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# Quick Reserve Guidance Document

Phase 1

Version 1 – November 2024

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# Version History

| Version | Added Information | Date Published |
|---|---|---|
| V1 | N/A | November 2024 |

# Contents



# Quick Reserve Summary

The information in this guidance is tailored to support Quick Reserve providers during **Phase 1** of the service delivery. This guidance is therefore intended for service providers with access to existing Balancing Mechanism systems.

This document complements the service's contractual documents: the Service Terms, Procurement Rules and Balancing Services Glossary as were approved by Ofgem on 30 October 2024. In the event of any conflict or inconsistency between this document and the contractual documents, the latter shall prevail.

**Quick Reserve (QR)** is the second of our new suite of Reserve products. The QR market will allow us to procure access to fast-acting upwards (headroom) and downwards (footroom) flexibility through two new balancing services: Positive Quick Reserve and Negative Quick Reserve. This capacity can then be manually dispatched by NESO control room engineers in real time.

Please note this document does not include information about legacy reserve services, Short Term Operating Reserve (STOR) or Optional Fast Reserve, which will ultimately be replaced by new Reserve services and phased out. Information about STOR and Optional Fast Reserve can be found on the NESO website.

**Quick Reserve** can be dispatched in both pre and post fault system operation scenarios. Contracted QR units can be dispatched to correct impulsive energy imbalances, such as when wind output suddenly changes due to sharp changes in prevailing wind direction or TV pickup during key sporting and social events. QR units could also be dispatched to manage key crossover periods.

The documents include Service Terms, which describe the technical specification for the provision of Quick Reserve, and Procurement Rules, which describe the eligibility rules for participation in the services and explain how the QR market will function.

This guidance is published to support the onboarding to the QR service by our providers. It is designed to give additional information on the rules and recommendations regarding the delivery of these services, along with relevant use cases. This document will be updated regularly.

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# Service Specification

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# Technical Parameters

| Technical Design Element | Detail |
|---|---|
| **Direction** | Positive and Negative |
| **Minimum Contract Size** | 1 MW |
| **Provider eligibility** | BM units with control/ system telephone during contracted windows |
| **Time to full delivery** | Up to 1 minute from instruction receipt |
| **Minimum Activation Period** | Up to 5 minutes |
| **Maximum Recovery Period** | Up to 3 minutes |
| **Energy Requirement** | The unit must be able to deliver the full contracted capacity per QR Window |
| **Operational Metering** | Existing BM requirements apply |
| **Dispatch mechanism** | BOAs via EDL/EDT or wider access equivalent and control/system telephony as alternative dispatch solution during contracted windows |

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# Technical Parameters (cont'd)

| Technical Design Element | Detail |
|---|---|
| **Notice to Start Ramping** | 0 minutes |
| **Ramp rates** | No maximum ramp up or ramp down rates. Minimum ramp-up and ramp-down rate to be in line with Time to Full Delivery. |
| **Performance Metering** | 30 minutes using settlement operational data |
| **Performance Monitoring** | Time to Full Delivery, Availability and Utilisation –<br>Payment Penalties for over (>120%) and under (<95%) delivery |
| **Baselining** | As per BM – Physical Notifications 24 hours in advance. Final Physical Notifications 60-mins ahead of contracted Settlement Period. Both zero and non-zero baselines allowed. |
| **Aggregation** | Allowed, per GSP group |
| **Operational data requirements** | BM units as per current BM operations |
| **Passing through zero** | Allowed |

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# Joining the Service

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**Acronyms:**
- **DEP** – Digital Engagement Platform,
- **EAC** – Enduring Auction Capability,
- **OBP** – Open Balancing Programme,
- **STAR** – Settlement and Revenue (System)

# User Journey

| Stage | Explore | Onboarding | Participate | Contract Management | Schedule & Dispatch | Review | Payment |
|---|---|---|---|---|---|---|---|
| **User Journey** | Gather data and information<br><br>Build business case<br><br>Understand codes, markets and connections<br><br>Understand Service Parameters | User, company, unit asset registration<br><br>Pre-qualification<br><br>Agent set up<br><br>Contract Accession<br><br>Asset / Unit versioning<br><br>User Management | Tender Submission<br><br>Action Submission<br><br>Co-optimisation | Contracts awards and status<br><br>Manage contracts | Availability management<br><br>Instructions | Data submission / collection | Performance monitoring<br><br>Settlement<br><br>Penalties<br><br>Disputes<br><br>Financial position |
| **NESO Systems** | DEP<br>NESO Website | SMP | EAC<br>SMP | SMP<br>Data Portal | OBP/BM | DEP<br>SMP | Settlement System<br>SMP |

# First Time User Registration

**If you and your organisation are new to NESO and the SMP Portal, you must register directly via the portal using the following instructions.**

The User should visit and bookmark the following link: https://portal.nationalenergyso.com/smp/s/login/

As a first-time user you will need to click the "Register New Account" button. Users will be navigated to the first 'screen' to capture Registration.

## Registering New Primary User

In order to access the SMP Portal, it is expected that upon initial registration the main or 'primary' contact (user) at your organisation/company will undertake the registration steps.

Registration involves submitting one's contact details and their organisation/company details. The successive order is contact details followed by company details.

When entering email addresses or telephone numbers, standardised formats are expected, if a User/Contact does not submit field values compatible with the expected format then the field will be flagged in a red border with a prompt instruction. For example, if an email address has been submitted with the incorrect format.

Once all of the fields have been completed on the User/Contact section, the "Next" button will no longer be shaded grey, instead it will be converted into a blue 'button', allowing you to proceed to the next step.

## Registering the Primary User's Company

The 'Register new Account' stage involves two pathways depending on the Company Status. If the User/Contact's organisation is a UK Limited Company, they select the first checkbox. If the User/Contact's organisation is a non-UK Company then they select the second checkbox.

Once the option is selected, the user clicks on the "Next" Button.

## Registering a UK Company

The User/Contact will be prompted to search for the Company Name and the Company Registration Number.

For Company Name - they will be expected to enter the name, which will trigger a lookup search/listing of similar names for the user to choose from.

For Company Registration Number - they will be expected to enter the exact reference number, which will trigger a lookup search/listing for the user to select and confirm.

Please note that only valid and accurate Registration Numbers will be accepted and appear in the search exercise. If your Company is a UK Limited Company and the search listing is unsuccessful, you will need to reach out to your NESO Account Manager by email

Once a match has been found, the User/Contact must select the "Submit" button to proceed to the next step.

If the search result is incorrect or the User/Contact wishes to undertake a new search, then they are expected to click on the "Remove Company" link to refresh the search functionality.

Once the search result is correct, then the User/Contact selects the "Submit" button on the bottom right-hand corner of the screen.

For more information on this process, or for information on registering a non-UK company click here.

For technical support please contact: commercial.operation@nationalenergyso.com

# Unit and Asset Registration

Once you have registered as a user on SMP, you can begin creating your units and assets you wish to prequalify for Quick Reserve.

In order to do so, you should enter your SMP account via the following link: https://portal.nationalenergyso.com/smp/s/login/

If you are a first-time user, please follow the guidance on the prior slide to register yourself/your company.

If not, or you have already completed first time user registration, you can proceed to register your Units and Assets in SMP and pre-qualify them for Quick Reserve (Positive and/or Negative).

For users who already have Assets and Units in SMP, for other services (i.e, DC/DM/DR, Balancing Reserve), that you wish to pre-qualify for Quick Reserve, you can move ahead to **Pre-qualifying Units for Quick Reserve.**

## Registering New Assets and Units

You can register new Assets and Units on the SMP portal, by following the instructions in the demo video linked here: Creating Assets and Units in SMP

or by following the instructions in **Section 4 and 5** of the SMP External User Guide

This process is the same as for any other services you have pre-qualified for in SMP; such as DC, DM, DR and Balancing Reserve.

## Prequalifying Units for Quick Reserve

In order to prequalify your units for Positive or Negative Quick Reserve, you should have created your Assets and Units, and linked them together (As per the prior video and section 6 of the User Guide). You can then proceed to pre-qualification, by following the instructions in the demo video linked here (ensure you have selected the relevant Quick Reserve service): Prequalifying Units for Balancing Services

Or by following the instructions in **Section 7** of the SMP External User Guide

Once you have submitted your unit/s for pre-qualification, they will be reviewed by the NESO team. We will check that: a signed Form B has been provided, as well as that the Unit information is correct and meets the service parameters. If all of this is true, your unit will be approved and is ready to take part in Quick Reserve. **Please note** that all company information must match what is listed on Companies House

For technical support, and SMP queries, please contact:
commercial.operation@nationalenergyso.com

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# Auctions & Auction Platform

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# Order Submission Process

The following section will give a step-by-step guide to submitting orders on EAC. If you and your organisation are new to NESO and have yet to register to SMP, then it is required that you register there first. All participants must then be registered as a user for EAC, even after registering units on SMP.

**After registering for EAC and logging in with 2-factor authentication, the first step is to select the auction that you would like to bid into. All auctions with gates open can be found under the 'Auctions' tab.**

After you have selected the auction that you would like to bid into, you will need to select the unit you would like to use from the drop-down menu.

Following this, you will start to build and add your baskets (defined by EFA block). You will give your basket a name and a family name if these are looped baskets and add in the relevant information such as price volume and any child order or substitutable child orders as required.

Once all of the relevant information has been added the bid can be submitted.

After the auction, results can be found in the results tab for your relevant unit, and results will be published on the Data Portal for all units.

Please note that bids can also be submitted via API, to obtain API credentials please contact NESO.



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# EAC Market Design and Clearing Algorithm

| | |
|---|---|
| **Single market for response and reserve** | Frequency Response services (Dynamic Containment, Dynamic Moderation, Dynamic Regulation) and the new Reserve services (Quick Reserve, Slow Reserve) are procured simultaneously in a single, pay-as-clear auction |
| **Co-optimisation** | The auction clearing algorithm is able to select between alternative provider offers and alternate NESO requirements to better optimise the overall market clearing |
| **EAC clearing algorithm** | Our strategic partner, N-SIDE, is developing a new, bespoke market clearing algorithm to enable the new market features |
| **Overholding** | The auction clearing algorithm may clear a quantity of service in excess of NESO requirements if this better optimises the market |

# Auction Overview

| Design | Co-optimised Response and Reserve Auction |
|---|---|
| **Services Auctioned** | • The EAC Auction is used for the clearing of capacity (availability) for the following services:<br>  • **Frequency Response Services:** Dynamic Containment (DC), Dynamic Moderation (DM), and Dynamic Regulation (DR).<br>  • **Reserve Services:** Quick Reserve (QR)<br>• For every service, there are 2 product directions.<br>  • **For Response** these are Low (L) and High (H) products (resulting in product codes DRL and DRH, DML and DMH, DCL and DCH).<br>  • **For Reserve** these Positive (P) and Negative (N) Products (resulting in product codes PQR and NQR). |
| **Auction Frequency** | • DC, DM, DR, QR will be procured in a single, simultaneous **day-ahead auction** held daily at 14:00. |
| **Auction Design** | • **Auction type:** Closed double-sided auction.<br>• **Objective function:** Maximisation of social welfare.<br>• **Pricing:** Uniform clearing price per product for each service window.<br>• **Locational granularity:** GB synchronous area.<br>• **Overholding** allowed (cleared quantity may exceed NESO bid quantity).<br>• **Procurement:** Capacity (MW). |

**Note:** For more information, please see EAC Market Design Report and EAC Market Design Explainer.



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# Auction Overview

| Design | Co-optimised Response & Reserve Auction | |
|---|---|---|
| | Response | QR |
| **Auction Timing** | | |
| Gate Opening | 08:00 BST / GMT D-15 | |
| Gate Closure | 14:00 BST / GMT D-1 | |
| Publication of Results on UI | By 14:30 BST / GMT D-1 | |
| Publication of Results on Data Portal | By 15:00 BST / GMT D-1 | |
| **Sell Order Design** | | |
| Number of Baskets per Unit per EFA day | 25 | 100 |
| Number of Parent Orders per Basket | Must be 1 | Must be 1 |
| Number of Child Orders per Basket | No more than 10 | No more than 10 |
| Number of Substitutable Child Orders per Basket | No more than 10 | No more than 10 |
| **Technical Parameters** | | |
| Technical Minimum Prices (£/MW/h) | -20 | 0 |
| Technical Maximum Prices (£/MW/h) | 999.99 | 999.99 |
| Minimum Contract Size (MW) | 1 | 1 |

**Note:** "D" stands for "delivery date". For more information, please see EAC Market Design Report and EAC Market Design Explainer.

# Volume Requirement

The requirement is published on Data Portal which will specify what positive and Negative Quick Reserve we are aiming to procure.

You will find the link to the newly created dataset on Data Portal here:

Quick Reserve Auction Requirement Forecast | National Energy System Operator.

Initially the data will be refreshed monthly.

The requirement is per service window.



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# Service Stacking

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# Co-delivery

**Definition:** Being paid multiple revenues from the same asset, using the same capacity/MW, in the same time period (and in the same direction).

Note: Positive and Negative is not considered the same MW.

## Co-delivery Rules

- Quick Reserve **cannot** be co-delivered with:
  - any other frequency management Ancillary Service e.g. Reserve (including Balancing Reserve) or any Dynamic Frequency Response.
- Quick Reserve **can** be co-delivered with:
  - the Capacity Market (CM), the BM, and Voltage and Stability services).
- Where a CM Notice (CMN) is issued, these providers should continue to make headroom available to us as per any active Quick Reserve commitments.
- To ensure that providers are protected from penalties for breach of their CM agreement should a System Stress Event occur following the CMN, Quick Reserve has been added to the list of Relevant Balancing Services.

**Note: Positive and Negative is not considered the same MW. Therefore, where 100% of a unit's capacity can be awarded a contract in opposite directions for the same service window, this is not considered stacking or co-delivery.**

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# Splitting

**Definition:** Being paid multiple revenues from the same asset, but with different capacity/MW, in the same time period.

Note: Positive and Negative is not considered the same MW.

## Splitting Rules

- Quick Reserve **can** only be Split with the same service, but in the opposite direction. Therefore;
  - Positive Quick Reserve can be split with Negative Quick Reserve.
  - For example, a unit with 10MW of headroom and footroom may be awarded a 10MW contract in both directions.
- Quick Reserve cannot be Split with any other Ancillary Service during Phase 1.

The Quick Reserve auction is going to be co-optimised with the Dynamic Response auction (EAC auction) and therefore providers may offer Quick Reserve and Dynamic Response products during the same time periods, however they must not be in the same Sell Order or Basket

**Note: Positive and Negative is not considered the same MW. Therefore, 100% of a unit's capacity can be awarded a contract in opposite directions for the same service window.**

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# Splitting Matrix

## Splitting within Response

- Splitting is allowed between any frequency response products (i.e., amongst any combination of DCL, DCH, DML, DMH, DRL, and DRH).

## Splitting within Reserve

- Splitting is allowed between Balancing Reserve products (PBR and NBR), between Quick Reserve products (PQR and NQR), and between Slow Reserve products (PSR and NSR).
- However, splitting is not yet allowed between different Reserve products.

## Splitting Quick & Slow with Response

- Splitting QR and SR with Response will be available once Performance Monitoring allows.

| | |
|---|---|
| Allowed | Not allowed |
| Not applicable | Not for day 1 |

| Splitting Matrix | | | Response | | | | | | Reserve | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DC | | DM | | DR | | BR | | QR | | SR | |
| | | | DCL | DCH | DML | DMH | DRL | DRH | PBR | NBR | PQR | NQR | PSR | NSR |
| Response | DC | DCL | | | | | | | | | | | | |
| | | DCH | | | | | | | | | | | | |
| | DM | DML | | | | | | | | | | | | |
| | | DMH | | | | | | | | | | | | |
| | DR | DRL | | | | | | | | | | | | |
| | | DRH | | | | | | | | | | | | |
| Reserve | BR | PBR | | | | | | | | | | | | |
| | | NBR | | | | | | | | | | | | |
| | QR | PQR | | | | | | | | | | | | |
| | | NQR | | | | | | | | | | | | |
| | SR | PSR | | | | | | | | | | | | |
| | | NSR | | | | | | | | | | | | |

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# Operational Data

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## Pre-gate Closure Data

Contracted Quick Reserve (QR) providers need to submit BM data to NESO via EDL/EDT. This data should be submitted in accordance with the Grid Code (in particular BC1 and BC2).

NESO engineers repeatedly calculate the expected operating margin between 24 hours and 4 hours ahead of real time. The introduction of Quick Reserve means that some contracted reserve volume is known at 14:00 the Day Ahead of delivery and therefore these contracted volumes will be included in the engineer's margin assessments.

To help us to ensure the margin assessments are as accurate as possible we would appreciate contracted BM units submitting Day Ahead Submissions even when not mandated to do so by the Grid Code.

Data should then be revised if new information becomes available to the BM Participant.

### Relevant Data for Quick Reserve:

- Maximum Export Limit (MEL)
- Maximum Import Limit (MIL)
- Stable Export Limit (SEL)
- Stable Import Limit (SIL)
- Run-up Rate
- Run-down Rate
- Minimum Non-Zero Time (MNZT)
- Minimum Zero Time (MZT)
- Bid/Offer pairs
- Notice to Offer (NTO)
- Notice to Bid (NTB)
- Notice to Deviate from Zero (NDZ)

# Operational Data Submissions

- The Grid Code, within Section BC1, lays out the option for Balancing Mechanism participating Units (BMUs) to provide NESO with indicative Physical Notifications (PNs) and import and export limits (MELs/MILs) well in advance of real time.
- Large and Medium Power Stations and all BMUs which are Transmission connected are **required** to submit their indicative PNs at 11:00 hours each day for every Settlement Period of the following Operational Day (which begins at 05:00 the following morning).
- NESO's scheduling teams use this data within their margin assessments to inform strategic decisions.
- Quick Reserve contracted units know their contract award outcomes by 14:00 for delivery in the majority of the next Operational Day. Their PNs, MELs, and MILs should be reviewed and, if necessary, revised, as soon as reasonably practical after formation of a QR contract (and in any event by no later than gate closure).
- This will help us to conduct efficient scheduling and allow the Quick Reserve market deliver the most value.

## QR Service Terms

5.2 To facilitate the issue by **NESO** of **Bid-Offer Acceptance(s)** in respect of a **QR Unit** and **Contracted Service Period**, and subject always to paragraph 5.9, and so as to constitute a **Mandatory Availability Declaration**, the **Service Provider** shall, in respect of that **QR Unit** and **Contracted Service Period**:-

5.2.1 as soon as reasonably practicable after formation of the **QR Contract** (and in any event by no later than **Gate Closure**), submit to **NESO** a **Final Physical Notification** and **Bid-Offer Data**; and

5.2.2 submit and maintain at all times **Dynamic Parameters** and other **BM Unit Data**,

in each case meeting the requirements (as applicable) of paragraphs 5.3 to 5.8 inclusive and submitted in accordance with the **Grid Code**.

## BC1

**Physical Notifications**, being the data listed in **BC1** Appendix 1 under that heading, are required by **The Company** at 11:00 hours each day for each **Settlement Period** of the next following **Operational Day**, in respect of;

(1) **BM Units**:

(i) with a **Demand Capacity** with a magnitude of 50MW or more in **NGET's Transmission Area** or 10MW or more in **SHETL's Transmission Area** or 30MW or more in **SPT's Transmission Area**; or

(ii) comprising **Generating Units** (as defined in the Glossary and Definitions and not limited by BC1.2) and/or **Power Generating Modules** and/or **CCGT Modules** and/or **Power Park Modules** in each case at **Large Power Stations**, **Medium Power Stations** and **Small Power Stations** where such **Small Power Stations** are directly connected to the **Transmission System**; or

(iii) where the **BM Participant** chooses to submit **Bid-Offer Data** in accordance with BC1.4.2(d) for **BM Units** not falling within (i) or (ii) above,

# Energy Limited Assets

We have published guidance on the submission of MEL/MIL parameters, please read this guidance note from December 2023 to learn more.

An update with the 30-minute rule was published in February 2024.

Battery Energy Storage Systems (BESS) and Pumped Storage have energy limitations based on the storage capacity of their equipment.

BESS can participate in the QR auctions but are expected to be able to manage their state of energy to be able to deliver the full contracted quantity for the duration of the QR service window.

## Extract from the QR service terms

7.2 For the avoidance of doubt, each **QR Unit** shall be capable of delivering the full **Contracted Quantity** for the duration of the **Contracted Service Period**.

7.3 In the event that, in respect of any **Contracted Service Period**:-

(a) where the **Bid-Offer Acceptance** is issued during that **Contracted Service Period**, the **QR Unit** fails to increase and/or reduce by at least ninety-five (95)% its **Output** or **Demand** (as the case may be) in accordance with that **Bid-Offer Acceptance**;

(b) the volume in MWh of **Quick Reserve** provided by the **Service Provider** in accordance with one or a series of contiguous **Bid-Offer Acceptance (s)** issued in accordance with sub-paragraph 6.1 is less than ninety-five (95)% of the volume in MWh of energy instructed to be delivered in accordance with such **Bid-Offer Acceptance (s)**;

(c) the volume in MWh of **Quick Reserve** provided by the **Service Provider** in accordance with one or a series of contiguous **Bid-Offer Acceptance (s)** issued in accordance with sub-paragraph 6.1 exceeds one hundred and twenty (120)% of the volume in MWh of energy instructed to be delivered in accordance with such **Bid-Offer Acceptance (s)**;

(d) after ramping up or down (as the case may be) in accordance with the **Bid-Offer Acceptance**, the **QR Unit** fails to provide **Quick Reserve** continuously at a level of at least ninety-five (95)% of the volume in MWh of energy instructed to be delivered in accordance with that **Bid-Offer Acceptance**; or

(e) a **Bid-Offer Acceptance** is rejected by the **Service Provider** (other than in accordance with **Grid Code** BC2.7.3(b) and whether for reasons of safety or otherwise),

then no **QR Availability Payment** shall fall due with respect to that **Contracted Service Period**.

# Data and Transparency

Registered Service Providers are required to submit Operational Data as outlined in the Service Terms.

No performance data needs to be submitted by contracted QR providers. NESO will use its own data to performance monitor the units at a 30-minute granularity. Operational data should be submitted via BM systems (e.g. EDT/EDL).

Details of the QR auction results including a breakdown of each Sell Order, NESO's Buy Order and results summaries will be available on the data portal by 14:30 every afternoon.

Details of unit dispatch can be found via the Dispatch Transparency dataset or through ELEXON's website.



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# Operational Metering

NESO's 'Operational Metering for Small (<100MW) BM & Non-BM Participants' document aims to describe the operational metering architecture NESO has in place to enable the connection of small BMU's (≤100MW) to the NESO's BM Systems and facilitate participation in the GB Balancing Mechanism other Balancing Services.

There are three routes for providing operational metering to the balancing systems.

- Connect to an existing GB Transmission Owner's Real-time Telemetry Unit (RTU).
- Install a new RTU and provide dedicated telecommunication signals to that location.
- Connect to the SCADA Data Concentrator host.

View the 'Operational Metering for Small (<100MW) BM & Non-BM Participants' documentation here.

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# Performance Monitoring

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# Performance Monitoring

This section provides information on the application of the performance monitoring methodology for Quick Reserve BM. The unit participating in the service will be subject to performance monitoring on Time to Full Delivery, Availability, and Utilisation.

In the event of any conflict or inconsistency between this document and the Service Terms, the latter shall prevail.

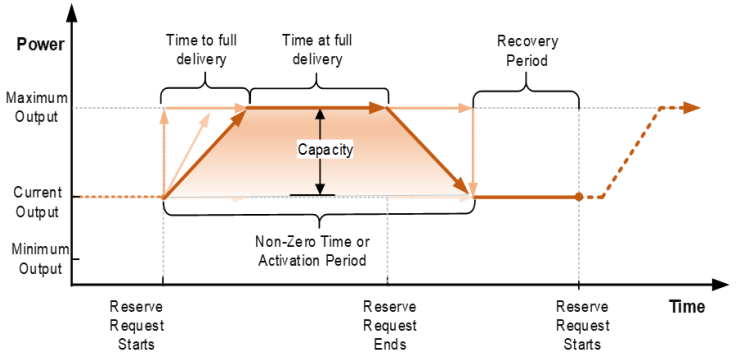
Note: When QR NBM is launched, NESO will require second by second metering data for both BM & NBM units and the Utilisation checks will change.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## Performance Monitoring

**A contracted unit must be capable of being dispatched during contracted service windows in accordance with the following rules:**

- being dispatched from any prevailing Stable Export Limit or Stable Import Limit (which for the avoidance of doubt may be 0MW) or from any other higher level of Output or Demand.
- being dispatched for a single or multiple consecutive periods each of not more than 5 minutes in duration (representing the maximum minimum activation period) which for these purposes shall include Ramping Periods.
- being capable of dispatch for the full contracted 30-minute Settlement Period
- being capable of dispatch no more than 3 minutes after the end of delivery of a previous instruction (Recovery Period).

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# Performance Monitoring Availability (EoD code "AVAL")

A contracted unit should be able to demonstrate 100% of contracted Positive Quick Reserve (headroom) or Negative Quick Reserve (footroom). Failure to demonstrate the contracted availability will trigger an Event of Default (EoD).

When a reserve unit triggers an EOD, it will forfeit Availability Payment for all the relevant Committed Windows.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## Positive Quick Reserve

**For a generator (or a unit with only positive output):**

MEL – FPN ≥ Contracted Quantity

**For a supplier (or a unit with only negative output):**

SIL – FPN ≥ Contracted Quantity

**For a "through-zero" unit:**

SEL and SIL equal zero, and

MEL – FPN ≥ Contracted Quantity

**For a Power Park Module powered by an Intermittent Power Source:**

PA-FPN ≥ Contracted Quantity

## Negative Quick Reserve

**For a generator (or a unit with only positive output):**

FPN – SEL ≥ Contracted Quantity

**For a supplier (or a unit with only negative output):**

FPN – MIL ≥ Contracted Quantity

**For a "through-zero" unit:**

SEL and SIL equal zero, and

FPN – MIL ≥ Contracted Quantity

**For a Power Park Module powered by an Intermittent Power Source:**

FPN – PA ≥ Contracted Quantity

For the avoidance of doubt, and if not already indicated, a unit must make available the contracted MWs for the required service(s) within the specified Service Window(s), and NESO should not have to send an instruction greater or less than a unit's contracted capacity due to a limitation of the unit. That is to say:

- Available capacity ≥ contracted QR volume
- The minimum instructible volume ≤ contracted QR volume

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# Performance Monitoring Time to Full Delivery (EoD code "RESP")

A contracted unit must be capable of achieving the full contracted capacity within the Time to Full Delivery of 1 minute, which is inclusive of Notice to Offer (NTO) or Notice to Bid (NTB) and NDZ (Notice To Deviate from Zero) time parameters.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## Positive Service Time to Full delivery calculations -

**Time to full delivery [minutes] = Notice Period + Time to Ramp Up.**

The time to ramp up will be determined from the ramp rates and elbow points submitted.

**Positive Quick Reserve Examples for units with single ramp rates for export and Import**

**For a generator (or a unit with only positive output):**

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run up rate export } [\frac{\text{MW}}{\text{minute}}]}$$

**For a supplier (or a unit with only negative output):**

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run up rate import } [\frac{\text{MW}}{\text{minute}}]}$$

**For a bi-directional unit:**

$$(\text{if FPN } \geq 0)\ \text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run up rate export } [\frac{\text{MW}}{\text{minute}}]}$$

$$(\text{if FPN} < 0)$$

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Min (Contracted capacity [MW]}, (SIL - FPN))}{\text{Run up rate import } [\frac{\text{MW}}{\text{minute}}]} +$$

$$\frac{\text{Max}(0, (\text{Contracted MW } - \text{min}(\text{ (Contracted capacity [MW]}, (SIL - FPN)))}{\text{Run up rate export } [\frac{\text{MW}}{\text{minute}}]}$$

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# Performance Monitoring Time to Full Delivery (EoD code "RESP")

A contracted unit must be capable of achieving the full contracted capacity within the Time to Full Delivery of 1 minute, which is inclusive of Notice to Offer (NTO) or Notice to Bid (NTB) and NDZ (Notice To Deviate from Zero) time parameters.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## Negative Service Time to Full delivery calculations -

**Time to full delivery [minutes] = Notice Period + Time to Ramp Down .**

The time to ramp up will be determined from the ramp rates and elbow points submitted.

**Negative Quick Reserve Examples for units with single ramp rates for export and Import**

**For a generator (or a unit with only positive output):**

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run down rate export } [\frac{\text{MW}}{\text{minute}}]}$$

**For a supplier (or a unit with only negative output):**

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run down rate import } [\frac{\text{MW}}{\text{minute}}]}$$

**For a bi-directional unit:**

(if FPN $\leq 0$)

$$\text{(Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Contracted capacity [MW]}}{\text{Run down rate export } [\frac{\text{MW}}{\text{minute}}]}$$

(if FPN $> 0$)

$$\text{Time to full delivery [minutes]} = \text{Notice Period} + \frac{\text{Min (Contracted capacity [MW]}, (FPN - SEL))}{\text{Run down rate export } [\frac{\text{MW}}{\text{minute}}]} + \frac{\text{Max}(0, (\text{contracted MW} - \text{Min}(\text{Contracted capacity [MW]}, (FPN - SEL)))}{\text{Run down rate export } [\frac{\text{MW}}{\text{minute}}]}$$

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# Performance Monitoring of Utilisation (EoD code "CDEL")

The unit must deliver within the acceptable ramping envelope in accordance with the time to full delivery (TTFD) parameter, when ramping to and from instructions. To clarify, the unit must cease from the instruction in the time defined as time to full delivery or 1 minute. Failure to match the TTFD requirement will result in the Availability payment being withheld.

Under-delivery below 95% and over-delivery above 120% output will mean availability payments for the relevant service window will be withheld.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## The utilisation calculations

### For all units

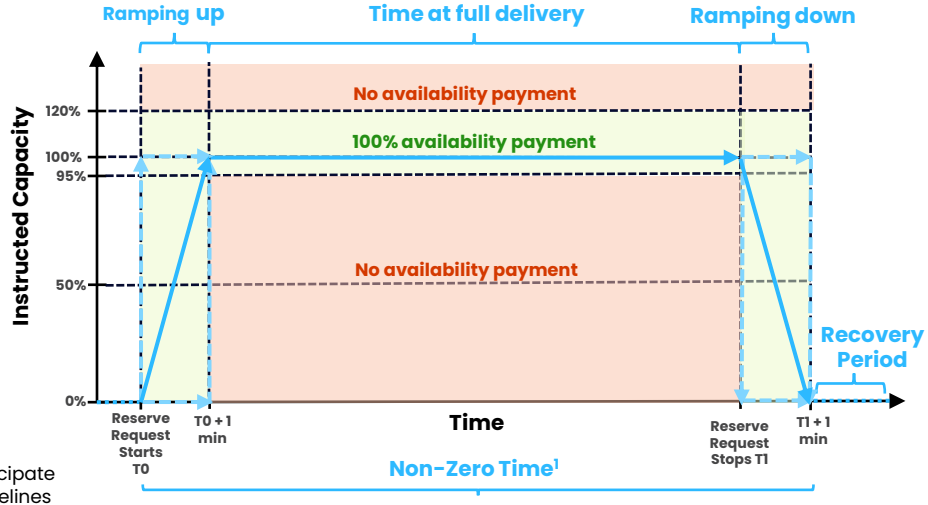
- **PQR:** Expected Volume = Positive net BOA volume (MWh)
- **NQR:** Expected Volume= Negative net BOA volume (MWh)

## The check

### For all units:

- (Settlement metering – FPN volume) ≥ (Expected Volume * 95%)
- (Settlement metering – FPN volume) ≤ (Expected Volume * 120%)

*Note: FPN represents the baseload volume that will be adjusted for Response delivery.*




[1] QR units can participate from non-zero baselines

# Performance Monitoring of Activation Period (EoD code "MNZT")

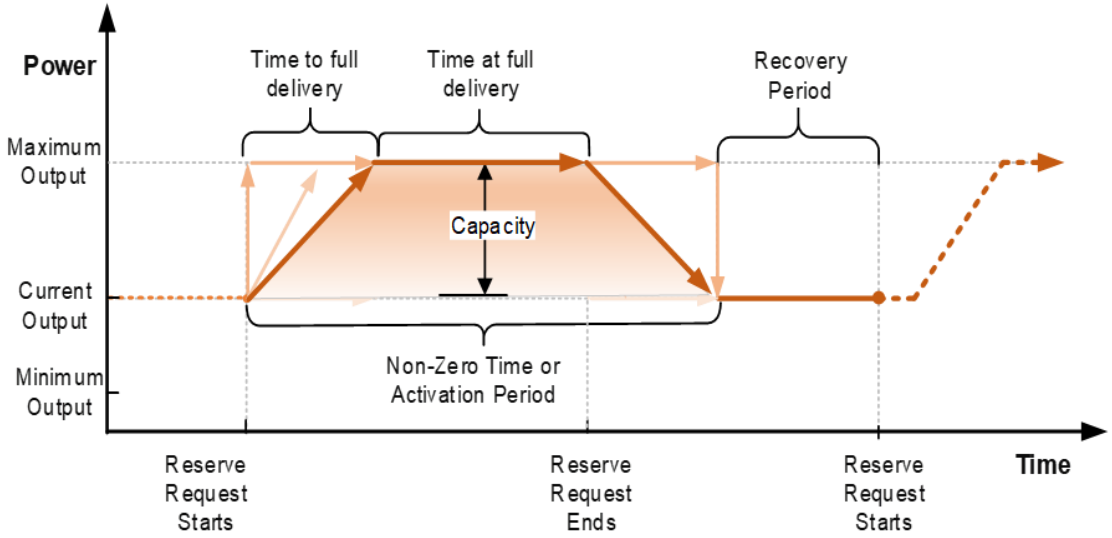
A contracted unit must be capable of being dispatched during contracted service windows in accordance with the following rules:

- Being dispatched for a single or multiple consecutive periods each of not more than 5 minutes in duration (representing the maximum minimum activation period) which for these purposes shall include Ramping Periods.

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## The check – Minimum Activation Period (MNZT): 0 - 5 mins

Where a unit's min activation period is ≤ 5 mins, the unit will pass the check, and an AVAIL payment will be made



# Performance Monitoring of Recovery Period (EoD code "MZT")

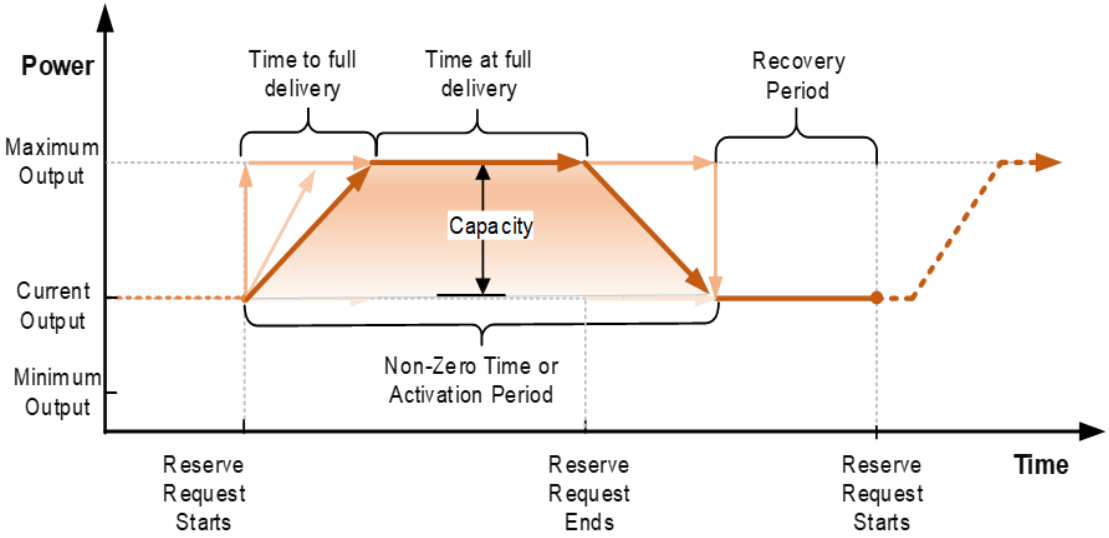
A contracted unit must be capable of being dispatched during contracted service windows in accordance with the following rules:

- Being capable of dispatch no more than 3 minutes after the end of delivery of a previous instruction (Recovery Period).

**Dynamic Parameter definitions:**
FPN – Final Physical Notification, MEL – Maximum Export Limit, SEL – Stable Export Limit, MIL – Maximum Import Limit, MZT – Minimum Zero Time, MNZT- Minimum Non-Zero Time, Ramp Rates, SIL – Stable Import Limit, NTO – Notice to Offer, NTB – Notice to Bid, NDZ - Notice to Deviate from Zero, BOA - Bid Offer Acceptance,

## The check – Recovery Period (MZT): 0 - 3 mins

Where a unit's recovery period ≤ 3 mins, the unit will pass the check, and an AVAIL payment will be made



# Performance Monitoring of Available Dispatch Volume (EoD code "IBOD")

It must be possible to dispatch the contracted. MW Where this is not possible because the Bid-Offer Price submission does not have a MW level >= Contracted MW then an "IBOD" failure will be recorded for Invalid Bid-Offer Data.

## The Check

- Where a unit is contracted for Positive Quick Reserve the BO Pairs 1-3 will be checked to ensure the Maximum BO_LEVEL from BO pairs 1 to 3 >= Contracted MW.
- Where a unit is contracted for Negative Quick then Reserve then Maximum Absolute(BO_LEVEL from BO pairs -1 to –3) >= Contracted MW.

---

- Any failures will result in the following.
- EoD code IBOD will be recorded a penalty applied and NO availability payment will be made

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# Performance Monitoring of Through Zero Provider Additional Parameter Check (EoD code "TZPF")

In order to be instructed through zero, "Though-Zero" service providers need to submit SEL, SIL , MNZT and MZT as zero.

Where this is not the case, a failure "TZPF" (Through Zero Parameter Failure") will be recorded.

## The Check

- For both Positive and Negative Quick Reserve SEL, SIL, MNZT and MZT will be checked to ensure they are zero through the contracted period.

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- Any failures will result in the following.
- EoD code TZPF will be recorded a penalty applied and NO availability payment will be made

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# Performance Monitoring of Stacking (EoD code "SPLT")

Splitting **is not allowed between the same polarity** Reserve products, i.e., PSR & PBR

**Positive** contracted units can ONLY be split across the following services:

- Quick Reserve positive and Quick Reserve negative.

**Negative** contracted units can ONLY be split across the following services.

- Quick Reserve negative and Quick Reserve positive.

## The Check

- Where a unit is contracted to Quick Reserve Positive and Quick Reserve Negative
- Units will pass and Availability payment will be made

---

- Any failures will result in the following.
- EoD code SPLT will be recorded a penalty applied and NO availability payment will be made

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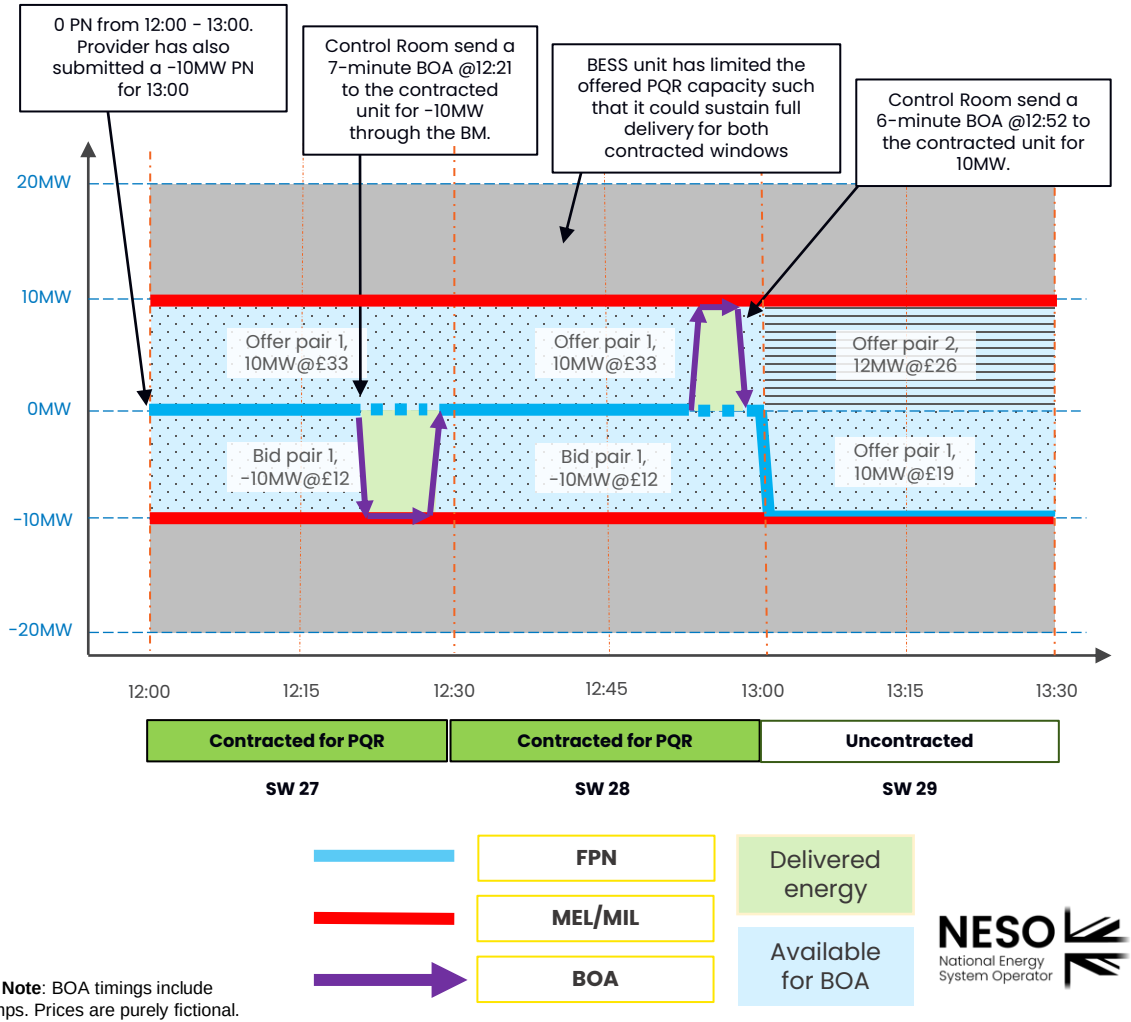
# Detailed example 1: Managing State of Energy

## Unit characteristics

- The BESS has a max generation capacity (GC) of 20MW.
- The unit has submitted a run up rate of 20MW/minute.
- The unit does not have any response contracts.
- The unit is contracted for 10MW of Positive Quick Reserve in Service Windows 27 & 28.
- The unit submitted a Recovery Period (MZT) = 0 minutes.
- **At 12:00 the unit has 10MWh of stored energy available for discharge.**
- Settlement metering for SW27 (12:00 – 12:30) = -1.00MWh
- Settlement metering for SW28 (12:30 – 13:00) = 0.83MWh




**Note**: BOA timings include ramps. Prices are purely fictional.

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# Detailed example 1: Managing State of Energy

**Unit characteristics**

- The BESS has a max generation capacity (GC) of 20MW.
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- **At 12:00 the unit has 10MWh of stored energy available for discharge.**
- Settlement metering for SW27 (12:00 – 12:30) = -1.00MWh
- Settlement metering for SW28 (12:30 – 13:00) = 0.83MWh

## Performance check (PQR)

**SW27 - 28**
*Availability*
→ MEL – FPN ≥ 10MW
→ (10 – 0) ≥ 10
→ **CORRECT**

**SW27**
*Utilisation*
→ no Offers
→ **NOT CHECKED**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTO ≤ 1 minute
→ (10 / 20) +0 ≤ 1
→ 0.5 ≤ 1
→ **CORRECT**

*Recovery Period*
→ 0 ≤ 3
→ **CORRECT**

## Payment (PQR)

**Availability**
The clearing price for SW27-28 in the DA PQR auction was £35/MW/hour. For each contracted window, the provider expects to be paid (£35*10)/2 = £175.00

**Utilisation – BOAs are settled by Elexon**

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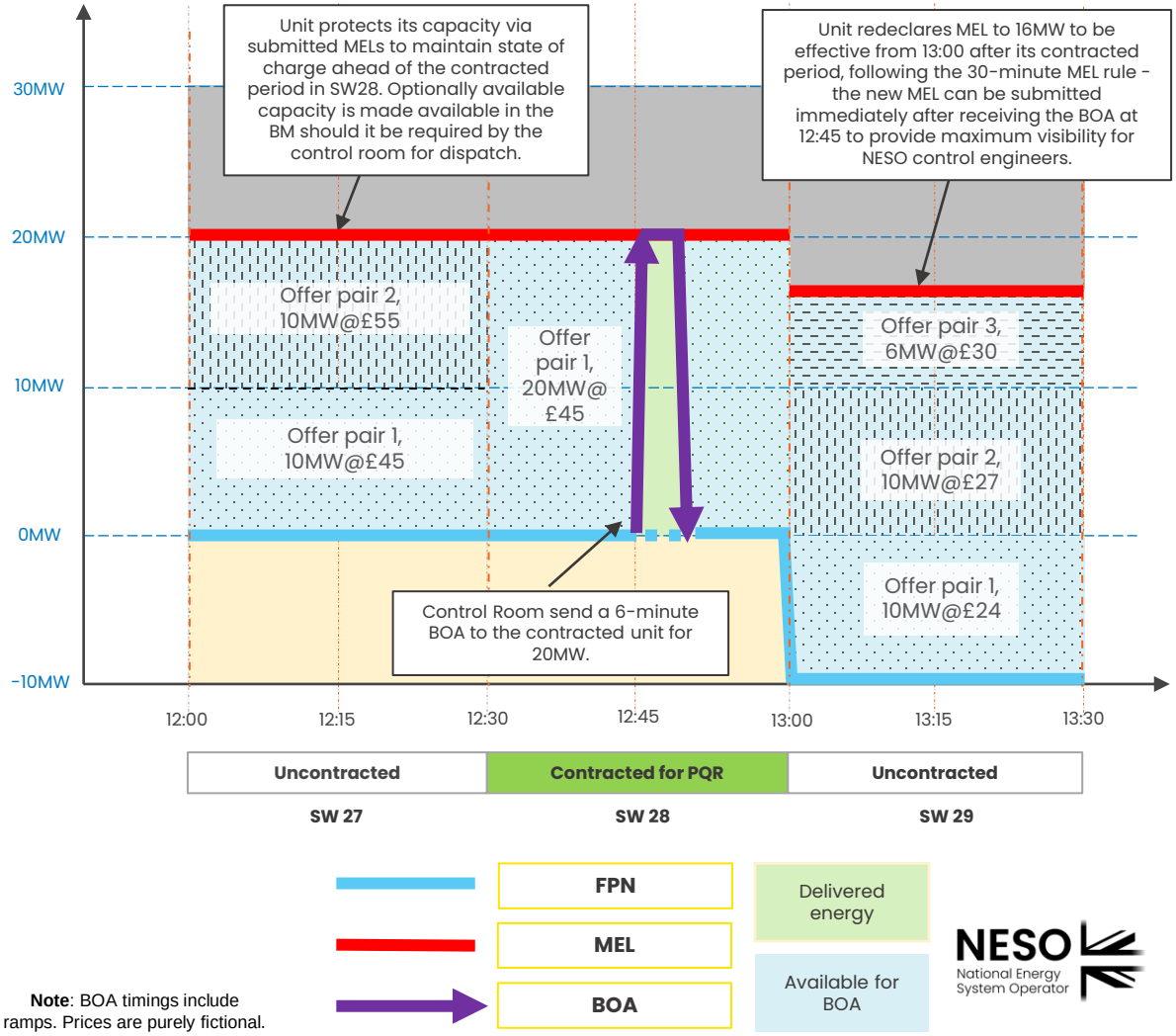
# Detailed example 2a: Using price bands to manage state of energy

## Unit characteristics

- The BESS has a max generation capacity (GC) of 40MW.
- The unit has submitted a run up rate of 40MW/minute.
- The unit does not have any response contracts.
- The unit is contracted for 20MW of Positive Quick Reserve in QR Service Window 28.
- The unit submitted a Recovery Period (MZT) = 0 minutes.
- **At 12:00 the unit has 20MWh of stored energy available for discharge.**
- Settlement metering for SW28 (12:30 – 13:00) = 1.65MWh (a small under delivery)




**Note**: BOA timings include ramps. Prices are purely fictional.

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# Detailed example 2a: Using price bands to manage state of energy

**Unit characteristics**

- The BESS has a max generation capacity (GC) of 40MW.
- The unit has submitted a run up rate of 40MW/minute.
- The unit does not have any response contracts.
- The unit is contracted for 20MW of Positive Quick Reserve in QR Service Window 28.
- The unit submitted a Recovery Period (MZT) = 0 minutes.
- **At 12:00 the unit has 20MWh of stored energy available for discharge.**
- Settlement metering for SW28 (12:30 – 13:00) = 1.65MWh (a small under delivery)

## Performance check (PQR) SW28:

*Availability*
→ MEL – FPN ≥ 20MW
→ (20 – 0) ≥ 20
→ **CORRECT**

*Recovery Period*
→ 0 ≤ 3
→ **CORRECT**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTO ≤ 1 minute
→ (20 / 40) + 0 ≤ 1
→ 0.5 ≤ 1
→ **CORRECT**

*Utilisation*
→ Settlement metering - FPN volume ≥ Expected delivery * 95% &
→ Settlement metering - FPN volume ≤ Expected delivery * 120%
→ 1.65 – 0 ≥ 1.67 * 0.95 **AND** 1.65 – 0 ≤ 1.67 * 1.2
→ 1.65 ≥ 1.58 **AND** 1.65 ≤ 2.00
→ **CORRECT**

This unit has slightly underdelivered: Settlement Metering = 1.65MWh but FPN + Offer volume = 1.67MWh. However, this is within the -5% tolerance and so there is no impact on the units' availability payments for QR. Any BOA under delivery may still be penalised under the BSC.

## Payment (PQR)

**Availability**
The clearing price for SW28 in the DA QR auction was £42/MW/hour. For the contracted window, the provider expects to be paid (£42*20)/2 = £420.00

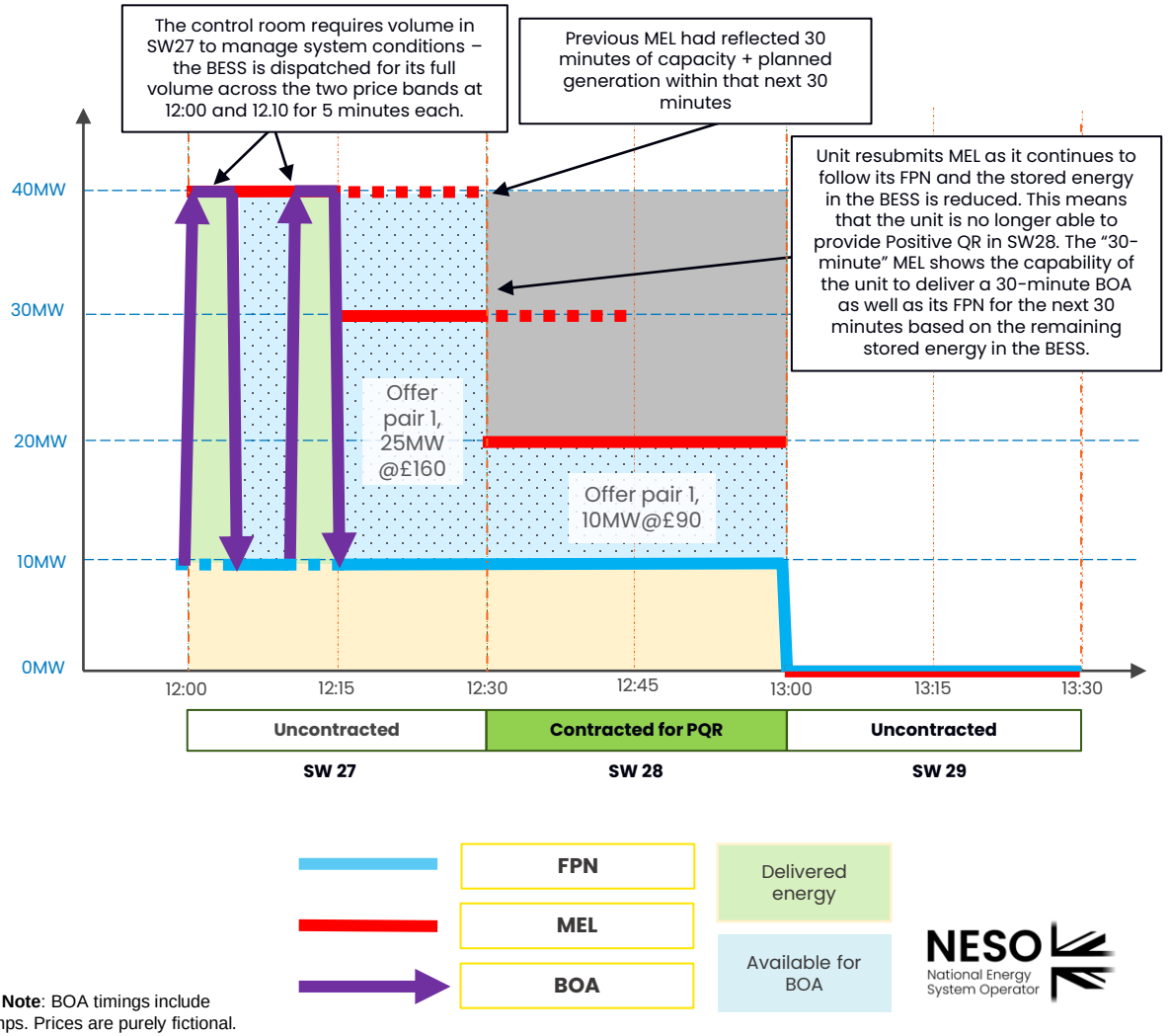
**Utilisation**
SW28 → Unit delivered 0.083hour * 20MW * £45/MWh = £74.70

**Total Revenue** from NESO for SW 28
Availability → £420.00 * 1 = £420.00

# Detailed example 2b: Using price bands to manage state of energy (30-minute MEL)

## Unit characteristics

- The BESS has a max generation capacity (GC) of 40MW.
- The unit has submitted a run up rate of 40MW/minute.
- The unit does not have any response contracts.
- The unit is contracted for 20MW of Positive Quick Reserve in QR Service Window 28.
- The unit submitted a Recovery Period (MZT) = 0 minutes.
- **At 12:00 the unit has 20MWh of stored energy available for discharge.**
- Settlement metering for SW27 (12:00 – 12:30) = 9MWh
- Settlement metering for SW28 (12:30 – 13:00) = 5MWh




**Note**: BOA timings include ramps. Prices are purely fictional.

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# Detailed example 2b: Using price bands to manage state of energy (30-minute MEL)

**Unit characteristics**

- The BESS has a max generation capacity (GC) of 40MW.
- The unit has submitted a run up rate of 40MW/minute.
- The unit does not have any response contracts.
- The unit is contracted for 20MW of Positive Quick Reserve in QR Service Window 28.
- The unit submitted a Recovery Period (MZT) = 0 minutes.
- **At 12:00 the unit has 20MWh of stored energy available for discharge.**
- Settlement metering for SW27 (12:00 – 12:30) = 9MWh
- Settlement metering for SW28 (12:30 – 13:00) = 5MWh

## Performance check (PQR) SW28 :

*Availability*
→ MEL – FPN ≥ 20MW
→ (20 – 10) ≥ 20
→ **FAILED**

*Recovery Period*
→ 0 ≤ 3
→ **CORRECT**

*Utilisation*
→ Settlement metering - FPN volume ≥ Expected delivery * 95% &
→ Settlement metering - FPN volume ≤ Expected delivery * 120%
→ *0 BOA volume* → **PQR NOT CHECKED**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTO ≤ 1 minute
→ (20 / 40) + 0 ≤ 1
→ 0.5 ≤ 1
→ **CORRECT**

**Assumed also complied with MNZT, Bid-Offer and Cease time Checks**

Note:
We consider this commercial unavailability as the unit was dispatched by NESO through a BOA during an uncontracted Settlement Period which led to its energy limitations (see 14.1.1 in the QR service terms below). The unit did not maintain its state of charge correctly ahead of a contracted Reserve service. Therefore, the unit is at risk of being levied a cost of reimbursement for replacing the reserve volume which has been exhausted.

## Payment (PQR)

**Availability**
The clearing price for SP26/SW28 in the DA QR auction was £15/MW/hour. For the contracted window, the provider expects to be paid (£15*20)/2 = £150.00, however they failed availability checks.

**Utilisation – BOA paid for by Elexon**

**Total Revenue** from NESO for SW 28 Availability → £0.00

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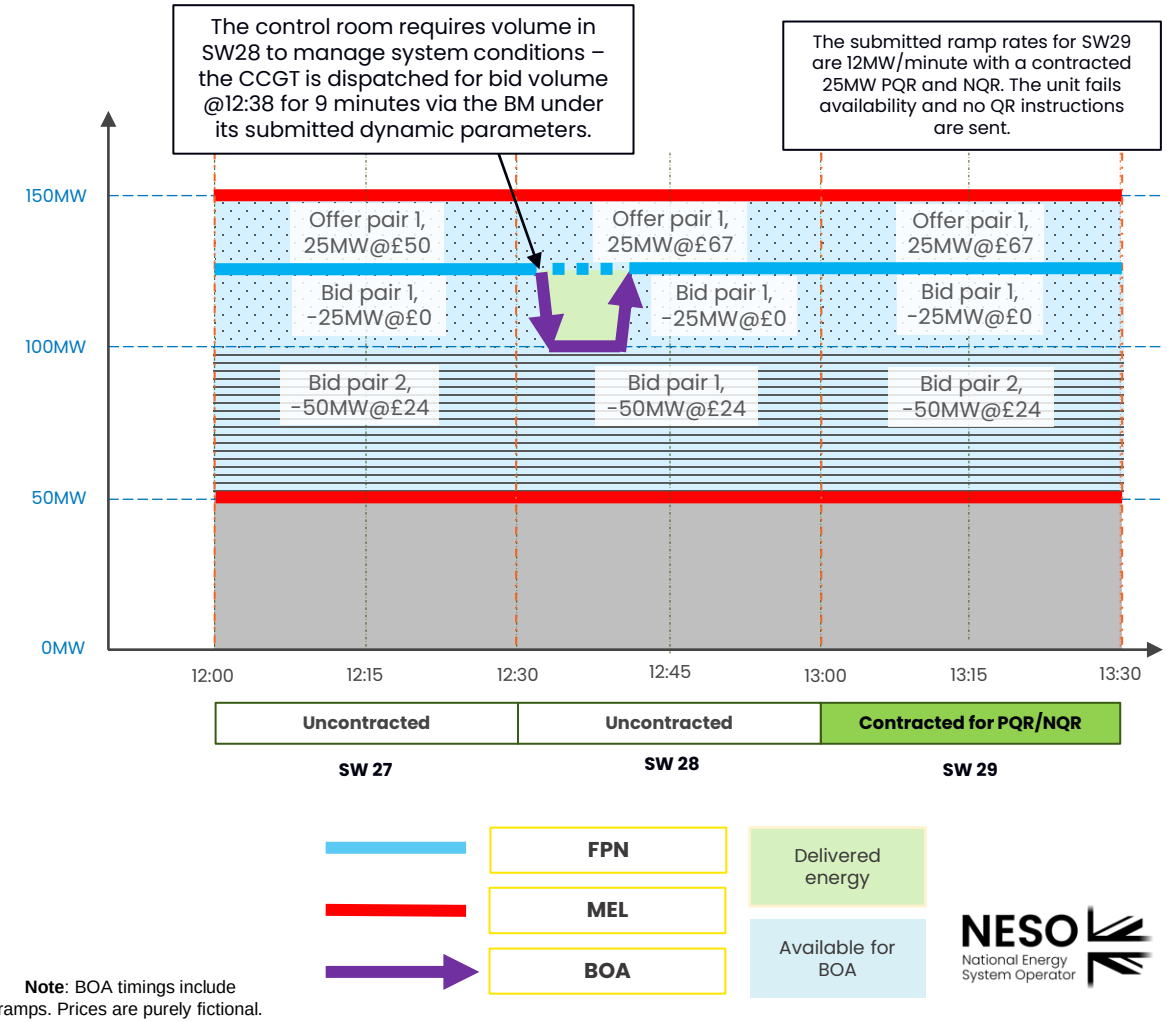
# Detailed example 3a: Ramp rate checks

**Unit characteristics**

- This CCGT unit has a max generation capacity of 150MW and a SEL of 50MW.
- The unit has submitted a run-up and run-down rate of 12MW/minute.
- The unit is contracted for 25MW of PQR and 25MW of NQR in QR Service Window 29.
- The unit submitted a Recovery Period (MZT) = 2 minutes.
- Settlement metering for SW27 (12:00 – 12:30) = 62.50MWh
- Settlement metering for SW28 (12:30 – 13:00) = 59.62MWh
- Settlement metering for SW29 (13:00 – 13:30) = 62.50MWh




**Note**: BOA timings include ramps. Prices are purely fictional.

# Detailed example 3a: Ramp rate checks

**Unit characteristics**

- This CCGT unit has a max generation capacity of 150MW and a SEL of 50MW.
- The unit has submitted a run-up and run-down rate of 12MW/minute.
- The unit is contracted for 25MW of PQR and 25MW of NQR in QR Service Window 29.
- The unit submitted a Recovery Period (MZT) = 2 minutes.
- Settlement metering for SW27 (12:00 – 12:30) = 62.50MWh
- Settlement metering for SW28 (12:30 – 13:00) = 59.62MWh
- Settlement metering for SW29 (13:00 – 13:30) = 62.50MWh

**Performance check (PQR) SW 29**

*Availability*
→ MEL – FPN ≥ 25MW
→ (150 – 125) ≥ 25
→ **CORRECT**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTO ≤ 1 minute
→ (25 / 12) + 0 ≤ 1
→ 2.08 ≤ 1
→ **FAILED**

*Recovery Period*
→ 2 ≤ 3
→ **CORRECT**

*Utilisation*
→ no Offers
→ **NOT CHECKED**
**Assumed also complied with MNZT, Bid-Offer and Cease time Checks**

**Performance check (NQR) SW 29**

*Availability*
→ FPN – SEL ≥ 25MW
→ (125 – 50) ≥ 25
→ **CORRECT**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTB ≤ 1 minute
→ (25 / 12) + 0 ≤ 1
→ 2.08 ≤ 1
→ **FAILED**

*Recovery Period*
→ 2 ≤ 3
→ **CORRECT**

*Utilisation*
→ no Bids
→ **NOT CHECKED**
**Assumed also complied with MNZT, Bid-Offer and Cease time Checks**

## Payment (PQR)

**Availability**
The clearing price for SW29 in the DA PQR and NQR auction was £21/MW/hour. The provider expects to be paid (£21*25)/2 = £325.00, but the unit failed availability checks

**Total Revenue** from NESO for SW29
Availability → £0.00

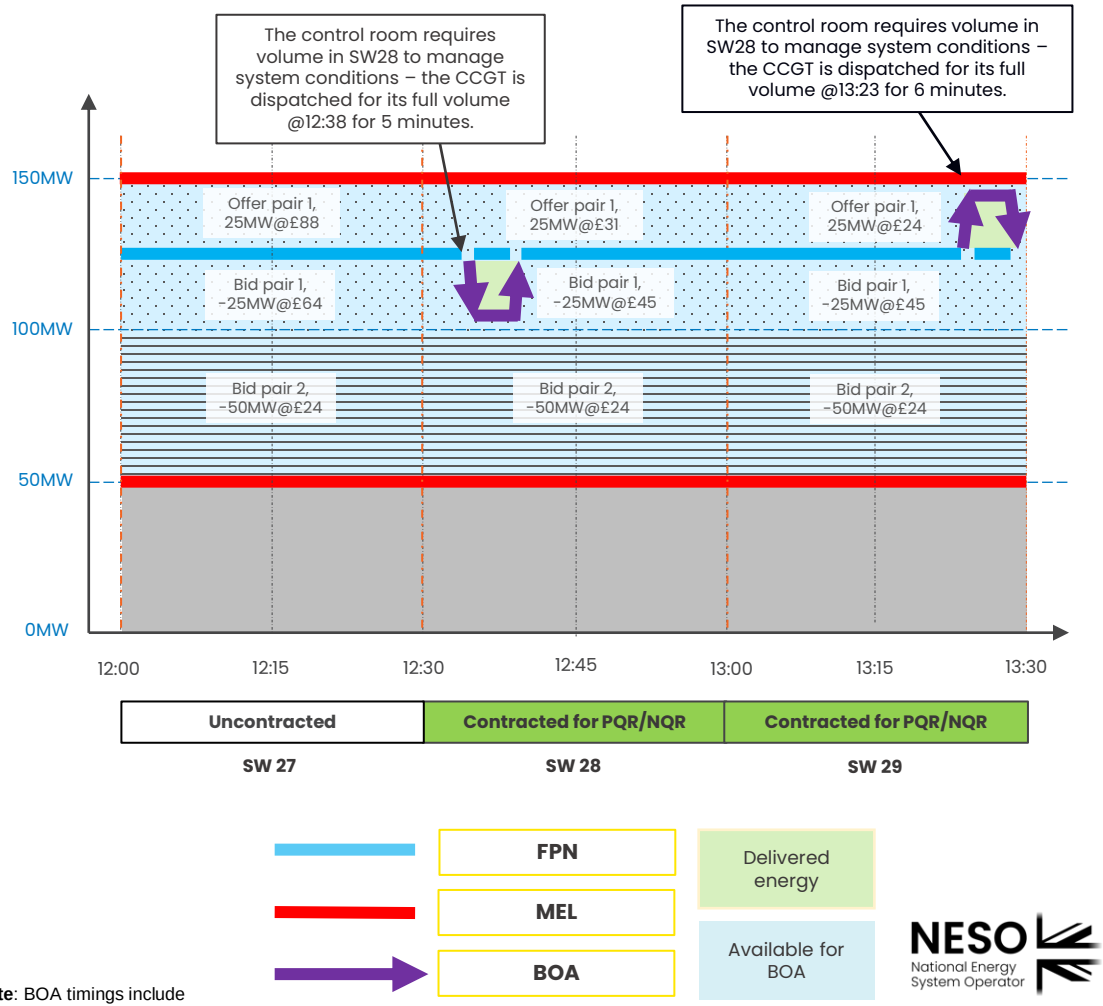
**Unit Revenue**

- This unit has overcommitted NQR & PQR volume – the contracted quantity of 25MW is not achievable in 1 minute with the unit's ramp rates of 12MW/minute.
- The unit does not receive availability payment for NQR or PQR in any of the contracted windows.

# Detailed example 3b: Utilisation Checks

## Unit characteristics

- This CCGT unit has a max generation capacity of 150MW and a SEL of 50MW.
- The unit has submitted a run up and run down rate of 25MW/minute.
- The unit submitted a Recovery Period (MZT) = 3 minute.
- The unit is contracted for 25MW of PQR and 25MW of NQR in QR Settlement Periods 28 & 29.
- Settlement metering for SW27 (12:00 – 12:30) = 62.5MWh
- Settlement metering for SW28 (12:30 – 13:00) = 61.00MWh
- Settlement metering for SW29 (13:00 – 13:30) = 64.38MWh




**Note**: BOA timings include ramps. Prices are purely fictional.

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# Detailed example 3b: Utilisation Checks

## Unit characteristics

- This CCGT unit has a max generation capacity of 150MW and a SEL of 50MW.
- The unit has submitted a run up and run down rate of 25MW/minute.
- The unit submitted a Recovery Period (MZT) = 3 minute.
- The unit is contracted for 25MW of PQR and 25MW of NQR in QR Settlement Periods 28 & 29.
- Settlement metering for SW27 (12:00 – 12:30) = 62.5MWh
- Settlement metering for SW28 (12:30 – 13:00) = 61.00MWh
- Settlement metering for SW29 (13:00 – 13:30) = 64.38MWh

### Performance check (PQR) SW28 - 29

*Availability*
→ MEL – FPN ≥ 25MW
→ (150 – 125) ≥ 25
→ **CORRECT**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTO ≤ 1 minute
→ (25 / 25) + 0 ≤ 1
→ 1 ≤ 1
→ **CORRECT**

*Recovery Period*
→ 3 ≤ 3
→ **CORRECT**

*Utilisation (PBR) SW29*
→ Settlement metering - FPN volume ≥ Expected delivery * 95% &
→ Settlement metering - FPN volume ≤ Expected delivery * 120%
→ 64.38 – 62.50 ≥ 2.08 * 0.95 **AND** 64.38 - 62.5 ≤ 2.08 * 1.2
→ 1.88 ≥ 1.98 **AND** 2.08 ≤ 2.50
→ **FAILED**

**Assumed also complied with MNZT, Bid-Offer and Cease time Checks**

### Performance check (NQR) SW28 - 29

*Availability*
→ FPN – SEL ≥ 25MW
→ (125 – 50) ≥ 25
→ **CORRECT**

*Time to full delivery*
→ Contracted quantity / Run up Rate + NTB ≤ 1 minute
→ (25 / 25) + 0 ≤ 1
→ 1 ≤ 1
→ **CORRECT**

*Recovery Period*
→ 3 ≤ 3
→ **CORRECT**

*Utilisation (NQR) SW28*
→ Settlement metering - FPN volume ≥ Expected delivery * 95% &
→ Settlement metering - FPN volume ≤ Expected delivery * 120%
→ ABS(61.00 – 62.50) ≤ ABS(-1.67 * 0.95) **AND** ABS(61.00 – 62.50) ≥ ABS(-1.67 * 1.2)
→ 1.50 ≥ 1.58 **AND** 1.5 ≤ 2
→ **FAILED**

**Assumed also complied with MNZT, Bid-Offer and Cease time Checks**

## Payment

**Availability**
The clearing price for SW28-29 in the DA QR auction was £14/MW/hour. For each contracted window, the provider expects to be paid (£14*25)/2 = £325.00, however they failed availability checks

**Utilisation**
As under-delivery would leave the unit out of balance, the u would be subject to imbalance and BOA non-delivery char

**Unit Revenue**
The unit under-delivered against both BOAs (90% delivery), leading to the availability payment for these services being withheld. The unit will not receive availability payments for NQR SW28 or PQR SW29.

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# Settlement

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# Availability Payments


**Availability Payments**

- The day ahead QR auction is Pay-as-Clear.
- Forty-eight 30-minute service windows for both Positive Quick Reserve and Negative Quick Reserve, running 23:00-23:00 GMT.
- Market participants submit their availability prices and QR offered volumes before 14:00 Gate Closure time.
- NESO submits a buy order which represents the willingness to pay for a given volume of firm QR volume.
- An auction is conducted by auction partners NSIDE using the EAC algorithm via a co-optimised auction for Quick Reserve and Response run in the afternoon.
- A cohort of accepted sell orders and buy orders is determined to maximise market welfare.
- A clearing price is determined to maximise market welfare whilst minimising total cost of procurement.

**All successful providers for each Service Window will be paid the clearing price for that Service Window.**

Detailed information about the day ahead auction can be found in this market explainer document.
https://www.neso.energy/document/277671/download

# Utilisation Payments


## Utilisation Payments (BM)

- Utilisation of QR is through bids and offers in the BM.
- Holding a QR contract is not a guarantee of dispatch – in some periods, reserve will not be required and/or the unit may not adequately meet the system need (e.g. we may not be able to dispatch units located behind constraints).
- Submitted dynamic parameters, MEL, MIL SEL, SIL , MNZT,MZT, NTO,NTB,NDZ, Run-up/Run-down rates, FPN, etc., should reflect contract terms.

**Payments for utilisation are made from ELEXON via the usual BOA settlements processes. Note: NBM utilisation payments methodology is pending.**

Detailed information about trading charges here: Trading Charges - Elexon BSC

# Continuing the Conversation

Access our Quick Reserve documents, data and multimedia at the following links:
Quick Reserve

Email us with your views on this Guidance Document at:
Box.FutureofBalancingServices@nationalenergyso.com and one of our team members will get in touch.

Write to us at:

NESO
Faraday House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA