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Commission for Energy Regulation
The Exchange
Belgard Square North
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Northern Ireland Authority for Utility Regulation
Queens House
14 Queen Street
Belfast
BT1 6ER

Friday, 18th September 2009

**Re: Consultation on Principles of Dispatch and the Design of the Market Schedule in the Trading & Settlement Code SEM 09/073**

Dear Sir,

SWS appreciates the opportunity to respond to the consultation above. There has been a lack of clarity with regard to how wind is dispatched for a number of years now, and it is vital that developers and investors can accurately assess the risk from what used to be known as constraint and curtailment.

We worked closely with IWEA in the preparation of their response, and we endorse fully that submission and the approach outlined in it. In this response, we will mainly focus on adding some additional justification and specific business background for the positions taken.

**Background**

It may be useful to review the baseline from where the wind industry thought it was before this review process. Before the introduction of SEM, the wind industry was quite familiar with the concept of non-firm access for renewables. SWS in particular made good use of the option to connect before all the deep reinforcements were completed, and we conducted detailed modelling to supplement the Eirgrid constraint studies to ensure that we were not connecting to nodes with high constraint. In fact as far as we are aware, all connections to date have been taken up on a non-firm basis where the option was offered.

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With regard to firmness and priority dispatch (and their corollary, wind curtailment), the rules were less clear. However there was a general sense in the industry that firm meant firm, and that curtailment was likely to be paid, at least for as many MW of wind as would be required to meet national targets. It was also clear that when the AER and REFIT programmes were created, their pricing and rules on the assumption that 100% of a wind farm's possible output could be paid for (or that if there was curtailment, it would be compensated at the same price). Any proposed changes need to be assessed against this baseline, in particular if the changes are proposed to impact on existing wind farms.

**Summary of IWEA Proposal**

We are endorsing the IWEA set of changes to the market rules. We will summarise these here, and then proceed to analyse the questions raised in the paper by referring back to this set of proposed changes:

1. As a high level principle, the current separation that exists between the energy market (SEM), and costs of running the system (ancillary services etc.), should be retained.

2. Wind generators should bid (negative) their REFIT or ROCs benefits into the market (but no lower) to allow for an efficient dispatch.

3. REFIT, ROCS and AER should pay out on the quantity of energy that a wind farm could have produced (as measured by its Available Active Power), as opposed to its metered output, with only the exception of (4) below.

4. Generators behind transmission constraints should be dispatched to their firm access quantity (as is currently the practice) and should be paid only for that quantity, and only that quantity should be used in calculations for support schemes such as AER, REFIT or ROCS. Where tie breaks occur the earlier Gates.

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**Options for SEM Changes**

We understand that there is a fundamental market design philosophy being discussed here. It appears that in an ideal world to achieve a perfectly efficient market, you would include all constraints, ancillary services, technical characteristics etc. into the market schedule so that infra-marginal rent is only paid to the appropriate generators. Apparently the American LMP market approaches this ideal. SWS has not been party to the debate that lead to the decision to instead implement SEM as an energy market only. However we feel that on a general principle, in the absence of clear and quantified costs or problems, changes to a market philosophy so early in its life should be avoided.

While we see the objective of the proposals is to more closely align the market schedule with the dispatch schedule, we are not convinced that the best way to procure facilities such as inertia and fault feed in levels is through the market. The Grid Code is the mechanism which is currently used to require such technical characteristics, and it is not clear that moving them into the market is necessarily going to give a better solution. In particular there is a danger that for generator characteristics that are critical to system stability, you may not want to allow a long term infra-marginal rent type signal to set the availability of this characteristic. You can't have the market undershooting and overshooting the requirement for a few years if that characteristic is critical to grid stability. The consultation noted that it was inefficient if the grid code required all generators have to supply the characteristic, but this does not have to be the case. Already the grid code puts different requirements on different classes of generators depending on their inherent capability, for example with the WFPS section for wind generators. (It is of course necessary that the grid code applies the same standard to each generator within each class). Remuneration is not necessarily more complicated either. For example Spain recently paid out a fixed rate per MWh for the next year to compensate generators who were required to retrofit upgrades to meet a revised grid code (in this case fault ride through). Often it is cheaper to implement a change to an ancillary service payment than it is to re-work the SEM software. Similarly, it may be easier to manage transitions, for example you could require all new generators from a certain date to have a particular characteristic, but choose not to apply it to incumbents, which could be complicated to handle in the market software.

We do of course support the idea that the TSO's should make available information on such technical issues and how they intend to resolve them, so that there is plenty of warning on the likely technical requirements. We contract turbine supply up to 2-3 years before they will go through their grid code testing, so there is plenty of time to get caught by unanticipated

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grid code changes. We also fully support the TSO's current initiatives to enforce Grid Code compliance and agree with the idea of financial penalties for non-compliance.

**Allocation of Access Rights**

SWS agrees that it is a flaw in the current market that non-firm connections can earn infra-marginal rent when not dispatched. We feel that the Option 1 proposed in the paper is very controversial, since it would effectively mean that existing firm connections could no longer rely on having access to the market at all times. We feel that this option would meet significant legal resistance from all generators, wind and thermal alike.

The only fair solution is also the one that is effectively in use today, namely to allocate access to firm connections first, and then allocate capacity up to a generator's firm access quantity to the remaining generators, as outlined in the IWEA summary above. As we understand it, this firm access quantity is not a fixed value, but would change hour by hour on the system depending on network characteristics such as lines in service. The market would pay out on dispatch quantity rather than MSQ as it does now. This is effectively achieving the same as the Option 3 in the consultation, but without the necessity of building the entire transmission network capability into the market.

With regard to deemed firm access, the paper takes the view that this not be introduced because of the risk of allocating infra-marginal rents incorrectly and sending out the wrong long term investment signal. We should clarify that we are not proposing that generators receive a deemed firm date immediately or shortly after accepting an offer. We are proposing only that generators should be deemed firm after their Scheduled Deep Operational Date, i.e. the date specified in their offer on which they would have become firm if the system operators completed all their deep reinforcements on schedule. As such, the risk of sending out a long term signal that could be abused seems very low indeed. It would be a brave generator who built his plant seeking out additional infra-marginal rent in the hope that Eirgrid might be late with a certain reinforcement. (Eirgrid may well be late with some, but it will be difficult to predict which particular ones, and the benefit will only exist for the extent of the delay.)

SWS firmly believe that the deemed firm date concept will become vital to the success of the wind industry in meeting 2020 targets. To date non-firm constraint levels have been low and for a short period, but some Gate 2 nodes, and probably the majority of Gate 3 nodes the

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opposite will be true. Eirgrid are going to face significant difficulties in building the Grid 25 network. Generators have no control over the risk of deep reinforcements failing to be constructed, and so they have to individually price that risk. It is much more expensive for individual generators to price such a risk than it would be if it were placed with a central entity who was incentivised to keep system constraint costs as low as possible. We do not believe that it is necessary to wait until Eirgrid own the assets before such a policy is implemented. The cost of deemed firmness could go to the electricity consumer, but Eirgrid's remuneration and incentivisation would (as with any other constraint and system operating costs) be structured to reward minimising the cost to the consumer. The system operator would have many tools at their disposal if a certain deep reinforcement ran into difficulties. For example they could reschedule the uprating of neighbouring lines, use their compulsory purchase powers, opt to simply pay out the additional constraint if it was small, change their dispatch approach for that part of the network or refocus their Grid 25 rollout so that other lines make up the shortfall.

Clearly wind farm developers have none of those tools at their disposal, and Eirgrid would be uniquely placed to weigh up the various options and pick the most economic solution. It is a general economic principle of efficiency that the risk should be placed with the party who has most control over mitigating it.

Finally it is worth noting that the UK is currently working under a regime whereby there is effectively a more aggressive implementation of deemed firm date. Wind projects (and other generators) are connecting under Connect and Manage principles which require that if the grid is not ready, the wind project is fully compensated for any constrained energy. This is effectively deemed firm, but it occurs 2-3 years after the connection agreement is signed, irrespective of the actual planned lead time for the grid reinforcement.

**Priority Dispatch**

SWS has not completed a legal review of the relevant legislation. However it is our view that the intention of the European directive is that wind should have priority dispatch, qualified only by system security reasons, and not economic factors. That said, our investors do not mind whether priority dispatch is achieved technically (by building all the grid and interconnection necessary) or commercially (compensating where curtailment is needed). We feel that it must be more logical to follow the latter route, since this offers the option to minimise cost to the consumer, ultimately allowing everyone to gain. From a legal

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perspective, we don't mind if the market rules appear to slightly breach the precise wording of the directive, as long as they make us whole financially to the point we would have been if we had priority dispatch (thus achieving the intention of the directive). In summary, while we don't actually agree with the consultation's view that the directive is actually qualified for economic reasons, we end up at the same position by simply taking a pragmatic view.

As a result of the position above, we believe that wind generators should become variable price makers and bid taking their subsidies into account (Option 2c)[1].

We have no strong views on hybrids, other than asking that care is taken not to allow non-renewable plant to slip in under the coat-tails of renewable generation.

**Quantity of Generation Paid PFLOOR**

This area is one that we feel has not been given enough attention by the IWEA response, and indeed was treated as an inconsequential tidy up in the consultation paper. There should be no doubting the significance of this proposal, the scaling down of MSQ in proportion during an excessive generation event is curtailment by another name, and as such could have a very serious impact on the ability of wind farms to obtain long term finance.

We believe that the cost of such curtailment of wind in excessive generation events should be treated just as any other cost of running the system (such as the provision of reactive power). It is an inevitable consequence of setting high national targets for wind installed capacity. We believe that in setting the REFIT floor price, the DCENR had not made any specific allowance for curtailment in the later years of the contract.

The appendix to the IWEA response indicated that such curtailment was not likely to be a significant number. However its cost to a wind farm developer is higher, since it is an unknown and difficult to predict value, influenced by such things as interconnector build rate, generation retirement or new build, fuel prices and carbon prices. As with other variable but difficult to predict numbers, it is surely cheaper to socialise such a cost with the party who can have most impact on minimising it. Since wind farms have no control over this risk, it seems natural that it should be part of the market or system operators cost base. They can

[1] Any negative bid by wind is driving dispatch away from the cheapest (and lowest carbon) possible dispatch. For example a bid of -€8/MWh (which is likely for all REFIT backed wind generators) will on occasion cause CCGT to turn off and start up again, where they wouldn't have done so if wind was bidding zero. This appears to be a flaw in the support schemes, which surely shouldn't be incentivising higher carbon emissions in these conditions.

for example examine ways of enforcing better minimum generation levels in the thermal fleet if excessive generation events (curtailments for wind) are more common than expected.

Failing that, it would be up to the support scheme (and hence the PSO) to pick up this cost. This would be achieved by ensuring that the quantity considered in the calculation of the R-Factor is based on the available energy from a wind farm (irrespective of whether it was dispatched down for an excessive generation event, or the MSQ was reduced pro-rata as a result), as outlined in the summary of the IWEA proposals above. However the PSO similarly has no control over this cost and risk, and so is a less suitable place to allocate this cost.

**Tie Breaks**

Again SWS feel that this area is in fact critical to the Irish wind industry, and deserved further focus both in the original consultation and the IWEA response.

To date all the Eirgrid constraint studies have been completed on the assumption that previous gates had higher priority and later gates had lower priority access in the event of a tie break between non-firm generators behind a transmission constraint. All wind farms financed to date have included a constraint report from Eirgrid as part of their due diligence pack supplied to banks, and financial models have included an appropriate adjustment to output. For example SWS banked a Gate 1 wind farm in the south west which had estimates of <1% constraint for a maximum of 5 years. We negotiated a 15 year PPA on that basis. However that node is predicted to have up to 60% constraint if all the Gate 2 wind farms were to connect there without all the deep reinforcements having been completed. Electricity prices (and hence PPA terms) have improved recently, and while it is very unlikely that all the Gate 2's will connect and cause 60% constraint, it is possible that some may find it viable to connect early causing constraint up to for example 15% of their annual output. Since SWS has written a 15 year PPA on the assumption of <1% constraint, if our Gate 1 wind farm were to be exposed to constraint of 15%, it would use up its reserves and become insolvent in a matter of 1-2 years.

The idea that Gate 1 wind farms will not be adversely affected by Gate 2 wind farms and in turn Gate 3 wind farms has been enshrined in constraint reports issued by Eirgrid from day one. If this assumption were to change now, it would cause a drastic loss of confidence in

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the use of non-firm capacity and constraint reports in particular, and in the wider industry as a whole as projects go out of business[2].

The consultation rules out any approach other than applying tie-break rules on a pro-rata basis, on the basis that anything else would cause a "myriad of rules". We do understand that in the heat of the moment in the National Control Centre, it is vital that operators do not have to perform any optimisation calculations and look-up a table of rules. However there is simply too much at stake to default to an overly simplistic solution of pro-rata. We believe it would be possible to build a "constraint advisor" tool which references a database of the list of all wind generators and their gate, performs an approximate optimisation to determine participation factors, and recommends the cheapest re-dispatch required to solve the contingency. This tool should also record actual dispatch, and an attempt should be made to rebalance constraint if a particular wind farm was taken off in error. This is not trivial, but we see no other simpler solution. In any case, such a tool will be required to convince distraught developers that the constraint has been allocated in a fair and transparent manner to the various wind farms in their area. Eirgrid should anticipate handling more and more queries along the lines of "Was my wind farm properly constrained last night or should it have been my neighbour?"

Furthermore, with respect to Gate 3 in particular, SWS envisages that there will be areas with prohibitively high constraint predicted by the Gate 3 constraint studies. In those areas, there are examples of two large generators who both will presumably wish to connect as early as possible. If one connects, the constraint would be reasonable, but if they both connect, both will experience the prohibitively high constraint. (Constraint is highly non-linear, and the last few MW added to a node can cause a large swing in constraint for all connected at the node). As a result, neither can safely proceed.

In this situation, it would make more sense for the Eirgrid constraint report to assess the amount of MW that could be connected at this node to cause no more than, for example 15% constraint. Developers should be entitled to connect some or all of their projects up to that MW limit, presumably by application date order to preserve the ranking coming out of the ITC programme. These would comprise Gate 3a. Other developers would also have the right to connect if they so choose, but they would do so on the understanding that there is a danger they would experience more than 15% constraint. They would comprise Gate 3b. In order that Gate 3a is protected from developers who like to live life on the edge in Gate 3b, you would simply declare Gate 3a wind farms to rank above Gate 3b in the system outlined

[2] In fact there may need to be a further distinction made within a gate, giving permanent connections priority over temporary connections.

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above (and just as Gate 0 would rank above Gate 1 etc.). In our view this system adds little further complexity if you have already implemented a system for differentiating for example Gate 0 and 1, and this system would give much more certain information to developers choosing to connect to a high constraint node. It also makes much better use of whatever non-firm capacity is remaining on the network, thus allowing a much smoother roll-out of wind as we progress towards our 2020 targets.

**Conclusions and next steps**

In summary, SWS supports the IWEA position of maintaining the separation between energy market and system costs, ensuring that there are no perverse incentives associated with non-firm access to the grid, bidding negative the value of supports and pro-rating down quantities during excessive generation, all subject to the REFIT R-factor calculation being based on the available output from a wind farm rather than its actual metered output.

We appreciate that there were a lot of topics raised in this paper, and it may be appropriate that there is further consultation on more complex areas such as the question of deemed firm access and the structure of associated incentives for the system operator. Similarly the question of how quantities are allocated in excessive generation events is not causing immediate impact to projects.

On the other hand, some Gate 3 offers are due in December this year, and developers are expecting to be able to rely on associated constraint studies. We understand that the studies currently being run by Eirgrid are based on the assumption that constraint would be pro-rated across all gates without distinction, which for reasons outlined above, is of concern to us. To re-run the studies would require a number of months work. As such, if possible, guidance should be available as soon as possible on this area.

We realise that have included a number of counterproposals above, and we would as always be available if you wish to discuss the points raised in more detail.

Regards,

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Peter Harte

SWS Energy