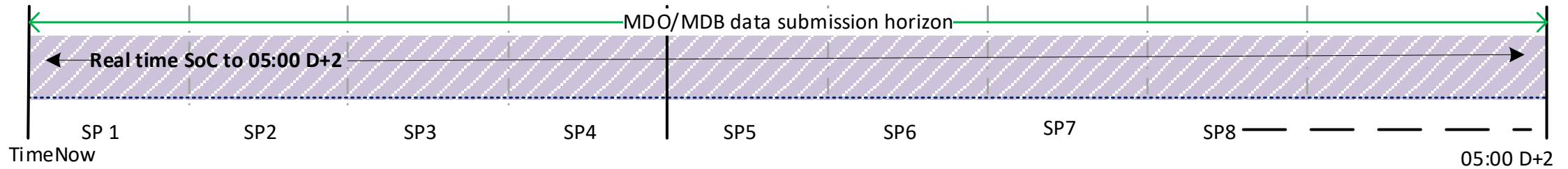


GC0166 – Q&A Workshop

27/03/26

Future State of Energy (FSoE) model Implementation



FSoE modelling will use data to allow NESO to schedule over the full PN submission time horizon in conjunction with other static data provided under GC166 (listed below)

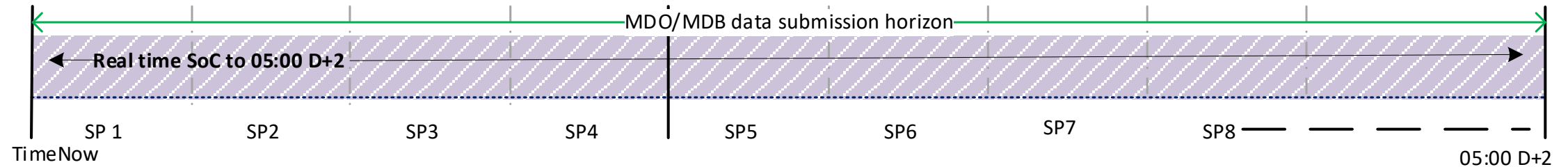
Once MDO/MDB is received we will start implementing the FSoE Model to increase the accuracy of the Scheduling process. As the FSoE model will not be 100% accurate the MDO/MDB data will ensure the actual BOA **does not exceed the MWh capability by even a minute.**

The FSoE model will require a combination of the below data. The trials we are running will validate exact data requirements.

All below is static, one value covering the operational day received via Single Markets Platform (SMP), apart from **Real time SoE** – which will be received via the SCADA system (IEMS). SMP values can be changed at any time and the system will refresh every 30 minutes.

- Max SoE, (NESO calculate time varying limits from Reserve and Response contracts)
- Min SoE,
- Charging efficiency
- Discharging efficiency
- SoE limit positive
- SoE limit negative
- Daily cycle limit
- MWh cycle limit
- MW power capability import
- MW power capability export
- MWh export
- MWh import
- **Real time SoE**

Summary of Methodology



- Main function of MDO/MDB to inform NESO about **available MWh volume** for BOA instruction (inside BM window) & scheduling (outside BM window)
- MDO/MDB submissions made from the current minute onwards, with **1-min granularity**, matching the time horizon for which PNs submitted (**11:00 to 05:00 D+2**)
- MDO/MDB should be calculated ensuring any reserve/response contract volumes and PNs are **protected**

GC0166 Transition

GC0166 Best Practice Published

EDL Specification V8 Published

DVCD Rules V5 Published

Software Suppliers test against BM EDL

Complete testing with Elexon

ENCC Business Procedures Updated

E-2E Training for ENCC

NESO Dispatch and Scheduling go-live

22 June 2026

Control Points transition to send MDO/MDB

22 June 2026 to November 2026

Control Points inform NESO when ready
EDL software installed
MDO/MDB data generator ready

Control Points agree go-live date with NESO

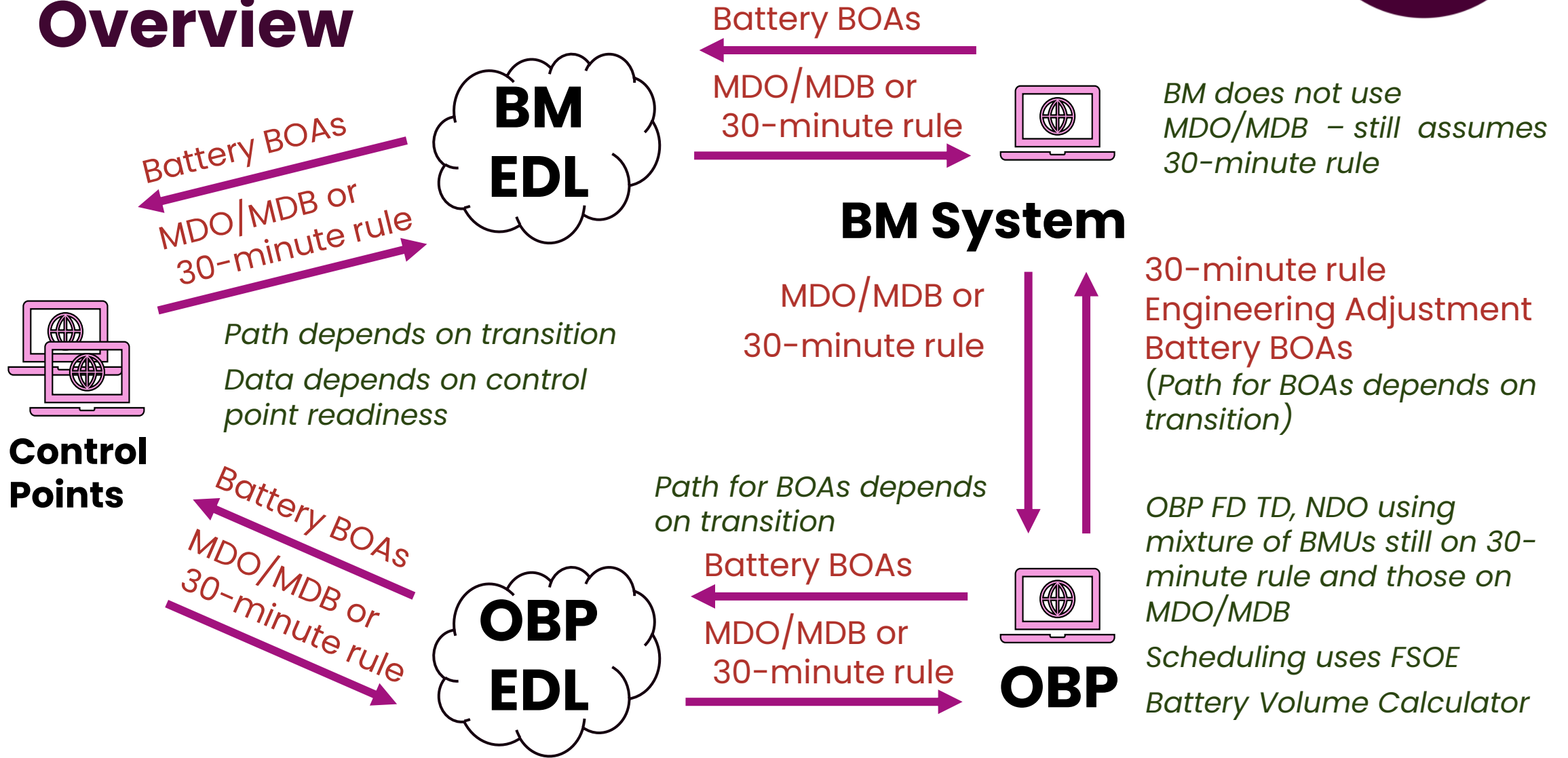
Elexon P499 Go-Live

22 June 2026

Production files sent to Elexon

22 June 2026

Overview



MDO/MDB

MDO/MDB

MDO /MDB can be redeclared in the BM gate under the following conditions:

- For unavoidable events (plant breakdown or safety grounds)
- After a BOA is accepted
- For a submitted PN change in the Settlement Period after the BM window
- If the BMU has fully utilised energy reserved for delivery of ancillary services

(Full details captured in BC2.5.3.4)

Protecting Energy Volume using MDO/MDB

MDO/MDB must account for energy needed to deliver **committed level** and contracted **ancillary services**. In order to ensure these can be delivered, energy volumes must be **protected**.

The two key scenarios where energy volume must be protected are:

- 1) For reserve & response contracts
- 2) For PNs

Protecting Energy Volume using MDO/MDB

1) For **reserve & response** contracts

It is necessary to protect energy volume in the 4 SPs before the delivery window (+ any additional time needed for trading) and 2 SPs after.

For *response*, volume remains protected during the delivery window, as it is delivered automatically, but for *reserve*, it is released back to be instructed by NESO (as per service design).

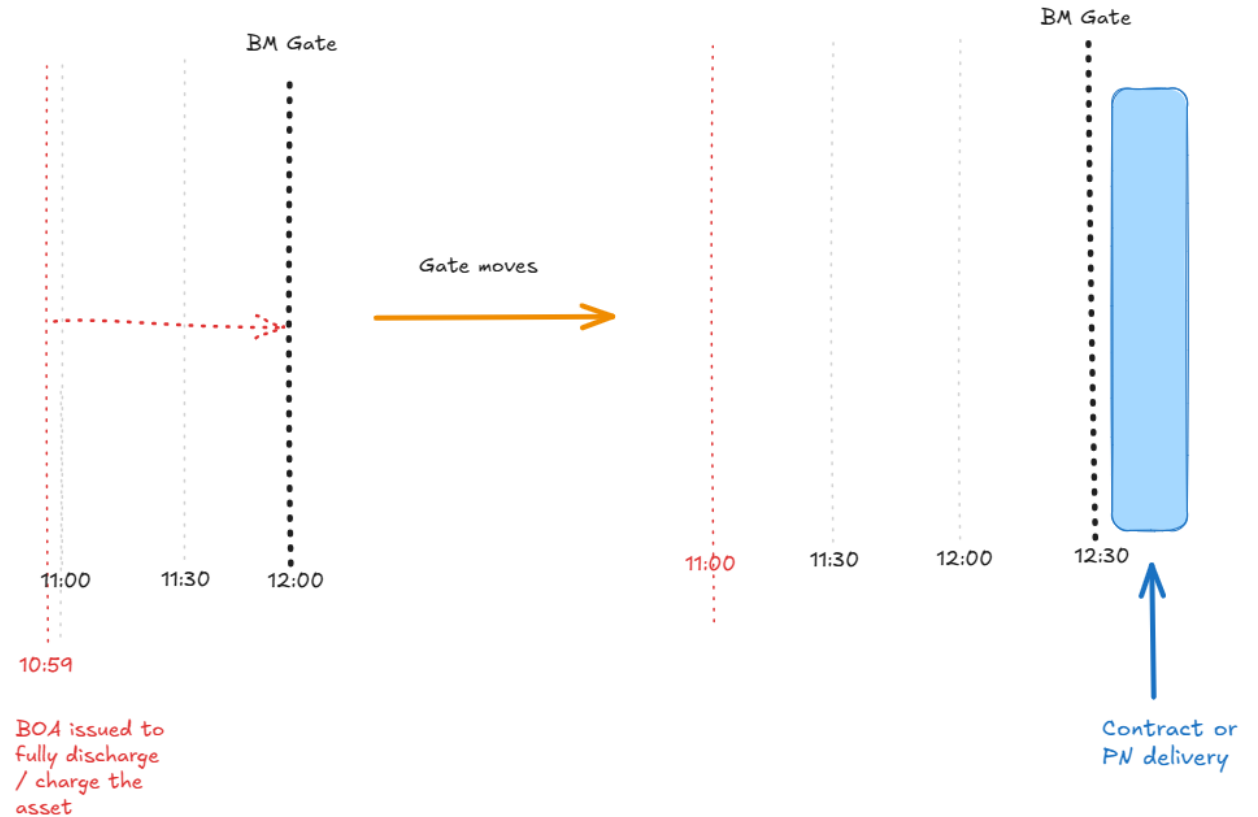
2) For **PNs**

It is necessary to protect energy volume in the 4 SPs before the delivery window (+ any additional time needed for trading) only.

As the provider knows exactly when the PN will deliver, the MDO/MDB can be submitted to reflect this.

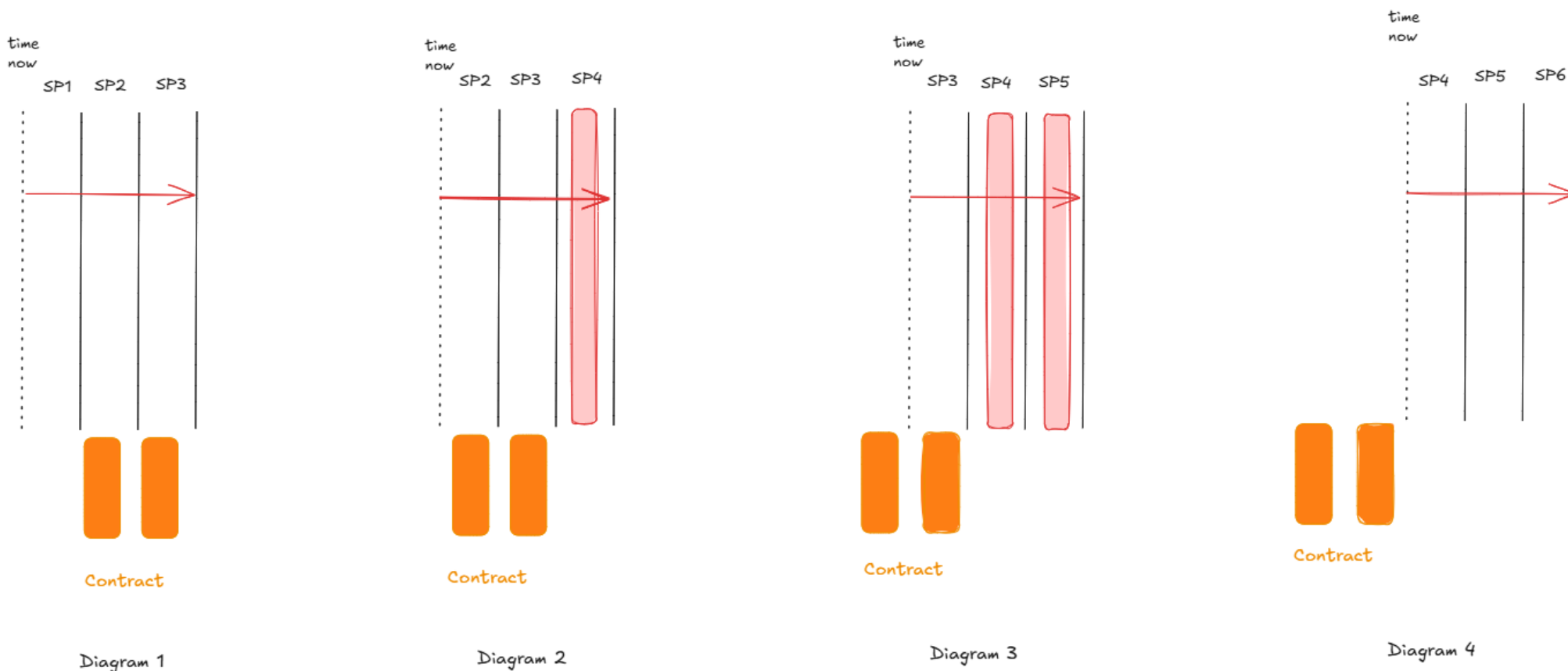
Protect 4 SPs prior to reserve/response contract or PN

Example: contract or PN starts at 12:30. In theory a BOA could be issued and accepted 1-min before the BM gate moves at 10:59. The BM gate moves at 11:00 and now covers 11:00 to 12:30 meaning no PN can be submitted before the contract or PN delivery SP and so no opportunity to adjust the asset SoC. Therefore the 10:30 to 11:00 SP should also be protected, and hence a minimum of 4 SPs protection is needed (10:30 to 12:30), plus any additional time required for trading.



Protect 2 SPs post reserve/response contract

BOA could be issued at 'Time now' in the period shown by red arrow. Therefore the red shaded red boxes show the SPs where a BOA could be issued that would cause a risk of non-delivery against contracted SPs 2 & 3

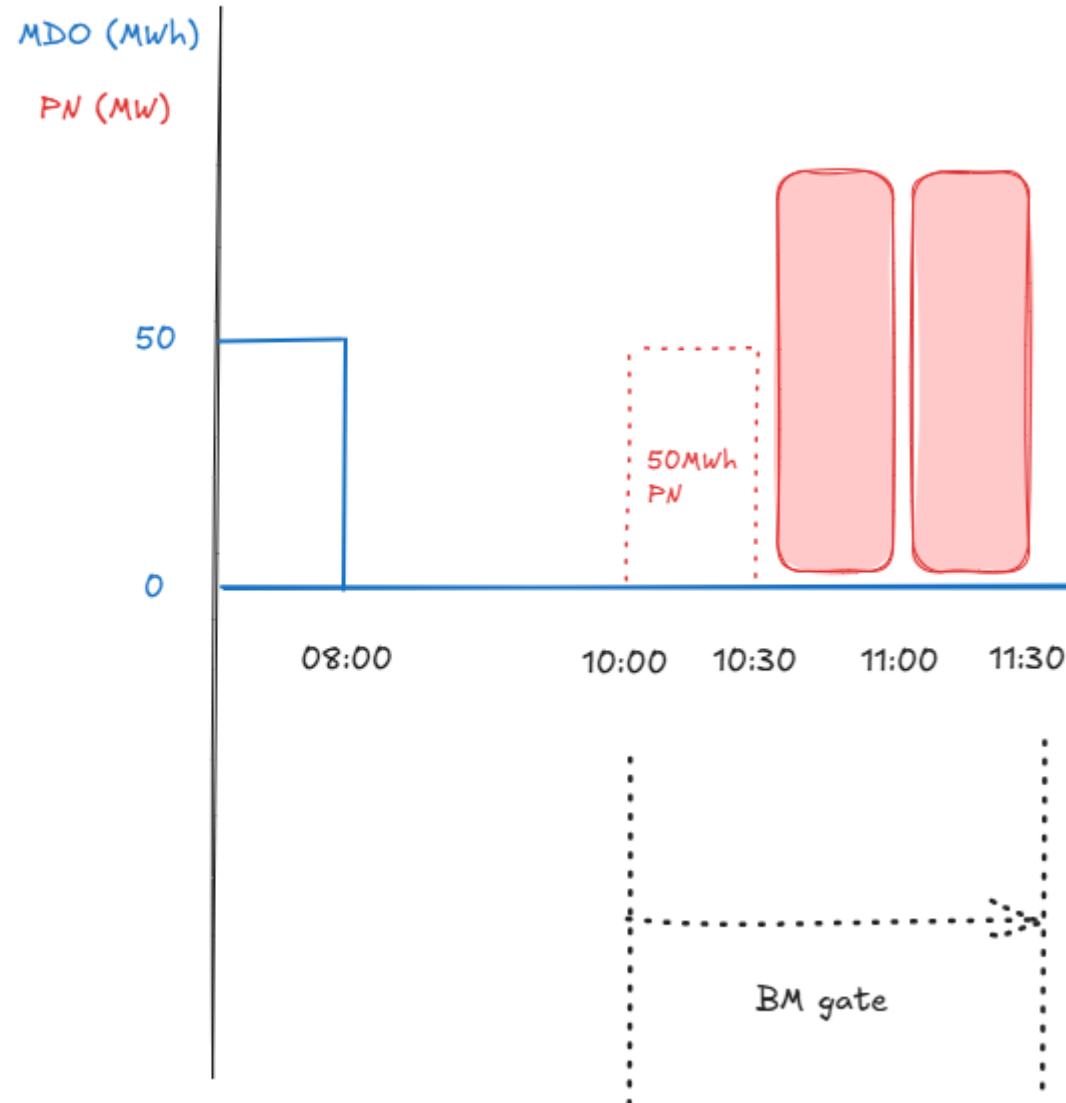


No need to protect 2 SPs post PN

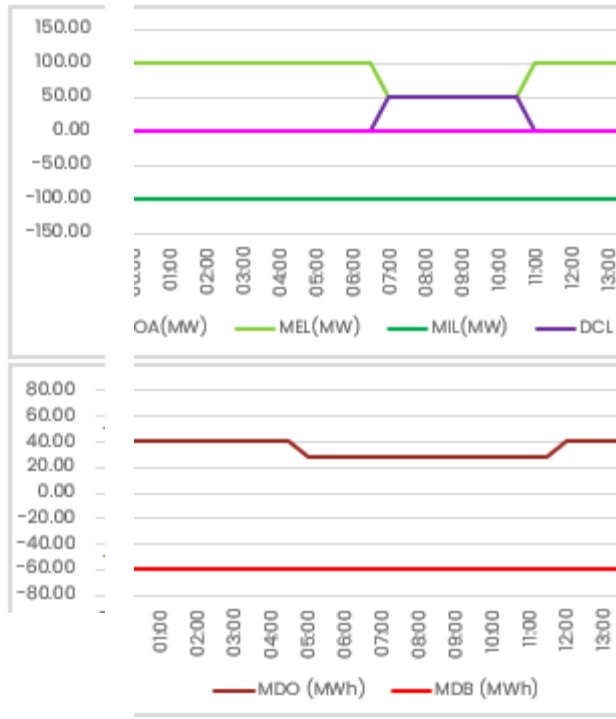
100MW / 100MWh
50% SoC

Due to submitted MDO,
2 SPs after cannot be
accessed for future BOA
offers to make PN
undeliverable, hence no
protection needed.

The volume protected
ahead of the PN is not
released as when the PN
is delivered, that volume
remains unavailable to
NESO



Response – minimum energy volumes to protect



Response volume protected 4 SPs before contract delivery, 2 SPs after but also throughout as response is not instructed and is delivered automatically as frequency changes

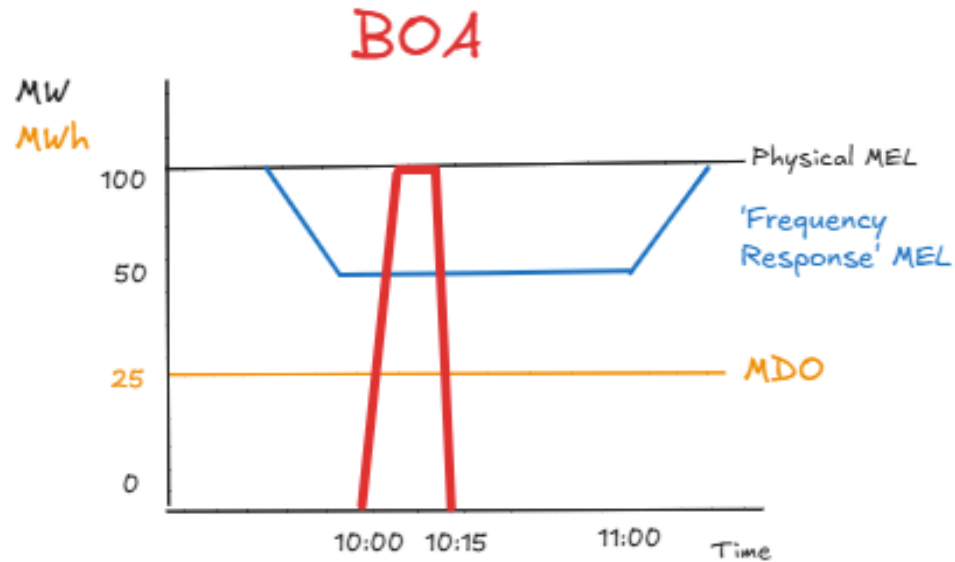
In this example, frequency was at 50Hz throughout and so no response volume was utilised.

Dynamic Containment – Must be able to deliver continuously for 15 mins (for e.g. if DC contract is for 50MW, the unit must protect a minimum of 12.5MWh to be able to deliver response for 15 mins)

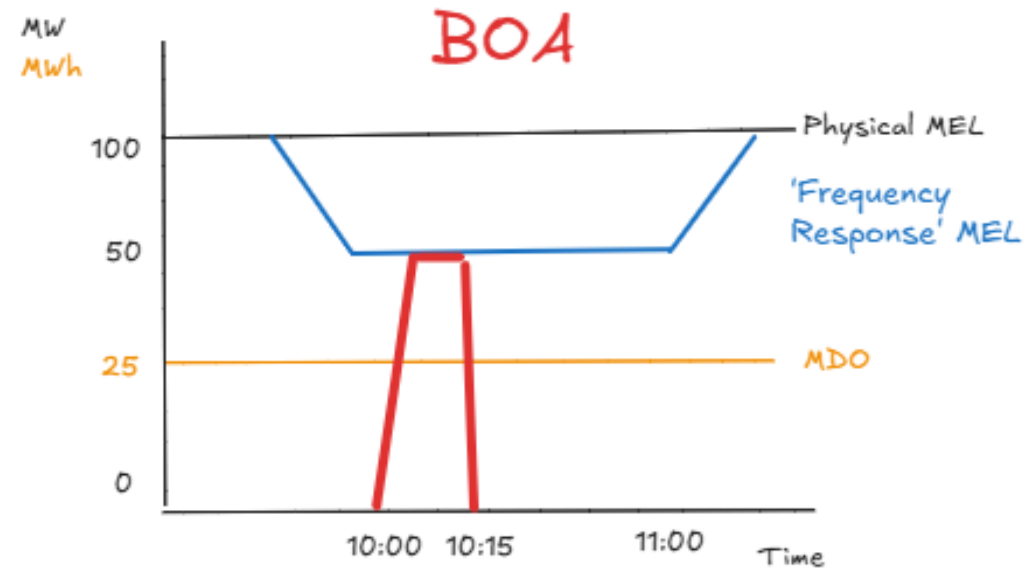
Dynamic Moderation – Must be able to deliver continuously for 30 mins (for e.g. if DM contract is for 50MW, the unit must protect a minimum of 25MWh to be able to deliver response for 30 mins)

Dynamic Regulation – Must be able to deliver continuously for 60 mins (for e.g. if DR contract is for 50MW, the unit must protect a minimum of 50MWh to be able to deliver response for 60 mins)

Use of MEL/MIL to protect frequency response

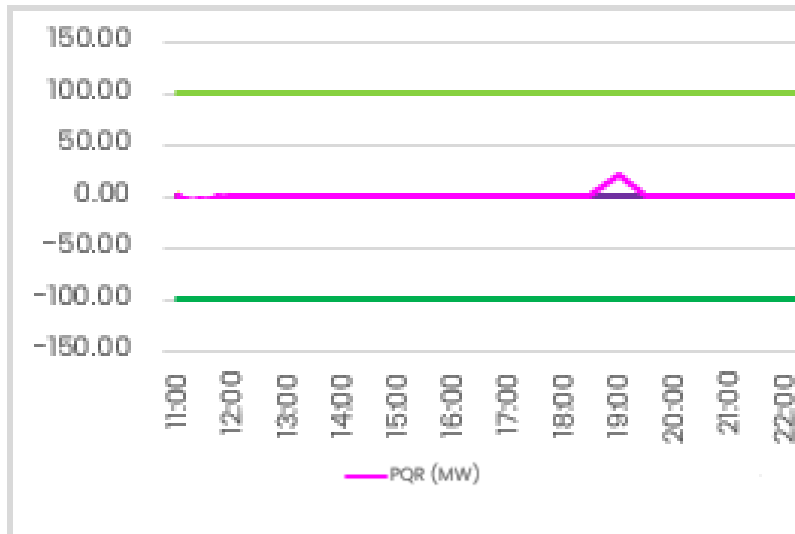


BMU has 50MW Dx contract - if MEL is not reduced to protect power range, this BOA could be sent

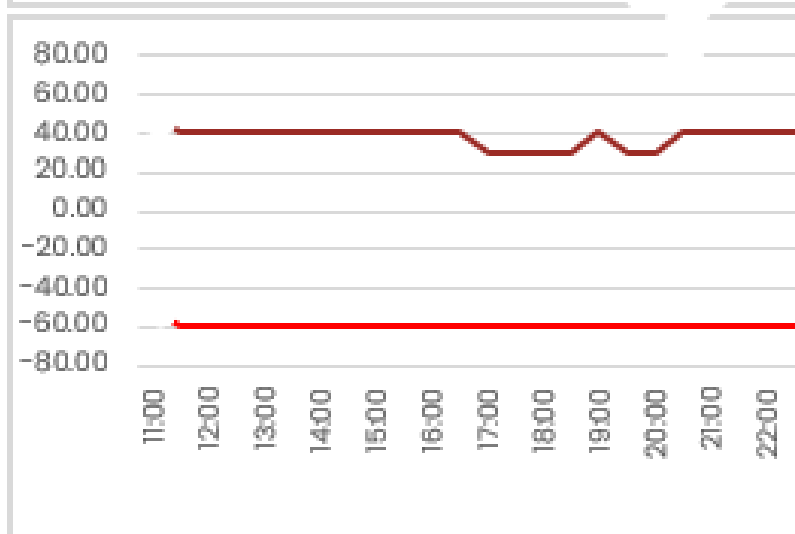


by reducing MEL, protects power range and BOA limited to this

Reserve - energy volumes to protect and release



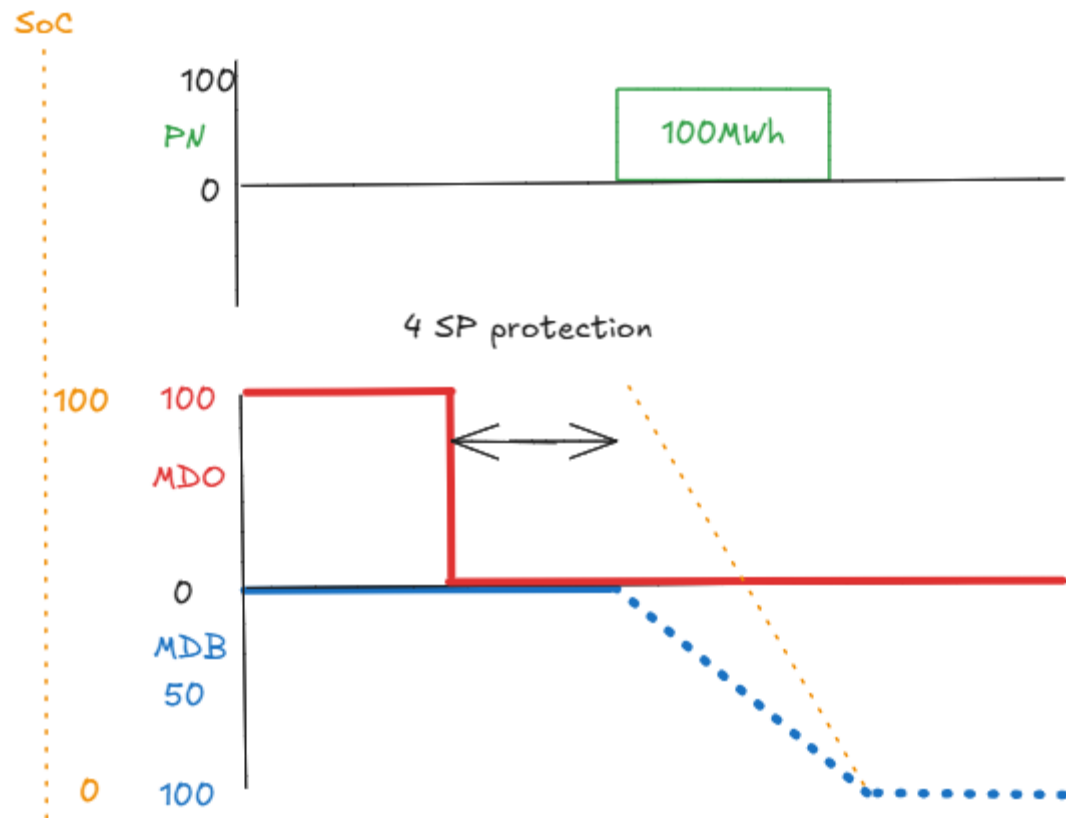
Reserve volume protected 4 SPs before contract delivery, 2 SPs after but released during contract period as NESO need to instruct via BOAs, as designed



In this example, PQR volume not utilised by NESO

PNs – fully charged

100MW / 100MWh BMU
fully charged (100% SoC)



BOAs

100MW / 100Mwh
BMU 0% Soc)

