|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Workgroup Consultation | | | | |
| GC0166: Introducing new Balancing Mechanism 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 modules. | | Modification process & timetable    **Workgroup Consultation**  18 November 2024 – 09 December 2024  **Proposal Form**  29 November 2023  **Workgroup Report**  24 April 2025  **Code Administrator Consultation**  06 May 2025 – 06 June 2025  **Draft Modification Report**  18 June 2025  **Final Modification Report**  08 July 2025  **Implementation**  10 Business Days after Authority Decision  **1**  **2**  **3**  **4**  **5**  **6**  **7** | |
| Have 5 minutes? Read our [Executive summary](#_Executive_summary_1)  Have 20 minutes? Read the full [Workgroup Consultation](#_Why_change?)  Have 90 minutes? Read the full Workgroup Consultation and Annexes. | | | |
| Status summary: The Workgroup are seeking your views on the work completed to date to form the final solution(s) to the issue raised. | | | |
| 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 | | | |
| Governance route | Standard Governance with assessment by a Workgroup | | |
| Who can I talk to about the change? | **Proposer:**  Stephen Baker, NESO  [stephen.baker@uk.nationalenergyso.com](mailto:stephen.baker@uk.nationalenergyso.com)  Phone: 07929 724347 | | Code Administrator Chair:  Milly Lewis  [milly.lewis@uk.nationalenergyso.com](mailto:milly.lewis@uk.nationalenergyso.com)  Phone: 07811 036380 |
| How do I respond? | Send your response proforma to [grid.code@nationalenergyso.com](mailto:grid.code@nationalenergyso.com) by 5pm on 09 December 2024 | | |

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Executive summary

This modification seeks introduce new parameters that will allow the better use of Electricity Storage Modules within the Balancing Mechanism, with all Balancing Mechanism Units (BMUs) required to submit the new parameters.

What is the issue?

A large number of Electricity Storage Modules are currently operating in the Balancing Mechanism. These devices can only import or export until their limited storage capacity is either fully charged 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 modules. Although the current issues have been brought into focus by batteries, this modification is intended to include all Electricity Storage Modules.

What is the solution and when will it come into effect?

**Proposer’s solution:**

The introduction of new parameters, Maximum Delivery Offer (MDO) and Maximum Delivery Bid (MDB), that will be defined in the Balancing Code section of the Grid Code.

As well as introducing three additional defined terms into the Glossary and Definitions to enable the new parameters, MDO, MDB and Future State of Energy (FSoE). There will also be changes required to the Data Validation, Consistency and Defaulting Rules.

**Implementation date:** Q2 2025 (July – September 2025)

**Summary of potential alternative solution(s) and implementation date(s):**

Currently no alternative solutions have been proposed.

What is the impact if this change is made?

**Medium impact** – All Balancing Mechanism Units must provide new information. The solution is intended to optimise the use of diverse assets by NESO. Electricity Storage Modules will be required to provide more information to facilitate this.

Interactions

NESO will be proposing a modification to the BSC to enable the publication of these Data items via Balancing Mechanism Reporting Agent, i.e. Elexon’s Insights Solution[[1]](#footnote-2) .

As the modification seeks to alter BC1 there are EBR Article 18 T&Cs implications, which will be consulted against.

What is the issue?

A large number of Electricity Storage Modules are currently operating in the Balancing Mechanism. These devices can only import or export until their limited storage capacity is either fully charged 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 modules. Although the current issues have been brought into focus by batteries, this modification is intended to include all Electricity Storage Modules.

To get around this NESO use Maximum Import Limits and Maximum Export Limits (MIL and MEL) and the “30 minute” rule (previously “15-minute rule”) which limits how NESO uses these assets and does not allow NESO to plan in longer timescales.

To use stored energy in an optimal way to balance the NETS it requires an increased economic dispatch of Electricity Storage Modules, and to allow for improved operational planning allowing NESO to factor in these modules for longer term planning (up to 24 hours ahead)

After extensive discussion with industry, NESO is proposing via this modification to introduce new parameters that will allow the better use of Electricity Storage Modules. Please note – although the current issues have been brought into focus by batteries, this modification is intended to include all Electricity Storage Modules.

GC0166 seeks to address the growing problem presented increasingly as the energy mix becomes ever more diverse.

## Why change?

Increased economic dispatch of Electricity Storage Modules. Improved operational planning allowing NESO to factor in these modules for longer term planning (up to 24 hours ahead).

What is the solution?

## Proposer’s solution

The Proposer intends this modification to cover any Electricity Storage Modules (including short duration assets, not just batteries) within the Balancing Mechanism, with all Balancing Mechanism Units (BMUs) required to submit the new parameters.

There will be an implementation period informed by the Open Balancing Platform (OBP), and NESO will require a period to implement the changes post approval.

The introduction of new parameters, Maximum Delivery Offer (MDO) and Maximum Delivery Bid (MDB), that will be defined in the Balancing Code section of the Grid Code.

* **Maximum Delivery Offer (MDO)**, being the maximum volume of **Offer Acceptance** by a **BM Unit** which can be instructed by **The Company** through multiple **Bid Offer Acceptances (BOA)** to the **BM Unit**, the volume excludes energy required to satisfy **System Ancillary Services** and/or **Commercial Ancillary Services** such as response and reserve commitments.
* **Maximum Delivery Bid (MDB)**, being the maximum volume of **Bid Acceptance** by a **BM Unit** which can be instructed by **The Company** through multiple **Bid Offer Acceptances (BOA)** to the **BM Unit**, the volume excludes energy required to satisfy **System Ancillary Services** and/or **Commercial Ancillary Services** such as response and reserve commitments.

With the supporting definitions added to the Glossary and Definitions section of the Grid Code:

* Definition of **Offer Acceptance:** Offer Acceptance being an increase in generation, or decrease in demand by a BMU
* Definition of **Bid Acceptance:** Bid Acceptance being a decrease in generation or increase in demand by a BMU

As well as introducing additional defined terms into the Glossary and Definitions to enable the new parameters, MDO, and MDB and Future State of Energy (FSoE) there will also be changes to the Data Validation, Consistency and Defaulting Rules.

There is also a requirement for Energy Storage Modules to provide a planning model which is more asset-specific.

See Annex 3 for full draft legal text.

Workgroup considerations

The Workgroup convened 9 times to discuss the perceived issue, detail the scope of the proposed defect, devise potential solutions, and assess the proposal in terms of the Applicable Code Objectives.

**Consideration of the proposer’s solution**

**Assets within Scope**

The Proposer confirmed that they intend that the solution for MDO and MDB will be technology neutral. However, there was concern from several Workgroup Members that BMUs should not be subject to MDO and MBD when they can fully deliver in the BM Window. Several Workgroup members had concerns around the application of the modification on pumped storage.

The Proposer still intends that this is a parameter which should be submitted by all technology types.

Some Workgroup members expressed concern that the use of the defined term "Electricity Storage Module" exempts Pumped Storage from the additional requirement to provide asset specific planning model, but would leave in scope similar Long Duration Energy Storage asset classes such as Compressed Air Energy Storage or Long Duration Lithium Ion Battery.

The asset types that are not limited can record a large value at registration so that NESO will know that any BOA is not curtailed by a lack of energy. If this modification is approved, for existing BMUs NESO will insert a default value.

These values will then be defaulted each day so that the BMU does not have to redeclare. The suggested default value for MDO is 9999MWh and for MDB it is -9999MWh.

Several Workgroup members wanted there to be a stronger definition around what falls under limited/ unlimited, whereas the Proposer was comfortable that this was not required due to the precedence of other parameters in the Grid Code.

**BSC Interaction**

For the solution to work there is a requirement to move the short-term asset data onto the Elexon Insight platform.  The Workgroup agreed with the approach suggested by the Proposer that the BSC change won't be developed until the Final Modification Report is submitted to the Authority, but meanwhile NESO have engaged with Elexon Business & IT representatives to discuss the changes and establish the best way forward given the desire from the industry to progress this capability.

**Commercial Versus Technical Dynamic Parameters Discussion**

The Workgroup had extensive discussion without reaching a consensus whether the proposed dynamic parameters; MDO and MDB, should be considered technical (i.e. what a plant is physically capable of delivering) or commercial (what the provider has elected to deliver). This discussion was centred around the [Ofgem Open Letter published in September 2020](https://urldefense.com/v3/__https:/www.ofgem.gov.uk/publications/open-letter-dynamic-parameters-and-other-information-submitted-generators-balancing-mechanism__;!!B3hxM_NYsQ!wCLfVTCsKIBUbLyBgCE5Es789wdEOIFZxQpZkDLSbN6n24WuC2x6d9_TzPT4WfHD9qN2YI0A4AIRqfb_nL1t_Mir02lwWHdng9oN1OI$), which explained that Dynamic Parameters should not be used for commercial purposes.

An Authority Representative confirmed that there were no immediate concerns with classing MDO/MDB as dynamic parameters from an enforcement/compliance perspective. And that the definition still reads as the amount of energy that can technically be delivered subject to any other Ancillary Service commitments, rather than the amount that the party would like to deliver. Therefore, this is broadly consistent with other dynamic data in terms of the focus on technical rather than commercial data.

As the definition explicitly states out that the information should be submitted net any energy required for Ancillary Service contracts, it would mean that it would be difficult for a party to argue that that similar contractual considerations should be accounted for when submitting other dynamic data.

However, there is some contention around the fact that these parameters can be redeclared inside the BM Window based on proposed changes to the Physical Notification after the BM Window.

It was recognised in the Workgroup that stopping a redeclaration inside the BM Window meant an LDA could not trade as normal and at the same time obey its Final Physical Notifications (Annex 4). For NESO having an accurate FPN is vital.

Allowing MDO and MDB to be redeclared inside the BM Window means that NESO will not have certainty during this period.

**MDO/MDB versus an asset-based model**

During the initial Workgroup meetings Workgroup Member discussed whether NESO should use an asset-based model to predict the energy left in a BMU before and after NESO issues a BOA.

In this context an “asset-based model” means a representation of the components making up the BMU and a model of the behaviour of these components as energy is taken from, and inserted into, the BMU.

Annex 5 was provided by a Workgroup member and shows a BMU consisting of a single battery a model.

The majority of the Workgroup and NESO agreed that inside the BM Window the owners of BMUs should provide NESO with an explicit statement of the available energy for an offer or a bid. NESO should not try to derive these, or NESO is effectively making decisions that could affect the BMUs commercial position.

However, NESO also has to make constant forecasts of future margins and provide this information to the market so that the market can respond.

NESO agreed that an asset-based model was the best approach for this.

This model can be used by NESO to forecast the availability of BMUs in the future and to perform “what-if” analysis if NESO was to issue a BOA to these assets. In these timescales NESO is not making any commercial decisions and so using an approximate model is considered sufficient.

NESO also gets another important piece of information about Electricity Storage Modules – the State of Energy is a metered value returned to NESO via SCADA measurements. This is a measurement of the current situation, but it does not forecast future behaviour.

**Overarching Battery Model**

The Workgroup discussed the proposed approach that the battery assets model would follow, with the Proposer acknowledging that there will be some asset-specific variation.

Market Participants submit MDO/MDB

Values within the BM Window are Firm

Give FSoE and limits for future hours

May need additional asset configuration

For planning minded to adopt asset specific model

Dispatch

Planning

**Dispatch: Flow for Maximum Delivery Offer (MDO) and Maximum Delivery Bid (MDB)**

The Proposer explained how for new BMUs a value will be provided by the BMU during the registration process, where for existing BMUs a default value can be inserted (+9999/ -9999) by NESO into their IT systems for each BMU.

The new parameters will follow the usual defaulting rules. BMUs will submit indicative values for the next Settlement Day before 11:00 at Day Ahead. If a BMU has not submitted these values the previous days values will be copied and defaulted at 11:00 Day Ahead (the details of how this works now are in the Data Validation, Consistency and [Defaulting Rules](https://www.nationalgrideso.com/document/34066/download) ).

As we approach each Gate Closure BMUs will update MDO/MDB as they trade their positions. After Gate Closure the values of MDO/MDB within the BM Window can only updated in response to one of the following circumstances:

* A technical fault;
* If NESO issues a BOA;
* If a frequency event occurs so that the BMU depletes all energy it had reserved for an ancillary service; and/or
* If it has a non-zero PN after the BM Window changes.

The Workgroup queried whether there is a difference between the treatment of duration limited versus energy limited and if this would lead to needing a threshold to be established. The Proposer confirmed that as BOAs that are longer than 89 minutes (the length of the BM Window) any BMU that can sustain a BOA for longer than the length of the BM Window, at their MIL or MEL, is not considered limited for NESO purposes.

**Planning: Future State of Energy (FSoE) and Flow for Asset Specific Models**

The Workgroup queried whether the definition should be ‘Charge’ or ‘Energy’, the Proposer confirmed that as the reference is to energy, and the definition relates to modules (MWh) then “Future State of Energy (FSoE)” is the better term.

The Proposer explained how for each BMU, to avoid differentiating between current and future technologies, NESO will agree a model. Different BMUs may have different models depending on what they want to share and the level of accuracy.

A very simple model may just have export and import efficiencies. A more complex model may have additional parameters (temperature effects etc). NESO will take guidance from the BMU owner on what is a fair representation, but their assumption is that the model shown below is sufficient in most cases:

* For new BMUs the model and its parameters are agreed at registration;
* For existing BMUs a model will be agreed after the modification has been approved by the Regulator;
* The model parameters are not expected to change at any great frequency – they will only change if there is some change to the asset;
* The variables that will change are the limits in quantities such as allowed State of Energy (FSoE) as determined after auctions for Ancillary Services;
* NESO would expect FSoE limits (min and max) to be declared after a change due to an auction for an ancillary service. The time span for the FSoE limits should include all known future ancillary auctions affect the FSoE limits;
* The last value in the FSoE limits will continue forward time; and
* If a BMU does not supply Ancillary Services, they would not need to update their FSoE limits.

**Time resolution for parameters and number of submissions**

NESO SME clarified the desire for the parameter to be a time varying parameter which considers Ancillary Service contracts, and NESO SME shared that NESO treat Physical Notifications (PNs) as sacrosanct and therefore should not be changed.

A Workgroup Member raised concerns around using time resolution parameters and suggested one variation per settlement period seemed to be the correct trade off.

It was agreed that minute resolution was preferred, however there were queries on the maximum number of submissions that NESO IT systems could handle.

At the time of writing NESO is transitioning its IT services to a new platform. The new MDO and MDB parameters may be implemented in either the older or new platform depending on the time when approval is given.

If we consider MEL submission from batteries the current system experiences a peak in submissions immediately before Gate Closure.

On average this peak is 1100 submissions in the five-minute period before Gate Closure from a total of 135 batteries. So, the maximum number of submissions NESO would expect per BMU in the five-minute period for MDO is 8. With a similar number for MDB.

The new IT platform can handle more than this however the Proposer believed 8 to be a reasonable limit overall.

With one minute granularity a BMU could submit a different MDO or MDB for every minute. Instead, NESO expects BMUs to use the “to” and “from” fields to reduce this.

|  |  |
| --- | --- |
| One minute granularity | Using 'to' and 'from' Fields |
|  |  |

**Example scenarios considered as part of the Workgroup**

To support the development of the solution Annex 6 shows a number of different scenarios when calculating MDO/MDB.

**Impact on Bid Offer Acceptances (BOAs)**

The Proposer confirmed that BOAs must be deliverable, and the Workgroup debated at length the impact of the new parameters on BOAs, particularly on when the exemption scenarios above are involved.

Diagrammatic model below used to help the Workgroup to visualize a ‘day in the life’ and what is expected from BMUs in terms of declaring MDO/MDB. Inclusive of what would happen if in SP4, a BMU would be able to redeclare SP1 and SP2 non- zero.



Figure 1. Moving timelines

**NESO management of Data**

The Workgroup queried whether NESO would be able to manage the volume of data they would receive from Industry if they were able to re-declare every minute until Gate Closure, as the current system is due to be replaced in early 2025.

The Proposer confirmed that depending on when the modification was approved the data would either go directly into OBP which will be able to handle up to 40,000 BMUs. However, if this wasn’t in place, they would take data and legacy systems will pass to new system for OBP to complete the data crunching so were confident in their solution.

The Proposer confirmed that MDO and MDB would neither improve nor worsen the situation with the Automated Network Management Systems (ANM) which was being picked up more widely by the Whole System Management Team.

**Electricity Balancing Regulation (EBR) Implications**

Article 18 sets out the rules for creating markets and how balancing products should be set up across the GB market. It states that Transmission System Operators (TSOs) (NESO) should have terms and conditions developed for balancing services, which are submitted to and approved by Ofgem. The terms and conditions related to balancing should be developed by NESO, NESO is responsible for managing change and maintaining the T&Cs relating to balancing for balancing service providers (BSPs) and balance responsible parties (BRPs).

The interaction has been identified between GC0166 and the mapped Article 18 sections within the Regulated Sections of the Grid Code

**Regulation on Wholesale Energy Market Integrity and Transparency (REMIT) Interaction**

During the discussion around whether MDO/MDB are technical or commercial dynamic parameters, a Workgroup Member commented that if the parameters relate to trading, then there would be an interaction with REMIT.

A Workgroup Member stated that there should be a clear distinction drawn between factors that can feed into the MDO/MDB calculation when it's submitted and what are valid reasons to redeclare MDO/MDB after gate closure are, therefore, REMIT is out of scope, especially for 1-hour batteries BMUs need to declare 1 hour ahead.

The Proposer re-iterated that NESO is seeking certainty from the solution, including that BMUs only redeclare parameters for technical not commercial reasons.

**Capacity Team Alignment**

The Proposer confirmed with NESO Electricity Market Reform (EMR) team that the Proposed solution for GC0166 is aligned with the current [EMR thinking](https://www.nationalgrideso.com/what-we-do/energy-markets).

**Pros and Cons of Certainty versus Flexibility**

The Proposer confirmed that the aim of this modification is to facilitate increased economic dispatch of Electricity Storage Module assets and to enable improved operational planning allowing NESO to factor in these modules for longer term planning (up to 24 hours ahead), which is directly linked to providing certainty and that the exemptions introduced for BMUs to redeclare MDO/MDB provided additional flexibility.

NESO noted that they had considered the balance between certainty vs flexibility, the Workgroup requested further clarity on this. The Proposer confirmed that by fixing MDO/ MDB inside the BM Window it would limit the ability of an LDA to trade. This is a consequence of existing market arrangements.

The Proposer also considered only allowing MDO/MDB to increase in the BM Window but to achieve this the BMU would need to hold back a large amount of energy which they felt did not strike the right balance of certainty versus flexibility.

Currently limited duration assets use the “MIL/MEL 30-minute” rule to inform NESO of the available energy for a bid or offer. This limits the length of possible BOAs.

Having a declared value of MDO/MDB covering all of the BM Window allows NESO to have a longer-term view of a BMUs availability during this vital period.

However, as MDO/MDB can be redeclared at any time during the BM Window reduces NESO’s certainty.

NESO buys some reserve at Day Ahead but usually still expects the market to provide some reserve closer to real-time. LDA in the calculation of reserve will still be probabilistic based on history (as it is now). And so, the new parameters mean no change to the level of LDAs that we can rely on inside the BM Window for reserve.

At the start of the BM Window, after Gate Closure, NESO will have a view of the imbalance caused by market participants not balancing overall.

However, there is still a great deal of uncertainty caused by errors in demand forecasts, errors in forecasting renewables, interconnector swings etc.

To avoid unwinding costs NESO will not close the imbalance immediately, instead it will take some actions to reduce the imbalance but also wait until closer to real-time to take final actions when forecasts get better.

MDO/MDB provide the Control Room with a longer period of certainty but, given that MDO/MDB can be redeclared with no notice this volume can be withdrawn when NESO may have been relying on it.

The alternative situation of fixing MDO/MDB but allowing FPNs to vary is also undesirable. NESO may have a fixed MDO/MDB but now it cannot rely on the scheduled position of the BMUs.

This is worse than the current situation where renewables struggle to follow their FPNs because in this case NESO can use forecasts of weather to give a measure of what will happen but trading by LDAs is something they cannot predict.

On balance NESO believes the modification improves the situation, but it does not reduce the uncertainty that leads to less reserve.

It does mean that at the point of decision NESO can take more economic actions over longer timescales provided they take the BOA before the BMU adjusts its PN after the BM Window and redeclares its MDO/MDB.

**Guidance Note versus Grid Code Content**The Workgroup discussed the possibility of introducing a guidance note to support compliance to the proposed arrangements. Whilst there was some support for this, it was noted by several Workgroup Members and the Proposer that the intention was that the solution would be articulated well enough in the Grid Code to not require any additional guidance notes.

**Consideration of other options**

The Proposer was stated that NESO needs to have a view of the energy available after Ancillary Services commitments have been considered. Ancillary Service contracts interactions affect the volume of energy available, and this feeds into the ongoing discussion about ability to redeclare MDO/MDB past gate closure.

MDO and MDB are designed not be a default parameter for short duration assets and they will need to be redeclared when the State of Energy of the BMU changes.

The Workgroup has had extensive discussion around whether the parameters are technical or commercial, with several Workgroup members considering that the distinction between technical and commercial considerations is often blurred, and that NESO intention for them to be entirely technical parameters is too restrictive.

NESO holds the position that Battery representatives will not be able to redeclare in the window/ past gate closure in all but very specific and pre-defined circumstances.

**Tranche MDO and MDB**

It was discussed whether it would be useful for BMUs to submit committed capacity and committed reserved capacity as separate quantities. This was rejected on the basis that it was out of scope as NESO then would need to use the 2 numbers to derive the values they would need to use, and this was discussed early on as not being the intended outcome.

1. Capacity and
2. Committed / Reserved.

**Workgroup consultation question: Xxxxx?**

## Draft legal text

The draft legal text for this change can be found in Annex 3.

What is the impact of this change?

## Proposer’s assessment against Code Objectives

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| **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 Modules to inform NESO of energy available over time, instead of NESO 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 electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity); | **Positive**  The dispatch of these assets will not be limited by the use of heuristic rules but 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 NESO 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 NESO 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. |

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| **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 NESO uses what is called the “30 minute rule” to estimate the energy available and the charging opportunities from Electricity Storage Modules. NESO uses the modules declared Maximum Import Limit and Maximum Export Limit and then limits the length of instructions to 30 minutes.  This reduces the ability to issue instructions for longer than 30 minutes and gives us no information on the expected future state of these modules to allow planning.  Improving the quality of data we get from these modules 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  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 Modules 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 Modules supports greater use of renewable energy resources and therefore, our net-zero ambitions for the future. |

**Standard Workgroup consultation question:** Do you believe that GC0166 Original proposal better facilitates the Applicable Objectives?

When will this change take place?

### Implementation date

10 Business Days following a decision by Ofgem

### Date decision required by

Q2 2025

### Implementation approach

Control Room Systems, Auction Systems, Market Services

**Standard Workgroup consultation question:** Do you support the implementation approach?

Interactions

|  |  |  |  |
| --- | --- | --- | --- |
| CUSC | BSC | STC | SQSS |
| European Network Codes | EBR Article 18 T&Cs[[2]](#footnote-3) | Other modifications | Other |

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

How to respond

## Standard Workgroup consultation questions

1. Do you believe that the Original Proposal and/or any potential alternatives better facilitate the Applicable Objectives?
2. Do you support the proposed implementation approach?
3. Do you have any other comments?
4. Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?
5. Do you agree with the Workgroup’s assessment that GC0166 does impact the European Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the Grid Code?
6. Do you have any comments on the impact of GC0166 on the EBR Objectives?

## Specific Workgroup consultation questions

1. Is it clear from the definition of MDO and MDB that NESO can send multiple instructions up to the volume declared?
2. Is it clear that the services referenced within the definitions of MDO and MDB are only during the BM Window?
3. Is it clear that when referencing unlimited/nonlimited it means…..
4. Is it clear from the definition of FSoE that this **should be calculated at**the point where it can be imported/exported **to the Total System**?
5. For submitting FSOE limits NESO have suggested that a portal is used. An alternative is to use the single markets platform so that participants do not need to submit these, but they may not be as accurate – thoughts?
6. Do the restrictions in BC2.5.3.4 strike the right balance between flexibility and operability?
7. Do you see there being an interaction between MIL/MEL between MDO and MDB?
8. Do you agree that MDO/MDB are technical requirements?

The Workgroup is seeking the views of Grid Code Users and other interested parties in relation to the issues noted in this document and specifically in response to the questions above.

Please send your response to [grid.code@nationalgrideso.com](mailto:grid.code@nationalgrideso.com) using the response pro-forma which can be found on the [GC0166](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0166-introducing-new-balancing-programme-parameters-limited-duration-assets) modification page.

In accordance with Governance Rules if you wish to raise a Workgroup Consultation Alternative Request please fill in the form which you can find at the above link.

*If you wish to submit a confidential response, mark the relevant box on your consultation proforma. Confidential responses will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Panel, Workgroup or the industry, and may therefore not influence the debate to the same extent as a non-confidential response.*

Acronyms, key terms, and reference material

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| --- | --- |
| **Acronym / key term** | **Meaning** |
| BESS | Battery Energy Storage Systems |
| BMRS | Balancing Mechanism Reporting Service |
| BMRS | Balancing Mechanism Reporting Service |
| BSC | Balancing and Settlement Code |
| CUSC | Connection and Use of System Code |
| EBR | Electricity Balancing Regulation |
| FSoE | Future State of Energy |
| 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 |
| MDB | Maximum Delivery Bid |
| MDO | Maximum Delivery Offer |
| OBP | Open Balancing Platform |
| REMIT | Regulation on Wholesale Energy Market Integrity and Transparency). |
| SP1, SP2… | Settlement Period 1, 2 …. |
| SQSS | Security and Quality of Supply Standards |
| STC | System Operator Transmission Owner Code |
| T&Cs | Terms and Conditions |

### Reference material

* [Balancing programme | NESO](https://www.nationalgrideso.com/what-we-do/electricity-national-control-centre/balancing-programme#Strategic-capability-review)
* [GCDF- new parameters for Storage (Summary Presentation 02.08.23)](https://www.nationalgrideso.com/document/285381/download)
* [STC - Panel Meeting - 29.11.2023](https://www.nationalgrideso.com/calendar/stc-panel-meeting-29112023)

Annexes

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| **Annex** | **Information** |
| Annex 1 | Proposal form |
| Annex 2 | Terms of reference |
| Annex 3 | Legal Text |
| Annex 4 | Redeclaration inside BM Window |
| Annex 5 | Habitat Dispatch Planning Tool |
| Annex 6 | Calculating MDO and MDB, Worked Examples |
| Annex X |  |
| Annex X |  |
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1. Formally BMRS (Balancing Mechanism Reporting Service). [↑](#footnote-ref-2)
2. 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. [↑](#footnote-ref-3)