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Grid Code Modification Proposal Form

GC0166: Introducing new Balancing Programme Parameters for Limited Duration Assets

Overview: Introduction of new parameters for limited duration assets (including Battery Energy Storage Systems (*BESS*)) to optimise dispatch and planning. This will address the challenges around how such assets are dispatched efficiently and how to best plan for use of such units.

Modification process & timetable

1. **Proposal Form**
   29 November 2023
2. **Workgroup Consultation**
   02 April 2024 – 23 April 2024
3. **Workgroup Report**
   19 June 2024
4. **Code Administrator Consultation**
   02 July 2024 – 02 August 2024
5. **Draft Final Modification Report**
   14 August 2024
6. **Final Modification Report**
   02 September 2024
7. **Implementation**
   10 WD following Authority Decision

Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.

This modification is expected to have a: Medium impact

Generators, Aggregators, Storage Users

Modification drivers: Efficiency, New Technologies, System Operability, System Planning, System Security, Transparency

Proposer's recommendation of governance route	Standard Governance modification with assessment by a Workgroup	
Who can I talk to about the change?	**Proposer:** Steve Baker Stephen.baker@nationalgrideso.com 07929724347	**Code Administrator Contact:** Jonathan Whitaker Jonathan.whitaker@nationalgrideso.com 07354901925

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What is the issue?

A large number of Electricity Storage Devices are currently operating in the balancing mechanism. These devices can only import or export until their limited storage capacity is either full or fully depleted. Although there are two parameters already defined in the Grid Code and BSC (Max Delivery Period and Max Delivery Volume) these do not cater for bi-directional units. To get around this the ESO use Maximum Import Limits and Maximum Export Limits and the “15 minute rule” which limits how the ESO uses these assets and does not allow the ESO to plan in longer timescales. After extensive discussion with industry, the ESO is proposing, via this modification to introduce new parameters that will allow the better use of Electricity Storage devices. Please note – although the current issues have been brought into focus by batteries, this modification is intended to include all Electricity Storage devices.

Why change?

Increased economic dispatch of Electricity Storage devices. Improved operational planning allowing the ESO to factor in these units for longer term planning (up to 24 hours ahead).

What is the proposer’s solution?

The introduction of new parameters that will be defined in the Balancing Code section of the Grid Code. We will explore options as part of the Workgroup process and consultation in order to determine the best solution.

It is expected that these new parameters will be submitted in the same way as other technical parameters.

Draft legal text

Legal text will be drafted by a Workgroup.

What is the impact of this change?

Proposer’s assessment against Grid Code Objectives	
Relevant Objective	**Identified impact**
(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	**Positive** The new parameters will allow Electricity Storage devices to inform the ESO of energy available over time, instead of the ESO having to derive this from existing parameters that were not intended for this purpose.
(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate	**Positive** The dispatch of these assets will not be limited by the use of heuristic rules but

electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);	will be based on the declared capability of the assets.
(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;	**Positive** Allowing Duration Assets to declare their available energy allows for better operational planning by the ESO and better managing of margins and constraints.
(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and	**Neutral** Does not affect ESO obligations.
(e) To promote efficiency in the implementation and administration of the Grid Code arrangements	**Neutral** The change is not related to administration of the codes.

Proposer's assessment of the impact of the modification on the stakeholder / consumer benefit categories	
Stakeholder / consumer benefit categories	**Identified impact**
Improved safety and reliability of the system	**Positive** Currently the ESO uses what is called the "15 minute rule" to estimate the energy available and the charging opportunities from Electricity Storage devices. The ESO uses the units declared Maximum Import Limit and Maximum Export Limit and then limits the length of instructions to 15 minutes. This reduces the ability to issue instructions for longer than 15 minutes and gives us no information on the expected future state of these units to allow planning. Improving the quality of data we get from these units will mean we can manage margins and constraints more accurately and efficiently, so improving safety and reliability of the system.
Lower bills than would otherwise be the case	**Positive** More quality information allows for greater efficiency in markets so aiding overall consumer benefit.
Benefits for society as a whole	**Positive**

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	Renewable energy resources contribute directly to the reduction of green-house gases. However, they are intermittent in nature and the ability to store energy is a vital part of the overall energy mix if we are to operate in a safe and efficient manner. This modification allows better management of Electricity Storage devices and so has an overall benefit for society.
Reduced environmental damage	**Positive** Supports new providers and technologies. Current processes limit the use of limited duration assets.
Improved quality of service	**Positive** The use of Electricity Storage devices supports greater use of renewable energy resources and therefore, our net-zero ambitions for the future.

When will this change take place?

Implementation date
10 working days following a decision by Ofgem, should it be approved.

Date decision required by
Q4 2024

Implementation approach
Systems affected will include:

Control Room Systems, Auction Systems, Market Services.

Proposer's justification for governance route
Governance route: Standard Governance modification with assessment by a Workgroup

The changes that will be required to Dynamic Parameters will have impacts on Operational Systems which will need to be discussed in detail by a Workgroup to consider all potential repercussions.

Interactions

☐CUSC	☒BSC	☐STC	☐SQSS
☐European Network Codes	☐ EBR Article 18 T&Cs[1]	☐Other modifications	☐Other

[1] If your modification amends any of the clauses mapped out in Annex GR.B of the Governance Rules section of the Grid Code, it will change the Terms & Conditions relating to Balancing Service Providers. The modification will need to follow the process set out in Article 18 of the Electricity Balancing Regulation (EBR – EU Regulation 2017/2195). All Grid Code modifications must be consulted on for 1 month in the Code Administrator Consultation phase, unless they are Urgent modifications which have no impact on EBR Article 18 T&Cs. N.B. This will also satisfy the requirements of the NCER process.

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The ESO will be proposing a modification to the BSC to enable the publication of these Data items on BMRS (Balancing Mechanism Reporting Service).

Acronyms, key terms and reference material

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
BESS	Battery Energy Storage Systems
BMRS	Balancing Mechanism Reporting Service
CUSC	Connection and Use of System Code
EBR	Electricity Balancing Regulation
GC	Grid Code
Limited Duration Asset	Assets used to store electricity which can only import or export until their limited storage capacity is either full or fully depleted
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
T&Cs	Terms and Conditions
BMRS	Balancing Mechanism Reporting Service

Reference material

- Balancing programme | ESO
- GCDF- new parameters for Storage (Summary Presentation 02.08.23)
- STC - Panel Meeting - 29.11.2023