

Housekeeping Modification GC0157

APPENDICES

APPENDIX A

Legal Text Changes Summary

1. GC0130 implementation

Why the modification?

GC0130 was implemented on 18 March 2021. When preparing the legal text, we found there were two versions of an excel file of 'other changes' and the final version of the legal text that was included in the Code Administrators Consultation was missing some changes that we believe were required. We could not implement them because they weren't in the final version of the legal text, so those changes are still needed, although the code as it stands it not unworkable.

There are five areas the Grid Code that need to be changed associated with GC0130

1.1 (Glossary and Definitions)

Baseline Legal Text:

The (daily or weekly) forecast value (in MW), at the time of the (daily or weekly) peak demand, of the maximum level at which the **Genset** can export to the **Grid Entry Point**, or in the case of **Embedded Power Stations**, to the **User System Entry Point**. In addition, for a **Genset** powered by an **Intermittent Power Source** the forecast value is based upon the **Intermittent Power Source** being at a level which would enable the **Genset** to generate at **Registered Capacity**.

For the purpose of OC2 only, the term **Output Usable** shall include the terms **Interconnector Export Capacity** and **Interconnector Import Capacity** where the term **Output Usable** is being applied to an **External Interconnection**.

Proposed Change:

Proposed change	Im
Output Usable or OU The (daily or weekly) forecast value (in MW), at the time of the (daily or weekly) peak demand, of the maximum profiled across the time period affected by the unplanned or planned Event of the level at which the Genset can export to the Grid Entry Point , or in the case of Embedded Power Stations , to the User System Entry Point . In addition, for a Genset powered by an Intermittent Power Source the forecast value is based upon the Intermittent Power Source being at a level which would enable the Genset to generate at Registered Capacity . For the purpose of OC2 only, the term Output	

1.2 (Data Registration Code - SCHEDULE 3)

Baseline Legal Text:

PLANNING FOR YEARS 3 - 7 AHEAD (OC2.4.1.2.1(a)(i), (e) & (j))

Proposed Change:

delete the table for "PLANNING FOR YEARS 3 - 7 AHEAD (OC2.4.1.2.1(a)(i), (e) & (j))"

1.3 (DRC - Schedule 3)

Baseline Legal Text:

PLANNING FOR YEAR 0

Proposed Change:

delete the table for "PLANNING FOR YEAR 0"

1.4 (European Connection Conditions)

Baseline Legal Text:

ECC.6.3.8.4.1 Each **Type C** and **Type D Onshore Power Park Module, Onshore HVDC Converter and OTSDUW Plant and Apparatus** shall be fitted with a continuously acting automatic control system to provide control of the voltage at the **Grid Entry Point** or **User System Entry Point** (or **Interface Point** in the case of **OTSDUW Plant and Apparatus**) without instability over the entire operating range of the **Onshore Power Park Module, or Onshore HVDC Converter or OTSDUW Plant and Apparatus**. Any **Plant or Apparatus** used in the provisions of such voltage control within an **Onshore Power Park Module** may be located at the **Power Park Unit** terminals, an appropriate intermediate busbar or the **Grid Entry Point** or **User System Entry Point**. In the case of an **Onshore HVDC Converter** at a **HVDC Converter Station** any **Plant or Apparatus** used in the provisions of such voltage control may be located at any point within the **User's Plant and Apparatus** including the **Grid Entry Point** or **User System Entry Point**. **OTSDUW Plant and Apparatus** used in the provision of such voltage control may be located at the **Offshore Grid Entry Point** an appropriate intermediate busbar or at the **Interface Point**. When operating below 20% **Maximum Capacity** the automatic control system may continue to provide voltage control using any available reactive capability. If voltage control is not being provided, the automatic control system shall be designed to ensure a smooth transition between the shaded area below 20% of **Active Power** output and the non-shaded area above 20% of **Active Power** output in Figure ECC.6.3.2.5(c) and Figure ECC.6.3.2.7(b) The performance requirements for a continuously acting automatic voltage control system that shall be complied with by the **User** in respect of **Onshore Power Park Modules, Onshore HVDC Converters** at an **Onshore HVDC Converter Station, OTSDUW Plant and Apparatus** at the **Interface Point** are defined in ECC.A.7.

Proposed change

ECC.6.3.8.4.1 Each **Type C** and **Type D Onshore Power Park Module, Onshore HVDC Converter and OTSDUW Plant and Apparatus** shall be fitted with a continuously acting automatic control system to provide control of the voltage at the **Grid Entry Point** or **User System Entry Point** (or **Interface Point** in the case of **OTSDUW Plant and Apparatus**) without instability over the entire operating range of the **Onshore Power Park Module, or Onshore HVDC Converter or OTSDUW Plant and Apparatus**. Any **Plant or Apparatus** used in the provisions of such voltage control within an **Onshore Power Park Module** may be located at the **Power Park Unit** terminals, an appropriate intermediate busbar or the **Grid Entry Point or User System Entry Point**. In the case of an **Onshore HVDC Converter** at a **HVDC Converter Station** any **Plant or Apparatus** used in the provisions of such voltage control may be located at any point within the **User's Plant and Apparatus** including the **Grid Entry Point or User System Entry Point**. **OTSDUW Plant and Apparatus** used in the provision of such voltage control may be located at the **Offshore Grid Entry Point** an appropriate intermediate busbar or at the **Interface Point**. When operating below 20% **Maximum Capacity** the automatic control system may continue to provide voltage control using any available reactive capability. If voltage control is not being provided, the automatic control system shall be designed to ensure a smooth transition between the shaded area below 20% of **Active Power** output and the non-shaded area above 20% of **Active Power** output in Figure ECC.6.3.2.45(c) and Figure ECC.6.3.2.67(b). The performance requirements for a continuously acting automatic voltage control system that shall be complied with by the **User** in respect of **Onshore Power Park Modules, Onshore HVDC Converters** at an **Onshore HVDC Converter Station, OTSDUW Plant and Apparatus** at the **Interface Point** are defined in ECC.A.7.

1.5 (Operating Code No. 2)

Baseline Legal Text:

Both OC2.4.1.3.2 (d) and OC2.4.1.3.3 (f) make reference to OC2.4.1.2.1 (d) which no longer exists in the existing version of the Grid Code. The text referred to as OC2.4.1.2.1(d) still exists but is now under OC2.4.1.2.2(iii) and (iv)

Proposed Change:

Amend the references to suit clause OC2.4.1.3.2 (d) and OC2.4.1.3.3 (f)

<p>OC2.4.1.3.2 In each calendar year:</p> <p>(a) By the end of week 13</p> <p>Each Network Operator will notify the Company in writing of details of proposed outages in Years 2-5 ahead in its User System which may affect the performance of the Total System (which includes but is not limited to outages of User System Apparatus at Grid Supply Points and outages which constrain the output of Power Generating Modules (including DC Connected Power Park Modules) and/or Synchronous Generating Units, Onshore Power Park Modules, Embedded within that User System).</p> <p>Each Network Operator will notify the Company in writing of details of proposed outages in Years 2-5 ahead in its User System which may affect the declared value of Maximum Export Capacity and/or Maximum Import Capacity for each Interface Point within its User System together with the Network Operator's revised best estimate of the Maximum Export Capacity and/or Maximum Import Capacity during such outages. Network Operators will also notify the Company of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.</p> <p>(b) By the end of week 13</p> <p>Each Generator will inform the Company in writing of proposed outages in Years 2-5 ahead of Generator owned Apparatus (eg. inverter stations) other than Power Generating Modules (including DC Connected Power Park Modules) and/or Synchronous Generating Units, and/or Power Park Modules, at each Grid Entry Point.</p> <p>The Company will provide to each Network Operator and to each Generator and each Interconnector Owner, a copy of the information given to the Company under paragraph (a) above (other than the information given by that Network Operator) in relation to a Network Operator, the data may only be used by that User in planning and operating that Network Operator's User System and shall not be used for any other purpose or passed on to, or used by any other business of that User or to, or by, any person within any other such business or elsewhere.</p> <p>(c) By the end of week 25</p> <p>The Company will provide each Network Operator in writing with details of proposed outages in Years 2-5 ahead which may, in the Company's reasonable judgement, affect the performance of that Network Operator's User System.</p> <p>(d) By the end of week 30</p> <p>Where the Company or a Network Operator is unhappy with the proposed outages notified to it under (a), (b) or (c) above, as the case may be, equivalent provisions to those set out in OC2.4.1.2.2(iii) and (iv) will apply.</p> <p>(e) By the end of week 34</p> <p>The Company will draw up a draft National Electricity Transmission System outage plan covering the period Years 2 to 5 ahead and the Company will notify each Generator, Interconnector Owner and Network Operator in writing of the details of the plan which may operationally affect such Generator (other than those aspects which may operationally affect Embedded Small Power Stations or Embedded Medium Power Stations or Embedded Small Power Stations or Embedded Medium Power Stations) and the Company will also indicate where a need may exist to issue other operational instructions or notifications (including but not limited to the requirement for the issuing of an Operational Interlocking scheme or Emergency Instructions to Users in accordance with GSC 2) to ensure the security of the National Electricity Transmission System to be maintained.</p> <p>OC2.4.1.3.3 Operational Planning Phase 3 Planning for Financial Year 1 ahead</p> <p>Each Generator, Interconnector Owner and Network Operator shall update the draft National Electricity Transmission System outage plan prepared under OC2.4.1.3.2 above and shall in addition take into account outages required as a result of maintenance work.</p>	<p>In each calendar year:</p> <p>(a) By the end of week 13</p> <p>Generators and Non-Embedded Customers will inform the Company in writing of proposed outages for Year 1 of Generator owned Apparatus at each Grid Entry Point (eg. inverter stations) other than Power Generating Modules (including DC Connected Power Park Modules), Synchronous Generating Units and/or Power Park Modules, Embedded within that User System or the Non-Embedded Customer owned Apparatus, as the case may be, at each Grid Supply Point.</p> <p>(b) By the end of week 25</p> <p>The Company will provide each Network Operator and each Non-Embedded Customer in writing with details of proposed outages in Year 1 ahead which may, in the Company's reasonable judgement, affect the performance of the User System or the Non-Embedded Customer Apparatus at the Grid Supply Point.</p> <p>(c) By the end of week 30</p> <p>Each Network Operator will notify the Company in writing with details of proposed outages in Year 1 in its User System which may affect the performance of the Total System (which includes but is not limited to outages of User System Apparatus at Grid Supply Points and outages which constrain the output of Power Generating Modules (including DC Connected Power Park Modules), Synchronous Generating Units and/or Power Park Modules Embedded within that User System).</p> <p>Each Network Operator will notify the Company in writing of details of proposed outages in Year 1 in its User System which may affect the declared value of Maximum Export Capacity and/or Maximum Import Capacity for each Interface Point within its User System together with the Network Operator's revised best estimate of the Maximum Export Capacity and/or Maximum Import Capacity during such outages. Network Operators will also notify the Company of any automatic and/or manual post fault actions that it intends to utilise or plans to utilise during such outages.</p> <p>Each Network Operator will also notify the Company in writing of any revisions to Interface Point Target Voltage/Power Factor data submitted pursuant to EC 4.3.5.4.2.</p> <p>(d) Between the end of week 25 and the end of week 34</p> <p>The Company will draw up a revised National Electricity Transmission System outage plan (which for the avoidance of doubt includes Transmission Apparatus at the Connection Points).</p> <p>(e) By the end of week 38</p> <p>The Company will notify each Generator, Interconnector Owner and Network Operator in writing of those aspects of the National Electricity Transmission System outage programme which may, in the Company's reasonable judgement, operationally affect such Generator (other than those aspects which may operationally affect Embedded Small Power Stations or Embedded Medium Power Stations), Interconnector Owner, or Network Operator including in particular proposed start dates and end dates of relevant National Electricity Transmission System outages.</p> <p>The Company will provide to each Network Operator and to each Generator and each Interconnector Owner a copy of the information given to the Company under paragraph (c) above (other than the information given by that Network Operator) in relation to a Network Operator, the data may only be used by that User in planning and operating that Network Operator's User System and shall not be used for any other purpose or passed on to, or used by any other business of that User or to, or by, any person within any other such business or elsewhere.</p> <p>(f) By the end of week 38</p> <p>Where a Generator, Interconnector Owner or Network Operator is unhappy with the proposed aspects notified to it under (a) above, equivalent provisions to those set out in OC2.4.1.2.2(iii) and (iv) will apply.</p>
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2. GC0136 Implementation

GC0136 was implemented on 05 March 2021.

2.1 OC5.A.2.8.8 Operating Code No.5

Baseline Legal Text:

While the diagram was populated in the documents sent as part of the GC0136 Code Administrator Consultation and Final Modification Report, it is missing from the current baseline Legal Text.

Proposed Change:

Include diagram in Baseline Legal Text

OC5.A.2.8.8

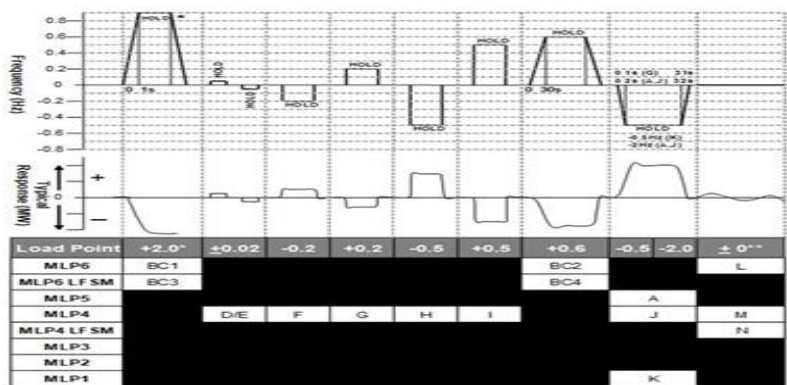


Figure 2: System islanding and step response tests.

APPENDIX B

Historic Housekeeping Register

Suggested by	Origin	Explanation	Chapter/Section	Baseline date	Baseline	Proposed change	Implement	Approved by (Tech Co)
Phil Smith	GC0130 implementation	GC0130 was implemented on 18 March 2021. When preparing the legal text, we found there were two versions of an excel file of 'other changes' and the final version was missing some changes that we believe were required. We could not implement them because they weren't in the final version so those changes are still needed, although the code as it stands it not unworkable.	GLOSSARY & DEFINITIONS	28-Jan-20	Output Usable or OU The (daily or weekly) forecast value (in MW), at the time of the (daily or weekly) peak demand, of the maximum level at which the Genset can export to the Grid Entry Point, or in the case of Embedded Power Stations, to the User System Entry Point. In addition, for a Genset powered by an Intermittent Power Source the forecast value is based upon the Intermittent Power Source being at a level which would enable the Genset to generate at Registered Capacity. For the purpose of OC2 only, the term Output Usable shall include the terms Interconnector Export Capacity and Interconnector Import Capacity where the term Output Usable is being applied to an External Interconnection.	Output Usable or OU The (daily or weekly) forecast value (in MW), at the time of the (daily or weekly) peak demand, of the maximum profiled across the time period affected by the unplanned or planned Event of the level at which the Genset can export to the Grid Entry Point, or in the case of Embedded Power Stations, to the User System Entry Point. In addition, for a Genset powered by an Intermittent Power Source the forecast value is based upon the Intermittent Power Source being at a level which would enable the Genset to generate at Registered Capacity. For the purpose of OC2 only, the term Output Usable shall include the terms Interconnector Export Capacity and Interconnector Import Capacity where the term Output Usable is being applied to an External Interconnection.		Change is immaterial - daily or weekly not used any more (Ref to this fact was forgotten during the GC0130 Process) - to be considered in HK Mod.
Phil Smith	GC0130 implementation	As above	SCHEDULE 3	28-Jan-20	PLANNING FOR YEARS 3 - 7 AHEAD (OC2.4.1.2.1(a)(i), (e) & (j))	delete the table for "PLANNING FOR YEARS 3 - 7 AHEAD (OC2.4.1.2.1(a)(i), (e) & (j))"		Table still exists in current Baseline Legal Text - To be considered in HK Mod proposal
Phil Smith	GC0130 implementation	As above	SCHEDULE 3	28-Jan-20	PLANNING FOR YEAR 0	delete the table for "PLANNING FOR YEAR 0"		Table still exists in current Baseline Legal Text - To be considered in HK Mod proposal
Frank Kasibante	GC0136 implementation	an error in referencing that happened during European Network Code implementation	ECC	13-Jun-22	ECC.6.3.8.4.1 - If voltage control is not being provided, the automatic control system shall be designed to ensure a smooth transition between the shaded area below 20% of Active Power output and the non-shaded area above 20% of Active Power output in Figure ECC.6.3.2.45(c) and Figure ECC.6.3.2.67(b)	If voltage control is not being provided, the automatic control system shall be designed to ensure a smooth transition between the shaded area below 20% of Active Power output and the non-shaded area above 20% of Active Power output in Figure ECC.6.3.2.4(c) and Figure ECC.6.3.2.6(b)		an error in referencing that happened during European Network Code implementation

Figure 1 – Grid Code Housekeeping Register, June 2022

APPENDIX C (This is provided for information only)

Process Map for New Housekeeping Process

It is proposed to introduce a new process for addressing future housekeeping issues (formatting changes, grammatical errors, other immaterial inaccuracies with no impact on any party) such that these will be highlighted and sent to the Grid Code & Code Administrator Team's dot box. Tracked changes will then be made to the baseline legal text and a comment added identifying the source of the requirement and who identified it. The change will then be included on the next occasion that that section of the baseline text is checked out for a Grid Code modification. Fig.2 shows the proposed new process.

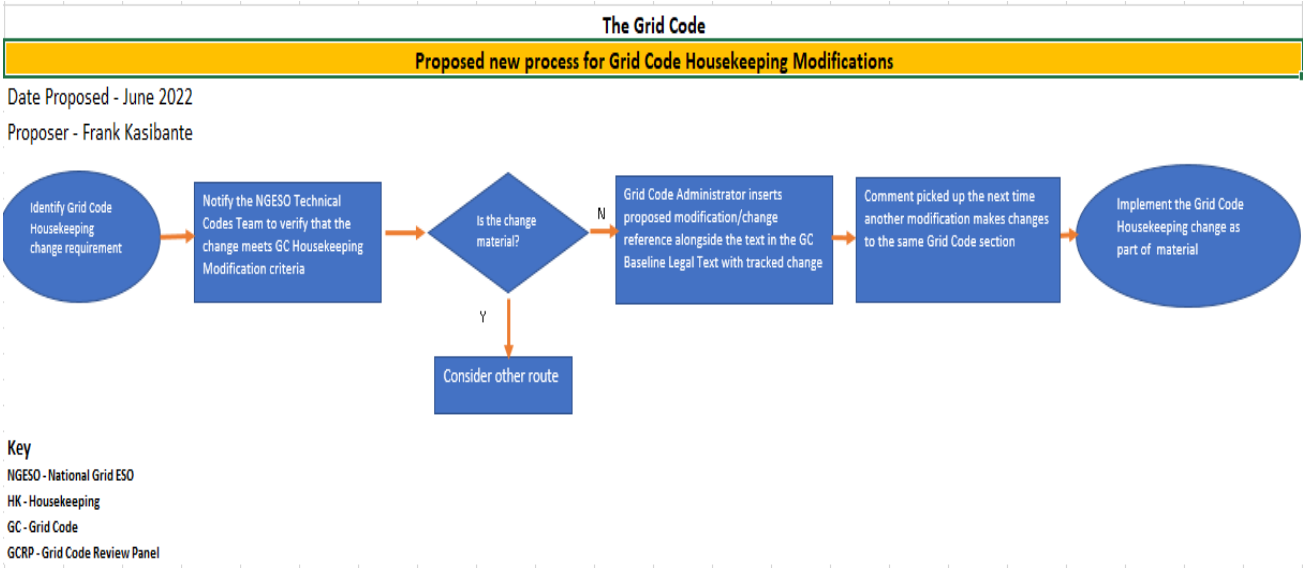


Fig.2 – Proposed new process for Grid Code Housekeeping modifications