

CUSC Modification Proposal Form		At what stage is this document in the process?												
<h1 style="color: #00a651;">CMP314:</h1> <p><b>Mod Title:</b> Updating the CUSC to align Power Available with the Grid Code definition for Power Park Modules</p>	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="background-color: #00a651; color: white; border-radius: 5px;">01</td> <td style="background-color: #00a651; color: white; border-radius: 5px;">Proposal Form</td> </tr> <tr> <td style="border-radius: 5px;">02</td> <td style="border-radius: 5px;">Workgroup Consultation</td> </tr> <tr> <td style="border-radius: 5px;">03</td> <td style="border-radius: 5px;">Workgroup Report</td> </tr> <tr> <td style="border-radius: 5px;">04</td> <td style="border-radius: 5px;">Code Administrator Consultation</td> </tr> <tr> <td style="border-radius: 5px;">05</td> <td style="border-radius: 5px;">Draft CUSC Modification Report</td> </tr> <tr> <td style="border-radius: 5px;">06</td> <td style="border-radius: 5px;">Final CUSC Modification Report</td> </tr> </table>		01	Proposal Form	02	Workgroup Consultation	03	Workgroup Report	04	Code Administrator Consultation	05	Draft CUSC Modification Report	06	Final CUSC Modification Report
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<p><b>Purpose of Modification:</b> To align the CUSC with the Grid Code on the use of Power Available in ESO headroom calculations for Power Park Modules. The definition of Maximum Export Limit (MEL) was changed in the Grid Code for Power Park Modules under GC0063 to be registered capacity less unavailable units and the Power Available signal introduced to replace MEL in ESO headroom calculations. This has not been reflected in the CUSC, which uses MEL in the De-load calculation</p>														
	<p><b>The Proposer recommends that this modification should be:</b></p> <p>We believe that this is a consequential change to align the CUSC with the Grid Code definition of MEL agreed in GC0063</p> <ul style="list-style-type: none"> <li>• proceed straight to consultation and may be suitable for self-governance</li> </ul> <p>This modification was raised <b>21 March 2019</b> and will be presented by the Proposer to the Panel on <b>29 March 2019</b>. The Panel will consider the Proposer’s recommendation and determine the appropriate route.</p>													
	<p><b>High Impact:</b> N/A</p>													
	<p><b>Medium Impact:</b> N/A</p>													
	<p><b>Low Impact</b></p> <p>Positive impact for Power Park Modules – e.g. intermittent generators. It helps enable participation in MFR (Mandatory Frequency Responses) in a way that is equitable to controllable generation types.</p>													

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<b>Timetable</b>	
<b>The Code Administrator recommends the following timetable:</b> <i>(amend as appropriate)</i>	
Modification presented at the CUSC Panel	29 March 2019
Code Administration Consultation Report issued to the Industry (20 working days)	12 April 2019 Closing 15 May 2019
Draft CUSC Modification Self-Governance Report presented to Panel	23 May 2019
Modification Panel Self-Governance Vote	31 May 2019
Appeal window opens (15 working days)	10 June 2019/1 July 2019
Decision implemented in CUSC (10 working days following appeal window closure)	16 July 2019

 **Any questions?**

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**Proposer Details**

<b>Details of Proposer:</b> (Organisation Name)	National Grid ESO
Capacity in which the CUSC Modification Proposal is being proposed: (i.e. CUSC Party, BSC Party or "National Consumer Council")	CUSC Party
<b>Details of Proposer's Representative:</b> Name: Organisation: Telephone Number: Email Address:	William Goldsmith National Grid ESO 07892799381 William.Goldsmith@nationalgrid.com
<b>Details of Representative's Alternate:</b> Name: Organisation: Telephone Number: Email Address:	Simon Sheridan National Grid ESO 07967765889 Simon.Sheridan@nationalgrid.com
<b>Attachments (Yes/No):</b> <b>If Yes, Title and No. of pages of each Attachment:</b>	

**Impact on Core Industry Documentation.**

*Please mark the relevant boxes with an "x" and provide any supporting information*

<b>BSC</b>	<input type="checkbox"/>
<b>Grid Code</b>	<input type="checkbox"/>
<b>STC</b>	<input type="checkbox"/>
<b>Other</b>	<input type="checkbox"/>

(Please specify)

N/A.

## 1 Summary

### Defect

The definition of Maximum Export Limit (MEL) was changed in the Grid Code for Power Park Modules\* under GC0063 to be registered capacity less unavailable units and the Power Available signal introduced to replace MEL in ESO headroom calculations.

This has not been reflected in the CUSC, which uses MEL in the De-load calculation.

Thus, the current De-load calculation is no longer a correct measure of headroom for Power Park Modules and leads to incorrect response holding calculations that exaggerate Primary and Secondary response capability whenever the plant is operating below its registered capacity or MEL. \*Power Park Module: "A collection of Non-Synchronous Generating Units (registered as a Power Park Module under the PC) that are powered by an Intermittent Power Source" (predominantly wind generation)

### What

The De-load calculation in the CUSC needs to be changed for Power Park Modules so it aligns with the Grid Code. This will enable accurate settlement of Power Park Modules for Mandatory Frequency Response when participation in the market increases as an outcome of Power Available integration.

### Why

To align the CUSC with the Grid Code to reflect the introduction for Power Available and redefinition of Maximum Export Limit for Power Park Modules in the Grid Code under GC0063.

The definition of Maximum Export Limit (MEL) was changed in the Grid Code for Power Park Modules under GC0063 to be registered capacity less unavailable units and the Power Available signal introduced to replace MEL in ESO headroom calculations.

This has not been reflected in the CUSC, which uses MEL in the De-load calculation. De-load is a headroom calculation used to establish the available frequency response capability of a unit at any given time, by cross referencing the De-load value against the unit's response matrix capability table included in the Mandatory Services Agreement.

The De-Load methodology is: maximum available output less actual output. For all generators in the CUSC, this is currently calculated as  $\text{De-load} = \text{MEL} - \text{PN}$ . As MEL is no longer defined as maximum available output for Power Park modules, the response capability is distorted if the maximum available output based on current weather conditions (Power Available) is less than the registered capacity. Thus, the current De-load calculation is no longer an accurate measure of headroom for Power Park Modules.

Positive impact for Power Park Modules – e.g. intermittent generators. It helps enable participation in MFR (Mandatory Frequency Responses)

### How

The intention of GC0063 was for Power Available to replace MEL in headroom calculation for Power Park Modules. As De-load is a headroom calculation defined in the CUSC, it should be changed from:  $\text{De-load} = (\text{MEL} - \text{PN})$  to:  $\text{De-load} = (\text{PA} - \text{PN})$

for Power Park Modules but remain the same for all other types of generation. The definition of Power Available should directly reference the appropriate element of the Grid Code.

So, we need to change the calculation as defined in the CUSC section 11.3 to match the Grid Code.

## 2 Governance

### Justification for [Normal, Urgent, Self-Governance or Fast Track Self-Governance] Procedures

We believe that this is a consequential change to align the CUSC with the Grid Code definition of MEL agreed in GC0063

### Requested Next Steps

This modification should:

- proceed straight to consultation and may be suitable for self-governance

## 3 Why Change?

This modification is proposed to better align the CUSC with the Grid Code and improve the accuracy for De-load calculations for Power Park Modules.

The defect should be rectified to increase the alignment of technical and commercial codes and improve the accuracy of the De-load calculation for Power Park Modules, which is used as an input for response holding payments and response energy calculations.

MEL will be used for the same purpose for Power Park Modules and all other types of generation in the CUSC, despite having different definitions in the Grid Code.

The existing De-load calculation will be distorted if the maximum available output based on current weather conditions (Power Available) is less than the registered capacity.

Power Park Modules are a sub-set of intermittent generation, defined as having a primary power source that is considered non-controllable (i.e. dependant of weather). As a result, they have not been able to actively participate in response services due to uncertainty of their maximum available output. Once Power Available signals are integrated into ESO processes and systems, the ESO control room will have better visibility of these generators, enabling them to actively participate in the Mandatory Frequency Response market. These changes are planned to be implemented by the Power Available integration project by March 2020, with this code modification necessary for the go-live of the settlement system changes. Implementing this modification by this date will result in more accurate response holding payments and response energy calculations for Power Park Modules when they begin participating more actively in Mandatory Frequency Response.

The parties impacted by this modification proposal have been consulted through the Wind Advisory Group for Balancing Services run by RenewableUK and National Grid ESO. There was unanimous support for the modification and agreement that it is not a

material change and therefore does not need to be assessed by a working group. Written evidence of this support is attached.

## 4 Code Specific Matters

### Technical Skillsets

General understanding of the CUSC

Understanding of Power Available and the differences between Power Park Modules and conventional generation

## 5 Solution

For Power Park Modules, the De-load calculation in the CUSC should be changed from:

$$\text{De-load} = (\text{MEL} - \text{PN})$$

to

$$\text{De-load} = (\text{PA} - \text{PN})$$

but remain the same for all other types of generation. Replacing MEL with PA for Power Park Module headroom calculations will align the CUSC with the intention of GC0063. The CUSC should reference the Grid Code definition of Power Available.

See relevant definitions from the Grid Code:

<b>Headroom</b>	The <b>Power Available</b> (in MW) less the actual <b>Active Power</b> exported from the <b>Power Park Module</b> (in MW).
<b>Power Available</b>	A signal prepared in accordance with good industry practice, representing the instantaneous sum of the potential <b>Active Power</b> available from each individual <b>Power Park Unit</b> within the <b>Power Park Module</b> calculated using any applicable combination of meteorological (including wind speed), electrical or mechanical data measured at each <b>Power Park Unit</b> at a specified time. <b>Power Available</b> shall be a value between 0MW and <b>Registered Capacity</b> or <b>Maximum Capacity</b> which is the sum of the potential <b>Active Power</b> available of each <b>Power Park Unit</b> within the <b>Power Park Module</b> . A turbine that is not generating will be considered as not available. For the avoidance of doubt, the <b>Power Available</b> signal would be the <b>Active Power</b> output that a <b>Power Park Module</b> could reasonably be expected to export at the <b>Grid Entry Point</b> or <b>User System Entry Point</b> taking all the above criteria into account including <b>Power Park Unit</b> constraints such as optimisation modes but would exclude a reduction in the <b>Active Power</b> export of the <b>Power Park Module</b> instructed by <b>The Company</b> (for example) for the purposes selecting a <b>Power Park Module</b> to operate in <b>Frequency Sensitive Mode</b> or when an <b>Emergency Instruction</b> has been issued.

## 6 Impacts & Other Considerations

### *i. Who (i.e. which industry code) is impacted;*

The modification will help to facilitate the participation of Power Park Modules in Mandatory Frequency Response (MFR) as committed to in the ESO Forward Plan 2019-21 by enabling accurate settlement of these generators. There is no impact for other generators who participate in MFR. This modification will better align the CUSC with the Grid Code and not impact any other industry codes.

### *ii. Which processes are impacted*

Improving the accuracy of the De-load calculation for Power Park modules will result in more accurate Response Holding Payments and Response Energy calculations.

### *iii. Systems impacted*

National Grid ESO settlements system is the only affected system

## Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

No.

## Consumer Impacts

It will not affect consumers as Power Park Modules are not currently active participants in MFR. There is the possibility of future savings from more accurate settlement of Power Park Modules.

## 7 Relevant Objectives

### Impact of the modification on the Applicable CUSC Objectives (Standard):

Relevant Objective	Identified impact
(a) The efficient discharge by the Licensee of the obligations imposed on it by the Act and the Transmission Licence;	Positive
(b) Facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity;	Positive
(c) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency *; and	None
(d) Promoting efficiency in the implementation and administration of the CUSC arrangements.	None

\*Objective (c) refers specifically to European Regulation 2009/714/EC. Reference to the

Agency is to the Agency for the Cooperation of Energy Regulators (ACER).

This modification will align the Grid Code with CUSC as the most immediate benefit. Longer term it will help to facilitate the participation of Power Park Modules in Mandatory Frequency Response (MFR) as committed to in the ESO Forward Plan 2019-21 by enabling accurate settlement of these generators.

## 8 Implementation

Once Power Available signals are integrated into ESO processes and systems, the ESO control room will have better visibility of these generators, enabling them to actively participate in the Mandatory Frequency Response Service. These changes are planned to be implemented by the Power Available integration project by March 2020. Implementing this modification by March 2020 will result in more accurate response holding payments and response energy calculations for Power Park Modules when they begin participating more actively in Mandatory Frequency Response.

A small change to the ESO settlements system will be required to reflect the modified De-load calculation for Power Park Modules, which will be delivered as part of the Power Available integration project.

## 9 Legal Text

### Text Commentary

Current “De-load” definition – Section (11.3) DEFINITIONS pg. 19/97:

**“De-load”:**

*the difference (expressed in MW) between the **Maximum Export Limit** and **Final Physical Notification Data** as adjusted by the **Acceptance Volume** in respect of a **Bid-Offer Acceptance** (if any), and “**De-Loaded**” shall be construed accordingly;*

A proposed draft of additional legal text is outlined below.

*...except in the case of a **Power Park Module**, where **De-Load** is the difference (expressed in MW) between Power Available and the **Final Physical Notification Data** as adjusted by the **Acceptance Volume** in respect of a **Bid-Offer Acceptance** (if any), and “**De-Loaded**” shall be construed accordingly;*

## 10 Recommendations

### Proposer’s Recommendation to Panel

Panel is asked to:

proceed straight to consultation and may be suitable for self-governance