



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

Decision on Installed Capacity Cap

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1. Executive Summary

This decision paper follows on from a consultation paper [CER/13/210](#) on the issue of varying the Installed Capacity Cap for generators connected to the grid. Currently, generators, mainly wind farms, are entitled under the Distribution and Transmission Grid Codes to install generation capacity up to the Maximum Export Capacity (**MEC**) set in their connection agreement with the System Operators (**SOs**) with an additional 5% over the MEC and a 'next whole turbine' addition. The history of this decision is set out in CER's May 2011 decision paper on Connection Offer Policy and Process (**COPP**) ([CER/11/093](#)) and the related [SO Policy Ruleset](#) accompanying it.

Following a review of the responses received to the consultation, the CER has now decided to:

- a. approve the increase of the Installed Capacity Cap from 105% of MEC to 120%;
- b. retain the "next whole turbine" addition, and apply it to the MEC, not 120% of MEC;
- c. apply the increased Installed Capacity Cap to all wind farms, not only those which enter into connection agreements in the future;
- d. apply the rule to all generators, with the SOs retaining discretion to vary or waive it in relation to generators other than wind farms, where the policy considerations underlying the current Installed Capacity Cap do not appear to apply to the circumstances before the SOs. The SOs will advise the CER of any instance where such a decision is taken.

However, CER repeats its position that this **does not and will not** allow generators to export at a higher level than their contracted MEC.

CER will direct ESB Networks (**DSO**) and EirGrid (**TSO**) to update the COPP Ruleset for Installed Capacity Cap in light of this decision.

2. Introduction

2.1. *The Commission for Energy Regulation*

The Commission for Energy Regulation ('CER') is the independent body responsible for overseeing the regulation of Ireland's electricity and gas sectors. CER was established and granted regulatory powers over the electricity market under the Electricity Regulation Act, 1999. The Gas (Interim) (Regulation) Act, 2002 expanded CER's jurisdiction to include the natural gas market, while the Energy (Miscellaneous Provisions) Act 2006 granted CER powers in relation to gas and electricity safety. The Electricity Regulation Amendment (SEM) Act 2007 outlined CER's functions in relation to the Single Electricity Market (SEM) for the island of Ireland.

2.2. *Purpose of this Paper*

The purpose of this paper is to publish CER's decision on the Installed Capacity Cap policy.

2.3. *Related Documents*

CER/13/210	Consultation paper on the Installed Capacity Cap
CER/13/211	SO Connection Offer Policy and Process Paper Update on Installed Plant 13/08/2013
CER/11/093	Decision on Connection Offer Policy and Process
CER/11/093(y)	SO Paper on COPP (published with the above decision paper)
SEM 13-101	SEM Decision on Treatment of Curtailment in Tie Break Situations
CER/09/099	Treatment of Small, Renewable and Low Carbon Generators outside the Group Processing Approach

2.4. *Enquiries relating to this paper*

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3. Discussion and CER Proposal

3.1. Introduction and Background:

In its 2011 decision ([CER/11/093](#)): Decision on Connection Offer Policy and Process) CER approved the SO COPP ruleset applying a cap on the amount of generation capacity that may be installed at a generator site. The rule (**Installed Capacity Cap**) was that a generator¹ may install generation capacity to 105% of the Maximum Export Capacity (**MEC**) in its connection agreement.

CER's decision accepted the SOs' submissions that generators should be allowed to produce at least up to their MEC and as MECs were not always equal to the output of whole numbers of generating units it would be unreasonable only to allow generators to install generating units that produced less than the MEC. CER set 105% as a limit to allow generators to be able to export up to their contracted MEC.

CER also noted the generators' submissions that a range of factors within a generation site could apply a load on a generator's output prior to the connection point to the grid. These were described as "house loads". CER noted similar submissions that generators should be allowed to install generation capacity such that they would be able to export, at their connection point, at least to the MEC of their connection agreement.

The accompanying SO ruleset paper ([CER/11/093\(y\)](#)) implemented CER's 105% rule and included the concept of the nearest whole number of turbines which would just meet or exceed the generator's MEC (**Next Whole Turbine** rule). How the 105% rule and the Next Whole Turbine Rule were to interact was not expressly addressed, although accepted practice was that it was additional (which made sense where the cap was only at 105%).

Following on from the decision in CER/11/093, CER received further submissions from generators, requesting that the 105% cap be revisited.

Having considered these submissions and having discussed this matter with the SOs, CER decided to carry out a further consultation with a view to widening the installed capacity cap.

CER provided to the TSO and industry its estimations on the amount of additional electricity that raising the Installed Capacity Cap might cause, and received no suggestions that its computations were materially incorrect. In a subsequent report to CER, EirGrid's indicated to CER that for the scenarios it considered, EirGrid's high level estimate of additional generated wind energy is 2%, with negligible additional curtailment.

In light of the submissions that it has received, and based on its own estimations, CER considers that changing the cap would likely increase generated amounts by a

¹ Previously, the rule was expressed to apply mainly to wind generators, but was open to other types of generators as well.

small amount. The level of this increase however, is likely to be limited by the fact that not all generators will install up to the new Installed Capacity Cap and the key benefit for generators that do install up to the Installed Capacity Cap will mainly be seen around medium wind speeds.

Prior to the CER's decision on COPP there was no Installed Capacity Cap; a developer's decision to over-install was based upon the additional capital and operational costs of over-installing to meet a fixed MEC and the likelihood of increasing to a material level, the output of that generator unit. However, since the introduction of the COPP policy, the SOs have been operating on the basis that installed capacities will not be higher than the Installed Capacity Cap. This has affected their consideration of grid planning and reinforcement, such as deep capacity planning. One of the effects of the Installed Capacity Cap has been on the Capacity Factor which the SOs have used in planning assumptions (although there are other factors which have an effect on Capacity Factor which are not regulated in a similar manner to Installed Capacity). The SOs have advised CER that increasing the Installed Capacity Cap to 120% should not have any materially adverse effects, inter alia, on planning and development of the power system.

CER accepts that allowing generators to determine, on an economic basis, what level of generation capacity they install is the least intrusive, and potentially allows the greatest renewable energy to be generated within the constraints of the system. Likewise, CER notes that there are a range of factors which affect the Capacity Factor of a generation site, some of which are not regulated to the detail of the Installed Capacity Cap, so limiting one factor without consideration of others may only have a limited impact.

CER considered the key questions to be:

1. to what level could the Installed Capacity Cap be set without an adverse effect on the system;
2. to what level could the Installed Capacity Cap be set without an adverse effect on the TUoS and DUoS customer;
3. to what level could the Installed Capacity Cap be set without there being an adverse effect on other generators;
4. at what level might the Installed Capacity Cap allow the most efficient utilisation of the network?

3.2. Stakeholder Submissions

CER received 11 submissions from the following stakeholders:

Skehanagh Wind Farm

Sheeragh Wind

Carrig Wind Farm

Atlantic Wind

Corr na Gaoithe Teo

Energia

Irish Wind Energy Association (IWEA)

Bord na Mona

ESB GWM

EirGrid plc

ESBN Ltd

Submissions and CER responses

3.3. *Installed Capacity Cap Level*

No respondents to the consultation suggested that increasing the Installed Capacity Cap would have an adverse effect on the grid or system.

The SOs submitted that increasing the Installed Capacity Cap to 120% is unlikely to have any materially adverse effect on:

- a) SOs' ability to design and predict future grid requirements;
- b) grid reinforcement/build out;
- c) current FAQ projections.

The SOs have also stated, *inter alia*, that:

1. removing the Installed Capacity Cap entirely could affect constraints and the TSOs' ability to plan the grid development most efficiently;
2. however, lifting the Installed Capacity Cap to 120% should not materially adversely affect:
 - a. the planning or build-out of the grid;
 - b. grid investment;
 - c. the levels of constraint associated with Gate3;
 - d. curtailment costs prior to, or after, 2018; or
 - e. the delivery of FAQs; and

3. increases to installed capacity should be subject to the connection agreement modification process.

CER Response

CER considers that it has received no cogent submissions contradicting the views it has received from the SOs or the views that it had formed on the issue and outlined in the consultation. Therefore the CER sees little reason to vary its position from the consultation.

*However, CER repeats its position that this **does not and will not** allow generators to export at a higher level than their contracted MEC.*

3.4. Next whole turbine rule

To which generators should it apply?

Most respondents proposed that the “Next Whole Turbine” rule should be retained for wind farms with MECs of less than 10MW capacity, if not for all affected generators, alongside the 120% rule in the Installed Capacity Cap.

The SOs submitted that:

“If the overall limit is to be increased to 120% of MEC then it is questionable whether a ‘nearest value’ approach is required other than for smaller applicants e.g. less than 5MW.”

CER Response

CER does not see any material harm in retaining the Next Whole Turbine allowance for all generators, rather than retaining it but only for a sub-set of generators, and so has decided that it should be retained for all generators to which the Installed Capacity Cap applies.

Additive or Alternative

One respondent suggested that CER’s proposal to make the two criteria (120% and next whole turbine rule) as alternatives was incorrect.

EirGrid submitted that CER appeared to be now considering that “the generation capacity which a generator may install at a generation site is the higher of:

1. the nearest whole generator unit above the MEC of the site; or
2. 120% of the MEC of the site.”

EirGrid requested that CER clarify if it is CER’s intention to remove the additive nature of these two values that EirGrid considered exists in the rule set today.

CER Response

CER considers that on a policy basis, there is no justification for making the two criteria additional. The two criteria were originally inserted for a similar policy purpose, but for different circumstances. Both were originally stated to be intended to ensure that wind farms could export fully up to the MEC of their connection agreements. The 105% criterion was inserted to accommodate issues such as “house losses” associated with cabling and transformer losses on the wind farm side of the connection to the grid i.e. to compensate for losses on the generator’s side of the grid connection point and thereby allow a wind farm to export up to its MEC at the connection point. The Next Whole Turbine criterion was also inserted to ensure wind farms could export fully up to their MECs, but it was intended to mitigate the lumpiness of turbines i.e. if the size of the wind farm’s preferred turbines were not exact multiples of the wind farm’s MEC then the wind farm should not be penalised in its export capacity by the fraction of a turbine between the last whole turbine under the MEC and the actual MEC.

If an installed capacity of 105% is higher than a wind farm’s next whole turbine, then both the criteria and the policy objectives have been satisfied and the wind farm has determined the limit to which it may install generation capacity.

If an installed capacity of 105% is less than the level achieved by the next whole turbine then the Next Whole Turbine rule cuts in and the wind farm is allowed to install up to the next whole turbine, even if that gives it an Installed Capacity of more than 105% of MEC and, again, the wind farm has determined the limit to which it may install generation capacity.

The only circumstances where the two rules might not fully serve the interests of a generator is where the next whole turbine would take the generator’s output to between 100 and 105% of its MEC, say 103%, but its house losses etc. are larger, say 104%. The next whole turbine rule would not apply again. However, CER expects that the number of such cases will be small, and even smaller when the Installed Capacity Cap is 120%.

CER considers that when looked at from the original policy, stating the rule to be the higher value of either 105% of MEC (or 120% when the revised policy proposal is adopted) or the next whole turbine number above 100% of MEC, is the correct interpretation.

On that basis, CER has decided that the Installed Capacity Cap shall be the higher value of either 120% of MEC, or the next whole turbine number above 100% of MEC.

3.5. Effect on other generators

No respondents suggested that increasing the Installed Capacity Cap would have an adverse effect on other generators. One respondent suggested that increasing the Installed Capacity Cap would have no adverse effects on other generators.

The SOs submitted in the Background section of their paper that increasing the Installed Capacity Cap could “negatively impact other customers”. The SOs also

said in the same section that “it is worthwhile considering whether unhindered installation of capacity above MEC should be allowed as it has the potential to negatively impact other customers.”

The SOs also submitted that:

“The outcome of the decision on installed capacity could have an impact on the likely available capacity for the many applicants waiting for their applications to be processed the post Gate 3. We understand that the CER’s decision of the size of Gate 3 was in a large part due to the 40% Government renewables target which comes from the output from renewable generation. If this was to be used to determine a future Gate size then allowing parties from existing gates to install increased capacity will perhaps reduce the available quantity for the next Gate”

CER Response

On the basis of the evidence before it, in particular the SOs’ submissions on constraints, curtailment and grid reinforcement, CER considers that raising the Installed Capacity Cap to 120% is unlikely to adversely affect any other generators post Gate3 in the way posited by the SOs, and that ultimately a decision to over-install will be driven by the economic feasibility and cost of doing so and therefore will only be an option that is appropriate for some wind farms.

CER considers that there are no reasons related to effects on other generators that indicate that it should not change the Installed Capacity Cap in the manner it proposes.

3.6. Effect on end-user electricity costs

No respondents suggested that increasing the Installed Capacity Cap would have an adverse effect on end-user electricity costs.

The SOs submitted that:

“given the clarification in market rules regarding compensation for curtailment from 2018 the end-user should not be affected to any material degree and as outlined above taking into account likely build out rates in Gate 3 and network roll out it would not be unreasonable to take a view curtailment costs up to 2018 would not be material.”

CER Response

CER considers that the only material effect on end user costs would be if over-installation was to drive further network reinforcement requirements. However CER is satisfied from EirGrid’s submissions that this is very unlikely to occur. Indeed to the extent that over-installation may result in wind farms being able to export up to their MEC more often, there may be a very slight beneficial impact on electricity prices. In addition to this, increasing the installed capacity cap should also result in more efficient use of the deep network and the connection assets for generators who

“over-install”. This is because the network and connection assets are designed to meet the MEC of the generator. To the extent that a generator exports up to their MEC more often as a result of the change in Installed Capacity Cap, then this should result in less periods where the network is not being used to its full capacity (as paid for by the TUoS customer and the generator).

Overall, the CER considers that there are no reasons related to effects on end-user electricity costs that indicate that it should not change the Installed Capacity Cap in the manner it proposes.

3.7. Generator Scope

One respondent said that the Installed Capacity Cap should not apply to generators other than wind generators on the basis that other types of generators did not raise similar issues for the grid.

In the discussion paper (CER/13/2013) the SOs stated that their submissions related only to wind farms.

In the SOs' subsequent responses to the CER's consultation papers the SOs stated that they would have no difficulty applying the rule-set to all generation types as there could be multi-unit, non-wind projects also.

CER Response

CER's experience is that there are other types of generators which have similar Installed Capacity Cap issues to wind farms e.g. house losses in CHP plants. Therefore, the revised Installed Capacity Cap should apply to all forms of generation but the SOs should retain discretion to vary or waive the limit for other types of generators where the policy considerations underlying the current Installed Capacity Cap do not appear to apply to the circumstances before the SOs.

3.8. Categories of Wind farms

The SOs had asked for views on the categories of generators to which any change in Installed Capacity Cap should apply. The SOs suggested 4 possible classes:

- a) contracted (not connected) and live connection offers;
- b) connected Generators;
- c) applications in the Queue;
- d) repowering applicants.

Most respondents proposed that the revised Installed Capacity Cap should apply to all wind farms, not only future connections. Most respondents raised issues of fairness in support of including all categories.

In their submission, the SOs stated:

“It is worth noting that one of the main industry reasons for raising the cap appears to have been the mismatch between the timing of planning permissions and connection offers, and the turbine technology changes in the meantime. Therefore, if that is the primary concern, it is questionable whether over-installation should be available retrospectively to wind farms already connected.”

The TSO had previously advised CER that its conclusions as to the minimal effect of increasing the Installed Capacity Cap on the design and reinforcement of the transmission system would apply for all of the above categories.

CER Response

On the basis of the SOs’ previous advice, and in the interests of fairness, CER has decided that the Installed Capacity Cap should apply to all of the categories above.

3.9. Constraint and Curtailment

No respondents suggested that increasing the Installed Capacity Cap to 120% would have any material effect on constraints or curtailment, nor on constraint or curtailment payments, seen through Dispatch Balancing Costs.

TSO in its response to the consultation repeated its submission (based on the estimate of its experienced engineers, but not on any formal modelling) that:

“Curtailment is probably the most significant aspect to consider in terms of reductions in output. As there is a decision² that curtailment will not be paid for by the market from 2018, over-installation should have no impact on the end user in terms of increased costs after that. So it falls back onto the generators themselves who, as part of the original COPP consultation, appeared to indicate that they have no difficulty with accepting potential increased levels of curtailment associated with over-installation. In considering any potential impact up to 2018 it is worth taking into account the anticipated build rate for Gate 3 projects and the number that are expected to be completed prior to 2018. Therefore, while it is not practical, or perhaps even useful, to assess the actual impact up to 2018; a view could be taken that, based on these considerations, the likely cost of curtailment up to 2018 due to over-installation may not be material.

The levels of constraint that are associated with Gate 3 are very low (assuming that the required infrastructure is delivered in accordance with assumed lead-times). Furthermore it is expected that the increased constraint levels and costs for over installing to a 120% maximum would be low and not material. While overall levels of constraints are low, there are areas that may experience higher levels of constraint temporarily if generators connect before deep reinforcements e.g. in Constraint Groups. However, this is temporary until transmission reinforcements relieve congestions.”

² [SEM 13-010](http://www.allislandproject.org/GetAttachment.aspx?id=b86299d3-8e34-4df5-83be-c15c84889b78) : <http://www.allislandproject.org/GetAttachment.aspx?id=b86299d3-8e34-4df5-83be-c15c84889b78>

CER reverted again to the TSO on the issue of potential curtailment costs. They repeated their views that further detailed modelling was not warranted and that any increase in curtailment costs would be at most in low single digit percentages, and within inter year variability.

EirGrid subsequently provided a report on a high level assessment on the effect on curtailment of revising the Installed Capacity Cap. In the report, EirGrid affirmed earlier advice to CER that, provided generators are limited to their contracted MEC at all times, increasing the Installed Capacity Cap from 105% to 120% should not have a significant impact on constraints and the scenarios modelled by EirGrid indicated a negligible increase of 0.09% in total wind energy curtailment in 2017 over that reported in the Gate 3 constraints report. EirGrid estimated that in the scenarios that it assessed, increasing the Installed Capacity Cap would increase electricity generated by about 2%.

CER Response

Based on the feedback from industry and considering the advice provided by the SOs, CER considers that the likely increase in constraints or curtailment as a result of an increase in the installed capacity cap will be small and so is not a strong enough reason to change from the position in the consultation paper.

3.10. Non GPA Offers – Interaction

EirGrid advised that Non-GPA interactions are calculated on the basis of MEC, and that Capacity Factor is not considered.

ESBN advised that in interaction tests undertaken since the 2009 CER direction on the non-GPA process - the installed capacity of a generator has not been a factor in determining whether a project can be processed outside the GPA or not. ESBN welcomed any clarity that CER might provide on the issue.

ESBN asked that CER publish some clarifications that CER had previously provided on the application of the installed capacity rule to small and non-GPA projects.

CER Response

CER considers that there are no reasons related to Non-GPA Offers that indicate that it should not change the Installed Capacity Cap in the manner it proposes.

CER will engage with the SOs as to treatment of Capacity Factor and Installed Capacity in considering Non-GPA interaction tests.

CER notes two clarifications that it has provided to ESBN in the period since the publication of CER11/093:

- *Small wind farms <500kW may be eligible for an offer under the non-GPA policy ([CER/09/099](#)). Many of these will only be installing a single turbine, but such a turbine may have a significantly larger generation capacity than their MEC (for example 750kW would not be uncommon). Where a single unit of plant is to be installed, the installation will be covered by the 'next whole*

turbine’ rule even where the installed capacity will be significantly greater than MEC;

- *Auto-producers may also be eligible for an offer under the non-GPA policy. An autoproducer is defined as a party generating primarily for their own use, with a rule of thumb – as set out in [CER/03/238](#)³ Clause 3 – that the MEC is less than twice the MIC. The installed capacity rule for pure generators does not apply to autoproducers as to do so would greatly limit their ability to generate their own requirements and export, and as such limit their value. The SOs will retain discretion: to set an Installed Capacity Cap for autoproducers to give effect to the policy set out in this decision and which addresses the circumstances of individual autoproducers; or not to set an Installed Capacity Cap for individual autoproducers.*

These clarifications will continue to apply as general policy.

3.11. REFIT

The REFIT payment rules currently reflect the previous COPP Installed Capacity Cap rules.

No respondents considered that the changed Installed Capacity Cap would have any material effect on the level of REFIT payments. One respondent considered that the changed Installed Capacity Cap would not have any material effect on the level of REFIT payments.

The SOs suggested that the appropriate parties should consider, if pay out is based on energy, whether there could be a mismatch between budgeted pay out and actual pay out under REFIT depending on the allowed installed capacity.

CER Response

Having assessed the likely effect of changing the Installed Capacity Cap on the amount of energy produced, and having no persons challenge its computations, CER considers that any effect of increasing the Installed Capacity Cap on REFIT payments is likely to be small, and indistinguishable from the inter and intra year variations in REFIT payments caused by a range of other factors.

On that basis, CER considers that there are no reasons related to REFIT that indicate that it should not change the Installed Capacity Cap in the manner it proposes.

CER has consulted with DCENR on the revised Installed Capacity Cap and has subsequently advised DCENR of the consequential changes that will need to be made to the current REFIT terms to reflect the change from an Installed Capacity Cap of 105% to 120%.

³

<http://www.cer.ie/docs/000796/cer03238.pdf>

3.12. Other

The SOs proposed that:

“For phased connections or extensions to wind farms it is proposed that the allowable installed capacity shall be applied to the MEC that is contracted by an applicant at a specific point in time. An example being that if a customer has a contract to connect two phases of a project - 30MW in 2015 and an additional 40MW in 2017 (70MW total) the maximum installed plant that would be allowable based on a 120% rule would be 36MW in 2015 which could be increased up to 84MW in 2017.”

CER Response

CER accepts the advice of the SOs in relation to this issue.

4. Decision

On the basis of the submissions it has received in response to its consultation document and the discussion paper that it requested from the SOs, CER has decided to:

- a. approve the increase of the Installed Capacity Cap from 105% of MEC to 120%;
- b. retain the “Next Whole Turbine” addition, and apply it to the MEC, not 120% of MEC; CER has decided that the Installed Capacity Cap shall be the higher value of either 120% of MEC, or the next whole turbine number above 100% of MEC.
- c. apply the increased Installed Capacity Cap to all wind farms, not only those which enter into connection agreements in the future;
- d. apply the rule to all generators, with the SOs retaining discretion to vary or waive the limit in relation to generators other than wind farms, where the policy considerations underlying the current Installed Capacity Cap do not appear to apply to the circumstances before the SOs. The SOs will advise the CER of any instance where such a decision is taken;
- e. require that any subsequent increases to installed capacity be subject to the standard connection agreement modification process.

CER repeats the policy rule that the Installed Capacity Cap **does not, and will not**, allow generators to export more than their contracted MEC at their connection point.

CER considers that allowing an increase in the installed capacity cap will allow for generators to export up to their MEC more often, will allow generators the opportunity to address the “house-load” issue and will provide for more optimal use

of the network. CER and the SOs will monitor the change in the Installed Capacity and any impacts which it may have and may review the Cap if it appears necessary.

5. Conclusions

CER welcomes the comments it received on the issues and questions raised in its consultation paper. Informed responses from industry are significant, feeding directly to the consideration undertaken by CER when reaching decisions.

CER and the SO's will monitor the change in Installed Capacity and review the Cap if it appears desirable.

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