



EirGrid Group Response to the SEM Committee Proposed
Position Paper:

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

[SEM-10-060]

November 2010

Introduction

The EirGrid Group (representing EirGrid TSO, SONI TSO and SEMO) welcomes the publication of this proposed position paper by the SEM Committee and believes that it represents considerable progress in this important aspect of the SEM and the operation of the power system. Greater clarity on a number of issues has been achieved, particularly regarding Least Cost Dispatch, Priority Dispatch and the determination of the market schedule in the event of excessive Price-Taking generation. EirGrid also notes that the SEM Committee has requested a number of actions, further information and regular reporting, which EirGrid is happy to facilitate.

EirGrid reiterates its comments on the 2009 paper “Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code [SEM-09-073]”, which were published by the Regulatory Authorities as SEM-10-060k. In addition, this response outlines a number of issues that warrant further comment. In particular, EirGrid is concerned that the preference expressed for Option 1 in the allocation of infra-marginal rents may not deliver on the long term SEM objectives. EirGrid urges that further consideration is given to all of the options, especially variants of Option 3, before a decision is reached.

Context

The power system is undergoing a period of significant change, particularly in light of the expected increases in renewable generation in both jurisdictions driven by challenging governmental and European renewables targets. EirGrid notes the recognition of the importance of the binding renewables targets arising from the EU Directive 2009/28/EC. There is a clear need for the development of sufficient grid infrastructure if the renewable targets are to be achieved while maintaining system security. EirGrid is committed to the development of the transmission system and reiterates its call for the support of all stakeholders in this regard. However, the connection of significant volumes of generation in advance of all of the necessary transmission infrastructure has raised important issues as identified in the SEM Committee’s paper. In addressing these issues, a balance needs to be struck between achieving short-term efficiency of the dispatch and the market schedule and the provision of long-term signals for investment in a way that facilitates the achievement of the policy objectives.

The renewable targets will form a driver for the generation portfolio on the all-island system evolving into one of higher capital cost and lower variable cost. In this environment, capital cost

recovery becomes increasingly important. Infra-marginal rents can provide an element of fixed cost recovery, and their appropriate allocation remains an important issue, but if variable costs reduce (and therefore the revenues received in the energy market reduce) then this is lessened. Therefore, to meet the various policy objectives, an integrated approach to the various revenue streams and costs must be considered, including the capacity mechanism, ancillary services, treatment of losses, use of system charging, and support mechanisms. EirGrid believes, as stated in previous responses to SEM Committee consultations, that ancillary services will need to play a significant role in informing investment decisions.

Market Issues

In considering changes to the market rules, a holistic approach is required that aims to ensure that decisions made that impact on the market are cognisant of the wider policy direction (e.g. regional integration) and reflective of where future investment in energy will come from.

A central tenet of the SEM Committee's proposed position paper is that there should not be any disproportionate differences between the market schedule and the physical dispatch, underpinned by the principle that infra-marginal rents are allocated to generators that are of value to the real-time operation of the system. To the extent that there are differences between dispatch and the market schedule, constraint costs arise. Constraint costs are an intrinsic part of the current market design (and are also inherent in many other types of electricity market) and arise due to a number of factors, which can be grouped as follows:

- Transmission constraints
- Provision of Ancillary Services (e.g. reserve)
- Perfect foresight (a fundamental feature of the *ex post* market)
- Market modelling approximations (simplifications in the market schedule)

The SEM Committee is developing a framework for assessment of the need to make changes to the market rules when the misalignment between dispatch and the market schedule becomes disproportionate based on the concept of "material harm". Specifically, the ratio of constraint costs to energy costs has been suggested as a key metric in determining the level of material harm. However, in and of itself, this is not a sufficient metric. Instead an assessment of material harm needs to be cognisant of how the factors listed above result in changes to constraint costs. EirGrid, being responsible for the forecasting and management of constraint costs in the SEM, monitors the

level of constraint costs and analyses the factors behind them on an ongoing basis. EirGrid will continue to keep the Regulatory Authorities (RAs) updated on constraint costs and will arrange to meet to assist the RAs in determining how constraint costs impact on the level of material harm in the near future.

EirGrid welcomes the clarity in terms of the issues surrounding the treatment of Price Taking Generators in the market (i.e. determination of SMP and quantity of generation paid PFLOOR). The SEM Committee has stated that it is intended that changes be made to the Trading and Settlement Code to align the treatment of Price Taking and Price Making generators. EirGrid agrees with the principle that the non-firm access rules should apply across all generation technologies and that the allocation of infra-marginal rents should be consistent regardless of generator classification, albeit subject to the application of priority dispatch. However, EirGrid notes that the existing asymmetry is providing an inadvertent support to renewables (and other priority dispatch generation). EirGrid stresses that in determining how to implement this change, and the implementation timetable, careful consideration will need to be made in terms of other market changes, such as intra-day trading and any changes arising out of the Capacity Payment Mechanism interim review, and of the potential interaction with system operational dispatch tools and the treatment of tie breaks.

Priority Dispatch

EirGrid welcomes the improved clarity in the area of Priority Dispatch as there will be a significantly larger proportion of priority dispatch generation in the future. The hierarchy used by the system operators to distinguish between classes of generators when it is necessary to dispatch down generators with priority dispatch has been acknowledged as a pragmatic approach by the SEM Committee and is consistent with the need to distinguish between mandatory and discretionary priority dispatch. EirGrid will keep this under review and in light of any future relevant legislative changes, will advise the Regulatory Authorities in the event that changes to operational policies are required. As requested, EirGrid will revert to the SEM Committee with proposals for the treatment of hydro electric stations in flood situations.

Dispatch Principles and Allocation of Access Rights

EirGrid concurs with the proposal that the TSOs should continue to dispatch to minimise the production cost of generation that is centrally dispatched, while taking account of system security

and recognising priority dispatch generation, but disregarding access arrangements (e.g. firm or non-firm), as this provides the most efficient short-term outcome.

However, this approach, together with the current treatment of firm access in the SEM, is not entirely consistent with the access philosophy and planning criteria in effect in Northern Ireland and Ireland, which have traditionally been that of “first come, first served”. Transmission capacity is a limited resource, which takes time to augment, and involves large irreversible investment decisions. The majority of the cost of transmission is socialised, and thus it needs to be considered as an externality in respect of the energy market. In order to achieve a long-term efficient outcome, this externality needs to be internalised in both the investment decisions of generators (which also involve significant irreversible capital outlays) and the short-term dispatch and scheduling of generation. The current access philosophy seeks to address this externality not through pricing it directly, but indirectly. In particular, it is implicitly priced through the provision of a disincentive to generation capacity in excess of the transmission capacity by means of a time-based, locational signal (i.e. by virtue of the time taken¹ for a generator to receive financial firm access). If this externality is not accounted for, it is likely that the outcome will not be efficient.

The current treatment of non-firm access in the SEM was designed with the aim of allowing non-firm generation into the market schedule when there is sufficient transmission access (up to the level of actual dispatch) and where the non-firm generator is competitive. However, given that the dispatch disregards firm access, which in EirGrid’s view is appropriate, the corollary of the current SEM arrangements is that non-firm generation may receive undue infra-marginal rents, while firm generation, which is in merit on a system-wide basis, could be unduly displaced when transmission congestion exists. This asymmetry between system operation and the market is likely to get worse due to the increase in non-firm generation seeking to connect (much of which having priority dispatch), coupled with the lengthening of delivery times associated with transmission reinforcement, which is driven by wider societal questions concerning its delivery.

Consideration of the Options

The position proposed in the SEM Committee’s paper is one of retaining the status quo for the time being but with a predilection to consider a move to Option 1 once a threshold of material harm is reached. EirGrid believes it is important to consider the behaviour which is likely to be driven by the

¹ A deemed firm policy which is not related to the delivery of the necessary infrastructure would undermine this principle.

various options, and the practicalities of their implementation. It can then be assessed whether the proposed move to Option 1 will serve to deliver on the SEM objectives, as stated in the SEM Committee's proposed position paper.

Option 1 seeks to address the question of allocation of infra-marginal rents by ignoring the concept of firm access but incorporating transmission constraints into the market schedule. This means that generators will compete for infra-marginal rents, both globally as at present, and locally behind export constraints. This option has some merit, as it will deliver a market schedule that is short-run efficient and, provided the export constraints reflect the real-time transmission capabilities, will deliver the "correct" allocation of rents. However, the use of a single energy price means that the transmission access externality is not incorporated and therefore there is an absence of both short-term and long-term locational signals, which will inhibit the achievement of an optimal outcome. Specifically generators will not necessarily be incentivised to choose the appropriate location both by reference to the capability of the transmission system to accommodate them and by reference to the existing generation portfolio. A variant of Option 1 would be to include transmission constraints in the schedule and reflect these in the prices, for example by using locational marginal pricing (LMP). However, while LMP can provide short-term pricing signals, it is associated with greater uncertainty and therefore does not provide the necessary long term investment signals to support an optimal long-term outcome and as such would not appear to represent an appropriate solution for the SEM.

Export constraints, while conceptually simple, will be difficult to implement, both in terms of their calculation and incorporation into the market schedule. The meshed nature of the transmission network means that generator constraints are non-linear in nature, and generators will impact on constraints to varying degrees, both positively and negatively. Therefore significant approximations would be required to deliver Option 1, which would mean only a proxy to Option 1 is practically implementable, giving rise to regulatory uncertainty and increased risk to participants.

As stated in our previous response (SEM-10-060k), EirGrid does not support Option 2, which specifically excludes generators from the Market Schedule until financially firm rights are acquired as it fails to make full use of the scarce transmission resource.

EirGrid therefore remains of the view that an allocation mechanism in the vein of Option 3, such as the possible variant presented in EirGrid's response to SEM-09-073, represents the best balance

between short-term and long-term objectives. It is consistent with the practice of not accounting for access rights in actual dispatch (to deliver the most efficient short-term solution), while respecting the concept of access rights, thus providing a degree of long-term certainty to investors. In circumstances where there exists surplus transmission capacity, non-firm generators can access the market schedule (unlike in Option 2). However, it provides a signal to build generation in coordination with the development of the network, by continuing to ensure new entrants bear some cost for the externality created in the form of access to scarce transmission capacity. With the move away from other financial locational signals, whether they be a system of charging for deep reinforcement, highly differentiated and locational TUoS or the full effect of marginal losses, this may be particularly important if we are to see efficient development of the power system going forward.

The variant to Option 3 that EirGrid presented in the response to SEM-09-073 gives effect to the principles of the original Option 3, while having the advantage of being relatively easy to implement – in particular, changes to the SEM Central Market Systems may not be required (unlike Options 1 or 2 or variants thereof). While some approximation and regulatory intervention may be required, we believe that this would also be the case if one of the other options was adopted. EirGrid would welcome an opportunity to discuss this option, or variants of it, in more detail with the Regulatory Authorities.