Welcome

NBM Reserve Implementation on OBP

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Agenda

1. Overview of Quick Reserve and Slow Reserve
2. Open Balancing Platform (OBP) Overview
   - High level Service Overview Reserve – General
   - Crossover scenario
   - Availability Declarations/Redeclarations to support crossover
3. OBP API overview
4. Break
5. Q&A Session
6. Informal consultation timeline

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Quick and Slow Reserve

Timeline

Quick Reserve phase 2 (BM/NBM)

- September 2024 – ESO to share proposed Service and Procurement design document for industry feedback
- November 2024 - launch EBR Article 18 Consultation
- June 2025 - Service 'go live'

Slow Reserve (BM/NBM)

- October 2024 – ESO to share proposed Service and Procurement design document for industry feedback
- January 2025 - launch EBR Article 18 Consultation
- August 2025 - Service 'go live'

Proposed NBM Technical Service Designs

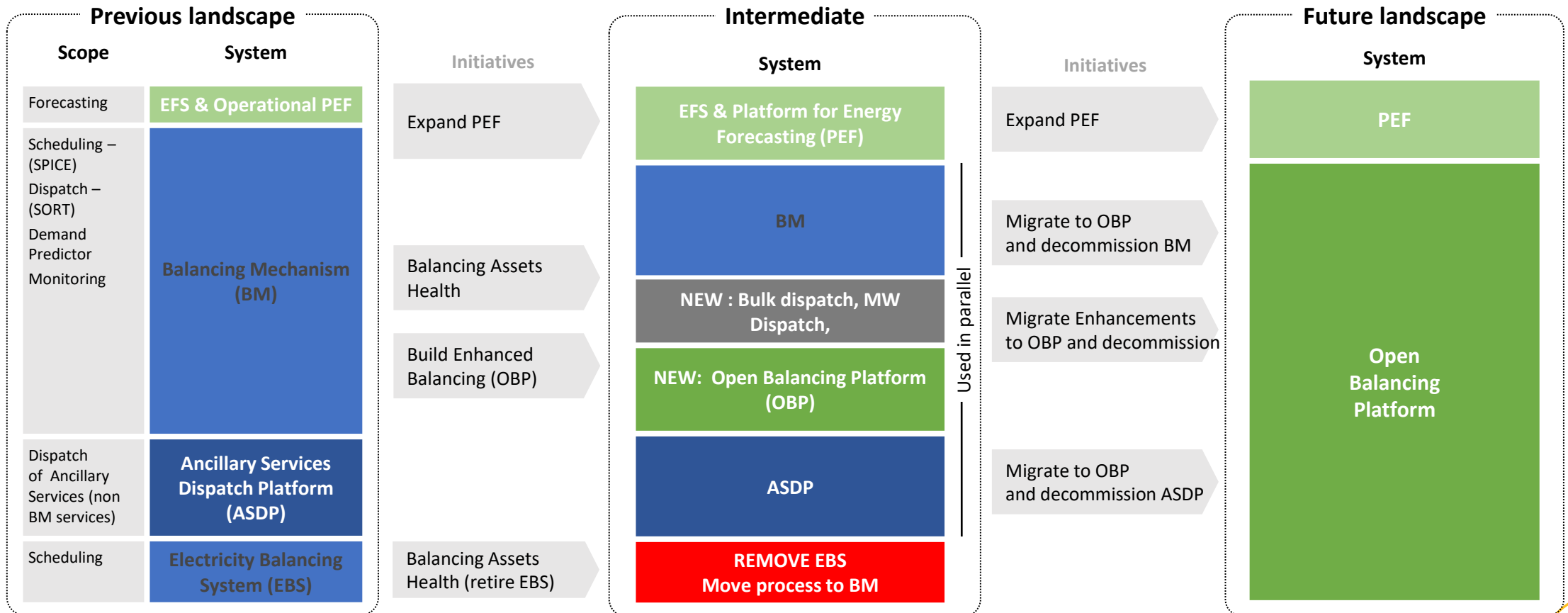| Technical Design Element	Quick Reserve Proposal	Slow Reserve Proposal
Direction	Positive and Negative	
Minimum Contract Size	1 MW	
Time to full delivery	1 minute from instruction	15 minutes from instruction
Minimum Activation Period	Not greater than 5 minutes	Not greater than 30 minutes
Maximum Recovery Period	Not greater than 3 minutes	Not greater than 30 minutes
Energy Requirement	Unit must be able to deliver the full contracted capacity per contracted period.	
Operational Metering	1 Hz	1 Hz [TBC]
Dispatch mechanism	OBP NBM dispatch instruction and control/system telephony as alternative dispatch solution during contracted windows.	
Notice to Start Ramping	0 minutes	Up to 2 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, incl. notice to start ramping.	Max ramp rates ≤100% contracted capacity/minute. For max instantaneous ramp rates, unit cannot deliver >50% contracted capacity in any 30s ramping period. Min ramp-up and ramp-down rate to be in line with Time to Full Delivery, incl. notice to start ramping.
Performance Metering	1Hz	1 Hz [TBC]
Performance Monitoring	Time to Full Delivery, Availability and Utilisation - Penalties for over (>120%) and under (95%) delivery	Time to Full Delivery, Availability, Ramp rates, Utilisation - Penalties for over (>120%) & under (95%) delivery
Baselining	Physical Notifications or equivalent 24 hours in advance, final at 60 mins ahead of Settlement Period. Both zero and non-zero baselines allowed.	
Operational data requirements	All providers to submit operational data before and after service windows.	
Passing through zero	Yes.	

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Quick and Slow Reserve in OBP

Quick Reserve and Slow Reserve in Open Balancing Platform (OBP)

1. Open Balancing Platform (OBP) Overview
2. High level Service Overview
3. Crossover scenario
4. Availability Declarations/Redeclarations to support crossover
5. API Overview

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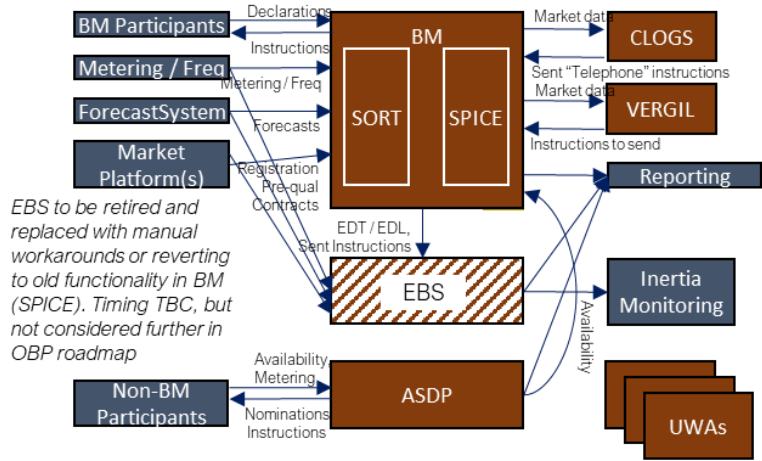# What is in Scope of the Balancing Transformation Programme?

This investment delivers the Open Balancing Platform (OBP), a new real-time balancing capability to replace legacy ESO balancing systems (EBS, BM and ASDP) and processes and support zero carbon grid operations.

The programme will deliver value incrementally, with an intermediate mode of operation in which enhancements will be first implemented in the current systems, and then integrated in OBP.
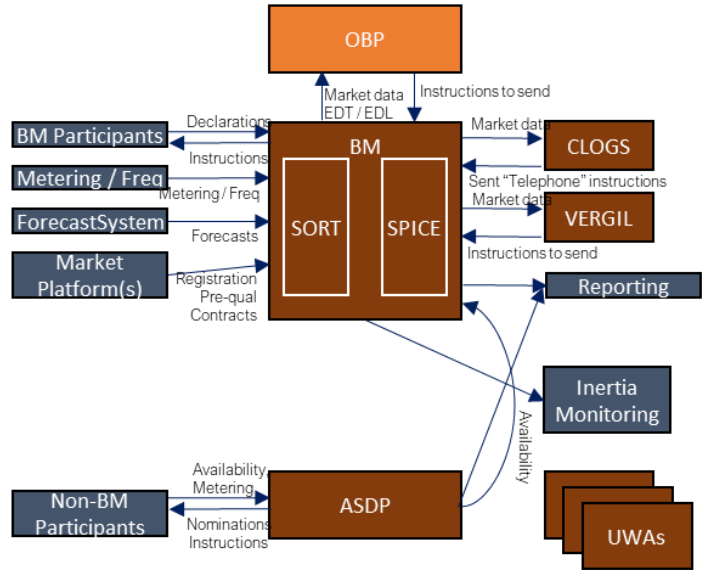

Previous landscape

Scope	System
Forecasting	EFS & Operational PEF
Scheduling – (SPICE) Dispatch – (SORT) Demand Predictor Monitoring	Balancing Mechanism (BM)
Dispatch of Ancillary Services (non BM services)	Ancillary Services Dispatch Platform (ASDP)
Scheduling	Electricity Balancing System (EBS)

Initiatives

- Expand PEF
- Balancing Assets Health
- Build Enhanced Balancing (OBP)
- Balancing Assets Health (retire EBS)

Intermediate

System

- EFS & Platform for Energy Forecasting (PEF)
- BM
- NEW : Bulk dispatch, MW Dispatch,
- NEW: Open Balancing Platform (OBP)
- ASDP
- REMOVE EBS Move process to BM

Used in parallel

Initiatives

- Expand PEF
- Migrate to OBP and decommission BM
- Migrate Enhancements to OBP and decommission
- Migrate to OBP and decommission ASDP

Future landscape

System

- PEF
- Open Balancing Platform

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Open Balancing Platform – High Level Migration Transition
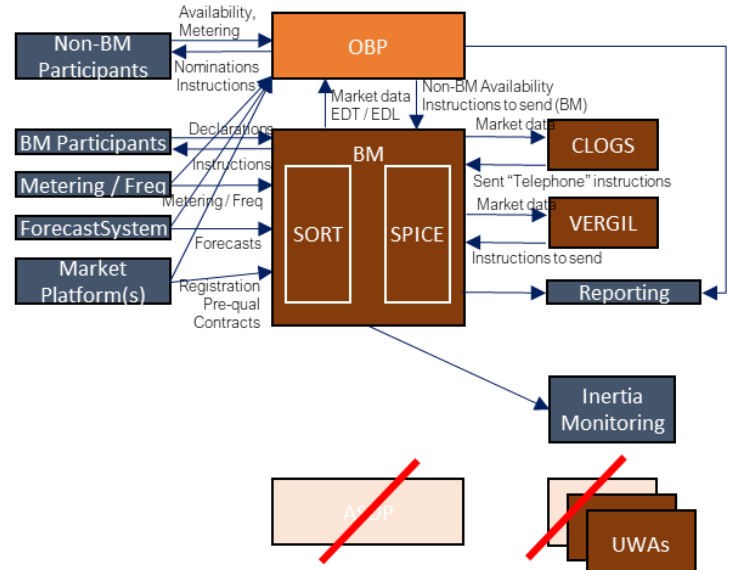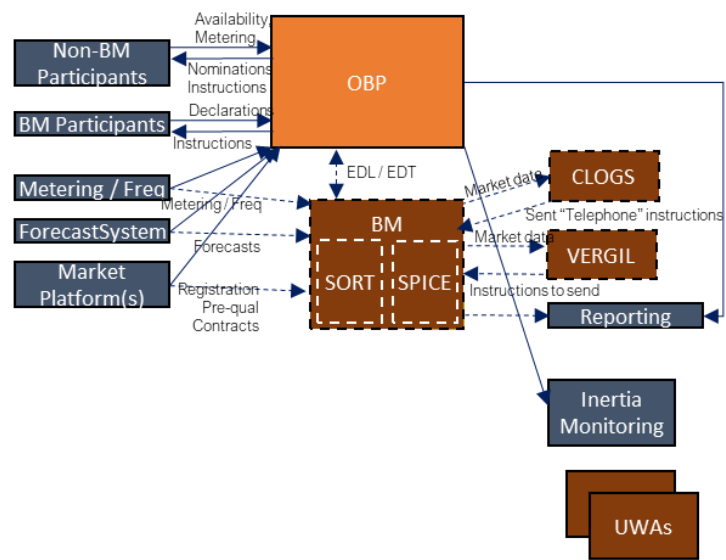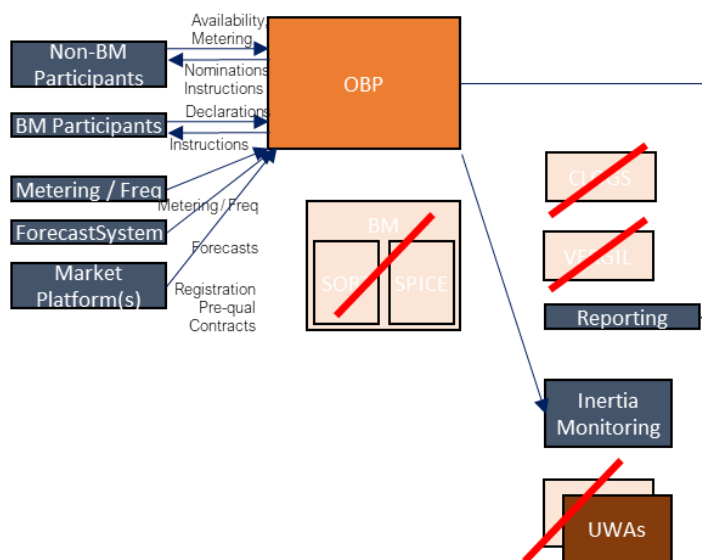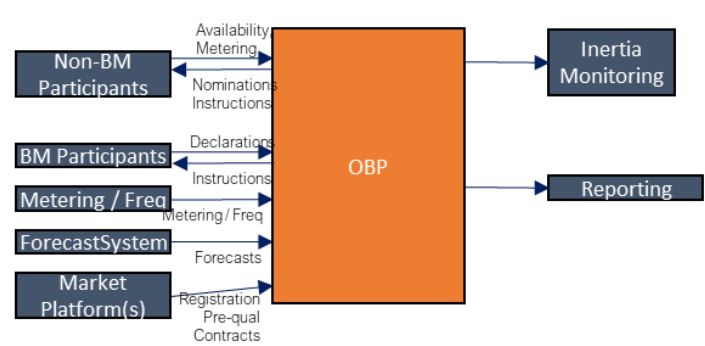
Open Balancing Platform Release Plan Timeline

Legend
- Moved to a later date (no. of seasons moved)

Summer 2024

Capabilities:
1. BM Quick Reserve (note added to OBP service catalogue but goes live later)

Enablers
1. Interface from Single Market Platform
2. Interface from SCADA for metering [+1]

Winter 2024

Capabilities:
1. New storage parameters
2. Bulk Dispatch Wind BMUs (rule based)
3. Constraint Management
4. Pumped Storage BOAs

Enablers
1. OBP becomes Operationally Critical
2. Interface to Ancillary Settlement for NBM

Summer 2025

Capabilities:
1. NBM Quick Reserve
2. BM Slow Reserve
3. NBM Slow Reserve

Winter 2025

Capabilities:
1. Constraints Pathfinder
2. Stability Pathfinder
3. Manage Sync/De-sync

Enablers
1. PEF Integration

Autumn 2024

Capabilities:
1. Manual instructions

Enablers
1. Interface to Data Analytics Platform

Spring 2025

Capabilities:
1. NBM Instruction Types

Enablers
1. NBM APIs
2. EDT/EDL mastered from OBP

Autumn 2025

Capabilities:
1. Move MW Dispatch
2. Move Response (DC/DM/DR)

Enablers
1. Ready to decommission ASDP

Abbreviations

EDT: Electronic Data Transfer **DC:** Dynamic Containment **DM:** Dynamic Moderation **DR:** Dynamic Regulation **ASDP:** Ancillary Services Dispatch Platform **BOA:** Bid Offer Acceptance
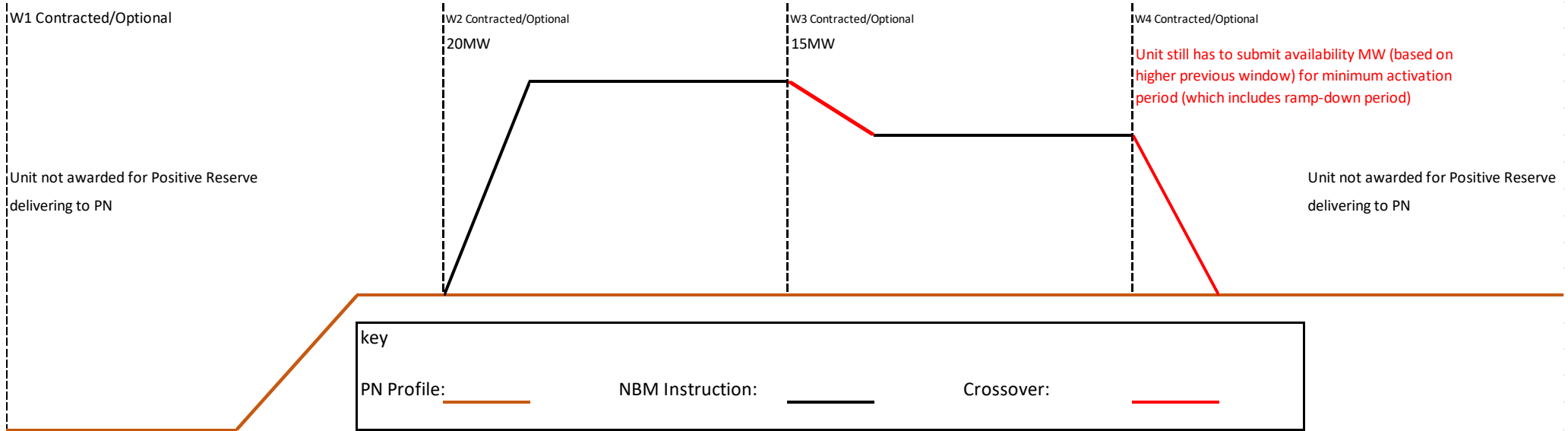**PEF:** Platform for Energy Forecasting

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High level Service Overview - Reserve

1. For Positive and Negative Reserve Services, units can be either Contracted or Optional for one service window.
2. For contracted windows, MW should be the same for whole window, price could be different across the settlement periods (which can be redeclared before gateclosure).
3. For Optional availability, unit can submit different MW and Prices across multiple settlement periods.
4. Instruction issued will be a start instruction(s) followed by a cease at a later point.
5. Instruction issued will be for the full MW declared (all or nothing delivery).
6. Unit can be instructed at current time or for future time.
7. Unit will be ceased as required by ESO or will be autoceased when it is unavailable in next service window or emergency unavailability declared by Service Provider.
8. PNs required 24-7
9. Heartbeat connectivity will be required per service
10. Availability submissions required per service
11. Crossovers rules will apply

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High level Service Overview - Crossovers

1. Instruction will be for all the MW tendered/made available
2. Crossover period is from one window to next when a unit can move from contracted to optional/unavailable (or vice versa), with the same MW or increase/decrease in MW
3. Crossover rules will apply at the end of a window to allow instructions to be issued late into a window to support a smooth transition in MW when there is a decrease in MW from one window to another
4. Where the MW increases from one window to the next Crossover rules will not apply

Unit instructed according to its contracted windows and to the parameters it has submitted for those windows. A requirement on units to submit availability MW for next window when a decrease in MW from previous period

W1 Contracted/Optional

W2 Contracted/Optional
20MW

W3 Contracted/Optional
15MW

W4 Contracted/Optional

Unit still has to submit availability MW (based on higher previous window) for minimum activation period (which includes ramp-down period)

Unit not awarded for Positive Reserve delivering to PN

Unit not awarded for Positive Reserve delivering to PN

key

PN Profile: _____   NBM Instruction: _____   Crossover: _____

As the MW made available varies over the windows, Multiple start instructions will be sent with the change in MW
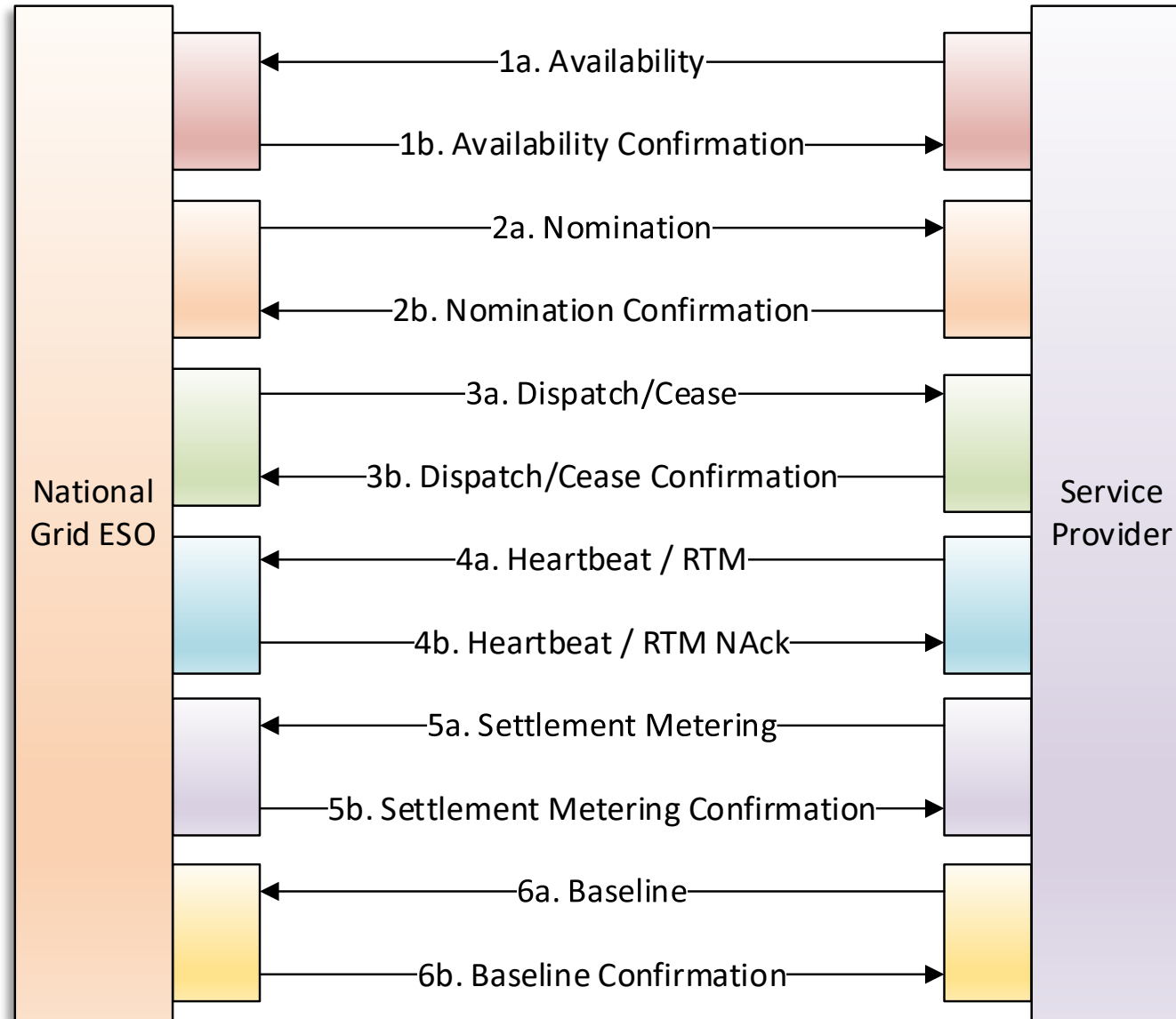
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Availability Declarations / Redeclarations

- Availability declaration/redeclarations required for each service (Positive Quick Reserve (PQR), Negative Quick Reserve (NQR).

- Utilisation Price of zero will be considered as valid and unit would be considered as dispatchable if MW is also above zero.

- If either MW or Util price is NULL, unit would be deemed as unavailable.

- Provider needs to declare the availability for the period of the crossover window (Contracted/Optional) if relevant.

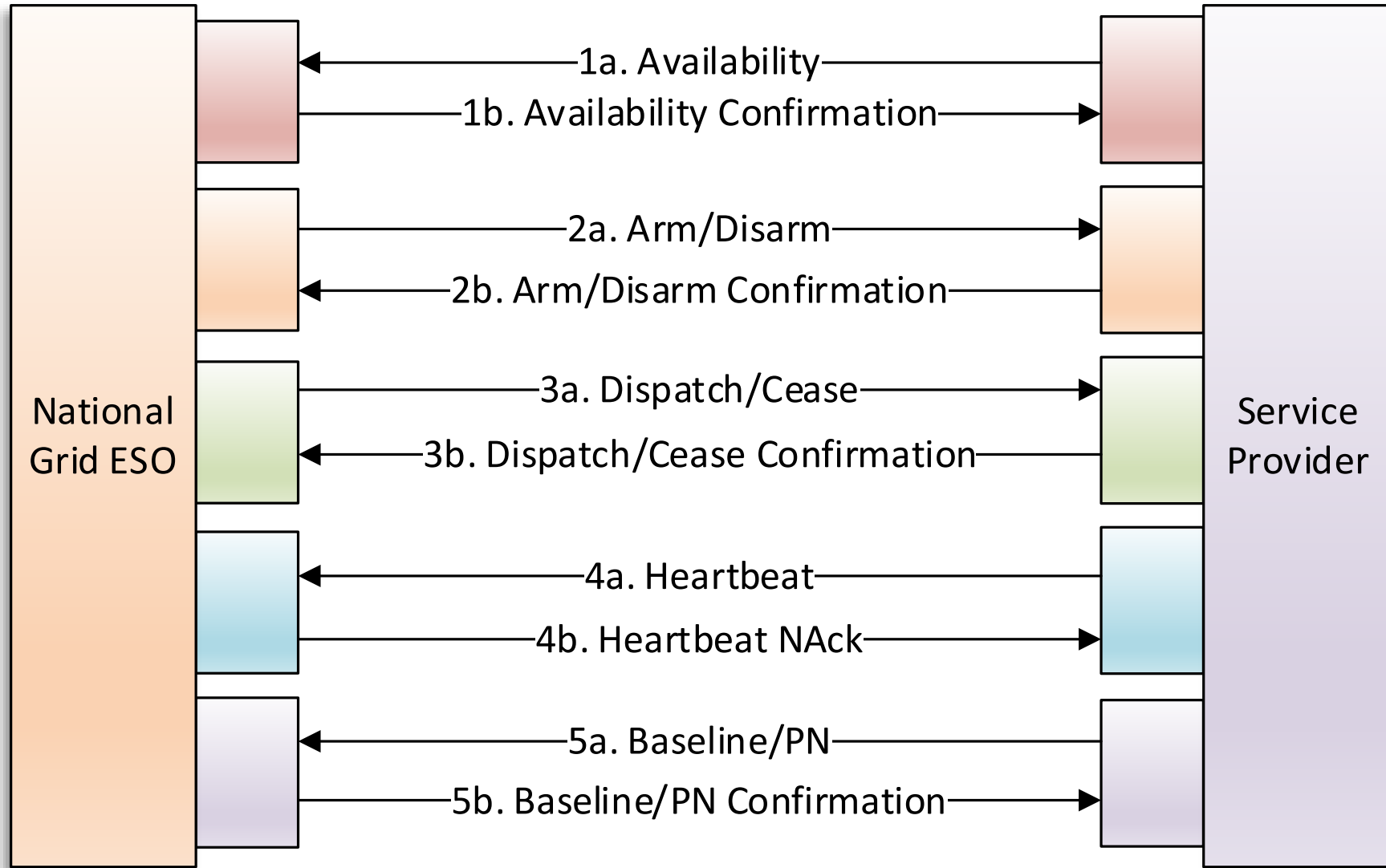ESO

OBP Reserve API Overview

Principles

- **Keep API largely unchanged**

- **No new mandatory fields in messages to ESO***
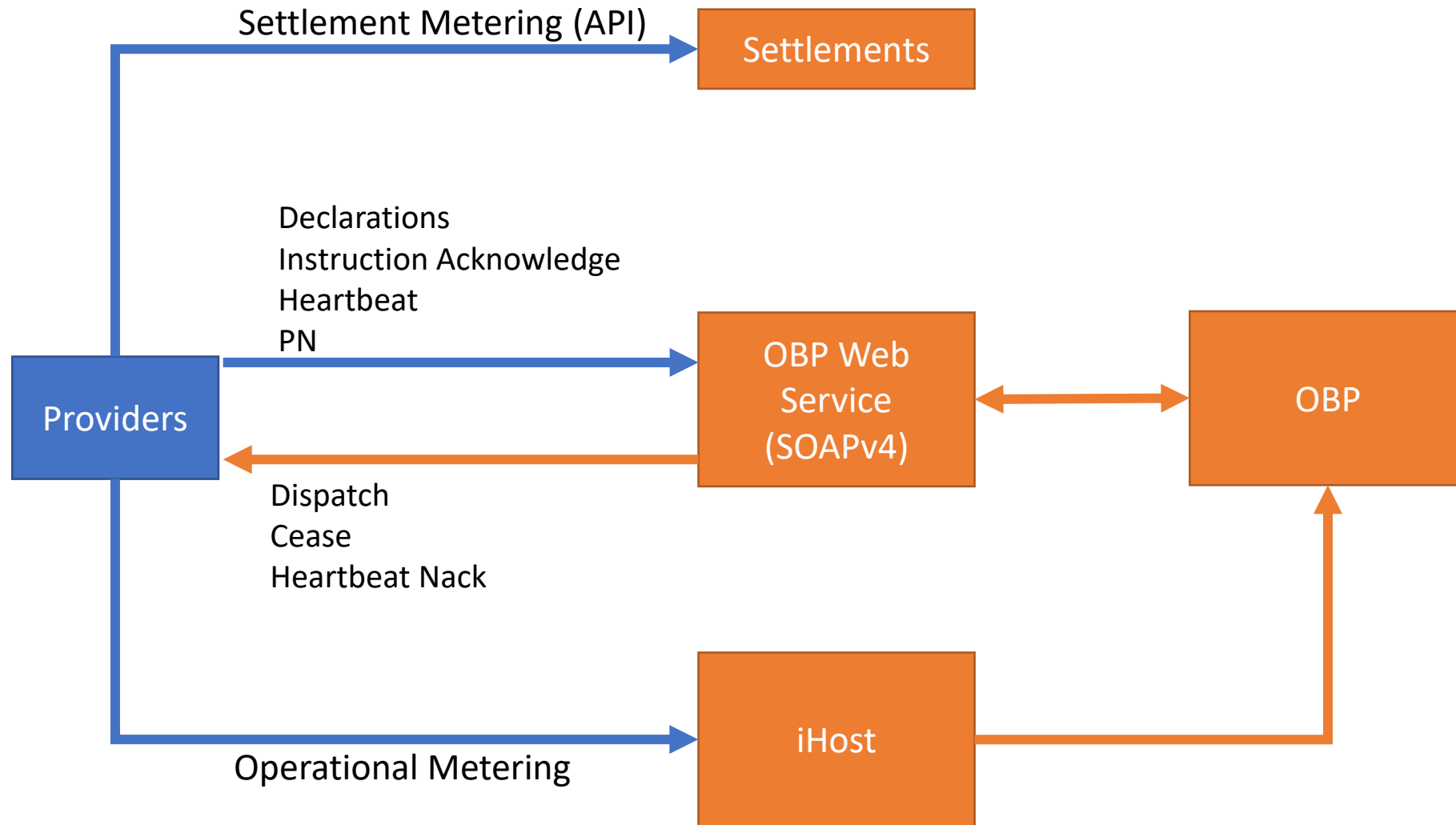
- **No new fields in messages from ESO**

Existing ASDP Web Services

New OBP Web Services

High-Level End to End Flow

Settlement Metering (API)

Settlements

Declarations
Instruction Acknowledge
Heartbeat
PN

OBP Web Service (SOAPv4)

OBP

Dispatch
Cease
Heartbeat Nack

Providers

iHost

Operational Metering

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Web Services Applicability

Web Service	ASR Reserve Slow	ASR Reserve Quick	ASR Response
Availability	✓	✓	✓
Availability Confirmation	✓	✓	✓
Nomination (Disarm / Rearm)			✓
Nomination (Disarm / Rearm) Confirmation			✓
Dispatch / Cease Instruction	✓	✓	
Dispatch / Cease Confirmation	✓	✓	
Heartbeat	✓	✓	✓
Heartbeat Negative Acknowledgement	✓	✓	✓
Physical Notification*	✓	✓	✓
Physical Notification Confirmation	✓	✓	✓

* Not service based

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Summary of changes for existing ASDP providers

- New URL for rebranding
- Revision of message schema for rebranding
- Operational metering (RTM) through iHost Data Concentrator
- Settlement metering through new interface (TBC)
- PNs required on all units (not service-specific)
- Multiple starts for same unit with different power levels
- Can be available with non-zero PN
  - E.g. 50MW unit already generating 10MW can make 40MW available to ESO
- Heartbeat required for all units on all services
  - Every 5 minutes
  - Timeout if two HBs missed
- Scheduled Date Time in dispatch message to be observed
  - Start ramping up at start time
- (Subject to approval) Battery units to supply import and export capacity
  - New optional parameters in heartbeat Max Export, Max Import (MWh)
    Aligned with GC0166 (State of Charge)

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Physical Notifications

- PN will be as per current ASR Response PN Service.
- Providers should invoke the service to send Physical Notification data for Non-BM units.
- Providers should send 24*7 PN values (even if not contracted).
- PN can be redeclared until gate closure (60mins) before the start of Settlement Period.

Field	Example
UnitID	XXXX-123
PN Details	
StartTme	10:00
EndTime	10:30
StartMW	20
EndMW	20
PN details	
DateTimeStamp	2024-08-06T11:25:00Z

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Heartbeat

- Heartbeat will monitor the connection between OBP and the unit at a frequency of 5mins.
- If two consecutive heartbeat signals are missed for past 10mins, then a negative acknowledgement will be sent.

| Field	Example
UnitID	XXXX-123
Service Type	**PQR**
DateTimeStamp	Now Time

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Instruction Data

- This service will be used to send the instruction request (dispatch/cease) to providers.
- Instruction message will include time ScheduleDateTime to enable sending the instruction and start ramping up for future time.
- Multiple starts may be sent at different power levels at different time

Field	Example
UnitID	XXXX-123
Service Type	PQR
DUI (Dispatch Unique Identifier)	
Volume Requested	20
ScheduledDateTime	UTC time (which is start of instruction ramp up in whole minute)
Instruction	START/STOP
	START- Dispatch
	STOP- Cease
Date Time	Current UTC Time

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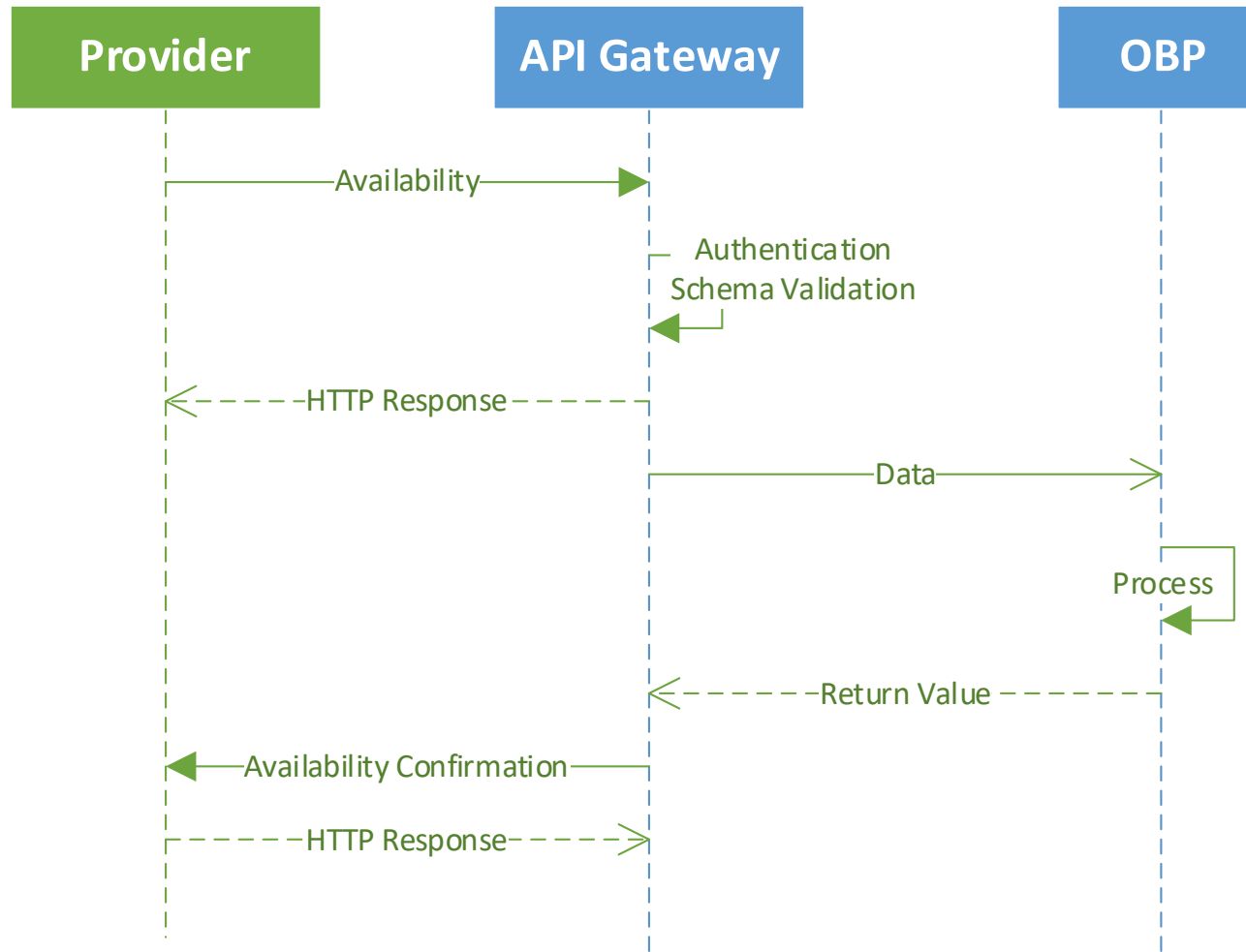
Feedback from Providers

- How often would you expect ramp rates to change?
- Ramp rates are single values – not like BM.
  Is this OK?

- What would make testing easier?

- Operational Metering changes
- Settlement Metering changes
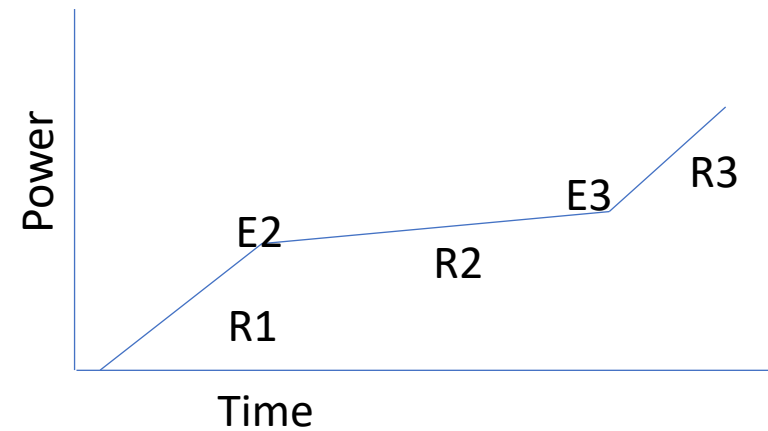
Outbound Messages – Dispatch Example
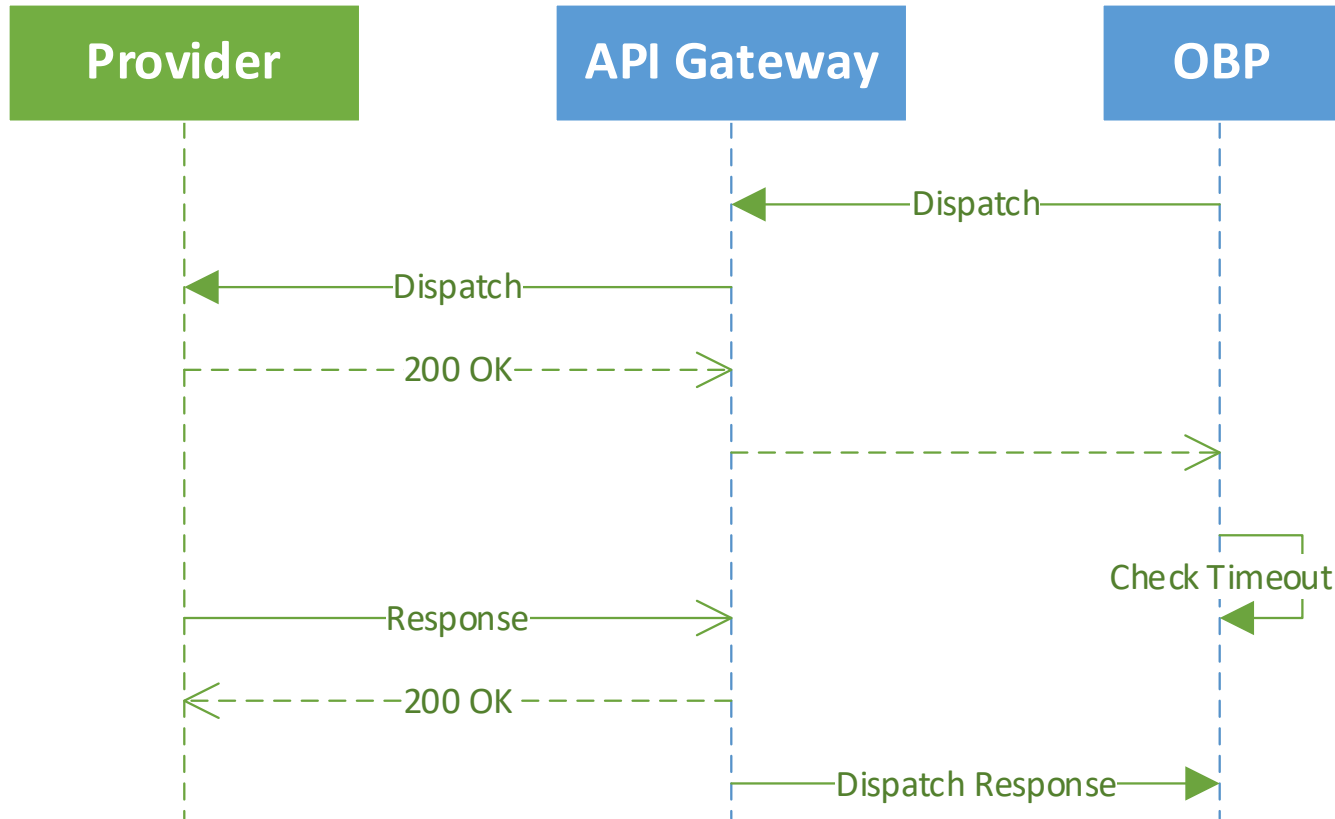
Inbound Messages – Availability Example

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Links

- **Data Concentrator for operational metering**
  https://www.nationalgrideso.com/document/150286/download

- **GC0166 – Parameters for Limited Duration Assets**
  https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0166-introducing-new-balancing-mechanism-parameters-limited-duration-assets

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Break

Questions

Next Steps

- Feedback on proposals requested as soon as possible and no later than **10th-Sept-2024**

- Specific questions we are interested in feedback on are set out in MS feedback form: [LINK](#)

- Feedback can also be communicated to: futureofbalancingservices@nationalgrideso.com

- Draft WebSpecificationv4 document and Draft Business Logic Document will be emailed to participants

- Following the 10th September feedback review, updated specifications for interface specification and Business Logic will be issued and more information on our proposal for submission of settlement metering data

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