

## **IWEA submission to the CER Consultation on Installed Capacity**

**11<sup>th</sup> October 2013**

### **1. Introduction**

IWEA welcomes the opportunity to respond to the CER consultation on Installed Capacity Cap which is an area of particular concern to our members. The CER published a decision paper on 27th May 2011 following a consultation on Connection Offer Policy and Process. At the following Gate 3 Liaison Group meeting and at subsequent meetings with the system operators and regulators IWEA has voiced its concerns with **3.1.1. Changes in Installed Capacity** which currently limits installed capacity at wind farms to 105% of MEC.

As outlined previously, IWEA is of the view that a cap on installed capacity is not required and the COPP rule hinders best practice engineering, limits investment potential and presents another challenge to be overcome in the effort to meet our renewable energy targets. IWEA believes that an uncapped system will not lead to material impacts to other generators or system users.

The customer must benefit from the best possible plant with more efficient wind farms allowing more renewable energy which is the common goal of the industry, the regulators and system operators. IWEA analysis has shown that meeting the Governments' renewable energy targets will benefit the customer. If the RES-E targets can be met more efficiently then less turbines and less grid infrastructure is required at lower cost incurred and the target should be met in less time. If less transmission and distribution assets are required to meet the needs then the customer will benefit.

While IWEA does not believe that a cap on installed capacity is necessary, IWEA welcomes the proposals in the consultation paper as being a significant improvement on the existing limit.

### **Consultation Questions**

In the consultation paper, the CER has requested comments in relation to the following items, which IWEA has presented a view on:

#### **a) Planning**

##### **Planning Application and Grid Application**

These two vital processes are not aligned due to the nature of our grid queue and gate system. Many projects could have secured planning permission more than 5 years before they receive a grid connection offer. Indeed some projects currently in Gate 3 with planning know already that their required shallow grid infrastructure may take up to 10 years to be delivered.

In the meantime turbine technology and wind monitoring data gathered will have changed from what was envisaged at the much earlier grid application stage. It is impossible to know the turbine

which is best suited to a site at early planning stage when procurement of that technology may not even be possible later in the development cycle.

#### Choosing the best plant for the site

While wind farms are a relatively simple power plant model, the actual wind regime at any given site can be extremely complex. Wind developers will generally model various turbine technologies against the collected wind data gathered over a number of years at the site. This will give the developer the initial energy yields possible over a range of turbines which fit the permitted planning envelope (hub height and tip height and blade diameter).

The wind modellers will also assess turbines which may be outside of the permitted planning envelope. This exercise may show a developer that a change to the existing planning permission could be a prudent move if significant energy yield increases can be realised. Changes may be deemed significant by the relevant planning authority for the site or in some cases a small change in any of the dimensions may not be deemed a material change to the permitted planning.

The actual turbine selection is not generally complete until competitive tendering for the turbine supply is complete. It is only at tender evaluation stage that a developer can assess the cost of the various energy yields and determine the most economically advantageous position for the business. At this point only the possibility of installation greater than or less than MEC will be realised. IWEA believes freedom to choose the best possible design at this point must be available to all developments.

#### Planning the Power System

EirGrid have noted concerns that over installation could have an impact on system planning based on aggregate production of wind in a given area and there is possibility of sub optimal development of transmission network. IWEA believes this concern is unnecessary. **The system design must be able to accommodate full MEC output from any generator as every connecting generator has the right under its connection agreement to export up to its MEC.**

A wind farm in which the installed capacity of the development is greater than the MEC granted can result in improved capacity factors at the site. EirGrid and ESB Networks have never asked wind generators to provide expected capacity factors. If they did it would very soon be realised that different sites can have very different capacity factors for the reasons outlined above. The ability of developers to choose the most efficient design for a given site allows for marginal improvements in capacity factor. These marginal improvements will not have an impact on system design. IWEA would welcome engagement with system planners if any further optimisation of transmission design can be realised with a greater understanding and more detailed modelling on aggregate wind farms. For example not all wind farms in an area will generate full MEC in high wind at all times as not all sites will perform the same with a given wind direction.

In some cases a developer may design a site with an installed capacity greater than MEC but this will not always be the highest possible capacity factor available for the site. It should also be noted that a design with a lower installed capacity may have a greater capacity factor but a much higher cost.

## **b) Grid stability;**

IWEA believes the impacts of a no cap system and a potential scenario of all of Gate 3 over-installed by up to 10% was studied by EirGrid with a corresponding increase in capacity factor modelled. IWEA does not believe this is a credible scenario. In many cases **there will not be an opportunity to install capacity above the original MEC application, which is supported by a review of all existing plant installed.** This may be due to not having planning permission for the same type or amount of turbines as may have been envisaged at MEC application stage.

In other cases more than MEC may be installed but a corresponding increase in capacity factor may not be possible.

As outlined previously the final turbine choice may result in more than the original MEC being installed. However in exactly the same way there will be projects which will install less than the permitted MEC if the turbine selection process results in that answer.

Grid stability may be improved with additional generation capacity at sites also. For example if a given site has additional capacity above MEC it may also be able to provide additional ancillary services (voltage control, ramping capability) above the grid code requirement for the site.

## **c & d) Constraints and curtailment**

Constraints are alleviated by building the deep reinforcements associated with connecting projects. **Any effort to limit renewable energy output in an effort to minimise constraints works against the overall goals of renewable energy.**

All projects have varying load factors. No two projects with the same installed capacity will ever have the same load factor due the many site specific conditions: topography at the site, topography of the surrounding landscape; turbine technology; spacing between turbines; electrical efficiency at the site; possible planning permission constraints etc.

**To insist now that wind capacity factors should remain at given value for the sake of constraint/curtailment modelling is seriously flawed.** Wind farm developers are not explicitly concerned with capacity factors. For all power generation the aim of efficient plant is to maximise return on investment which usually equates to maximum possible yield delivered at the lowest cost. Turbine technology will hopefully continue to improve during the course of the remainder of the Gate 2 build out and the Gate 3 build out. All stakeholders anticipate that improvements in technology type will lead to improved yields on future sites.

The number of assumptions which are factored into estimated levels are much more volatile and risky than the small improvements in yield which can be delivered by more efficient wind farms. Wind and load (demand) are the most important factors in modelling.

Whether individual wind generators can or cannot engineer improved yields from their sites will not be the determining factor for accurate constraint/curtailment analysis. Developers understand the nature of constraint and curtailment reports and the volatility which is inherent due to the range of assumptions included in the modelling.

To propose and decide on a rule which hinders efficient site development for the sake of decreasing constraint and curtailment risk is fundamentally flawed and is counter to the objective of reaching renewable energy targets by unnecessarily restricting the amount of renewable energy available from some sites in some cases.

In the very challenging development environment which all developers are working in it is imperative to try to gain maximum output from investment in an effort to deal with the many issues impacting investment which are not in the direct control of the developer.

For example the challenges of lost energy due to curtailments, the constraint experienced due lengthy grid delivery delays, TLAF volatility risk which has reduce the revenue of projects by some percent have to be overcome to reach a stable investment position. Any improvements to output and cost are necessary just to bring some projects to a stable position for investment.

#### **e) Effects on other generators (existing, under offer or future)**

Building better projects will not materially impact other connected generation in the same way as the non controllable risks outlined above create an extremely difficult investment environment.

#### **f) Costs to the TUoS or DUoS customers**

If the RES-E targets can be met more efficiently then less turbines and less grid infrastructure is required at lower cost incurred and the target should be met in less time. If less transmission and distribution assets are required to meet the needs then the customer will benefit. Generators will pay all costs associated with shallow connections. Deep works can be minimised and less firm access required if RES-E targets are met with less MEC contracted.

#### **g) REFIT payments.**

IWEA believes that REFIT will not be materially impacted by potential small yield increases at some sites. Sites will not gain huge yield increases by installing more than MEC as the site is still limited to its MEC. In many cases an increase in yield from a site is not necessarily increased by installing more capacity than MEC. A higher yield could be available from a more expensive turbine which matches MEC. If all efforts are made to ensure efficient plant is installed less REFIT will be required.

Many sites which already avail of REFIT may not be producing yields in line with original REFIT projects based on average capacity factors. As sites age yields will be naturally reduced with increased O&M requirements. Also increases in TLAFs at sites lead to production losses. **These factors of production losses and their impact on REFIT payments should be considered at the same time as marginal yield increases available to some sites to allow most efficient design.**

**IWEA believes comments from the SOs on REFIT are outside of their remit.**

## **Conclusion**

The key reason for installing more than MEC is due to the disjointed nature of project development in that planning, grid application and turbine selection processes are not aligned. Any developer is simply choosing the best turbine for the site.

There are many additional benefits which can also be derived which are of benefit to industry, the system operators and the end user.

All power plants should be encouraged to be as efficient as possible to ensure best use of grid assets and maximum value delivered to the end user.

**IWEA is of the view that a cap on installed capacity is not required and the COPP rule hinders best practice engineering, limits investment potential and presents another challenge to be overcome in the effort to meet our renewable energy targets. An MEC cap of 120% should effectively have the result of an unlimited cap as IWEA is of the view that the natural economic limit at any site will be below this limit.**