



Response to:

Treatment of Curtailment in Tie-Break situations (SEM-12-028)

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Executive Summary

ESB Wind Development (ESBWD) strongly disagree with the proposed option 1 as outlined in the consultation paper. In our view curtailment is a system wide issue, and should not be arbitrarily linked to firmness. If selected option 1 would be seriously damaging to the wind industry, and would not best serve any of the interests in SEM including those of the consumer. The choice between option 1 and meeting 2020 targets is a binary one - if option 1 is chosen 2020 targets simply will not be met.

Option 4 represents a major change to the SEM principles, and in our view would require significant further consultation before being actively considered.

While we do see some merit in options 2 and 3, we believe that our preferred solution as outlined below, which is a slight variation on option 3, combines the best aspects of both, while addressing some of the concerns around these two options.

ESBWD support the response submitted by the Irish Wind Energy Association (IWEA), and are in agreement with the broad principles outlined in their proposed solution to the issue of the allocation of curtailment.

The preferred position of ESBWD for the allocation of curtailment in tie-breaks is as follows:

- ESBWD are in favour of allocating curtailment on a pro-rata basis under a slight variation on option 3 in the consultation document.
- Curtailment should be allocated on a pro-rata basis between wind farms that contribute to the 2020 renewable electricity target regardless of their firm status.
- The cut-off for being curtailed on a pro-rata basis should be based on a given target date for achievement of the 2020 renewable energy target. To qualify for curtailment on a pro-rata basis wind farms must be operational by this date. We suggest the date of the 1st of December 2018 as per the consultation document.
- The target date should be reviewed periodically and extended if necessary by the SEMC if renewable targets have not been met. The date should not be

brought forward however in the interests of providing certainty to wind farm developers.

- As per current SEM rules, in this scenario firm projects will be paid market revenues when curtailed, and non-firm wind farms will not, but curtailment of projects operational before this date will still be allocated on a pro-rata basis.
- Wind farms that were operational before the cut-off date should still be curtailed on a pro-rata basis, regardless of their firm status after the cut-off date. This proposal protects the non-firm projects that made an investment decision before the cut-off date, and ensures that they can still invest with certainty before the date.
- After the cut off date, allocation of curtailment for wind farms that become operational after the date should then be grandfathered according to firmness as per the SEMC's proposal under option 3 in the consultation document, i.e. non-firm wind farms should be curtailed before firm wind farms.
- To clarify, after the cut-off date once a wind farm does become firm, it will then be curtailed on a pro-rata basis in the same way as all the wind farms operational before the cut-off date. This allows the potential for new projects to build out after the cut-off date.

In our view post cut-off there must be some means of allowing investment to continue, while having some type of grandfathering to prevent excessive investment and protect the consumer. On this basis grandfathering based on firmness as suggested by the SEMC may be a suitable way of doing this – it would slow down build rates considerably and provide greater financial certainty to firm projects, but without stopping the industry entirely.

Introduction

ESB Wind Development (ESBWD) welcomes the opportunity to respond to the consultation on the Treatment of Curtailment in Tie-Break situations. ESBWD has a large portfolio of operational wind farms in SEM, and a pipeline of development projects which we intend to construct over the next number of years. As such we have an interest in protecting the economic viability of our existing assets, while also allowing the construction of our development projects to proceed. With these two factors in mind, how curtailment is allocated in tie-break situations is of critical importance to our business, as this will have a profound effect on both our operational assets and our ability to continue to develop our portfolio.

Section 1 - General Comments:

Mitigation of Curtailment

While with increasing wind penetration levels some curtailment of wind generation is inevitable, the level of curtailment can be substantially influenced by the various mitigation measures that are available. Without going into an exhaustive list measures include higher instantaneous wind penetration levels, lower minimum generation limits for thermal plant, and export of power via the interconnectors. It is crucial that the SEMC promote and incentivise these mitigation measures to endeavour to minimise the impact of curtailment on renewable generation, in line with the RES-E Directive (Directive 2009/28/EC).

Treatment of Curtailment to Date in SEM

Curtailment was first highlighted to the industry in 2003 when Garrad Hassan carried out a report for the CER on the issue (CER03024), so it has been on the radar of the industry for over nine years, and has been widely discussed and consulted on during this period.

Throughout the SEMC 'Wind in the SEM' consultation from 2008 to August 2011 the allocation of curtailment has consistently been proposed to be treated on a pro-rata basis on numerous occasions as outlined below:

SEM/08/102 - recognised that Tie-break rules are required.

SEM/09/073 - proposed de-loading of wind generation done on a pro-rata basis.

SEM/10/060 - proposed de-loading of wind generation done on a pro-rata basis, both constraint and curtailment

SEM/11/062 –notes that firm access and curtailment are not related.

SEM/11/063 - proposed curtailment was to be carried out on a pro rata basis.

This fact is acknowledged in the consultation paper itself, which states “It is clear from the ‘Scheduling and Dispatch’ consultation process that up until SEM-11-063, the SEMC favoured a pro-rata approach to tie-break situations”

All the projects operational in SEM to date, and in particular those that were and still are connected on a non-firm basis made substantial investments on the clear understanding that curtailment would be allocated on a pro-rata basis. A change in the treatment of curtailment at this point was certainly never anticipated by SEM participants.

It is essential that this point is recognised. ESBWD has engaged with all major lending institutions for wind farms over the past number of weeks and a number of lenders raised concerns about pro-rata being so-called “retrospective regulation” and “retro-active policy changes”. Clearly there is nothing retrospective about the allocation of curtailment on a pro-rata basis. Lenders should not use this consultation as a justification for their own potential lack of understanding of this issue or to explain to their credit committees why their own Technical Advisors have not raised this as a concern before now. If grand-fathering were adopted this would clearly be a major policy shift.

Trade off between allowing new investment and protecting operational projects

It must also be recognised that there may be an unavoidable trade-off between perfectly protecting operational projects and allowing new build towards 2020 targets. Some participants in SEM may want existing projects protected completely from curtailment.

As is clearly demonstrated in appendix 1, curtailment levels for non-firm projects (within the study period) would be of the order of 15% or greater, and this assumes that firm projects are subject to curtailment levels of less than 5%. To perfectly protect these existing firm projects to 0% curtailment (as is suggested by a number of lenders) de facto implies that non-firm projects would be subject to curtailment levels

of well in excess of 15%. Even the most economically robust wind farm could not endure such levels of curtailment.

It is worthy of note that while traditional bank non recourse project finance is and will remain an important part of developing projects, a number of other models for financing projects do exist as well as emerging models (equity etc). A number of players in SEM have been in a position to develop projects using their existing resources. Indeed in excess of 40% of onshore Gate 3 capacity is held by large companies who have the potential to develop “off balance sheet”. Furthermore we are seeing the emerging significance of equity players in the development phase of wind farm projects, a space they have not traditionally been active in. In addition we are seeing Export Credit Agencies becoming more active in Irish wind farm projects bringing new and innovative financing proposals to the market. Put simply, while very important, bank project finance is not the only model available to finance a wind farm.

ESBWD has a large portfolio of operational assets, and also a development pipeline, and we recognise that in order to strike a balance and allow build out to continue and targets to be reached, existing projects must be subject to their fair allocation of curtailment on a pro-rata basis.

In our view all investments made in SEM to date by prudent developers either did or should have taken curtailment into consideration at the time of investment. It is simply not correct to suggest pro-rata is some form of retrospective regulation. It is not credible to suggest that existing firm projects should be perfectly protected given the inevitably damaging levels of curtailment that new and non-firm projects would suffer as a result.

Transparency of information available to RAs

ESBWD are aware that the SEM Committee are to carry out analysis examining the impact on the electricity consumer of the options set out in the consultation paper. In the interests of understanding the market impact of the proposals presented, ESBWD believe that the SEMC’s analysis framework should be fully transparent. Given that the consultation has now closed without any analysis as yet being made available it should be included as an addendum to any proposed decision. In our view it is critically important for the SEMC to provide full transparency and demonstrate conclusively the rationale behind any proposed decision.

Section 2 - Analysis of the Options:

Option 1 – Grandfathering

ESBWD is very strongly opposed to this option. By its nature curtailment is a system wide and not a locational issue, and should be treated as such. The arbitrary artificial link to firmness proposed under this option is a wholly and completely inappropriate way to treat the allocation of curtailment at this point in time. It is also fundamentally unfair. A decision to allocate curtailment on the basis of firmness would also represent negative retrospective regulation, as up to now curtailment has been consistently allocated and proposed to be allocated on a pro-rata basis, and a large number of participants have made significant financial investments on this basis. The viability of several of these non-firm investments would be seriously threatened by any sudden reversal of existing SEM policy away from pro-rata towards grandfathering. Allocation of curtailment based on firmness would also put the achievement of 2020 targets at risk.

Impact of grandfathering

It is appropriate to begin the analysis of this option with an examination of the impact of this option on wind farms operating in SEM. The analysis presented in appendix 1 to this response shows that under the grandfathering rules proposed under option 1, an average non-firm generator operating in SEM for the last eight months of 2011 would have experienced curtailment amounting to 15% of its available generation, while actual system-wide curtailment in absolute terms was less than 5%. Forecast analysis carried out by other participants for non-firm wind projects under option 1 has shown long term projected curtailment levels of between 20% and 25%. These figures represent a very significant level of lost generation for which no remuneration would be received from either the market or other sources.

There are three key conclusions that can be drawn from this analysis:

- If curtailment is allocated according to grandfathering, no wind project will be constructed until it actually has a firm grid connection, as these levels of curtailment will be prohibitively high. No wind project, no matter how economically robust it is could withstand curtailment levels of >15% and still be viable. Furthermore, no prudent developer or lender would take a view on

a likely firm date given the risk involved in delivery of deep reinforcements, and would not commence construction of their project until they were confirmed as being definitely firm.

- More seriously, there are a number of non-firm wind projects that are currently operational in SEM. These substantial investments were made on the basis that curtailment would continue to be allocated on pro-rata basis. These assets are also currently contributing to 2020 renewable energy targets. If option 1 were adopted these operational assets would immediately be subject to losing more than 15% of their generation, and consequently revenues, on a totally arbitrary basis. As a result of this there is a very strong likelihood that some of these projects would default on their loan agreements. This would be a clear case of negative retrospective regulation causing existing SEM assets to run into severe difficulty if not default. In addition to being totally unfair this would send an extremely negative message regarding the stability of the SEM investment environment.
- Option 1 is very clearly not in compliance with the overall SEM market design. The SEM High Level design (AIP/SEM/42/05) clearly states that the market facilitates a generator connecting *“prior to the completion of deep reinforcements.”* The fact that generators cannot connect until they are firm due to the prohibitive levels of curtailment that non-firm generators would face means that if option 1 is chosen that the SEM will then have a de facto deep connection policy, in clear violation of its own design principles.

At this juncture we feel it is appropriate to refer to the example of Woodhouse wind farm as an example of the impact that choosing option 1 would have on a real development project in SEM. Our reason for doing this at this point is that this example is used in many of the arguments against grandfathering further on in this response. Woodhouse wind farm is a wind project owned and developed by ESBWD.

Effect of Option 1 on Woodhouse wind farm

Woodhouse wind farm is a fully consented 8 turbine, 20MW wind project located in west Co. Waterford. Woodhouse applied for a grid connection in 2004, and received a Gate 3 connection offer in January 2011 for 23MW, which was the very first Gate 3 connection offer issued. The grid connection for the project is extremely straightforward - the Dungarvan-Knockraha 110kV line runs directly through the site, and the on-site substation is to be constructed immediately adjacent to the line. The site itself is located in gently rolling arable farmland, and is considered to be very low risk from a construction perspective. On-site access tracks have already been completed. A tender for the procurement of turbines has been completed, (in parallel with that for two other projects outside of the RoI, both of which are already at an advanced stage of construction) and a turbine supply agreement is in agreed form. In the Proposed Generator Output Reduction (PGOR) report for area K where Woodhouse is located, indications are that the project will be subjected to 0% constraint for up to 66% build out of Gate 3 connected wind farms.

It is clear that Woodhouse is at a very advanced stage of project readiness with low risk, and is in a position to commence construction immediately. It could be expected to become operational within less than 1 year after starting construction, and contribute to 2020 renewable energy targets.

However, according to Eirgrid's latest ITC run results Woodhouse is not expected to be firm until 2020, as its firmness is associated with grid reinforcements in the greater Dublin area, among others. This is despite the fact that the indication in the PGOR report is that the wind farm will not be subject to constraint. If curtailment is allocated according to option 1 then as demonstrated by the analysis outlined in appendix 1 Woodhouse will not commence construction until it is actually firm, which may be in 2020 but is quite likely to be delayed beyond this, as some of the large number of associated reinforcements can realistically be expected to be delayed. If option 1 is chosen it is probable that Woodhouse will not become operational until the early 2020s. This is in spite of it being ready to construct in 2012, with a very simple grid connection and 0% constraint, and having received the very first Gate 3 connection offer.

This project is a clear example of how a regulatory decision to grandfather curtailment based on firmness could negatively impact a viable low risk project in

SEM that is construction ready in 2012 and in a definite position to contribute to 2020 targets. The project would most likely be delayed for ten years and possibly longer as a result of the decision to arbitrarily create an artificial link between curtailment allocation and firmness. Woodhouse could proceed under any of the three pro-rata options, but a scenario where curtailment is allocated on the basis of firmness will mean that this immediately viable project will be delayed for a decade or more.

This example strongly backs up the view held by ESB WD that if option 1 were to be chosen it would send a powerful negative investment signal to the SEM market that arbitrary regulatory decisions can seriously impact real projects and prevent them from proceeding.

Evaluation of option 1 against the SEMC criteria

1. Impact on the consumer and Dispatch Balancing Costs

- The consultation document states that “grandfathering reduces the level of curtailment faced by firm generators...the risk of curtailment under grandfathering is borne mostly by non-firm generators”. This is incorrect, as demonstrated above no projects will construct until they are firm. All that grandfathering would do is to slow down the wind build rate on an arbitrary basis, which may reduce the absolute level of curtailment somewhat.
- Further to the point above a slow down in wind build will result in significant lost investment to SEM as projects will not be able to build until firm, and this must be weighed against any perceived benefit to the consumer of grandfathering.
- ESBWD understand that the results of a Redpoint study carried out for the Irish Wind Energy Association demonstrate that grandfathering will actually result in a net cost to the SEM consumer compared to pro-rata treatment. The increased penetration of wind under a pro-rata solution will result in reduced SEM market prices, and the benefit of this to the consumer outweighs the cost of curtailment by more than €42M per year.

2. Facilitation of Ireland and Northern Ireland 2020 Renewable Targets

- The consultation document states that a grandfathered approach will help the viability of generators that are earlier in the connection queue, and those where investments have already been made ahead of speculative investments. It also states that it favours projects looking to invest in the short term where the project is located in a favourable location on the network. The example of Woodhouse above conclusively demonstrates both of these assertions to be false. Because its firmness is linked to reinforcements in Dublin the only thing that would prevent Woodhouse from proceeding is if grandfathering was adopted. It would then be delayed for **more than a decade**, and this real viable project would not get the opportunity to contribute to 2020 targets. In a grandfathering scenario the project would not be completed for almost 20 years after first applying for grid access. There are many other projects in a similar situation.
- Based on work completed by ESBWD there are circa 2030 MWs installed on the island (1630MW RoI and 400MW NI). Our analysis of unbuilt pre-gate, Gate 1, Gate 2 and unbuilt projects in NI with planning permission suggest that only around 1200MWs (of a possible 1500MWs) will actually ever build.
- IWEA suggest an all-island figure of 5600MWs is needed to reach 2020 targets. With 2030MWs built and a further 1200MWs of non-Gate 3 to build, there is a clear short fall of 2370MW.
- The SOs most recent ITC run suggests that by c 2016/18 there will be enough firm capacity available to meet this 2370MW shortfall but in our opinion a more realistic view needs to be taken of
 - Actual grid build out: - The vast majority of projects in Ireland and Northern Ireland are associated with significant deep reinforcement works (N-S tie line, Gridwest, Gridlink, Greater Dublin upgrades, NI upgrades, RIDP etc). ESBWDs analysis of the impacts of these upgrades on our portfolio of projects conclude that it is likely that the actual FAQ dates will shift out on average 2-3 years when compared with the SOs “scheduled FAQ”.
 - Planning prospects: - More than 50% of Gate 3 projects are located within statutory or environment designated areas. Even for those projects that have already received planning there is a serious concern around expiring permissions being renewed. Also there are

serious concerns regarding the chances of new projects securing planning at all.

- Other considerations: - Based on ESBWDs assessment of Gate 3 projects, there are several factors that lead us to question the financial viability of a number of significant projects (regardless of their grid and planning status). These include lower wind speeds than seen in pre-Gate, Gate 1 and Gate 2 sites, higher grid connection costs, reduced subsidies (REFIT 1 vs. REFIT 2), higher costs of capital and higher capital expenditures.
- When the above 3 factors are compounded there is no doubt that there will be serious difficulty in achieving 2020 targets. Indeed if option 1 is the policy adopted by the SEMC whereby projects will not build until they become firm, in our view there is no doubt that the targets will not be met.
- Almost all the firm projects already connected did so on the understanding that curtailment would be allocated on a pro-rata basis. Pro-rata should not affect the economics of suitably robust investments made by prudent developers and lenders.
- Due to the difficult nature of construction of deep reinforcements with consequent long delays, instead of enhancing investor confidence for viable projects grandfathering in fact does the opposite. If a project is awaiting firmness it introduces an arbitrary variable into the mix of factors that must be considered when developing their project over which the developer has no control whatsoever.
- In many cases indicative FAQ dates provided by the SO do not reflect project readiness. For example projects with early firm dates may not have consent, and may never receive it. These projects will not be in a position to proceed as planned.
- In Northern Ireland the method for allocation of firmness has not yet been confirmed, and there is currently debate as to who will manage the process of its allocation, SONI or NIE. In allocating curtailment on the basis of firmness the SEMC would be asking participants to place stock in a methodology that is not yet confirmed, with no clear owner at this point.

3. Efficiency of Entry Signal

- Grandfathering does not provide an efficient entry signal for those in the connection queue. Instead it introduces an arbitrary artificial link between two unrelated issues that can have a serious detrimental impact on a genuine projects viability, as per the Woodhouse example above. In a pro-rata scenario other factors such as availability of planning, project economics, and the availability of REFIT will act as more appropriate entry signals. These will, (and indeed already are) act to prevent over-entry of generation, or entry of inefficient generation.
- In a pro-rata scenario there is likely to be a natural cap on investment when predicted curtailment levels exceed a manageable amount, which should give some protection against excessive investment, and provide an efficient entry signal.

4. Stable Investment Environment

- If introduced, grandfathering would have a serious detrimental effect on the performance of existing non-firm wind farms, which would represent negative retrospective regulation with consequential effects on real assets. This would send a very negative signal to the market regarding the stability of the investment environment in SEM.
- The arguments made above apply equally to this criteria. Grandfathering introduces more, not less uncertainty than pro-rata, particularly given the difficulty in predicting actual firm dates, the opaque nature of Eirgrids FAQ analysis, and the uncertainty as to how firmness is to be allocated in Northern Ireland.
- Pro-rata provides equal levels of certainty to all investors, not just those who are actually firm.
- In Northern Ireland grandfathering provides a strong negative investment signal to NIE. Deep reinforcements have long timelines associated with design and construction, and are prone to long delays. NIE need to be given clear signals in the short term that there will be sufficient generation to justify the installation of such infrastructure.
- Great Britain has a similar but more stable regime with curtailment much less likely in the short to medium term. Many companies operating in Northern

Ireland have an international presence and would be more inclined to invest in the GB market in preference to NI. This would result in the loss of jobs, economic activity and inward investment in Northern Ireland. Redpoint analysis commissioned by NIRIG has demonstrated that renewable energy generation in NI is one of the most cost effective methods of meeting the UK EU energy targets and has the potential to create significant annual savings on a UK wide basis when compared to more expensive generation methods.

- There is evidence that the prospect of grandfathering has caused concern for a number of developers in terms of the Crown Estate NI leasing round. Offshore provides significant opportunities for NI – the development of a local offshore project will have much wider implications in terms of developing expertise and supply chain. Grandfathering could stop such a development before it even starts with a “not open for business” message.

5. Consistency of treatment for constraints and curtailment

- Constraints and curtailment are two completely separate issues. Constraint is acknowledged to be a locational issue, whereas curtailment is a system wide issue. It is not appropriate to treat them both in the same manner.
- Consistency of treatment for constraints and curtailment is not necessarily an appropriate criterion for assessing the different options. The SEMC have incorrectly inferred in their consultation document that constraint will only be allocated using grandfathering based on firmness only. As per SEM-11-105 the SEMC have decided that some regions will have constraints grandfathered and in other regions pro-rata used. This is on the basis of advice from the SOs that it would not be possible to grandfather constraint all across the SEM due to system limitations, and that only three areas would be identified where constraint will be grandfathered. As negative a signal as grandfathering of curtailment is, some hybrid of “locational grandfathering” would be even worse. For that reason it is not appropriate to have consistency between the treatment of constraints and curtailment.

Option 2 - Pro-rata

ESBWD has a very similar view to that of IWEA regarding option 2. With the criteria set out by the SEMC in mind ESBWD supports the principle of a pro-rata allocation of curtailment for a number of reasons including the following:

- Pro-rata is the most fair and appropriate way to deal with curtailment, which is a system wide issue.
- The assumption to date and throughout the consultation process has been that curtailment would be allocated on a pro-rata basis
- Analysis carried out by Redpoint on behalf of IWEA demonstrates that pro-rata is the most advantageous solution for the consumer.
- This option will allow renewable targets to be met in Ireland and Northern Ireland as the levels of curtailment applied to new non-firm projects will not be as severe as under Option 1
- There is likely to be a natural cap on investment when predicted curtailment levels exceed a manageable amount, which should give some protection against excessive investment, and provide an efficient entry signal.
- If 2020 targets are at risk due to lack of financeability of projects or otherwise this can be dealt with by policy makers in due course, taking into account the changing shape of the industry (e.g. demand growth, EU target model etc.).
- In the SEM Committee review of the pro-rata option 2, it is stressed that it is the combined levels of constraint and curtailment that will make non-firm wind farms unviable. This is not the case for many Gate 3 wind farms. EirGrid's PGOR reports have shown that for many areas constraint will reduce to zero before the projects will actually receive firm access. This is due to the opaque and conservative approach taken to the allocation of firm access compared with actual local constraints. This is borne out by the Woodhouse example above. The same is true for NI where the SONI consultation on firm access indicates that in the majority of cases that constraint levels will be insignificant (<1% in some cases) when compared to significant projected curtailment figures.

However ESBWD also recognize that there are some concerns that in particular this option could be difficult to finance because of the risk of high curtailment if there is unlimited build out of wind generation to very high penetration levels. This may not appeal to some financing institutions due to its uncapped nature.

We also recognize at this point in 2012 that there is particular uncertainty on curtailment levels post 2020. The period 2020-2030 will need to be included in the financial model of most new wind farms. With the multiple variables that drive curtailment levels it may be difficult to model curtailment levels with any degree of certainty during this period.

While ESBWD agree in principle with Option 2, to address some of the concerns associated with this option in section 3 ESBWD propose a slight variation to option 3 as a suitable alternative.

Option 3 – Temporary Pro-rata

ESBWD believe that there is merit in many aspects of option 3, while it has a small number of drawbacks, and in this context ESBWD propose a slight variation on Option 3 as our preferred solution to the allocation of curtailment.

Option 4 – Pro-rata with generators taking the risk

While welcoming the principle of curtailment being dealt with on a pro-rata basis in line with option 2 ESBWD recognise that this option represents a substantial regulatory change to the SEM principles and rules. The proposal to not compensate a certain class of generator that is in the market schedule but is not dispatched would be a fundamental departure from the existing SEM principles and rules, and it could have implications for other types of generation in SEM. It is the view of ESBWD that in order for such a root and branch change to be considered it would require significant additional high level consultation on the SEM principles further to SEM-11-028 on this specific topic, and would need to involve all market participants.

Section 3 - ESBWD Preferred Solution:

While we do see considerable merit in many aspects of option 3 we do have two particular concerns with it. The first is that the proposal whereby after the cut-off point, non-firm generation would be turned down ahead of firm generation. This will still mean that no projects will invest until they are actually firm as the risk of being curtailed once the point has passed will be too great. In order to invest in advance of the date, and in advance of being firm, a developer will need assurance that they will be curtailed on a pro-rata basis for the lifetime of the project, regardless of firmness.

The second concern is around the cut-off date. In order to provide maximum certainty to developers it is important that this date is fixed, and can only be extended outwards (if the SEMC perceive that this is necessary to ensure that targets can be met). If there is the slightest risk that this date could move forward no developer or bank/equity will invest due to the risk that they would be planning to be operational by

a date which could then arbitrarily move forward. In our proposed solution below ESBWD include a small number of variations to address these concerns.

The preferred position of ESBWD for the allocation of curtailment in tie-breaks is as follows:

- ESBWD are in favour of allocating curtailment on a pro-rata basis under a slight variation on option 3 in the consultation document.
- Curtailment should be allocated on a pro-rata basis between wind farms that contribute to the 2020 renewable electricity target regardless of their firm status.
- The cut-off for being curtailed on a pro-rata basis should be based on a given target date for achievement of the 2020 renewable energy target. To qualify for curtailment on a pro-rata basis wind farms must be operational by this date. We suggest the date of the 1st of December 2018 as per the consultation document.
- The target date should be reviewed periodically and extended if necessary by the SEMC if renewable targets have not been met. The date should not be brought forward however in the interests of providing certainty to wind farm developers.
- As per current SEM rules, in this scenario firm projects will be paid market revenues when curtailed, and non-firm wind farms will not, but curtailment of projects operational before this date will still be allocated on a pro-rata basis.
- Wind farms that were operational before the cut-off date should still be curtailed on a pro-rata basis, regardless of their firm status after the cut-off date. This proposal protects the non-firm projects that made an investment decision before the cut-off date, and ensures that they can still invest with certainty before the date.
- After the cut off date, allocation of curtailment for wind farms that become operational after the date should then be grandfathered according to firmness as per the SEMC's proposal under option 3 in the consultation document, i.e. non-firm wind farms should be curtailed before firm wind farms.
- To clarify, after the cut-off date once a wind farm does become firm, it will then be curtailed on a pro-rata basis in the same way as all the wind farms operational before the cut-off date. This allows the potential for new projects to build out after the cut-off date.

In our view post cut-off there must be some means of allowing investment to continue, while having some type of grandfathering to prevent excessive investment and protect the consumer.

On this basis grandfathering based on firmness as suggested by the SEMC may be a suitable way of doing this – it would slow down build rates considerably and provide greater financial certainty to firm projects in the form of more stable curtailment levels, but without stopping the industry entirely.

By outlining this rule set now, it provides greater certainty to the industry and financiers well in advance of the event. We note that it is our strong position that grandfathering curtailment based on firmness is not appropriate, as to do so at this point would seriously hamper the further growth of our industry with the resultant failure to meet statutory targets. However in this instance we can agree to grandfathering based on firmness as it would be flagged to the industry several years in advance, which would give participants adequate time to manage this risk.

Evaluation of ESBWD proposed solution against the five criteria

- This option is most favourable to the consumer as it allows the build out of projects which will result in a reduced SMP, thereby providing savings to the consumer. This is backed up by the Redpoint analysis carried out on behalf of IWEA which illustrates a benefit for the consumer of >€40m per annum.
- This solution will permit the build out of projects to meet government targets. Some projects will be able to build before full firm access is available which will allow the targets to be reached in a more efficient and timely manner.
- It provides an efficient entry signal for projects required to meet government targets, while providing a signal for development to slow down once 2020 targets have been reached, while still allowing the industry to continue to invest, albeit on a more controlled basis.
- This option provides greater certainty to developers than any of the other options
- The treatment of curtailment under this option remains consistent as pro-rata treatment of curtailment is substantially maintained.

Conclusion

In response to this consultation ESBWD have outlined our position on the options in the consultation paper as follows:

- Option 1 is strongly rejected as it is unfair, inappropriate, and it would not fulfil any of the criteria outlined by the SEMC.
- Option 2 is broadly acceptable to ESBWD but we recognise that there are challenges associated with it, in particular relating to financing of projects.
- Option 4 represents significant change to the SEM principles and in our view to consider such a change would require a much greater level of high level consultation than that present in SEM-12-028.
- Option 3 has some merit but as drafted poses difficulties from an industry perspective. ESBWD has proposed a slight variation on option 3 which we believe meets all of the SEMC objectives.
- ESBWD supports the IWEA response, and is in agreement with the broad principles set out therein.

If you have any questions or would like to discuss any of the matters raised further please contact:

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Appendix 1

Analysis of Curtailment under Option 1

Methodology

In order to identify periods of curtailment Market Scheduled Quantity (MSQ) and Metered Generation (MG) were examined in each trading period for a number of wind farms operating in SEM and a comparison made between the two. Market Scheduled Quantity is effectively availability for a price taking generator, and when there is a difference between it and Metered Generation, it is almost always as a result of constraint or curtailment.

This data for the last eight months of 2011 was examined, from May to December inclusive. Unfortunately there was no data accessible for the first four months of the year.

In order to try to separate constraint from curtailment data was taken for 5 wind farms with a wide geographical spread across the island, rather than all in the same area. If all the wind farms were turned down at the same time it would indicate that it was as a result of curtailment rather than constraint, due to their locational dispersion. These wind farms were:

Midas (Cork/Kerry border)
Sorne Hill (North Donegal)
Derrybrien (East Galway)
Bindoo (Cavan)
Ballywater (Wexford)

It was very apparent from the data where curtailment was occurring, as there was a strong consistency of reduction across the 5 wind farms, both in terms of the percentage reduction of generation, and the trading periods in which it took place. As expected most of the curtailment took place at night between the hours of 01:00 and 08:00.

The difference was taken between the MSQ and the MG for every half hourly trading period. In an attempt to differentiate curtailment from constraint where the difference was similar across **at least four** of these five wind farms it was assumed that this difference was due to curtailment, and not constraint.

Results

In the last eight months of 2011 curtailment occurred on the system in **8%** of trading periods. In terms of the MWh produced i.e. Energy Yield during the 8 months in question, the effect of curtailment and constraint was as per the table below:

Energy Yield Curtailment Only in % terms:				Energy Yield Total Reduction (Curtailment & Constraint) in % terms:			
Midas	8.2%			Midas	12.7%		
Some	9.8%			Some	14.6%		
Derrybrien	9.2%			Derrybrien	9.3%		
Bindoo	7.4%			Bindoo	7.5%		
Ballywater	7.0%			Ballywater	7.0%		
Average:	8.3%			Average:	10.2%		

It can be seen from the results that the average reduction in energy yield due to curtailment only for the 5 wind farms is 8.3%. Total reduction in energy yield due to both constraint and curtailment is 10.2%, and the constraints on Some and Midas are the main reason for the increase – they are much greater than the other three wind farms as could be expected given their locations in the North West and South West of the island. The other three wind farms were barely constrained at all, which is consistent with their locations on the grid. It is worth noting that currently not all of the wind generation on the island is controllable, so those wind farms that are controllable are currently bearing considerably more curtailment than they would be if all those generators that should be controllable were. This is expected to change by the end of 2012, and should reduce the amount of curtailment seen by those generators that are currently controllable. During the period in question actual system wide curtailment was ~3%.

The effect that option 1 would have on a non-firm generator operating in SEM over the last eight months was then examined. Given the amount of curtailment identified above, it can reasonably be assumed that under Option 1 a non-firm wind generator, which is to be turned down first before all firm generation, would have been subject to being switched off completely 8% of the time during the last eight months. This is not affected by the controllability issue described above.

For a non-firm wind farm in SEM based on the 8 month generation output of the 5 wind farms studied, the average reduction in energy yield, assuming that it is switched off completely in periods where curtailment only occurred would have been **14.6%**. This is a very substantial reduction in output for which, being non-firm, no remuneration would be received. This is the key piece of information to take from this analysis.

So for example if the new rules were applied, a controllable non-firm gate 2 wind farm connected to the system for the last 8 months of the 2011 would have lost almost 15% of its energy yield to curtailment alone, without giving any consideration to constraint. Even allowing for the relatively short period studied, a reduction in energy yield of 15% is a massive burden on the economics of any wind project, and the likely outcome is that under the new tie-break rules no new wind farm will connect to the system until actually has a firm connection. It will also have a profound detrimental effect on existing non-firm wind farms. In the long term these effects on non-firm wind farms could reasonably be expected to get worse with the addition of more wind capacity to the system, thereby increasing the requirement for curtailment.