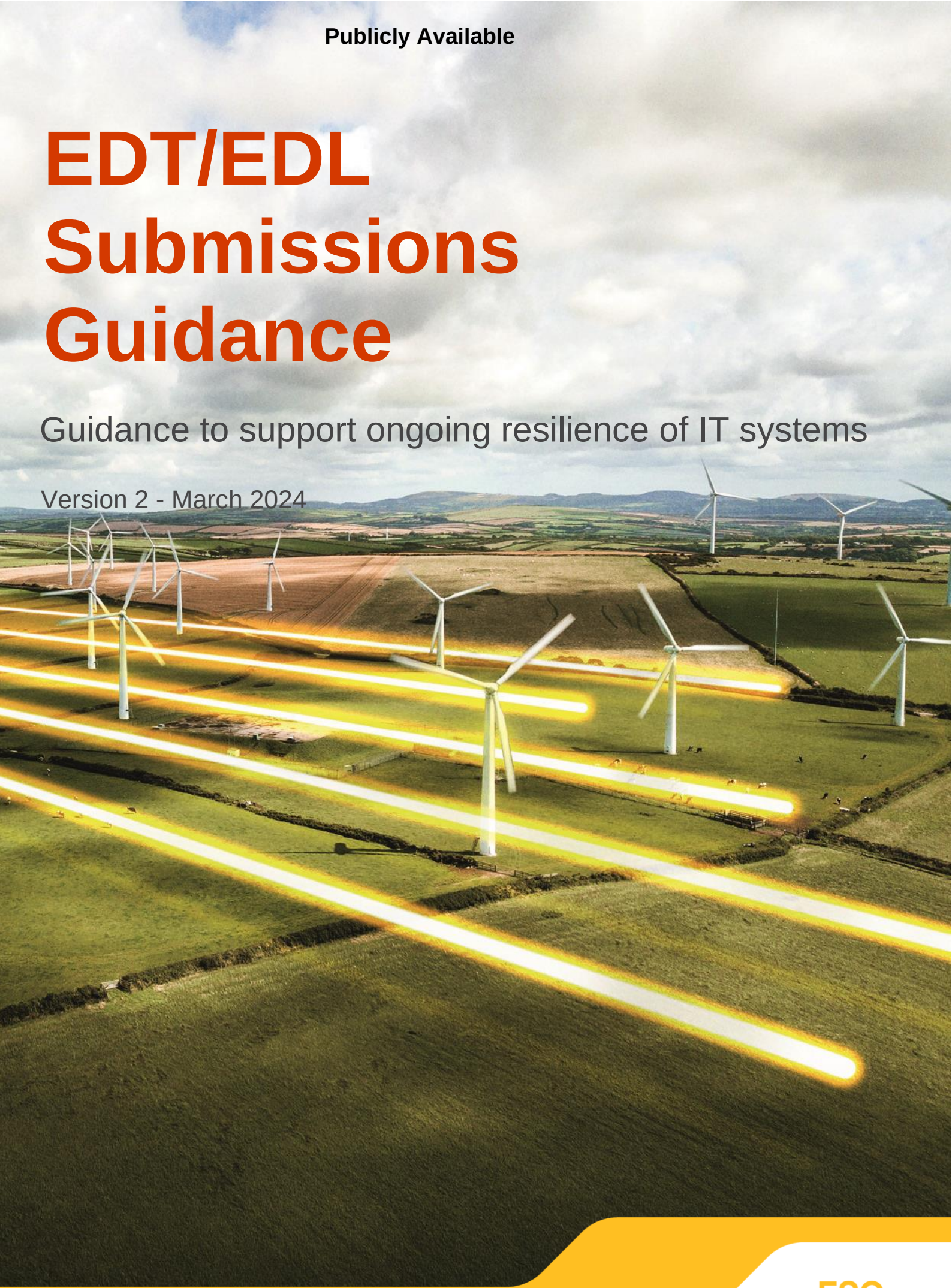
Publicly Available

EDT/EDL Submissions Guidance

Guidance to support ongoing resilience of IT systems

Version 2 - March 2024



ESO

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ESO

Introduction

This is an update to the initial guidance which was issued in December 2023 to reflect changes to the 15-minute rule for batteries, which will be extended to 30-minutes from the 11th of March 2024.

The focus of this document is on opportunities for limited duration and fast acting assets to optimise redeclaration submissions, with guidance for other asset types provided where appropriate. The objective of this document is to support the reduction in volumes of data submitted via EDT and EDL without adversely impacting the utilisation of assets, whilst also providing guidance regarding the use of MEL/MIL declarations for visibility of stored energy capacity.

This guidance is part of a suite of activities seeking to address the challenges to our legacy systems, which also includes code improvements and hardware upgrades. Our enduring solution will be delivered via the Open Balancing Platform, which is designed to accommodate an increasing number of participants and associated data flows, but until the time at which the EDL/EDT transition is complete we will continue to be reliant on our existing systems.

The guidance in this document falls into the following areas:

1. The use of MEL/MIL declarations for visibility of stored energy capacity (*the "30 minute rule")*
2. Reduction of duplicate records – where the same information is being sent to the ESO on multiple occasions.
3. Reduction of redundant records – where we are receiving records covering periods that have already been submitted but the key fields remain unchanged.
4. Reducing unnecessary granularity – where records are sent at shorter time periods than necessary, and as the data has not changed between periods, could be combined into a single record covering a longer duration.
5. Reducing unnecessary precision – where data is being refined outside of the time horizon of ESO decision making or within an area of price infeasibility (during the provision of dynamic response contracts).
6. Spreading systematic submission from assets in a portfolio across the half-hour rather than for the same minute.

This guidance seeks to provide best practices to reduce the volume of data being sent to the ESO via EDL/EDT, without compromising industry code requirements or introduce financial impacts to market participants.

This guidance is provided for information only. It is subsidiary to legal, regulatory, and contractual requirements.

Overarching Principles in Creating Guidance

This guidance aims to uphold efficiency and transparency in balancing activities. Key principles include:

1. Transparent Balancing Mechanism operations.
2. Compliance with code obligations by providers.
3. No adverse impact on providers' revenues through application of this guidance.
4. Providers can fully demonstrate their flexibility to the ESO.
5. The application of this guidance will not result in the issuing of Bid/Offer Acceptances (BOAs) that contradict the true dynamics of a provider's asset.

This ensures clarity and fairness, whilst safeguarding providers' operational and financial interests.

Updated Rule for batteries, from 15 Minutes to 30 Minutes and Transition Plan

We are implementing a change to the existing 15-minute rule, which is in place for batteries as part of initiatives for enhancing utilisation of energy storage in the Balancing Mechanism. The timing is also planned to be aligned with the implementation of our new Balancing Reserve product. This rule is intended as an interim arrangement, ahead of the outcome from grid code modification *GC0166: Introducing new Balancing Programme Parameters for Limited Duration Assets.*

The rule, as constructed, will largely remain the same apart from a change from 15 minutes to 30 minutes. The process will be as follows:

- Providers are to submit MEL/MIL values which can be sustained for a 30-minute period (with one minute ramp either side).
- After a Bid Offer Instruction has been received the MEL or MIL should be redeclared as soon as possible starting from the point at which the current MEL/MIL level could not be sustained if the BOA were to be extended.
- We will check for resubmission before another bid or offer instruction can be issued, you are not required to resubmit all MEL/MIL values if some remain unchanged, as any MEL/MIL redeclaration will be deemed as validating all existing records that have not been updated. Further details on the 30 minute rule are provided in the following section.

We are conscious of the potential impact of this change from 15-minute rule for 30-minutes and have been engaging with providers to ensure the requirements and impacts are understood. Whilst most of the feedback received about this change has been positive and suggests that this change will be relatively easy to implement, we appreciate this may not be the case for all providers. If you have concerns about the adopted approach, please reach out to us directly at box.balancingprogramme@nationalgrideso.com we are happy to discuss any concerns you may have.

Transition to the new arrangements:

We are asking for providers to start transitioning from 11th March 2024, looking to have completed by 25th March 2024. During this period, we will implement temporary internal procedures to manage receiving both 15-minute and 30-minute submissions.

We require a staggered approach to this transition, so we are asking providers to inform us of their intended date and time of transition, including the applicable Balancing Mechanism Units. We will respond to confirm the proposed time, to ensure the collective impact of the transition is managed appropriately.

We ask that communications are sent in the following format to box.balancingprogramme@nationalgrideso.com

Subject Line: Transition to 30 Minute Rule
Email Content: Intended date and time of start and completion of transition to 30-minute rule, including the BM units which will be transitioned over.

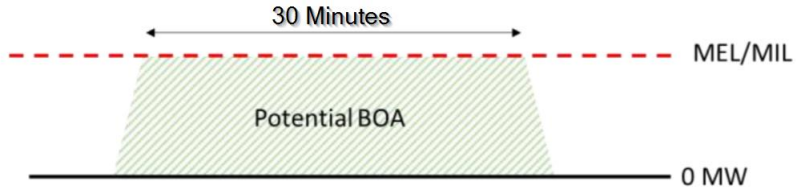
We ask that as part of the transition, providers consider the remaining guidance in this document for EDT/EDL submissions and look to stagger transition focussing on shorter timescales first i.e., up to 90 minutes ahead followed by longer timescales.

The 30 minute MIL/MEL redeclaration rule

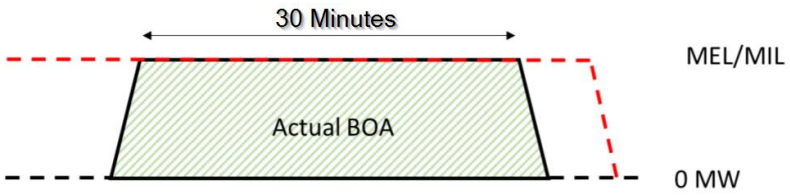
The Balancing Mechanism (BM) system architecture has some limitations in its representation of storage assets. ESO are working towards developing solutions to factor real time stored energy capacity/capability of energy storage assets within the BM. Until this work is delivered, ESO are operating the below principles for energy limited assets within the BM.

The examples below illustrate how battery Balancing Mechanism Units (BMUs) are accessed in the BM. The examples operate on the principle that battery BMUs should be able to operate at their Maximum Export Limit (MEL)/Minimum Import Limit (MIL) for at least 30 minutes.

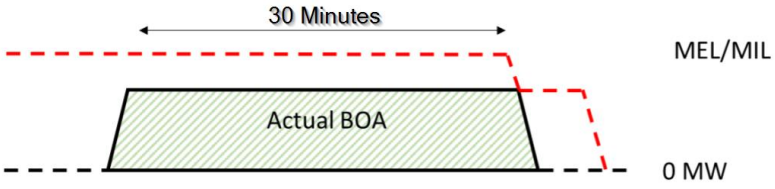
- Battery BMUs should declare their MEL and MIL open-ended such that it reflects the capacity to follow a Bid Offer Acceptance (BOA) which ramps from the current Physical Notification (PN) to the MEL or MIL and remains at the MEL or MIL for a duration of 30 minutes before ramping back to the Physical Notification. Ramping rate to be the Run Up Rate (RUR) or Run-Down Rate (RDR) as applicable.



- If a BOA is issued to MEL/MIL, the State of Energy should be recalculated, and the MEL or MIL should be redeclared as soon as possible starting from the point at which the current MEL/MIL level could not be sustained if the BOA were to be extended. This redeclaration will be a minimum of 32 minutes from the first point of instruction (30 minutes duration and 1-minute ramp either side) but may be longer.



- If a BOA is issued which part-loads a unit below MEL/MIL, then the above principle should also be applied for a subsequent MEL/MIL based upon the State of Charge at the end of the current BOA. The MEL/MIL should remain at the original level for the first 31 minutes of the BOA (reflecting the 1-minute ramp and 30-minute duration), and then drop to the new level no sooner than the end of the BOA.



- On returning to PN, the BMU should resubmit their MEL/MIL as per the first bullet point.

Should any of these principles contradict with the Grid Code at any point, then the Grid Code will take precedence.

Guidance for EDT/EDL Submissions (updated with 30-min rule)

When to use EDT or EDL

Guidance is applicable to	EDL	EDT
MEL	✓	✓
MIL	✓	✓
Other data items (including PN)	✗	✗

EDL is designed to quickly transfer critical data that is required for real time operations.

Receipt of EDL messages triggers ESO processes to interpret the message and apply changes to operational systems with minimal delay. It is vital that messages are processed sequentially, as there are limitations on the rate at which messages can be processed.

Therefore, EDL should be used within the Balancing Mechanism (BM) window (up to the end of the last settlement period for which the BM gate has closed), otherwise submissions should be via EDT. Figure 1 below provides an example of when to use EDL and EDT.

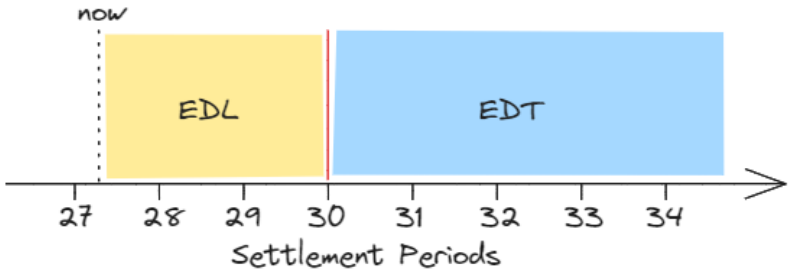


Figure 1: When to use EDL and EDT

Removal of duplicate submissions

Guidance is applicable to	EDL	EDT
MEL	✓	✓
MIL	✓	✓
Bid Offer Data	✗	✓
Other data items	✗	✗

For assets other than battery assets:

If the submissions from market participants results in no change in the submission of for example MEL/MIL data, effectively a duplicate of existing data, then remove these instances.

We would only require updates to submissions which are changing, so if MEL changes but MIL does not, only submit MEL data, and if MIL changes but MEL does not, only submit MIL data.

Examples of duplicates is shown in the following example:

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
01/01/2023 13:05	01/01/2023 14:00	0	01/01/2023 14:30	30
01/01/2023 13:38	01/01/2023 14:00	0	01/01/2023 14:30	30

In the above table the same information has been sent twice, there is no change between the first and second record other than the submission time, we do not require the second record.

For battery assets (including aggregated assets which contain solely batteries) which are instructed by our Open Balancing Platform the 30-minute rule has been applied. In the instances where BOAs are not instructed then please remove duplicates as per the above guidance. The 30-minute rule comes in two parts:

1. Provide a MEL/MIL value which confirms the level that the ESO can dispatch in 30 minutes (strictly 32 minutes, allowing for 1-minute ramps either side of an instruction).
2. After a Bid Offer Instruction has been received the MEL or MIL should be redeclared as soon as possible starting from the point at which the current MEL/MIL level could not be sustained if the BOA were to be extended. Without this, ESO has no visibility of capacity of a battery unit, and therefore ESO may not issue instructions until a post-instruction submission. To be clear, you do not need to resubmit all MEL/MIL values if some remain unchanged, any MEL/MIL redeclaration will be deemed as validating all existing records that have not been updated. See the section above (*The 30 minute MIL/MEL redeclaration rule*) for further details.

Outside of the up-and-coming 30-minute window following a BOA (for battery assets), the previous guidance for removal of duplicates still applies.

For all assets (including batteries), for Bid and Offer data submission through EDT the same principle applies, that duplicate records with no changes in price submissions for the same effective settlement periods/half hours should not be submitted.

Removal of redundant submissions

For assets other than battery assets:

If the submissions from market participants results in no new information in the submission of MEL/MIL data, effectively redundant information, then remove these instances. This covers instances where although From and To times are different, for all minutes covered in the submission, MW values are the same in both the new and prior submissions i.e., the MW minute by minute profile remains **exactly** the same.

We would only require updates to submissions which changes the MW minute by minute profile. In addition, if MEL changes but MIL does not only submit MEL data and if MIL changes but MEL does not only submit MIL data.

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
02/01/2023 20:13	02/01/2023 21:04	0	02/01/2023 21:30	0
02/01/2023 20:23	02/01/2023 21:10	0	02/01/2023 21:30	0

The table above shows an example of where the second record submitted provides no new information (i.e., MW profile) and is therefore redundant. As the first record already covers the time range provided by the second record and the minute-by-minute MW values are unchanged the second record is not required.

For battery assets (including aggregated assets which contain solely batteries) which are instructed by our Open Balancing Platform the 30-minute rule has been applied. In the instances where BOAs are not instructed then please remove duplicates as per the above guidance. The 30 -minute rule comes in two parts:

1. Provide a MEL/MIL value which confirms the level that the ESO can dispatch in 30 minutes (strictly 32 minutes. Allowing for 1-minute ramps either side of an instruction)
2. After a Bid Offer Instruction has been received the MEL or MIL should be redeclared as soon as possible starting from the point at which the current MEL/MIL level could not be sustained if the BOA were to be extended. Without this, ESO has no visibility of capacity of a battery unit, and therefore ESO may not issue instructions until a post-instruction submission. To be clear, you do not need to resubmit all MEL/MIL values if some remain unchanged, any MEL/MIL redeclaration will be deemed as validating all existing records that have not been updated. See the section above (*The 30 minute MIL/MEL redeclaration rule*) for further details.

Outside of the up-and-coming 30-minute window following a BOA, the previous guidance for removal of redundant submissions can be applied.

For all assets (including batteries), for Bid and Offer data submission through EDT the principle applies those redundant records with no changes in price submissions.

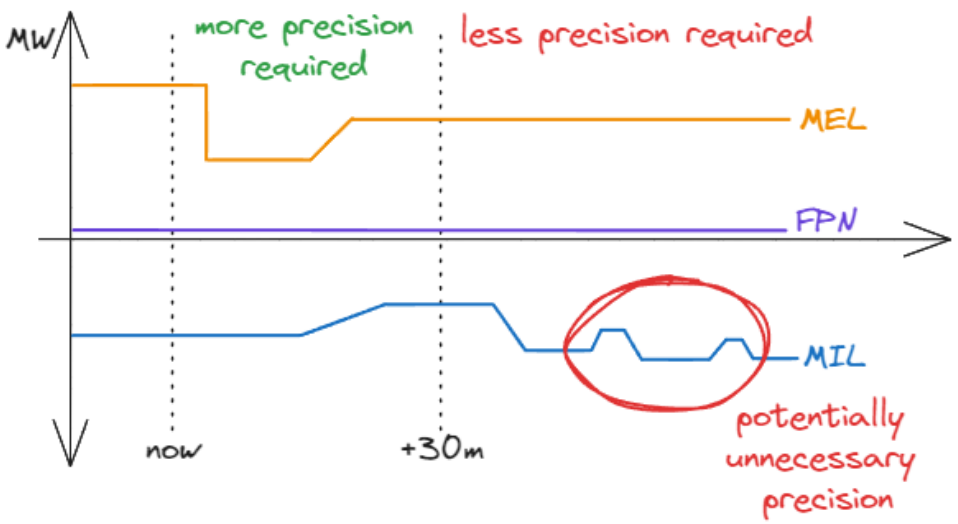
Reduction of submissions outside of ESO decision making time horizons

Guidance is applicable to	EDL	EDT
MEL	✓	✓
MIL	✓	✓
Other data items	✗	✗

The guidance in this section is in addition to the previous guidance on use of EDT/EDL and implementation of the 30-minute rule for batteries and removal of duplicates.

For batteries, while it remains important to ensure that MEL and MIL profiles accurately reflect the availability, there is less value in having a high degree of precision far away from real-time. This is particularly so in cases, for example, where the available energy is likely to change between the current time and when the capacity is likely to be dispatched, for example when providing frequency response.

When it comes to dispatch decisions for energy minute by minute balancing, the ESO will look to avoid the need to reverse a prior instruction. Increasing levels of uncertainty and volatility in system operation, mean that dispatch decisions are focused close to real time. For batteries, in combination with the updated 30-minute guidance, precise profiles of available capacity between 30-minutes ahead and the end of the BM window, which are likely to change, do not provide useful information for energy balancing decisions in dispatch timescales. Simple and indicative profiles are sufficient.



For all Balancing Mechanism Units, when it comes to scheduling decisions, it is also important to have accurate data for the ESO to assess the relative costs of available scheduling actions. Therefore, an understanding of whether assets are available is key and any changes in full availability, zero availability or partial availability going forward. For the purposes of accurate decision making in the control room, we would ask that MEL/MIL submissions which cover the next twenty-four hours are accurate where:

- NDZ/MNZT are greater than 60-minutes.
- Physical Notifications (PN) are zero.

For periods which are greater than 60-minues ahead, where physical notifications, are zero and non-zero across a twenty-four-hour window, focus data submissions covering times where physical notifications are zero and minute by minute MEL/MIL MW profiles have changed as per previous guidance in this document.

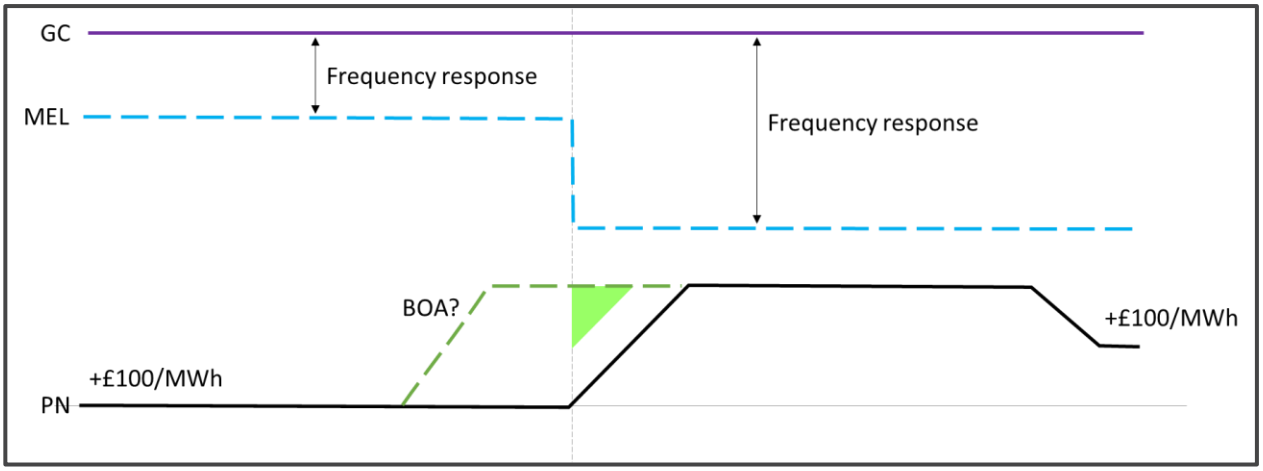
Exemptions to this specific guidance are:

- Day-ahead submissions. We recognise the requirement to provide accurate data ahead of the 11am (Local Time) day ahead stage, so would ask that market providers continue to ensure that 11am MEL/MIL data accurately reflects current availability for the period until two days into the future for the effective period until 5am.
- Any obligations, code or REMIT obligations which apply.

Reductions in the number of submissions within the area of the price infeasibility

For short-duration storage assets, who are providing Dynamic Moderation (DM), Dynamic Regulation (DR), Dynamic Containment (DC), the existing advice for making bid-offer capacity available in the BM while providing frequency response services, leads to scenarios where units use very high prices to restrict access to the power range required for the delivery of frequency response, and also use MEL/MIL to indicate energy available. This creates potentially for scenarios where small volumes with high prices might be unintentionally accepted and from a ENCC process perspective decision making is more complex.

We propose that MEL/MIL should be used to indicate the dispatchable power capacity up to the level that could be sustained for at least 30 minutes. This removes the need to submit very high prices to restrict access to capacity, which also addresses the unintended consequence of those very high prices encroaching on power capacity that the provider would want to make available in the BM.



MEL would therefore represent the lower of:

- Maximum power output without losing frequency response capacity.
- Maximum power output that could be instructed for 30 minutes, without eroding energy required for frequency response provision.

For MIL the converse applies.

The existing approach using prices to indicate unavailability means that often, MEL/MIL are updated while the values remain in the very high-priced range. The ESO will not dispatch into the high-priced range, these updates have no impact on the ESO's dispatch decisions.

Bid-Offer prices are always relative to the PN, it also means that as the PN changes level, the high-priced range can inadvertently encroach on the power capacity that could be dispatched without impacting the unit's ability to meet its frequency response obligations. See yellow shaded area of diagram below.

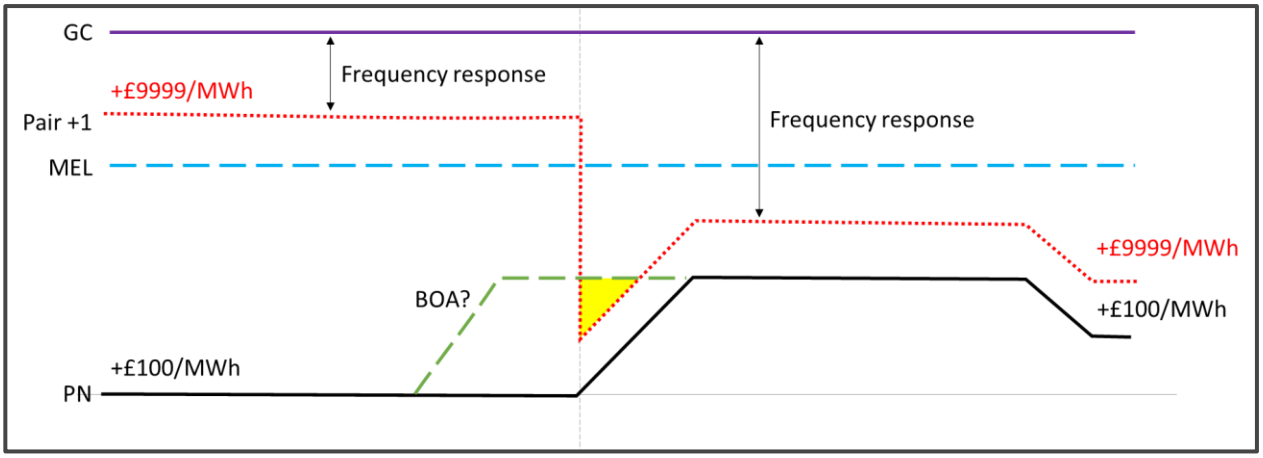


Diagram notes: GC – Generation Capacity, MEL – Maximum Export Limit, PN – Physical Notification and BOA – Bid-Offer Acceptance. Only export region shown for clarity.

Efficient data file creation/submission

Guidance is applicable to	EDL	EDT
MEL	✓	✓
MIL	✓	✓
Bid Offer Data	✗	✓
Other data items	✗	✗

For submissions which have the same MW value or same ramp rate across subsequent records, the guidance is to efficiently combine records together into one. The general guidance for submission via EDL or EDT still applies here, so where submissions are for both within gate closure and outside gate closure, create one record for EDL and one record for EDT.

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
01/01/2023 13:05	01/01/2023 15:00	0	01/01/2023 15:30	0
01/01/2023 13:05	01/01/2023 15:30	0	01/01/2023 16:00	0
01/01/2023 13:05	01/01/2023 16:00	0	01/01/2023 16:30	0

Inefficient data submission with the same MW values

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
01/01/2023 13:05	01/01/2023 15:00	0	01/01/2023 16:30	0

Efficient data submission with the same MW values

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
01/01/2023 13:05	01/01/2023 15:00	0	01/01/2023 15:30	100
01/01/2023 13:05	01/01/2023 15:30	100	01/01/2023 16:00	200
01/01/2023 13:05	01/01/2023 16:00	200	01/01/2023 16:30	300

Inefficient data submission with the same ramp rate.

Submission Time	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)
01/01/2023 13:05	01/01/2023 15:00	0	01/01/2023 16:30	300

Efficient data submission with the same ramp rate.

The same principles apply for submission of Bid / Offer data. For data which is the same across multiple half hours the data can be combined into one set of records. This is shown in the simplified example below:

Submission Time	Bid Offer Pair Number	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)	Bid Price (£/MWh)	Offer Price (£/MWH)
01/01/2023 13:05	1	01/01/2023 15:00	100	01/01/2023 15:30	100	30	40
01/01/2023 13:05	2	01/01/2023 15:00	200	01/01/2023 15:30	200	25	45
01/01/2023 13:05	3	01/01/2023 15:00	50	01/01/2023 15:30	50	50	50
01/01/2023 13:05	-1	01/01/2023 15:00	40	01/01/2023 15:30	40	25	30
01/01/2023 13:05	-2	01/01/2023 15:00	60	01/01/2023 15:30	60	20	35
01/01/2023 13:05	-3	01/01/2023 15:00	50	01/01/2023 15:30	50	10	40
01/01/2023 13:05	1	01/01/2023 15:30	100	01/01/2023 16:00	100	30	40
01/01/2023 13:05	2	01/01/2023 15:30	200	01/01/2023 16:00	200	25	45
01/01/2023 13:05	3	01/01/2023 15:30	50	01/01/2023 16:00	50	50	50
01/01/2023 13:05	-1	01/01/2023 15:30	40	01/01/2023 16:00	40	25	30
01/01/2023 13:05	-2	01/01/2023 15:30	60	01/01/2023 16:00	60	20	35
01/01/2023 13:05	-3	01/01/2023 15:30	50	01/01/2023 16:00	50	10	40
01/01/2023 13:05	1	01/01/2023 16:00	100	01/01/2023 16:30	100	30	40
01/01/2023 13:05	2	01/01/2023 16:00	200	01/01/2023 16:30	200	25	45
01/01/2023 13:05	3	01/01/2023 16:00	50	01/01/2023 16:30	50	50	50
01/01/2023 13:05	-1	01/01/2023 16:00	40	01/01/2023 16:30	40	25	30
01/01/2023 13:05	-2	01/01/2023 16:00	60	01/01/2023 16:30	60	20	35
01/01/2023 13:05	-3	01/01/2023 16:00	50	01/01/2023 16:30	50	10	40

Inefficient data submission with the same bid offer data

Submission Time	Bid Offer Pair Number	From Time (GMT)	From Level (MW)	To time (GMT)	To Level (MW)	Bid Price (£/MWh)	Offer Price (£/MWH)
01/01/2023 13:05	1	01/01/2023 15:00	100	01/01/2023 16:30	100	30	40
01/01/2023 13:05	2	01/01/2023 15:00	200	01/01/2023 16:30	200	25	45
01/01/2023 13:05	3	01/01/2023 15:00	50	01/01/2023 16:30	50	50	50
01/01/2023 13:05	-1	01/01/2023 15:00	40	01/01/2023 16:30	40	25	30
01/01/2023 13:05	-2	01/01/2023 15:00	60	01/01/2023 16:30	60	20	35
01/01/2023 13:05	-3	01/01/2023 15:00	50	01/01/2023 16:30	50	10	40
01/01/2023 13:05							

Efficient Data submission with the same bid offer data

Spreading systematic data submission of MEL/MIL

Guidance is applicable to	EDL	EDT
MEL	✓	✓
MIL	✓	✓
Bid Offer Data	✗	✓
Other data fields	✗	✗

We would ask that providers with portfolio of Balancing Mechanism Units look to spread any automatic submission of data encoded within systems where for instance data is routinely sent at specific times across the day. Exceptions to this guidance are:

- If the automation is as a result of a change to the physical or dynamic parameters, then submission (while maintaining alignment to other guidance areas above) can continue as normal.
- The way data is constructed across files result in other submission data which is provided to be inaccurate.

Questions and Answers

Question	Answer
Will this guidance be subject to change?	We have considered some overarching principles in pulling together this guidance as described above. If through monitoring or feedback we create unintended consequences which betray our overarching principles, there are updates to 30-minute rule guidance or we require additional measures, we will review and update our guidance accordingly. We will also review in light of the process for grid code change being followed for GC0166 covering new dynamic parameters for limited duration assets.
Will this guidance be enforced?	Whilst it is not our intention to enforce this guidance through code changes, failure to follow the 30-minute MEL/MIL submission may result in reduced utilisation of assets in the BM. For specific requirements regarding data submissions for Balancing Reserve, please consult the service terms which can be found on our website.
Can I expect all instructions to be 30 mins in length (32 including ramps)	The change to the 30-minute rule means that the control room will be able to dispatch instructions of up to 30 minutes for battery assets (32 minutes including ramps), however this does not mean all instructions will be of this length. The length of dispatch instructions will be determined by system requirements, pricing and market conditions, but the instruction will not exceed the energy capacity indicated through MIL/MEL submissions.
Will downstream systems (e.g., Elexon) be able to handle the volume of data with OBP	Elexon have also implemented performance improvements to their systems to deal with volumes of data.
Will the OBP resolve these data handling issues and if not, what is the plan?	OBP has been designed in a way to handle large volumes of data. We will be operating both existing and OBP over the next few years until full reliance on OBP for all required functionality, planned for 2027. In the meantime, we will continue to monitor and improve the existing systems.

Glossary of Terms

Term	Description
EDT	Electronic Data Transfer, a communication route for submission of data pre-gate closure.
EDL	Electronic Dispatch and Logging, a communication route for submission of data and for receipt of instructions between market providers and ESO.
MEL	Maximum Export Limit, the maximum positive availability (export) of an asset in the Balancing Mechanism
MIL	Maximum Import Limit, the maximum negative availability (import) of an asset in the Balancing Mechanism
PN	Physical Notification, the indicated output of a Balancing Mechanism Unit before any ESO instructions.
NDZ	Notice to deviate from zero. The time for a Balancing Mechanism Unit to synchronise from zero with the National Grid system and start to generate/demand.
MNZT	Minimum Non-Zero Time, the duration which a Balancing Mechanism Unit is required to be scheduled and instructed if Physical Notification is zero.
BOA	Bid Offer Acceptance, an instruction to vary output of a Balancing mechanism Unit received from the ESO and accepted by that Balancing Mechanism Unit

Related documents Related documents

EDL Message Interface Specification (Issue 6)

Data Validation, Consistency and Defaulting Gules

Grid Code Glossary and Definitions

Balancing Reserve Guidelines

Contact

For any queries in relation to this guidance please direct these to box.balancingprogramme@nationalgrideso.com

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ESO