Response to

Principles of Dispatch and the Design of the Market Schedule in the Trading & Settlement Code

SEM-09-073

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Scottish and Southern Energy

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Executive Summary

Airtricity appreciates that increasing levels of wind generation in the Single Electricity Market (SEM) will lead to a much more complex electricity system with significant challenges to its operation and management. Such a system will also raise tough questions regarding the underlying economic principle of short run marginal pricing for electricity.

However having delivered an electricity market that functions reasonably well and in accordance with its design philosophy, the next major steps should be to map out a direction for the future development of the market, taken into cognizance relevant contextual frameworks such as the internal market objectives of the European Union.

To evolve a system with significant quantities of wind generation will require a range of actions across all aspects of the system. However in doing so it is important to maintain the fundamental principles underlying establishment of the SEM, principles decided on to, amongst other benefits, provide for a predictable and stable trading environment. Violating these principles will be bad practice and will considerably undermine stakeholder confidence.

Furthermore it is essential to resist the easy appeal to make tweaks to the market to correct issues that arise outside of the market or which are transitory in nature.

Legislative & National Policy Contexts

A number of the specific proposals presented in the consultation paper tread into territory of potential conflicts with provisions of EU legislation and national energy policy. Of specific note is the issue of priority dispatch and the other matters associate and arising from it.

The Republic of Ireland has a target to achieve 40% of its electricity requirements from renewable energy sources by 2020. A similar target is anticipated in Northern Ireland. Furthermore the recent Directive 2009/28/EC of the European Parliament and Council sets out the basis for the active promotion of the use of energy from renewable sources. In the words of the legislation ‘the objectives of this Directive requires sustained increase in the transmission and distribution of electricity produced from renewable energy sources…’

Together these reinforce the basis from which to positively discriminate in favour of renewable generators in the operation of the electricity market. Where specific proposals counteract this favourable condition legally established for renewable generators, we would strongly urge the RAs to discount such proposals.

It is of fundamental importance that whatever proposals are carried forward for consideration that they adhere to these policy and legislative provisions.

Need for Regulatory Stability

The SEM Proposed High Level Design paper – AIP/SEM/06/05 correctly points out that 'a market that is *properly established and which is designed to remain in operation for a significant period of time*, with rules and oversight that are clearly defined, will allow investors to properly assess the risks and rewards of investing'.

In various documents the RAs attest to the robustness of the SEM design. In particular the findings of the modelling study by the RAs on 'Impact of High Levels of Wind Penetration in 2020 on the SEM – SEM-09-002' include the statement that 'SEM design is potentially robust to significant increases in the amount of wind generation on the system'.

Given this background, **it has been generally unsettling that the general theme of the current consultation in addition to a number of the specific proposals appears to throw open to review fundamental aspects of the SEM**. In these very challenging times, proceeding along this route poses significant risks to confidence.

Unbalancing the Internal Logic of SEM

The SEM is a complex system. In practice however it has been relatively easy both to implement and to operate, an agreeable situation that has arisen from the consistent inner logic contained within the design of the SEM. As the SEM Proposed High Level Design paper identified "it is important that the features of a market are internally consistent and do not result in a market that is difficult to implement or difficult to operate leading to internal inconsistency".

In complex systems, any change threatens this inner logic and may lead to a suite of both intended and unintended consequences. These in themselves may necessitate

further change, leading to a disconnect in the harmony achieved in the original design.

Any proposed changes need to be carefully examined for the impact on a multitude of other interacting parts of the market.

The Consultation Issues

While the issues relating to dispatch processes and design of the market schedule in SEM as outlined in the consultation are important, they have not been demonstrated to be causing any significant problems. As the consultation itself notes, existing SEM process limit FAQ allocated to generators until completion of required deep infrastructure works resulting in generally low levels of constraints on the system.

Current grid connection process, at least in the Republic, requires the iteration of EirGrid's ITC programme which aims to align generator FAQ with the grid development programme. Given that we fail to see the concern outlined in the consultation of the level of constraints significantly rising as a result of generators being granted FAQ prior to completion of necessary works.

Besides, taking forward a particular set of issues from a much broader group may lead to a treatment that considers the issues as standalone and not embedded in a matrix with other interacting elements. **Such an approach has high probabilities of introducing its own suite of 'new' problems**.

Addressing the Consultation Issues – Other Options

A number of ex-market changes to address the issues highlighted in the consultation have been identified through a number of studies done. In addition a number of inefficiencies, market and otherwise, have been identified as obstacles to achieving that objective.

The All-Island Grid Study evaluating 'the ability of the electrical power system and, as part of that, the transmission network ("the grid") on the island of Ireland to absorb large amounts of electricity produced from renewable energy sources" notes that:

> 'Timely development of the transmission networks…is a precondition for implementation of the portfolios considered; and

> ‘Market mechanisms must facilitate the installation of complementary, i.e. flexible dispatchable plant, so as to maintain adequate levels of system security’.

Thus grid insufficiency is the essential factor in the underlying factor in the issues presented in the consultation paper.

The Wind Generation in SEM – Policy for Large-Scale, Intermittent Non-Diverse Generation – SEM-08-002 discussion paper notes that ‘a number of the operational issues associated with wind generation…may, to a certain extent, be mitigated through existing or increased interconnection with Great Britain’.

The paper also points to the significant influence of governmental support for wind energy while noting the differing existing mechanisms in Ireland and Northern Ireland.

Other options that have a part to play in managing an increasingly complex electricity system including having more flexible trading arrangements such as multiple gate closures aligned with BETTA; relaxing the regulatory decision on applicability of intermediary provisions enabling more VPTs reclassify as VPMs; and introducing those plant characteristics that are considered of value to system operations into the Technical Offer Data (TOD).

The Single Electricity Market: Direction for Change

Having an electricity system with high levels of wind, not only provides the island of Ireland with an indigenous source of energy, providing it with a measure of hedge against volatile price movements of oil and gas on the international markets, but also with a tradable energy commodity. While high levels of wind is a target of the Irish government with similar anticipated by the Northern Irish Executive, it should not signal a final destination but serve as a platform to develop a system with significant commercial value internationally.

Having got the Single Market operational and broadly achieving its design intentions, the next step should be for efforts to deliberately fashion out a future path for it. An obvious course will be to explore the potentials of integration into a FUI Regional Electricity Market as espoused in the ERGEG Initiative.

This potential was hinted at in the SEM Proposed High Level Design paper in establishing the need for SEM. It states that 'in future it may be possible to align the all-island market with the UK market to develop a British Isles market'. We take the position that it is not only possible, but essential and the only logical step in the development of SEM.

To this regard, Airtricity notes with approval the recently published consultation paper on SEM Regional Integration – SEM-09-096. This is very welcome development. In our view this is most essential question regarding the further development of SEM. In addition it is of a more opportune nature as similar fundamental market questions are also being asked in GB and the window to address these may not remain open indefinitely. In addition we strongly believe that the economic case is well established and holds significant potential to deliver true value to electricity customers on the island of Ireland.

Need for a Road Map

However this is only a start to the necessary process. The consultative process, by its restrictive scoping and sequential nature, is probably inadequate to facilitate such an exploration. Our preference will be for a subsequent standing joint industry/stakeholder working forum to develop a roadmap for SEM by identifying potential futures for SEM and mapping out pathways and requirements to such futures.

For the avoidance of doubts this is not a one-day, consultant led 'workshop'. What we anticipate is a tightly focused group of participants with representatives from various 'blocs' including the government departments, the regulators, conventional and renewable generators, large energy users and consumer representative, with a coordinated work programme.

The transition from a 'conventional' power system to a 'renewables-led' one necessitates better than a tweak here and tweak there. It requires a well laid out and jointly owned vision of the future.

Response to Specific Proposals

Construction of the Market Schedule

On a stand alone basis the principle of this proposal appears reasonable. However it begs the question of whether the high-level design of SEM provided for a market schedule that distributed infra-marginal rents to generators that offered no 'value'.

To that question we argue that SEM implementation delivered on SEM design principles and SEM operations continues to do so. 'Value' to be obtained through the market schedule as defined under this design was to sort generator units in an unconstrained schedule into an ascending merit order with the objective of ensuring the least economic production cost. This 'value' was established on a principle that 'the market will ignore transmission constraints but will respect generator physical abilities'. Hence where the least production cost as indicated by market prices were not obtained, these would be as a result of transmission constraints.

Redefines Market Schedule 'Value'

Taken in context then, this proposal seeks to redefine market schedule 'value' from an relatively economic proposition that obtains the least production cost while simultaneously explicitly signalling the cost of transmission constraints, to a proposition that appears to introduce addressing efficiency of system operations. This we believe is essentially conflating market scheduling and system dispatch, the previous being an economic solution and the former an efficiency solution, with the link between them being system constraints.

Weakens Signalling of Transmission Constraints

Our primary concern is that this will weaken the strong, explicit signalling of the existence of transmission constraints and the need to upgrade the network. This is generally accepted to be the essential factor in alleviating the perceived concerns raised in the consultation. Weakening the signals indicating the need for grid upgrades may diminish the incentive to do so.

Difficulty in Providing Clear Definition for Term 'Value to Real-Time System Operation'

In addition the consultation variously refers to 'risks posed…by the uncertainties of future system requirements' and 'uncertainties associated with what generating plant will be needed in the future'. Given these uncertainties, it becomes all the more difficult to firmly establish what 'value' to real-time system operations really means.

Furthermore as the system evolves to accommodate more intermittent generation, 'value' is bound to evolve alongside.

Ignores other Viable Sources of 'Value'

Crucially however, the consultation does not explore other sources of 'value' to real-time systems operation. One viable candidate here is demand response.

Recommendations

Our recommendations on this proposal are as follows:

i) **Maintain the construction of the market schedule as it currently is, given that it is attaining design objectives and it has not been demonstrated to be failing.**
ii) Engage in a joint industry/stakeholder working forum to map out the 'look and feel' of the island of Ireland electricity system of the future. This will both help minimise uncertainties and establish a target to work towards. In addition generator unit characteristics that will be of 'value' in transiting to and operating that future system can be delineated. This will be in keeping with the SEM principle of 'respecting generator physical abilities'.
iii) These desired characteristics can then be made requirements in generator units TOD. Alternatively the characteristics can be compensated through the Ancillary Services mechanism.

TSOs and Asset Owners Making Available Information

We recommend this proposal. Given the pivotal role the TSOs play in managing the evolving electricity system, giving the industry benefit of their understanding on changing system conditions and requirements will only be helpful in guiding coordinated development of the system.

In addition however, **we would propose that periodic opportunities be afforded to industry to interactively debate such information and the assumptions informing them**. Such discourses will ensure that the best industry experiences are being allied to the system operators' understanding to guide effective decisions.

Grid Code Compliance

We agree that the current TSO efforts to ensure compliance with Grid Code obligations should continue. For a system undergoing significant change, it is essentially that the various plants connecting to it do not threaten its operation or development.

In doing so however it is **essential that balance is sought between the particulars of non-compliance and associated penalties**. Minor infractions that do not threaten system operations should not attract the same remedial or punitive actions as more serious compliance issues.

We also agree with the proposal to keep the Grid Code under review to ensure that future system requirements are provided for.

Market Schedule Access Limits for Plant Situated behind Export Constraints

Once again, SEM was designed on the principle of 'ignoring transmission constraints'. Hence the options presented, 'all of which share the common characteristic of permitting infra-marginal rents to be allocated only to the amount of generation that the transmission system can accommodate', violate this principle. In addition the signal sent by transmission constraint costs stand diminution.

Ignoring this principle temporarily, the consultation seeks to justify consideration of this matter on the basis that infra-marginal rents allocated to more generation

across the export constraint provide 'incentives that encourage investment in generation ahead of the capability of the transmission system to support it'. We fail to understand the rationale for this assertion.

Connection Decisions Lie Outside Investors Control

The picture painted by that contention appears to imply that developers have within their control decisions about getting plants connected to the network. Thus in theory these developers will set about to identify export constrained zones and then proceed to make investments in plant capacities in those areas. In reality it is very difficult for independent entities to get generator units connected anywhere on the electricity system, much less having the ability to engineer connections in 'prime real estate' as export constrained zones.

The true situation is that access to the transmission system is already controlled by a combination of licence requirements, planning requirements and crucially grid connection offers. In particular are the connection Gates process in force and EirGrid's Incremental Transfer Capability (ITC) programme, which measures the transfer capability remaining in the physical Grid for further commercial activity over and above already anticipated uses and determined by the physical network as well as the size and location of forecast demands and generation.

Incentives May Exist, But Access Is Limited

Given this situation we do not understand the concern that incentives arising from export constraints will cause generation capacity investments to overrun transmission capacity. Those incentives may exist, and we question that, but the ability to gain access to them is severely limited.

For those limited cases where the revenue of certain plants are being impacted as a result of not being in merit order but being constrained on all the time, we suggest that they be examined directly and a compensation stream be accorded them through the Ancillary Services mechanism, for providing 'value' to the transmission system.

Deemed Firm Access

The consultation paper notes that 'Deemed Firm Access, whereby FAQ or MEC is allocated in advance of the completion of necessary transmission system infrastructure reinforcements, will lead to incentives to invest in generation ahead of the capability of the transmission system to support it'. This reflects the exclusive focus in this consultation on generator behaviour to the total disregard of more significant influence residing within other organisations, which can engage in effective actions to alleviate the underlying factor leading to an number of these perceived issues – grid insufficiency. Instead of taking a stance of looking for solutions that depress market response to incentives, the RAs would be better off aligning those incentives with positive actions from competent entities.

Our view is that Deemed Firm Access, whereby FAQ or MEC is allocated in advance of the completion of necessary transmission system infrastructure reinforcements *to become effective at a future date when those infrastructure works are reasonably expected to have been completed, will lead to incentives on the TSOs and the asset owners to progress the upgrade of the transmission system in a timely manner*.

We would urge the RAs to reconsider their current position regarding Deemed Firm Access.

Dispatch Principles

We agree with the RA proposal for the TSOs to continue dispatching the system to minimise production cost of generation, and disregarding the concept of firmness.

Priority Dispatch

Priority Dispatch is provided for in EU legislation and as community members, Northern Ireland (as part of the UK) and the Republic of Ireland are bound to its provisions. The matter of interpretation of the provisions may involve a point (or points) of law. The RAs will do well to seek legal views on this subject.

However for practical purposes, own bids determined by generators themselves provide the most efficient means to order plant in merit order. Renewable generators, who predominantly are Price Takers, have best sight of their costs and

should be facilitated to become Price Makers and put their cost structures into SEM's price and schedule construction.

Currently SEM rules dictate that changing generator class from Price Taker to Price Maker strips the unit from availing of intermediary arrangements. This is a rule that causes more harm than it leads to any benefits. Our recommendation is that this position be rescinded. If the RAs wish to limit certain Participants from availing of intermediary arrangements for market power purposes then they can explicitly exclude those specific entities.

Hybrid Plant

While a general understanding of what a hybrid plant is or should be there doesn't appear to be clear criteria to adequately define it. Our recommendation is for clarification on a hybrid plant exactly is.

Treatment of Variable Price Takers

In relation to the difficulty in measuring availability of intermittent generation, we are aware and engaged in a TSO-led effort to improve the Available Active Power signals from wind farms. Our view is that **obtaining and applying actual measurements at every possible point of the electricity system leads to better decisions** as opposed to making pseudo-sensible assumptions.

The proposal put forward in the consultation equally introduces its own problems. To illustrate if a VPT were dispatched down from an availability level that was lower than its FAQ, then under the proposal it will automatically be up rated in the Market Schedule to its FAQ, handing it more infra-marginal rents than it was entitled to.

As with most of the proposals put forward in this consultation, we shouldn't be substituting one 'approximate' situation for another equally 'approximate' one. It will be much better to address the root issues directly.

Determination of SMP when demand is met by Price Takers

We agree that this is a reasonable proposal. We however reiterate that facilitating generators to upgrade classes from VPT to VPM would enhance the value of this proposal.

Quantity of Generation Paid PFLOOR

Similar to Proposal 10 above, we find this a reasonable proposal.

Tie-breaks

De-loading on pro-rata basis where tie-break rules demand it is reasonable enough. Leaving those decisions entirely to 'a manner determined by the TSOs' is however rather unhelpful. While there may be valid cause for concerns in the development of very prescriptive rules, the TSOs already implement a hierarchical system that prioritises different plant types.

Our recommendation is to take this existing system of priority as a starting point and proceed to include guidelines addressing various other issues such as safety of systems operations and legislative requirements like priority dispatch.

Summary

Our fundamental position is that the Market Schedule as currently implemented and constructed in SEM fulfils its design objectives and the principles underlying them. A significant number of the presented proposals seek to undermine those principles, without a demonstration that those principles, or their expression in key market features, have become inadequate to cope with the requirements expected of the SEM.

In addition, significant concern relating to potential conflicts with EU legislative provisions arise from certain of the proposal, in particular the provision regarding priority dispatch and other associated issues.

The changing requirements being placed on the electricity system necessitate the evolution of the SEM. However the next logical step of the progression is to address the integration of a viable, functioning SEM into a regional electricity grouping.

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