

IWEA Response to “Principles of Dispatch and the Design of
the Market Schedule in the Trading and Settlement Code”

SEM Committee Proposed Position Paper and Request for
Further Comment

SEM -10-060



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1.0 Introduction

IWEA welcomes the publication by the SEM Committee of the current consultation paper SEM-10-060. This has assisted industry in understanding current regulatory thinking on the important issues raised. IWEA notes that this consultation deals with a wide range of important issues.

IWEA is concerned, however, that these issues are being considered in isolation from other vital and highly interrelated SEM topics such as Capacity Payments, Loss Allocation, Ancillary Services, Regional Integration and Demand Side Vision. Of more concern this review is not adequately linked to broader energy policy. The recent publication of the Strategic Energy Framework in Northern Ireland has provided a highly structured and clear policy framework for the coming decade and so there is now clarity in both jurisdictions that comprise SEM. These frameworks are highly aligned, both focussing on the delivery of a 40% renewable electricity target by 2020 through the use of support systems external to SEM. These support systems were designed based on a given set of assumptions on the operation of the SEM market. It is IWEA's firm view that these assumptions should not be undermined without proper analysis of the impact on national energy policies.

IWEA recommends that a high level pathway is developed to assist the understanding of the interactions between the various streams of energy policy on the island. This pathway should examine a set of principles for the evolution of energy policy to meet

- Binding EU renewable energy commitments on member states and the resulting energy policies formed by government;
- The impacts of a change in the fundamental costs of energy from fuel markets to capital markets;
- The aspiration to promote more liquid and efficient trade between SEM and neighbouring markets; and
- The need for strong incentives on transmission asset owners and operators to deliver necessary infrastructure.

It is our view that all these drivers are somewhat considered in the current consultation. However, it is very difficult to judge if a proposed mechanism will be effective in the SEM energy trading market rules

without considering the response of other aspects of the policy framework. In this response IWEA has provided its thoughts on the matters directly consulted upon (Section 3) and we have also highlighted areas where complementary action will be required to ensure the overall framework meets its objectives (Section 2).

The Irish Wind Energy Association (IWEA) is the national association for the wind industry in Ireland and has over 300 members representing interests in Ireland and Northern Ireland. IWEA has recently formed a joint Northern Ireland Renewables Industry Group (NIRIG) with Renewables UK.

Our main comments on this paper are:

- 1) There is a need for a broad policy pathway that recognises national and international energy and economic policy.
- 2) The development of transmission should be incentivised.
- 3) The market should be stable, the introduction of the concept of potential major change if a material harm threshold is reached is very dangerous.
- 4) Access rules must be clear and meaningful, the terms on which a party accepts a connection offer should not be changed after the investment is made.
- 5) The potential diminution of the effectiveness of support systems through the levels of lost energy identified in the Facilitation of Renewables study must be addressed.

2.0 Important issues not explicitly flagged in paper

2.1 National energy policy

The Paper issued by the SEM Committee acknowledges the EU-wide target for 20% of energy to come from renewable sources by 2020, the 40% national target for renewable electricity in Ireland and the 40% renewable electricity target for Northern Ireland. However, the SEM Committee does not accept any responsibility for Ireland or Northern Ireland achieving these targets.

There is a 40% target for renewable electricity in Ireland and Northern Ireland. In addition the development of a renewable energy industry is a key focus of Ireland's framework for economic renewal published by An Taoiseach in 2008.¹ It has also been identified as an engine for economic growth in NI in the Strategic Energy Framework. These targets are based on national energy and economic policies arising from climate change, energy security, price stability and international commitments. For Ireland these targets are embedded in international treaties and commitments. Failure to meet the EU target of 16% renewable energy target may result in the EU taking infringement proceedings against Ireland. In the event that Northern Ireland fails to meet its targets the overall efforts by the United Kingdom to meet its international commitments will be more difficult.

IWEA believes that it is incumbent on the regulators in both jurisdictions to have regard for national energy policy as developed by democratically elected governments. IWEA agrees that the primary responsibility for meeting targets rests with the relevant government departments, however, it is vital that the actions of the regulators do not frustrate these initiatives.

Some of the options outlined in the Paper would have a very serious impact on the costs of meeting national energy targets. Some of the proposals would actively prevent support systems from acting as intended in the market or in physical dispatch. IWEA believes that any proposed changes arising from this consultation must allow support systems to operate as intended. In the event that the supports are inadequate or overly generous this then becomes a matter for the relevant government department.

¹ http://www.taoiseach.gov.ie/BuildingIrelandsSmartEconomy_1_.pdf

However, if the ability of support systems to influence investment is compromised by the market rules it will become more difficult to meet national policy objectives.

2.2. Legal Requirements

The principles of priority dispatch and access are most recently set out in Directives 2009/28/EC of 23 April 2009 (the “Directive”). It entered into force on the 20th day after its publication in the Official Journal of the European Union. IWEA understands that the Directive was published in the Official Journal on 5 June 2009. Under Article 27 Member States must transpose the Directive into national law by 5 December 2010. IWEA’s response to the SEM Committee’s previous consultation sets out some of the principle provisions of the Directive that have relevance for this consultation. While the paper acknowledges that the manner of transposition will be determined by governments it is crucial that the regulatory or market arrangements do not frustrate the aims and objectives of the Directive.

It is clear that Governments when implementing the Directive, should guarantee the proper functioning of national support schemes in order to maintain investor confidence and allow Member States to design effective national measures for meeting the mandatory EU targets on renewable energy generation.

2.3 Regulatory Stability

The financial community has become increasingly focussed on risk in recent years. Prospective investments must demonstrate significant resilience to a wide range of risks and stress tests. In general terms higher risk levels will reduce the number of projects that can meet these requirements and will increase costs for those that do.

The SEM Committee’s principal objective is the “protection of the interests of consumers of electricity in Ireland and Northern Ireland supplied by authorised persons wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the sale or purchase of electricity through the SEM”. Traditionally these objectives were met by encouraging efficient trading arrangements for electricity. However, with the recent change in the pricing of risk in

finance and the rebalancing of electricity costs towards more capital and less operating it is imperative that the SEM committee analyses and gives due consideration to the costs of regulatory risks. Investors see regulatory risk being impervious to statistical analysis (as for example wind variability can be analysed), difficult to hedge against through portfolio design (without growing outside the Irish jurisdiction), and clearly there is no futures market in regulation change.

The potential for arrangements to change regularly is a significant risk. It is essential that the SEM Committee develops a pathway to signal the direction of energy policy to respond to changes. For example, access rights are a critical parameter of a financial model and alterations to this framework would represent a fundamental change in the policy underpinning SEM.

This consultation has introduced a perception of significant increased risk in SEM. As the market is dependent on international banks and investors to support future developments this has the potential to be very damaging and to significantly increase costs for consumers.

2.4 Impacts of Increasing Renewable Penetration in SEM

The Paper examines the changes that might be needed to address some changes in the underlying market for energy. The current SEM market appears to be functioning broadly as intended and IWEA is not aware of significant demands for changes from market participants or customers. However, the market does not account for long term externalities including fuel security, climate change and sustainability. In accordance with EU policy the UK and Ireland have agreed to promote increased use of renewable energy through support systems outside the SEM and BETTA markets. If these support systems are allowed to function correctly they will result in a larger share of renewable generation in the electricity market than the current market forces acting alone may have secured.

The current market arrangements do not provide adequate incentives for investments in flexible plant or other technical solutions which facilitate the integration of renewable generation. There is significant potential for these incentives to increase the efficiency of the overall market and to promote the development of innovative technology. IWEA recommends that the market arrangements properly recognise the value of solutions that improve the operation of the power system.

2.5 Renewable Energy Reduces Energy Prices

Regardless of assumptions around fuel prices, a market with more renewable energy will have a lower average SMP than one with little renewable energy². This is due to the lower marginal production cost of renewable energy such as wind relative to conventional generation units. In SEM where most revenue is from energy payments this will lead to revenue adequacy issues for all players, or at the very least a significant swing in the ratio of high capex to low capex plant. Under the current rules the PSO levy and ROC payments will provide some support for renewable producers and some other players. However, this protection would be eroded in the event that generators are exposed to material levels of non dispatch that are not compensated in SEM or protected by support systems.

For the SEM market to be meaningful and to hold relevance for investors it must seek to assign appropriate value to scarce and valuable commodities. As renewable penetration levels grow the value of flexible capacity will increase relative to the spot price of generated energy. The market framework should reflect these changes and the fall in SEM energy payments should be balanced by an appropriate increase in capacity and ancillary services revenues. This logic is recognized to a point in the current mechanism for the calculation of the annual capacity pot. However, it should also look at revenue adequacy for a wider variety of plant and OCGT. This change is merited as while in theory all capacity requirements could previously have been served by OCGTs this is no longer the case as renewable capacity is explicitly required to enable the achievement of national energy policies. If changes to the SEM rules undermine the fundamental assumptions underpinning investment in renewables then this is a failure of policy implementation.

2.6 Facilitation of Renewables and Support Systems

The recent studies by EirGrid and SONI have identified a requirement to not dispatch a volume of renewable energy available from generators. This volume may vary considerably depending on a range of circumstances that are out of the direct control of any individual investor. As both the REFIT and ROC support systems only provide support in instances where physical energy is produced this is a grave concern. Both support systems were designed to deliver investments at a level that would enable the

² SEM 09-002 Impact of Wind on the SEM – January 2009

delivery of national energy polices. However, both assumed that the generators would have access to the support system for the full amount of available output of their generators.

To facilitate discussion on this point IWEA has included a table below that illustrates our understanding of the terms constraint and curtailment and our understanding of the current commercial treatment of renewable generators under the different cases that may arise. We have defined the terms in the context of the specific market parameters, MSQ and Dispatch Quantity. This formulation has the benefit of unambiguous definition and simplicity. In essence the determination of “reasons” for constraints or curtailment reduces to the question of what technical parameters should be modelled in the Market Schedule software. As described later IWEA does not support the inclusion of additional parameters in this software at this time. We have formulated this table based on a renewable generator with firm access that is registered as a VPM for the illustration purposes.

In Market Schedule	In Dispatch	Description	SEM Payment	REFIT Protection	ROC Payment
Yes	Yes	Scheduled	Energy	Yes	Yes
Yes	No	Constrained off	Energy adjusted by Constraint	No	No
No	Yes	Constrained On	Constraint Payment Made	Yes	Yes
No	No	Curtailed	No	No	No

We note that while the REFIT and ROC support systems have different structures both interact in an identical manner with SEM under this formulation. We also believe that the systems are not operating as intended as the availability of support is determined purely by physical dispatch decisions. It is difficult to understand why a generator that is constrained on should be entitled to the benefit of support while a generator that is constrained off is not. (We note that it would be unusual for a wind generator to be constrained on if the market had already deemed it in excess of requirements).

Under the current framework investors face a material erosion of this support by a factor that is out of their control. If this issue is not addressed in a robust and structured fashion then national energy and economic policy objectives will not be met. IWEA believes it would be negligent of policy makers and implementers to not properly respond to these changing circumstances. IWEA proposes a three phase approach to this issue:

- 1) Full implementation of the renewables directive to ensure that renewable generators are dispatched to the maximum extent possible in the short and medium timeframes.
- 2) Delivery of a relevant SEM market that provides sufficient revenue for a new entrant renewable generator.
- 3) Adjustment of the implementation of the support systems to reflect the impacts of large scale renewable penetration. This could be achieved by replacing metered generation with actual availability in the R factor calculation for REFIT and by making appropriate adjustments to the ROC system to reflect levels of non-dispatch in regions with high renewable penetration.

2.7 Incentivise the development of transmission

Many of the issues raised in the paper relate to transitional issues that will occur as generation development leads transmission development by a number of years. This is strongly demonstrated by the sharp drop in constraint levels forecast in the SEM Committees modelling of 2025 (Reference to original paper or associated documents SEM 09-073) by which time it is assumed that substantial Network development will have been completed. IWEA believes that the transitional issues could more productively be addressed by the introduction of strong incentives to complete grid developments in the required timeframe. We believe that these should be introduced immediately.

The proposed position paper noted that CER has progressed the development of incentives for EirGrid in the context of the consultation on TSO and TAO transmission revenue for the period from 2011 to 2015. The TSO/TAO transmission revenue consultation paper referred to the development of network delivery incentives for the TSO. However, these incentives were not set out in the consultation paper. We would

urge CER to prioritise a consultation on a comprehensive and effective incentive program for the full Grid25 project, not just for the 5 year revenue period.

It is vital, however, that incentives properly reflect the impact of risk. The financial risks of delays to grid developments are very significant and under the current structure these risks are entirely borne by generator developers. It is essential for economic efficiency that these costs are captured in management decisions on optimising development strategies. The party with control over these risks should be properly incentivised to efficiently manage them.

2.8 Ensure fair treatment for small providers

A significant number of small generation companies are expected to join the market between now and 2020. In particular more than 35% of applicants within the Gate 3 process are for projects under 5MW. It is essential to ensure that SEM rules are fair and proportionate for these players. In particular any proposal should be stress tested for its impact on sub 10MW and sub 5MW generators. For example, the restrictions on Variable Price Makers appointing an intermediary in SEM places an undue burden and restriction on small generators.

2.9 Introduce more flexible trading with BETTA

Many of the issues raised in this paper relate to situations where there are excessive generation events. One of the most effective measures to deal with these would be to export the additional generation at these times. While it is recognised that this may not always be commercially or technically feasible the market arrangements should not in of themselves prevent additional trade. In particular the ability to execute short term trades between SEM and BETTA should be introduced and IWEA welcomes the consultation on SEM Regional Integration just published. Intraday trading a positive first step but more work is needed in this area.

2.10 Non-firm access

Non firm access currently allows generation to connect ahead of transmission re inforcements being completed. This allows for more efficient usage of existing network capacity. To ensure that generators with firm rights are not disadvantaged they should be dispatched ahead of non-firm where a relevant transmission constraint is active unless priority dispatch determines otherwise. Non-firm generators should be included in the market schedule with an availability level set up to their Dispatch Quantity. It is recognised that this is not a perfect means for identifying when relevant constraints are active but it is a pragmatic first step. This should also apply to Variable Price Takers. This ensures that generators with non-firm access may enter the Market Schedule and earn infra-marginal rent at times when network capacity is available but that they do not infringe on the rights of firm generators when relevant constraints are in force. While this arrangement will lead to some un-economic outcomes in the short term it leads to a more stable investment climate and more efficient long run outcomes.

3.0 Response to Specific Issues

This Section provides a set of integrated policy proposals developed by IWEA. These proposals aim to deliver an efficient framework for the delivery of national energy targets in Ireland and Northern Ireland.

3.1 Issue 1 Alignment of MS and Dispatch

IWEA believes that the current framework provides a clear separation of issues that are subject to market forces and issues that are in the realm of system operators and owners and should be subject to incentivisation. This framework provides tools for the regulatory authorities to drive efficiency and reduce costs to consumers. IWEA believes that any move from this framework must be carefully considered to ensure that it does not blur incentives.

The possibility of major market changes creates a significant investment risk. While IWEA appreciates the motivation for the introduction of a concept of “material harm” to potentially trigger future changes we are very concerned that this introduces an open ended risk that will deter investment. IWEA believes that the current framework should remain unchanged with stronger incentives on transmission delivery. We believe that this needs to be an enduring decision.

3.2 Allocation of Infra Marginal Rents behind Constraints

The proposal that the market may move to option 1, ignoring firm access, in the event that the material harm threshold is reached is very dangerous and creates an open ended risk for all participants. It is the worst of both worlds not achieving efficiency and yet adding huge investment and regulatory risk.

If investments are made on a set of rules and these are changed retrospectively investors will not trust the market. In the event that this is not possible physically it must be achieved through market or contractual mechanisms to maintain confidence in the integrity of the SEM. This is equally an issue in NI and Ireland.

3.3 Least cost Dispatch

While the concept of Least Cost Dispatch is very attractive it is essential that the imposition of this principle does not compromise the long term efficiency of the market or its ability to meet its legal requirements. Priority Dispatch is an absolute legal requirement under EU law and as such this must take precedence over least cost dispatch. IWEA are disappointed that there is no reference to this requirement in section 5.3 of the SEM committee's paper, however, we do accept that other sections of the paper have dealt with this issue in a positive fashion.

The current consultation paper proposes that no cognisance of firmness will be taken in dispatch decisions. The executive summary comments that "No convincing case to the contrary emerged in the consultation exercise". IWEA is very concerned at this assertion. We fully respect the obligation of the SEM committee to make decisions in accordance with their objectives and understand that there will be occasions where such decisions will vary from our preferred positions. However, we believe that the SEM committee should ensure that it is fully aware of material concerns in the formation of such decisions. This quote strongly suggests to us that this was not the case in regard to least cost dispatch.

IWEA has repeatedly stressed the importance of providing a credible investment framework in the SEM market. In both jurisdictions renewable generators have connected based on constraint information that indicated that earlier connectees would have precedence over subsequent generators. In this manner all investors could assess the financial viability or otherwise of their investments. This framework and the issuing of offers on this basis was overseen by the regulatory authorities in each jurisdiction. We believe that it is incumbent on the regulators to have regard to their previous policy in the consideration of this issue. It remains IWEA's view that firmness and precedence must be respected in the dispatch process.

IWEA acknowledges that there appears to be significant challenges to implementing this proposed policy. It is our view that if it is not possible to implement this position physically at this time then the commercial position should be protected through SEM and external policy mechanisms. In particular we propose that all generators receive firm access rights at the date of their original expected date³. We also propose that the REFIT and ROC system are modified to ensure that generators receive the envisaged level of support from their firm access date onwards.

3.4 Interpreting Priority Dispatch

IWEA welcomes the acknowledgement of the legal status of Priority Dispatch in this paper. IWEA supports the proposed hierarchy and proposed exceptions in flooding situations.

IWEA believes that the quarterly reports on curtailment are a valuable mechanism. However, IWEA proposes that these reports should be monthly and that these should be published on a public website.

Priority dispatch is a matter of law and must be implemented in SEM. It is recommended that all generators entitled to priority dispatch should have the rights to operate as a price taker.

Any barriers to registration as a price maker should be investigated. In particular the restrictions around appointing intermediaries should be removed.

3.5 Hybrid plant and Priority Dispatch

IWEA believes that more clarity on the definition of hybrid plant is required to allow a full assessment of this area. It is important that these regulations do not create a situation where non renewable plant may use priority dispatch provisions to be dispatched ahead of renewable plant. It is equally important that generators that are substantially renewable receive the appropriate legal protections and entitlements.

³ (known as the Scheduled Deep Operational Date in transmission connection agreements for example)

3.6 Deemed Firm Access

Generation developers currently face 100% of the risk of delays to transmission development; this includes risks specifically within the direct control of the asset owner and/or operator. For example, the system operator may choose to re-optimize a set of reinforcements originally designed for earlier connections if they have not yet been built. It is clear that the generator has minimal powers to influence or manage these risks. IWEA believes that deemed firm dates should be introduced to better align risk with the party that may control it. The Paper has taken a negative view of deemed firm, apparently on the basis that generators should not receive early firm status at an arbitrary future date. However, IWEA proposes that deemed firm dates should reflect a “reasonable” date for completion of reinforcements for a specific project. This will allow more efficient project management by developers and network companies and will assist them in prioritising works that have the most significant economic impact.

In particular many generators that connected in recent years received constraint reports or information that was predicated on an anticipated set of network upgrades. In many cases these upgrades have been superseded as network design has been “optimized” to more efficiently connect larger volumes of renewables. If this optimisation process was successful then the overall costs of the new network including the costs of the longer period of constraints should be less than the costs of the original plan. It should hence be possible to insulate generators from the costs of the additional constraints and still retain savings for the consumer. Failure to do this is a simple expropriation of wealth from the earlier group of investors, and is patently not optimisation.

IWEA believes that all new and existing generators should be granted firm access from the scheduled date of completion of necessary network upgrades as envisaged at the time of connection offer acceptance.

3.7 Treatment of Variable Price Takers in the Market Schedule

Under the current rules Variable Price Takers (VPTs) are compensated in circumstances where they are dispatched below their available output. IWEA believes that this is the correct commercial outcome. However, it is recognized that the current formulation of constraint payments for VPTs was not intended

to achieve this, nor is it the most logical manner to implement this policy. IWEA believes that the same result should be achieved through a more direct route and the treatment of VPTs should reflect that of VPMs.

3.8 Grid Code Matters and Information provision by TSOs

Increasing the levels of compliance with the Grid Code will be an essential part of delivering solutions. It is also necessary to review the provisions of the Grid Code to ensure that adequate flexibility is required of all generators. IWEA supports efforts by the TSOs to increase compliance with the Grid Code. However, IWEA would note that it is important that this is implemented in a structured and efficient manner to avoid imposing unnecessary costs on participants.

IWEA welcomes the Paper's proposal that more information and transparency around technical constraints should be provided. We also note that the system operators have engaged the industry very constructively in this regard. We believe that there are significant benefits to be gained from a constructive approach that is focussed on developing solutions.

IWEA notes that special protection schemes have been used very effectively in Northern Ireland and have greatly increased the efficiency of utilisation of the network. We believe that these benefits should be recognised and encouraged. The access rights of generators using SPS should be clear and robust.

3.9 Tie Breaks

IWEA appreciates the invitation to comment further on the potential development of dispatch mechanisms that respect access rights. It is important that projects in earlier connections receive priority over subsequent developments.

The tie break rules must also recognise the financial framework assumed in the offer process. Constraints reports issued by the TSOs are relied on by investors and financial institutions assume that early projects will have priority over later ones in the event of a shortage of transmission during non-firm operation. These assumptions apply equally in both jurisdictions. In the event that this priority is

not allowed many projects built and under construction face substantial additional risk. It is highly likely that a legal challenge would result from changing the priority rules used in constraints reports.

It is important to also state that any uncertainty created by moving away from the principles set out in the constraint reports is also likely to lead to new projects not getting funding due to the uncertainty as to whether they will be in a position to dispatch. This is likely to stymie future generation development.

It may be possible to achieve the aims of this contractually by assigning firm access to generators that have connected in previous tranches.

Partial Firm access does not really work as assigning a FAQ of less than the MEC is different to protecting a percentage of available output which is what is envisaged in constraint reports.

3.10 Determination of SMP when Demand met by Price Takers

The barriers to renewable generators registering as a Price Maker must be removed to allow Renewable Generators to protect themselves from negative prices should they wish to do so. However, given the current structure of support systems they may be reluctant to avail of this opportunity. This misalignment of incentives increases the costs of operating the system. In particular the following barriers should be removed.

- 1) Variable Price Makers should be allowed to appoint an intermediary. This is a practical requirement of the REFIT support system structure.
- 2) The overheads associated with acting as a Variable Price maker should be reviewed to ensure that the option is as accessible as possible.

It is also essential that the SEM committee pursue options that will better integrate SEM with neighbouring markets and that will facilitate action by demand users.

3.11 Quantity of Generation paid PFLOOR

IWEA agrees that the quantity of generation paid PFLOOR should not exceed System Demand.

4.0 Conclusions

IWEA has outlined a proposed set of measures that we believe will enable SEM to function efficiently as more renewable generation joins the market. These are an integrated set of proposals, if only some of the proposals are implemented, inconsistencies and perverse incentives could arise. We would encourage the SEM committee to allow further consultation with industry on this matter by issuing either a revised consultation or a proposed decision ahead of any final outcome. We also believe that any decision should complement work by the Government Departments in developing the National Renewable Energy Action Plans and the Strategic Energy Framework in Northern Ireland.

- 1) There is a need for a broad policy pathway that recognises national and international energy and economic policy.
- 2) The development of transmission should be incentivised
- 3) The market should be stable, the introduction of the concept of potential major change if a material harm threshold is reached is very dangerous.
- 4) Access rules must be clear and meaningful, the terms on which a party accepts a connection offer should not be changed after the investment is made.
- 5) The potential diminution of support systems identified in the facilitation of Renewables study must be addressed.

Appendix 1 Costs to PSO of Changing Expost Correction factor calculation

As currently described in SEM-08-170, the REFIT calculation is currently based on a mixture of metered generation (MG) and market schedule quantity (MSQ). Under the proposal outlined above, IWEA suggests that both references are replaced by Available Active Power. This is a signal generated by all grid compliant wind farms over 5MW which records the power the wind farm could produce, even if it is currently dispatched to a lower quantity. The cumulative difference between the Available Active Power signal and the metered generation is the measure of “lost energy”.

There would be broadly 3 different times when the Available Power would diverge from the MG and/or MSQ.

1. When a non-firm generator behind an export constraint needs to be restricted in its output (assuming option 3 in the SEM-09-073 consultation is implemented)
2. When a firm or non-firm wind farm has its MSQ scaled back proportionally so that during an excessive generation event (i.e. more variable price taker capacity is available than min demand taking into account minimum generation levels)
3. When a firm or non-firm wind farm is dispatched away from its MSQ for example for ramping, inertia, voltage control, economics of starting thermal plant or other system reasons.

IWEA has always expected that there should not be compensation for item 1 above (since generators had the choice of not connecting until their deep reinforcements were ready), but that there should be payment for items 2 and 3, at least for all wind farms needed to meet the 2020 renewables target. That payment should also be floored by REFIT (since the market price is likely to be zero or negative during these periods). The question therefore arises as to whether it would be a significant cost to the PSO or the SEM purchasers if this principle was to be implemented. The price in Ireland would likely consist of the REFIT floor (around €66/MWh in 2010 money terms) plus the 15% supplier uplift of €10/MWh.

Assuming Ireland will need around 13,000 GWh of wind energy in 2020 to meet the 40% target, and assuming a curtailment level of 6% outlined in the Facilitation of renewables, and assuming SEM

revenues in 2020 are less than the REFIT floor above, the annual increase in the PSO would be of the order of €45m/annum.

While this is significant, it is likely that the cost would be much greater if each individual generator had to build in appropriate contingency into his financing assumptions.