makes a number of statements about valid offers from generators. From these statements, it is not clear what constitutes a valid offer – but it is clear that the CER and SMO can choose to apply penalties should they deem offers to be invalid.

Our position is:

- There needs to be consultation and as a result clear principles of what constitutes a valid offer
- The determination and application of penalties should be transparent to reduce the regulatory risk
- Offers should not be deemed invalid if the MCE produces a schedule that is inconsistent with plant characteristics

1.3. Despatch instructions issued close to real time

The "consultation" paper implies that despatch instructions will only be issued at the last run of the MCE – at a time close to the start of the trading interval. We are assuming that close here means minutes, rather than half an hour or more. This means that despatch instructions are issued, say, at most 40 minutes before delivery is required (assuming delivery is for the end of the trading period), ref. 2.1. This is considerably shorter than the notification time for a unit to synchronise, meaning that a generator will have to anticipate that it is going to be required to start, and incur costs in preparing to start before it is actually instructed to do so.

The costs incurred by a generator in preparing its unit to start will be lost, should the schedule then change such that the generator is no-longer required to start (e.g. because of errors in earlier SMO demand forecasts). Unlike the current market, the affected generator will not be compensated for what was a cancelled start.

This aspect of the market design would act to discriminate against those plant that take time to start, and incur significant start-up costs. As such we are assuming that each MCE run issues dispatch instructions for the remainder of the day. Dispatch instructions may be cancelled by subsequent MCE runs which would result in compensation for cancelled starts.

We would welcome clarification over how such cancelled starts will be handled in the new market structure to ensure no discrimination for or against any party

2. Treatment of Reserve

Section 6.1 states that, at least initially, participants will not be able to make reserve offers into the MAE. Instead, the SMO will contract directly with generators for reserve and then make their offers into the market. We totally disagree with this for the following reasons and believe generators should make their own reserve offers from day 1.

- ESB PG believes there is a number of competitive suppliers in the market and as such a competitive market can exist
- Within the spot market a generator will have to co-optimise both its energy bid and its Ancillary Service bids therefore it is not possible for a third party to participate in the AS bidding.
- NG do not own any plant and therefore have no right to offer any of its services to the market

We also disagree with the role of the SMO as described in Section 6.2. We do not believe that the SMO should be given the responsibility for determining reasonable terms for the contracts with CER oversight but rather CER would set the prices as part of their Regulatory function if this was required.

3. Regulatory risk and governance

In order to encourage new entrants into the Irish electricity sector, it will be necessary to minimise regulatory risk through the development of stable and transparent regulatory processes and procedures.

As such, we provide some comments below on aspects of the MAE Consultation paper of 12 September 2003, which:

- raise concerns regarding the risks associated with regulatory intervention as currently proposed by the CER; or
- require expansion and subsequent consultation to clarify the regulatory processes and procedures that will be applied by the CER.

We address each of these in turn below.

3.1. Risks of regulatory intervention

In a number of areas, the current proposals leave significant scope for CER intervention into the daily operation of the market, without clearly defining:

- the parameters within which such intervention can occur;
- the nature of that intervention;
- the procedures that will be followed; or
- the methodology applied, for example to determine penalties.

This leads to an increase in regulatory risk, particularly in circumstances where there are undefined penalties or sanctions that can be levied by the CER. In such cases, it is essential that the relevant process and procedures are determined ex ante and subject to consultation. Key examples include:

- the scope for the CER, in its market monitoring role, to apply penalties to participants who fail to present bona fide offers or who fail to take reasonable care to re-offer as appropriate;
- the investigative powers of the CER following a re-declaration and the scope to apply penalties for wrongful re-declaration;
- the power for the CER to suspend the market; and
- the CER's role in determining the frequency and scope of market audits, which should be undertaken for the benefit and assurance of market participants.

3.2. Other areas that require expansion and consultation

A number of issues raised within the consultation paper require further detail of the processes and procedures that will be applied by the CER.

One key example is provided by Section 2.2.8 on re-declarations. Whilst this section provides a useful starting point, a number of key uncertainties remain, which if not addressed, will damage the transparency of the regulatory process and increase regulatory risk. We would make the following points:

- the circumstances under which a re-declaration should be made should be absolutely clear - the phrases 'significantly probable' and 'material' lack clarity and could be interpreted in a number of different ways;
- the stage at which re-declarations no longer inform the price setting process should be defined;
- the requirement for material changes to be notified to the SMO beyond the running of the market clearing engine for operational reasons, consistent with Grid Code requirements, should be covered; and
- the nature of substantiation required following a re-declaration and the implications for operational processes and procedures will need to be fully understood by participants.

All of the above procedural points, as well as the determination of the criteria for establishing a justification for re-declarations, should be subject to full consultation.

Further examples of areas requiring expansion and full consultation are listed below:

- the process that will be applied to establish dispatch tolerances (Section 1.4);
- the methodology that will be applied to determine the Value of Lost Load (Section 2.2.3);
- the parameters that will be applied to allow prioritisation of equal offers (Section 2.2.3);
- the principles and criteria applied to determine the validity of offers (Section 2.2.4);
- the factors driving determination by the CER of the interim gate closure time, and the timing and extent of any subsequent reduction (Section 2.2.7);
- the circumstances under which the SMO will impose or relax security constraints and the action taken in such circumstances (Section 2.2.9);
- the formulation, maintenance, audit and publication of the market clearing model, including a transparent process for mapping of high level principles into detailed software formulation (Section 3.4.5); and
- the grounds for sanctions on participants (Section 3.8.1).

4. Points of clarification

There are a number of points in the report where the drafting leaves scope for differing interpretations to be made or is internally inconsistent. We highlight these briefly below.

4.1. Prices for reserve

In Section 2.1, the Consultation paper states:

- ‘The spot market derives a dispatch solution that sets the targets that each generator has to meet at the end of the 30 minutes and the prices that apply to *all dispatch* during that period’; and
- ‘Settlement for each market participant is their metered generation or demand at the ex ante prices’.

However, both of these sentences are inconsistent with the concept of separate determination of reserve prices as discussed in Section 6, and therefore need amending.

4.2. Losses

Section 3.1 states that the offers of generators “further from demand” will be discounted for the losses incurred in transferring its power to that demand. We believe that this should be clarified to show that the discount factor could be either positive or negative. There will be demand nodes in the system where a 1MW increase in demand can be met with less than 1MW of increase in generation from a given node.

4.3. Submission of offer curves

There are two areas where the consultation paper is potentially confusing in what it says about the submission of offer curves. This relates to:

- who is able to submit offer curves; and
- what an offer curve should represent.

Section 2.2.1 of the Consultation paper states that ‘Each separately dispatchable generating unit must submit a separate offer curve regardless of ownership, so that each unit’s offer curve reflects the unit’s characteristics’. We believe that this should, more accurately, state that “offer data must be submitted in respect of each dispatchable generating unit”, making it consistent with the statement in Section 1.4 that ‘This does not preclude the generating unit being offered into the market by an agent’.

Our understanding from the consultation process to date is that generators should have commercial freedom to form their offers into the MAE and, indeed, that this is necessary to allow the price to rise above short-run-marginal costs to a level sufficient to attract the new entrant generators that are vital to the on-going security of supply in Ireland. To do otherwise could ultimately lead to blackouts due to lack of generation capacity.

This "commercial freedom" is supported by Section 2.2.3 of the paper, which states "To ensure flexibility in the commercial behavior of market participants, minimal limitations will be placed on acceptable prices that can be offered into the market". However, there are a number of areas that potentially contradict this – which should be clarified; specifically:

- The third paragraph of 2.2.1 states that "….must submit a separate offer curve … so that each units offer curve reflects the units characteristics". This seems entirely at odds with the requirement for commercial freedom. The offer curve gives the price of the unit to generate. For the market to work, it is essential that this is clarified, to make it clear that:
    - It does not apply to the underlying costs of the unit;
    - To clarify what it does apply to. For example, does it relate to consistency with the operational constraints on a unit (minimum shut-down times etc)
- The last sentence of Appendix A states "like the marginal generator, the supplier is assumed to be offering at SRMC". This is clearly incorrect and should be corrected.

5. Response to detailed questions raised

The consultation paper raised 5 questions for consultation. The following paragraphs set out our response to those questions.

5.1. Demand Participation

The consultation paper sets out two options for the treatment of despatchable demand. Of these options, we prefer Option 1, with such demand not being compensated directly by the MAE for any demand reduction.

We are concerned that the second option , where demand is paid its "bid" price should it reduce, is open to abuse and could pull the market into disrepute for two reasons:

- It is difficult or impossible to verify what a customer would have done had it not been instructed to reduce load, meaning that the actual response can not be verified; and
- In the extreme, a customer could place immersion heaters in the sea adjacent to a power station, and threaten to turn them on if not paid a price just less than that of the power station.

We note that this area of consultation is inconsistent with the text of the consultation paper, which states that "for settlement purposes dispatchable demand will be treated as negative generation and charged at its nodal price"[2]. This is inconsistent with either of the proposed options, and is equally inconsistent with a common national tariff.

5.2. Access to Information

We welcome open access to information on the operation of the market; however are concerned that some information should be released after a short delay, and that some further information should be made available to the relevant Generator or Supplier on a confidential basis.

[2] Section 2.2.3

We believe that the SMO should inform a participant if it has over-ridden its offers (e.g. to fix the output of a unit) as a result of a security constraint (as set out in 2.2.9). This information is required for two reasons:

- So that the participant can understand why his offers have been over-ridden, and whether any adjustment is necessary to its behaviour; and
- To act as a check on the behaviour of the SMO in utilising such constraints to over-ride the schedule of the MCE.

5.3. Node Design

The definition of system nodes as a "one-to-one mapping of the busbars in the physical system" is entirely incorrect. In Ireland, as in the UK, a busbar is taken to mean any conductor in the transmission system – be that a bar a few meters long in substation, to a wire hundreds of miles long. As such, the busbars are the arcs (not the nodes) of the network.

A more correct definition of nodes relates to "connection points" to the network. A better option for the definition of nodes is to go to the principles that define a node, specifically:

> A node is a point on the transmission system where one or more users (be there generators or demanders) are connected, such that there are de minimus transmission losses for power-flows across the transmission system between those users.

5.4. Treatment of Pumped Storage

ESB welcome the acknowledgement that "all generation plant will be treated equally unless it is appropriate to provide additional rules". It is suggested, and we agree, that it would be appropriate to provide additional rules for pumped storage plant.

The consultation paper suggests that the additional rules for pumped storage are:

- That pumped storage plant be required to maintain both generation and demand offers at all times; and
- That any consumption of pumped storage plant (for pumping water) will be treated as negative generation so be priced at the relevant nodal price.

We agree with both these suggested additional rules, and note that it is essential that the operators of pumped storage plant (or their agents) are able to change the offer prices from despatch period to despatch period to ensure that the plant operates in an optimal manner. Any standing offers should only be used as a default, with the operator being free to change offer data from day 1 of the MAE operation.

The consultation paper further states that "the SMO may chose to contract, including long term contracts, with pumped storage to provide ancillary service and reserve contracts". ESB accepts that pumped storage is a highly valuable resource to the SMO in maintaining stable system frequency. To this end we would suggest that ESBPG and ESBNG along with CER meet to discuss a potential contract solution.

5.5. Charging for Reserve costs

ESB PG does not agree that charging for reserves should be on a causer pays basis, as allocation of these costs could be quite arbitrary. Ancillary Service costs which include reserve costs are system costs and should be spread among all demand users.