The webinar will start shortly.
To maximise participation and minimise disruption we will be taking questions via MS Teams Chat, therefore your microphones are muted.
Please note that the webinar will be recorded.

Dynamic Moderation and Dynamic Regulation webinar

25 January 2022

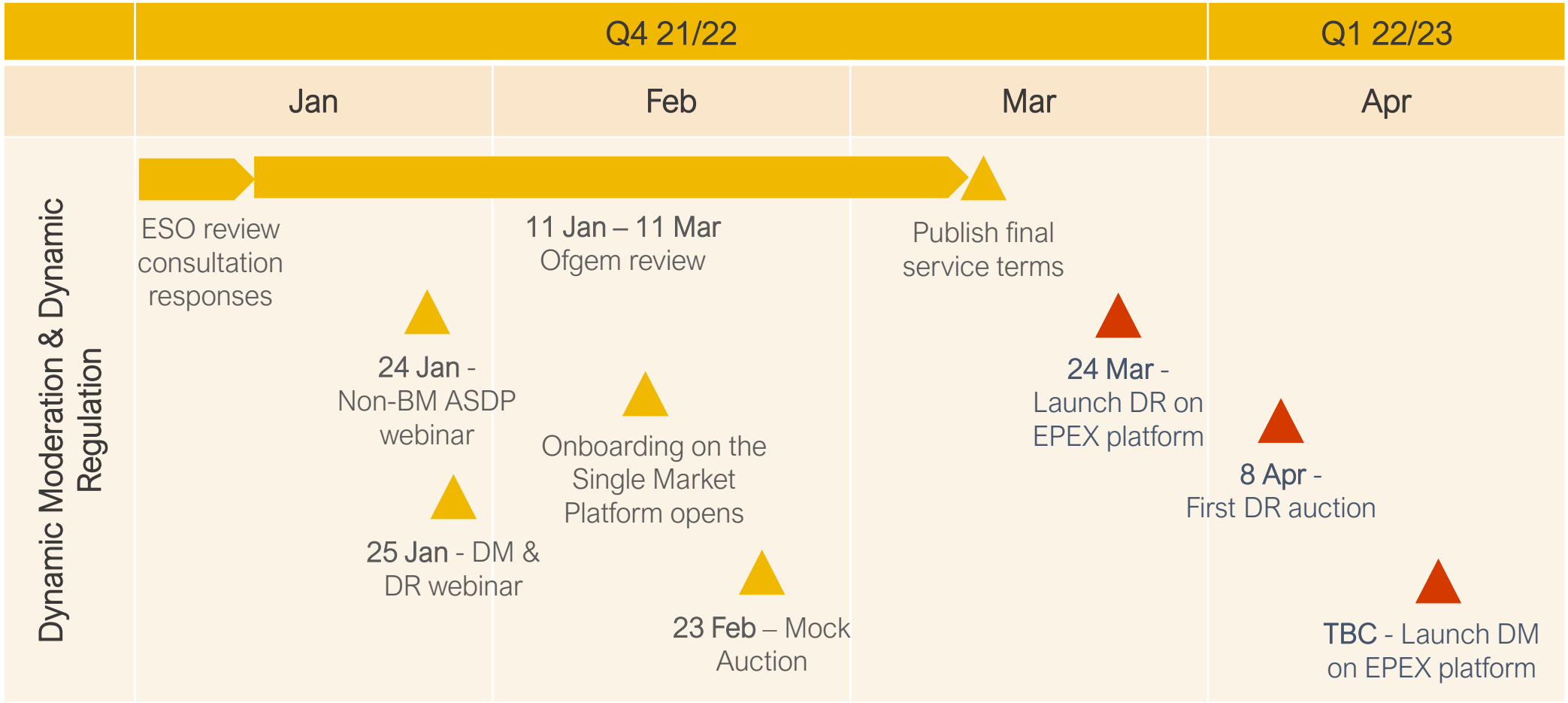
nationalgridESO

Agenda

1. DM & DR delivery plan
2. Consultation proposed changes
   - Overview
   - Testing
   - Performance Monitoring
3. Disarming/re-arming instructions
4. Market Information Report
5. Onboarding
6. Information Technology
7. Data concentrator for performance monitoring
8. EPEX
9. Settlements
10. Next steps
11. Q&A


DM & DR delivery plan

DM & DR delivery plan



Consultation proposed changes

Consultation proposed changes overview

- Energy limited definition – removed “or” in DM & DR Glossary
- Clarified the disarming/re-arming clause
- Clarified can stack DM or DR with Balancing Mechanism
- Clarified can use 20Hz for DR for performance metering
- Frequency measurement changed to 0.01Hz instead of 0.001Hz for DR
- Added Balancing Mechanism to Balancing Services Glossary
- Updates to SoE examples and illustrations
- Other minor clarifications to clauses

Documents coming soon:

- Stacking guidance
- LSFM guidance
- Symmetrical bids example

Testing

- Changes made in the consultation:
  - Changed tolerances (from 3 to 5%) in table 4 in DR Testing Guidelines
  - Added the section “Aggregation/test approach” to the DM Testing Guidelines to match DR

- **Administration changes**
  - Changed from 30 minutes to 60 minutes in Pass Criteria for Unit level in DR Testing Guidelines
  - Clarified graphs are for illustrative purposes only in DM and DR Testing Guidelines
  - Renamed Test 1 title in DR Testing Guidelines

Performance monitoring

Performance score calculation for DR

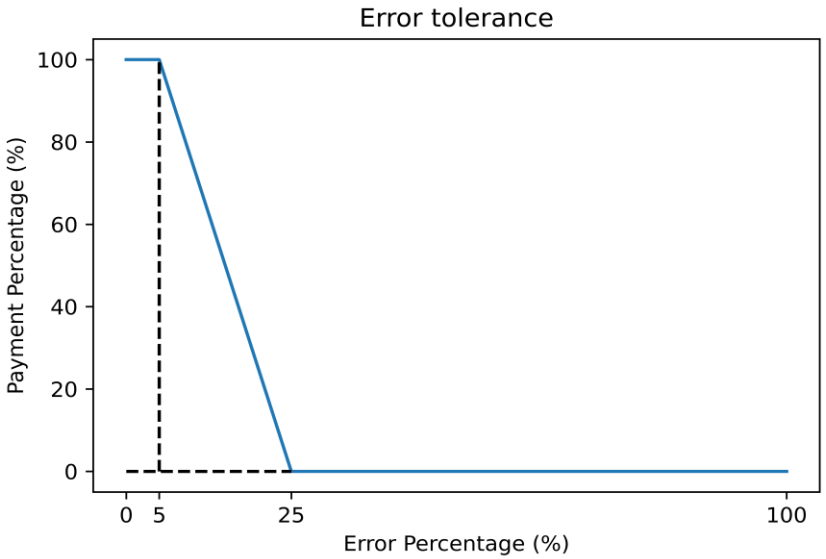
- **Error tolerance**

Error tolerance to 5-25%, i.e. full payment with error less than 5% error, full penalty with error greater than 25% error.

- **Error calculation: rolling window**

Calculation of rolling window to 2-second rolling minimum:

$$E = \max_{m} \left(\underset{\text{over 2 seconds}}{\text{rolling\_min}} \, es_m \right)$$

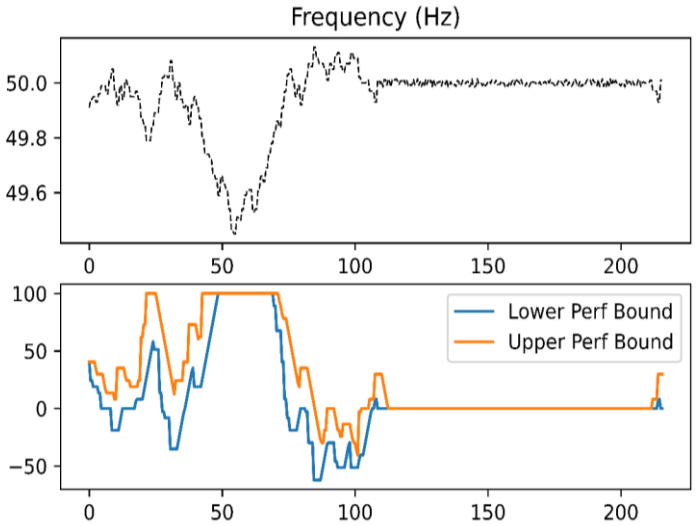


Performance monitoring

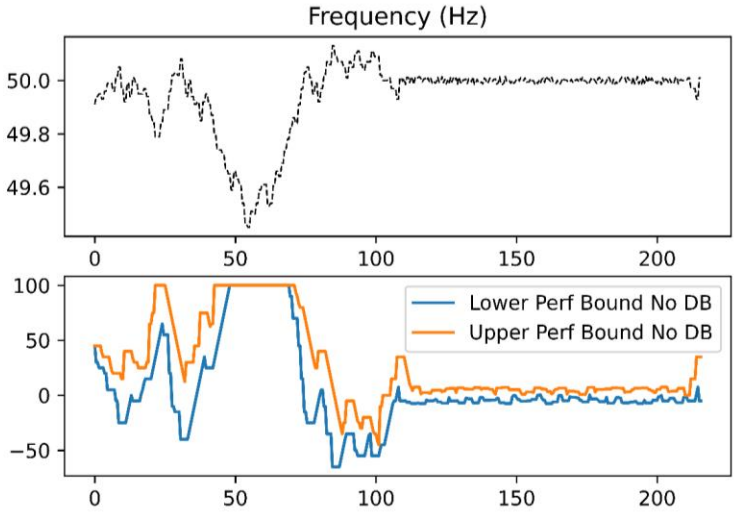
No response in deadband requirement for DR

- “A response Unit which is **not Energy Limited** may deviate from its Operational Baseline whilst System Frequency is within such “deadband” to the extent it is providing equivalent Mode A Frequency Response up to the Contracted Quantity”.

  The performance bounds without deadband will use the service curve of a straight line between -0.2 Hz (100% low response) and +0.2 Hz (100% high response).



Deadband

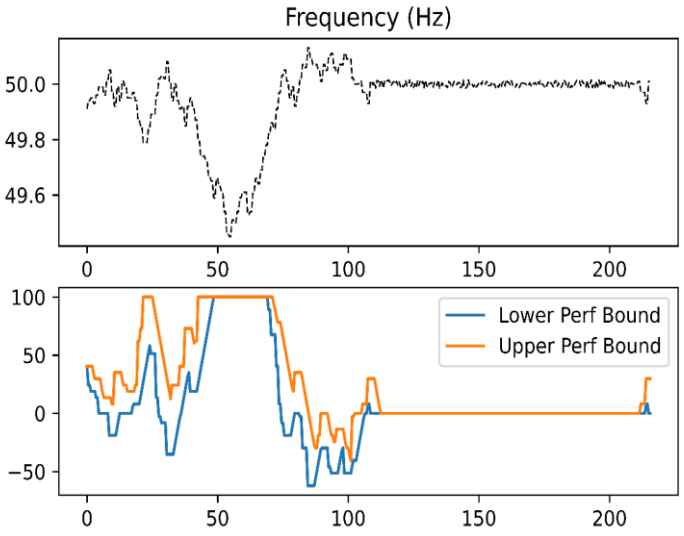


No deadband

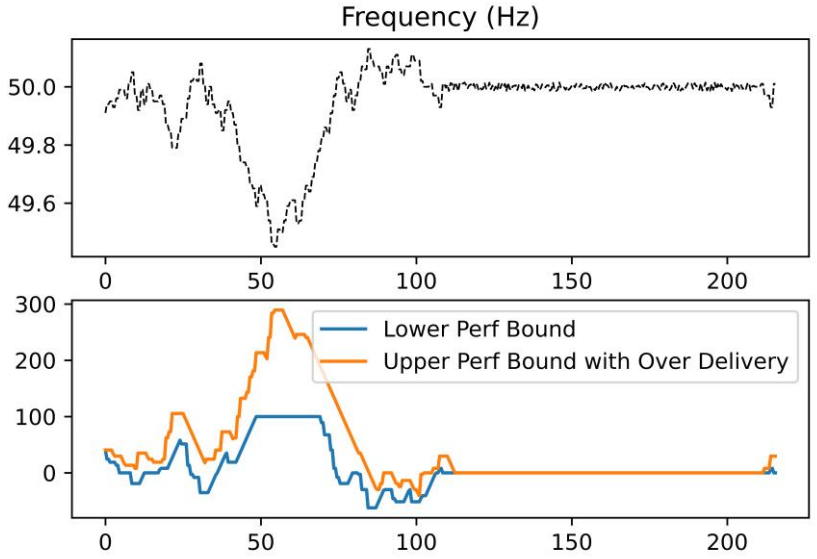
Performance monitoring

Over delivery after Operation limit for DR

- For the initial **three months**, performance monitoring error is also zero if the metered response falls between the saturation and the extended response slope when it should be saturated but frequency further deviates from +/- 0.2Hz.



Saturation



Overdelivery


Disarming/re-arming
instructions

Disarming/re-arming instructions

- One of our risk mitigations when launching new response services is the ability to stop the services if we see any system events. Using disarming instructions is more practical than phoning providers to request stopping the service

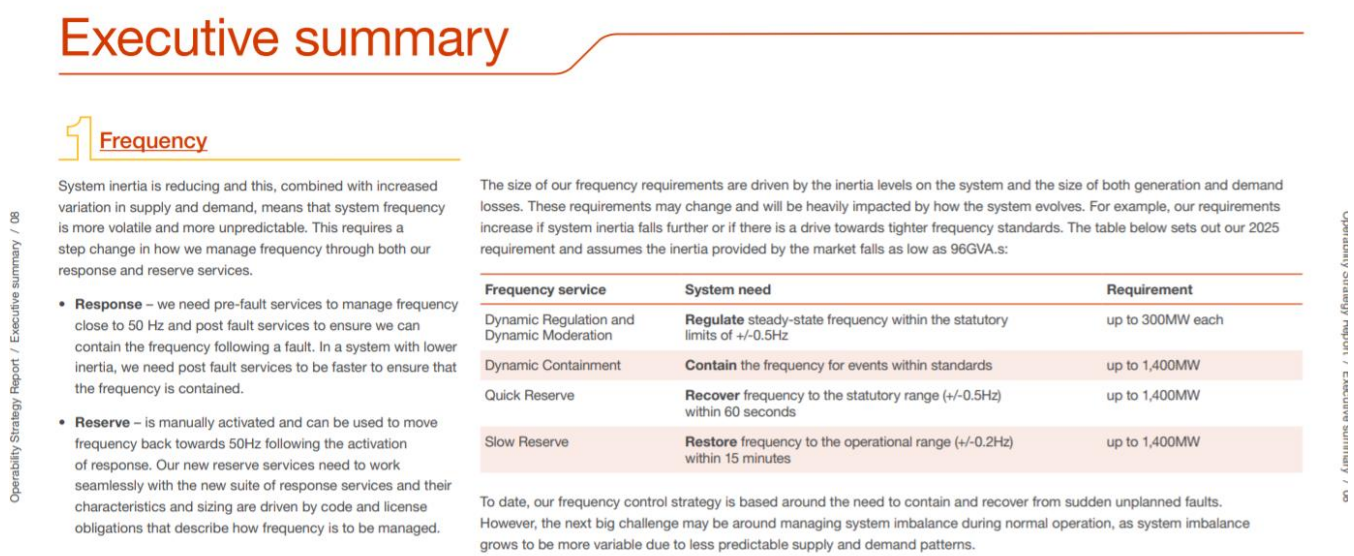
- For launch, will use disarming and re-arming instructions in the BM with existing codes:
  - “MO” will be used to disarm
  - “MFE” will be used as the cancellation of the disarm
  - "MN" will be used at the end of the contracted period to restore units to their normal uncontracted operating state

- In the future, will look to use new reason codes for the BM and Non-BM will use ASDP

Market Information Report

Market Information Report

- Volume requirements for DM and DR have been listed in the Operability Strategy Report (OSR) which was published earlier this month
- As we have stated in previous webinars, we will launch each service with 100MW requirement which will gradually grow to the levels stated in the OSR
- https://www.nationalgrideso.com/document/227081/download



Executive summary

1 Frequency

System inertia is reducing and this, combined with increased variation in supply and demand, means that system frequency is more volatile and more unpredictable. This requires a step change in how we manage frequency through both our response and reserve services.

- **Response** – we need pre-fault services to manage frequency close to 50 Hz and post fault services to ensure we can contain the frequency following a fault. In a system with lower inertia, we need post fault services to be faster to ensure that the frequency is contained.
- **Reserve** – is manually activated and can be used to move frequency back towards 50Hz following the activation of response. Our new reserve services need to work seamlessly with the new suite of response services and their characteristics and sizing are driven by code and license obligations that describe how frequency is to be managed.

The size of our frequency requirements are driven by the inertia levels on the system and the size of both generation and demand losses. These requirements may change and will be heavily impacted by how the system evolves. For example, our requirements increase if system inertia falls further or if there is a drive towards tighter frequency standards. The table below sets out our 2025 requirement and assumes the inertia provided by the market falls as low as 96GVA.s:

Frequency service	System need	Requirement
Dynamic Regulation and Dynamic Moderation	**Regulate** steady-state frequency within the statutory limits of +/-0.5Hz	up to 300MW each
Dynamic Containment	**Contain** the frequency for events within standards	up to 1,400MW
Quick Reserve	**Recover** frequency to the statutory range (+/-0.5Hz) within 60 seconds	up to 1,400MW
Slow Reserve	**Restore** frequency to the operational range (+/-0.2Hz) within 15 minutes	up to 1,400MW

To date, our frequency control strategy is based around the need to contain and recover from sudden unplanned faults. However, the next big challenge may be around managing system imbalance during normal operation, as system imbalance grows to be more variable due to less predictable supply and demand patterns.

Market Information Report

- Volume requirements for DC and FFR for March delivery will be published in the next Market Information Report (MIR) that is due to be published on 27 January. Links to the MIR can be found below

- We are currently working through the longer term frequency requirements which will include DM and DR services. We are looking to publish this this longer term view of requirements shortly after the next MIR

- The ESO stated last year that we would be publishing a rolling 4 day forecast for DC requirements. Due to some technical difficulties with implementation of this the roll out has been delayed, we are now looking at launching in the first quarter of 2022. This will be published in a machine readable format on the ESO Data Portal

- Links to the Market Information Report - https://data.nationalgrideso.com/ancillary-services/firm-frequency-response-market-information


Onboarding

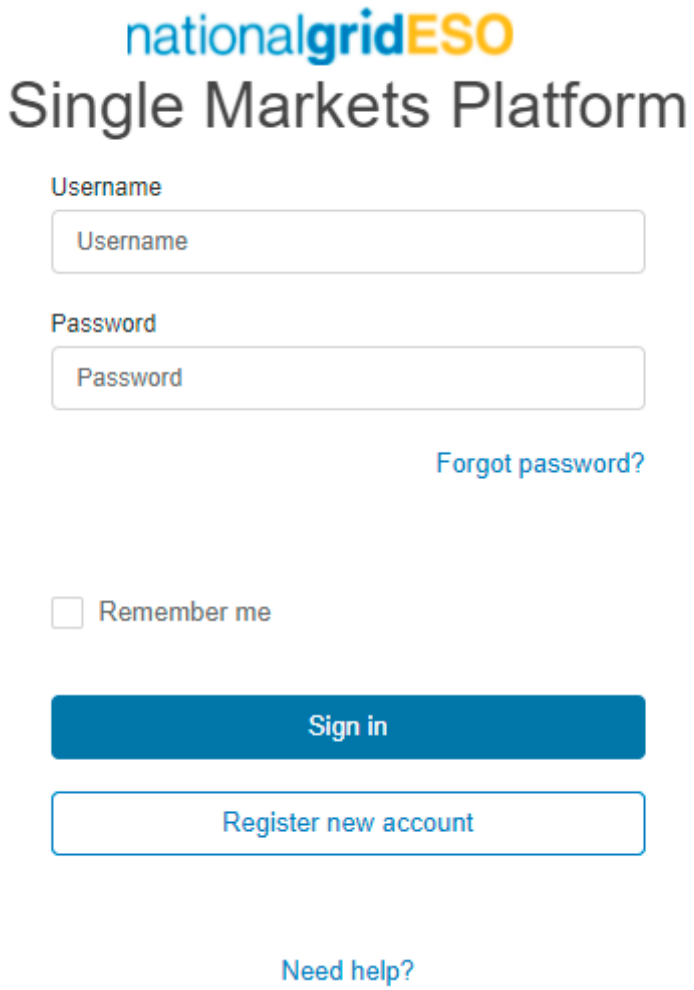
Onboarding

The new Dynamic Moderation and Dynamic Regulation service onboarding will be through the Single Market Platform (SMP) which is due to go live in early February

In addition to DM and DR onboarding we will be migrating DC onboarding to SMP

What is SMP?

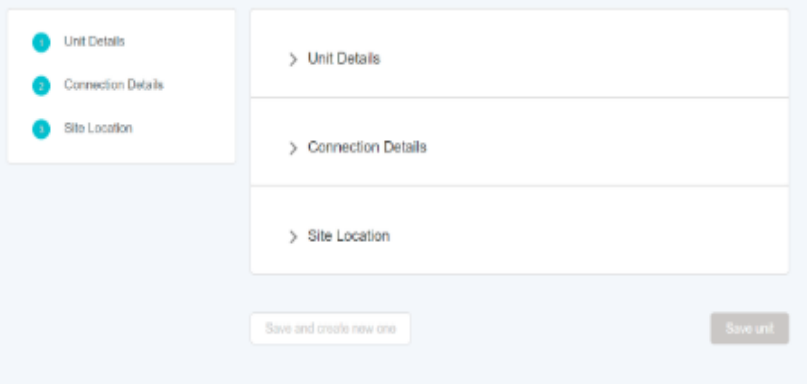
- The Single Markets Platform is currently focused on optimising across new and existing ESO markets with an initial focus on the onboarding processes in support of new and enduring day ahead response and reserve markets



Onboarding

SMP is a portal that the provider can log into action the following:

- Update provider/company details
- Register asset details at a high level – non operational level (location etc)
- Prequalify assets/Units at an operational service level



What will the onboarding process be like on SMP?

- The process in SMP will mirror the current manual onboarding process so will have a familiar feel to it, the main difference being that SMP is provider self service. This self service give providers ownership of their data result and more efficient online onboarding process. To aid the onboarding process on SMP, there will be training documentation, videos, drop in sessions and Account manager support available.

Onboarding

Key Changes

- Provider inputs details directly into SMP portal
- Anyone who expects to be named on a legal contract needs to set up an SMP account
- Registered assets and align to units
- Submit for pre qualification by service reusing high level asset details
- Download Terms and Conditions electronically
- Direct upload of prequalification evidence
- Electronic prequalification process
- For security, each account will require use of Authenticator to log into SMP

Signposts

- Next SMP show and listen on Thursday – a demo for the new system will be given in this session – detail can be found in FOB newsletter or contact FOB using the following link- box.futureofbalancingservices@nationalgrideso.com
- Drop in sessions are being held in the 10 & 11 February
- Provider user details - request has be sent out to providers for user detail


Information Technology

Information Technology

- The table below shows to the systems involved in the DM and DR services

	DM/DR launch
Registration	Single Market Platform*
Prequalification	Single Market Platform*
Bid/tenders	Manual submission to EPEX*
Availability/outage information	**BM** - Data Concentrator File API* **Non-BM** - ASDP API*
Disarming/re-arming instructions	**BM** - Existing Reason Codes **Non-BM** - N/A
Performance metering	**BM & Non-BM** - Data Concentrator File API* (format update to allow 2Hz** and 20Hz)

*Will also apply to DC providers, further information to be communicated shortly
**Performance metering for DR will be 2Hz, however we are implementing a transition phase, allowing 1Hz for the first 6 months


Data concentrator for
performance monitoring

Data concentrator for performance monitoring

- API Documentation will be sent upon submission of a completed proforma to National Grid ESO
- **CSV File templates:**
  - Performance Monitoring CSV File Format

    https://www.nationalgrideso.com/document/225776/download
  - Notification of Availability/Outage CSV File Format

    https://www.nationalgrideso.com/document/230491/download

Data concentrator for performance monitoring

- Data checks upon submission to the performance monitoring API:

Category	Error Description
File naming	Invalid file name. Not in expected format
	Filename contains invalid timestamp
	Filename timestamp is older than [X] hours
File structure	Invalid file size. Maximum allowed file size for import is 10 MB
	[Line ?][Column ?] Bad CSV data
Headers	[Line ?][Column ?] Failed to parse the headers
	[Line ?][Column ?] Invalid header count. Expected 8, actual [received count]
	[Line ?][Column ?] Missing [expected heading name]
	[Line ?][Column ?] Invalid heading. Expected [expected heading name]
Data contents	[Line ?][Column ?] Missing Unit ID
	[Line ?][Column ?] Unit ID does not match unit ID in filename
	[Line ?][Column ?] Timestamp is missing
	[Line ?][Column ?] Timestamp is incorrectly formatted
	[Line ?][Column ?] Timestamp is in the future (allowing 60 min tolerance)
	[Line ?][Column ?] Timestamp is older than 30 days ago
	[Line ?][Column ?] Missing value for [heading name]
	[Line ?][Column ?] Invalid value as cannot be parsed as double
	[Line ?][Column ?] Value for [heading name] is outside valid range of [min]-[max][units]
	[Line ?][Column ?] First timestamp is not at exactly start of performance hour
	[Line ?][Column ?] First timestamp does not match timestamp included in filename
	[Line ?][Column ?] File must not contain data covering an elapsed time period of more than 1 hour
	[Line ?][Column ?] File contained [count] data rows. Expected exactly 72000 data rows
	[Line ?][Column ?] Timestamp [timestamp] milliseconds are not exact multiple of 50ms
Catch-all	[Line ?][Column ?] Unexpected error occurred

- Please note that these error messages are constantly being revised with new ones being added or old ones getting deleted
- This mechanism acts as a complimentary alerting system. Providers continue to be responsible for the data quality they submit.

Data concentrator for performance monitoring

Performance Monitoring CSV File Format

- **Data re-submission:**

In case an erroneous file is submitted with any of the error categories, the provider has until 5th of the next month at 00:00:00 UTC to upload correct or amended data before it is considered final to over-write the incorrect data. Beyond this window the system would block any old data resubmitted.

- **Service unavailability:**

For any unavailability period declared in the performance monitoring CSV data, the associated rows with the unavailability should have 0 submitted as the “availability” field against the correct timestamp “t” and unit id “unit“.

If a file for a full hour is not submitted, the unit will be considered "Unavailable" for that full hour.


EPEX

Mock Auction plan

DM and DR will be procured on the EPEX platform in the same way as DC is currently done.

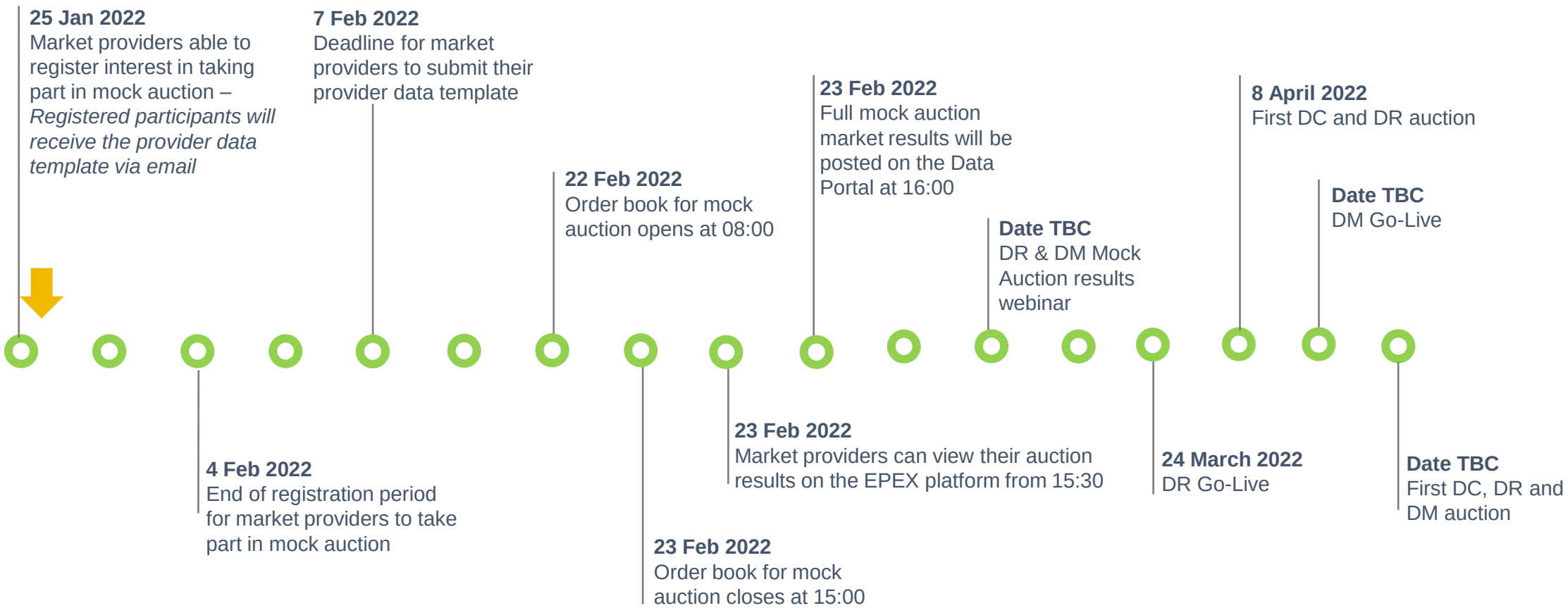
The purpose of the mock auction is to facilitate the incorporation of the new frequency response products (DM and DR) on the EPEX platform which plan to go-live on 24 March 2022.

The plan is to test features/activities that cannot be tested otherwise, train market participants and identify any issues before go-live. This mock auction can also act as training for NGESO and EPEX Market Operators and build confidence and transparency with market participants and the system. This familiarisation activity gives all parties an opportunity to practice their internal processes around data collection, file formatting and timeline structures.

For those participants that took part in the mock auction completed for DC back in August 2021, we will be following the same process.

- The mock auction will run on **Wednesday 23 February at 14:30**
- The mock auction guidance document and provider data template (PDT) to submit to NGESO will be provided once providers register their interest to take part in the mock auction

Mock Auction timeline



Provider data template

Registration for Mock Auction

We invite you to respond to Commercial.Operation@nationalgrideso.com by **17:00 Friday 4 February 2022** expressing your interest.

There is no formal template for your expression of interest. In your email, please use the subject title: **DM/DR Mock Auction - Agent/ Applicant name - Expression of Interest**.

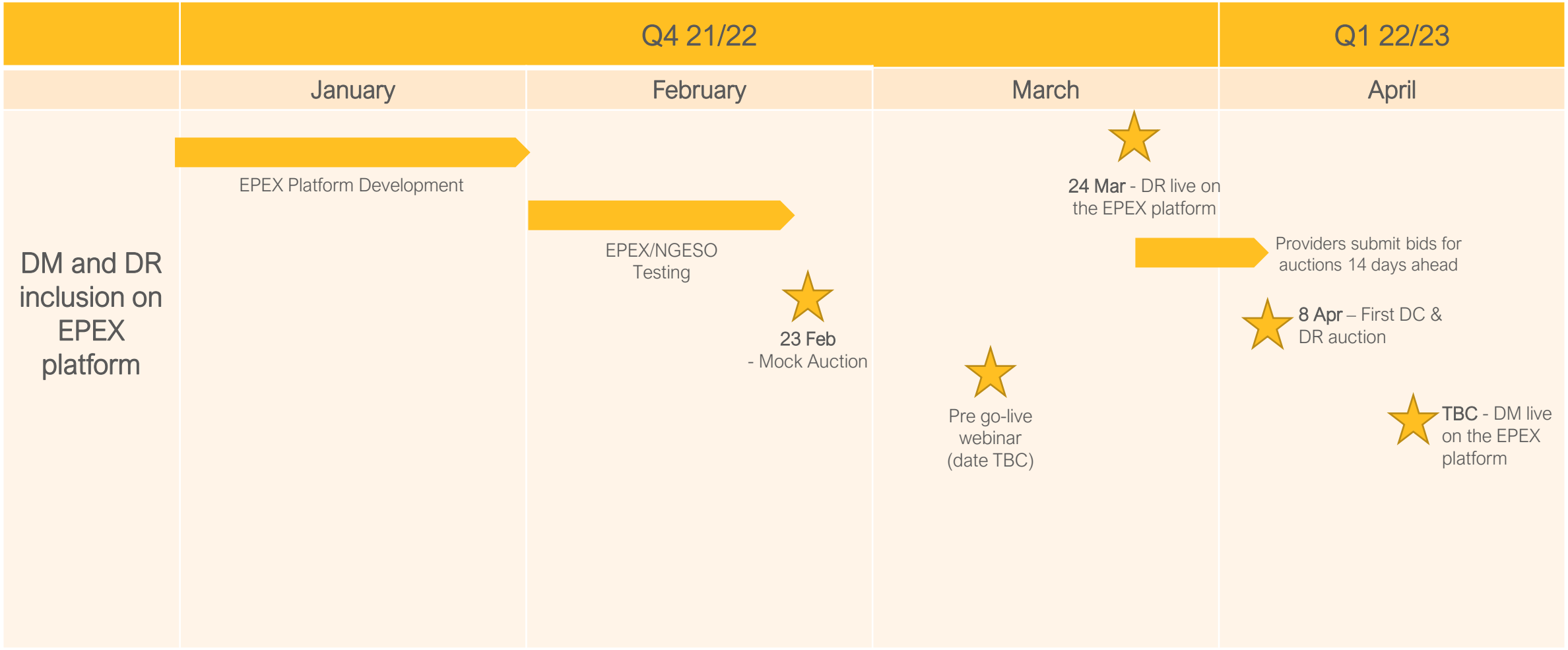
File Submission

The file participants need to submit to NGESO is the Provider Data Template. Please name the file as **[Provider Data Template - Agent/Applicant Name – DM/DR – 23.02.22]**

Please submit this files to Commercial.Operation@nationalgrideso.com and use the subject title: **DM/DR Mock Auction - Agent/Applicant Name - Provider Data Template Submission**

The deadlines for submission are: **12:00 Monday 7 February 2022**

Timeline of events




Settlements

Settlements - new provider set up

- *Allow **15 working days** for completion of the new provider payment setup process - this period is once all information supplied is correct and meets the requirements*

- **Completed "Ancillary Services – New Service Provider" form, on company headed pdf.** The form is available on the National Grid ESO website Settlement's page https://www.nationalgrideso.com/uk/electricity-transmission/industry-information/balancing-services/settlements/changes-and-disputes

- **Proof of bank details in a non-editable format, e.g. pdf or jpeg**

- The Settlements team will process the information and submit to the finance team

- The finance team will do complete additional bank detail validation following which payments can be made

- Additional guidance under FAQ: https://www.nationalgrideso.com/uk/electricity-transmission/industry-information/balancing-services/settlements/faqs

Settlements – payment timelines

Process	Timing
Preliminary Statements issued electronically	By 8th Business Day
Final Statements issued electronically	By 18th Business Day
Payment due date	By 21st Business Day


Next steps

Next steps

- **SMP webinar** – show and listen webinar on Thursday
- **ASDP webinar** – content and Q&A to be published on the website
- **Mock Auction dates**
  - **25 Jan** - providers able to register interest in taking part in mock auction
  - **4 Feb** - end of registration period for market providers to take part in mock auction
  - **7 Feb** - deadline for market providers to submit their provider data template
- If you have any questions or would like to arrange a 1-2-1, contact us: box.futureofbalancingservices@nationalgrideso.com
- **EBR Art. 18 Consultation** – Ofgem response due on 11 March

Q&A

Please submit your questions via Teams chat

If you have further questions or feedback, please send them to:
box.futureofbalancingservices@nationalgrideso.com

nationalgridESO