

System Needs and Product Strategy

Andrew Ford – Operability Strategy Manager



System Needs

Patrick Cassels – Senior Operability Strategy Analyst





The first release as part of our **Future of Balancing Services Ambition**.

It outlines our ambition to simplify balancing services, make our needs more transparent and make services accessible and fit for the future.

System Needs – 5 key requirements

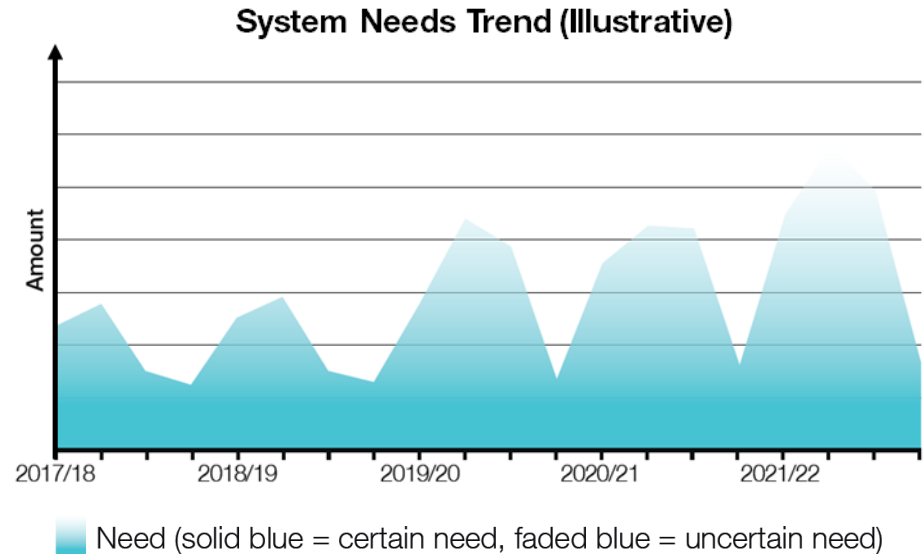
- Inertia and RoCoF (Rate of Change of Frequency)
- Frequency Response
- Reserve
- Reactive Power
- Black Start

Product Strategy Consultation – 3 stage process

- Rationalisation
- Simplification
- Improvement

Themes

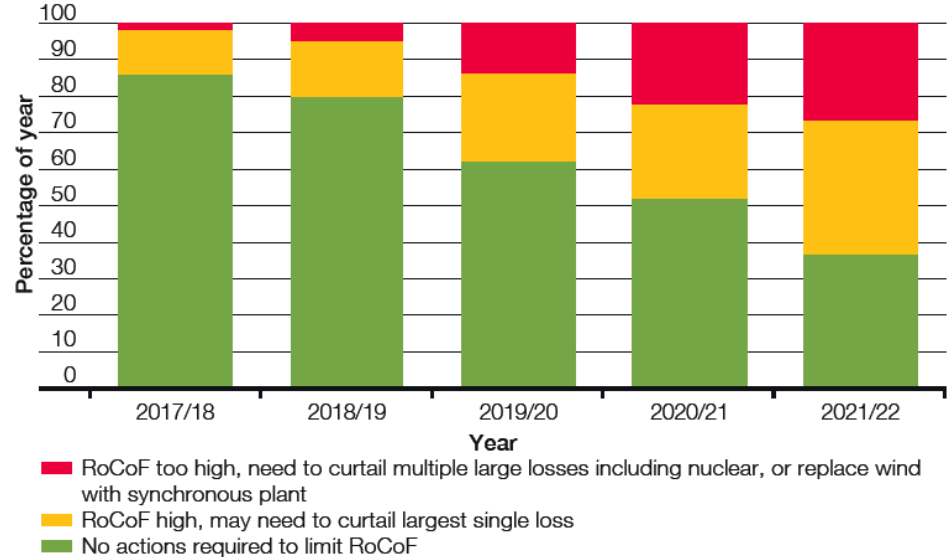
- Balancing services needs are generally increasing, with greater extremes and more volatility in requirement until closer to real-time
- There is an increasing requirement for flexibility
- Today, we contract ahead for firm needs and access real-time flexibility via trading and BM
- Providers of flexibility in the BM are less available than historically, which reduces our ability to meet system needs from existing BM providers alone
- Improvements are needed to facilitate access to real-time flexibility, that could historically be relied on from the BM



Inertia and RoCoF

- More inertia = lower RoCoF and vice versa
- Inertia is expected to continue to decrease
- RoCoF must be managed to avoid distributed generation protection relays from tripping
- Reducing the largest loss is currently the most economic and efficient solution
- We do not presently propose creating a standalone inertia product, though there may be scope to value inertia within other markets
- De-sensitising RoCoF relays will allow operation at a lower inertia level

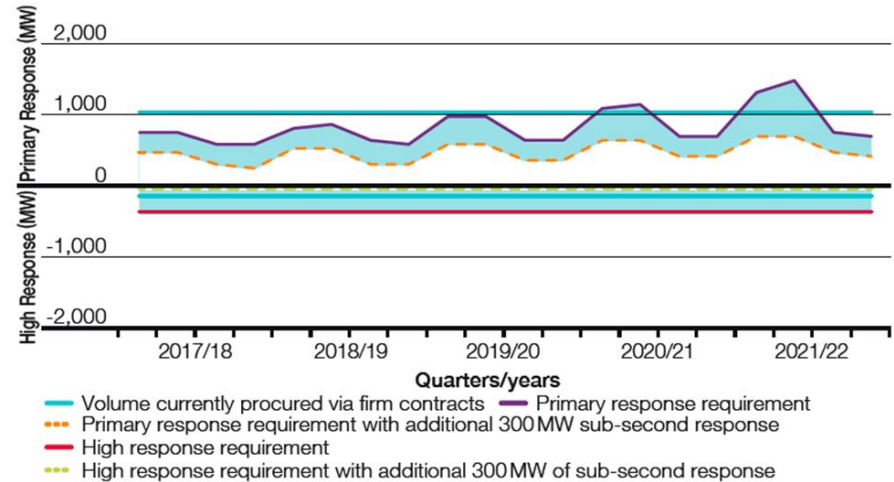
Five year RoCoF trajectory



Frequency Response

- The volume procured through the FFR market is set to remain stable, however the volume procured through the mandatory market for short-term volatile conditions will increase
- The number of providers in the mandatory market are set to decrease
- Faster-acting response can reduce the overall volume requirements
- A new response product is required which provides route to market for fast acting response and the flexibility that we need closer to real time

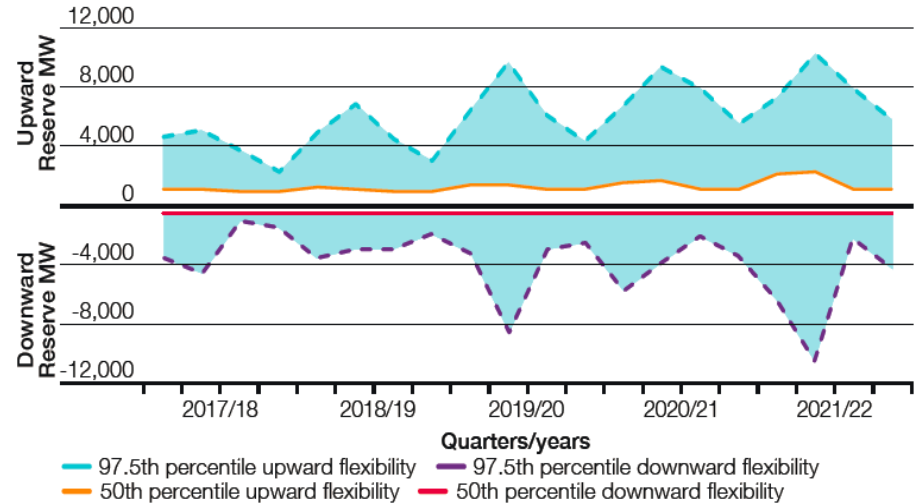
**Primary and high response requirements
(50th percentile, Consumer Power)**



Reserve

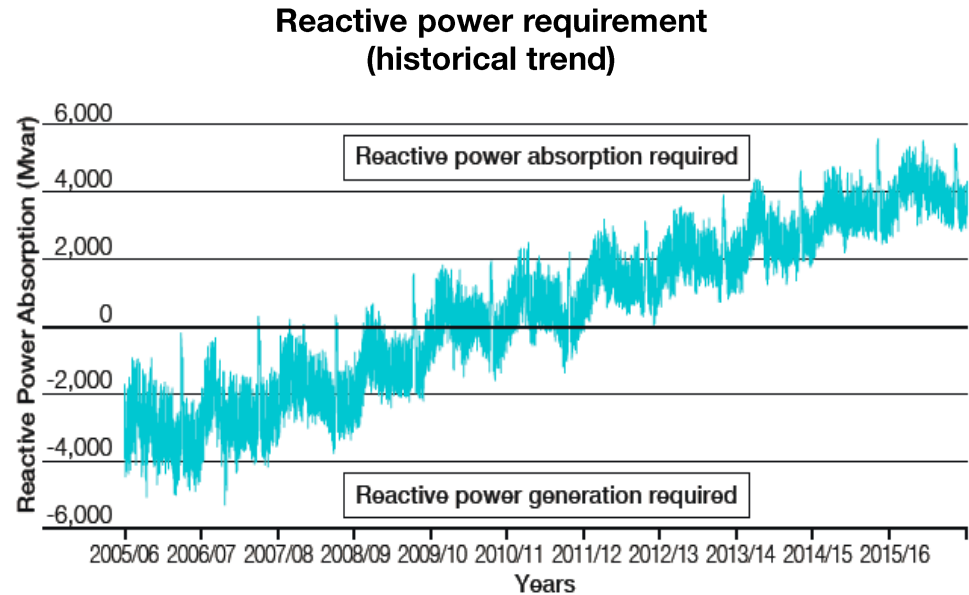
- Positive and negative reserve requirements are generally stable, although volatility increases
- The variable need only becomes clear closer to real time, and increases in line with response requirements
- Access to flexible plant in the BM is limited at low demands
- New reserve services must be developed to ensure:
 - Flexibility is available near real time
 - Market access for both BM and non-BM providers
 - Compatibility with pan-European reserve products

Range of upward and downward reserve required
(Consumer Power)



Reactive Power

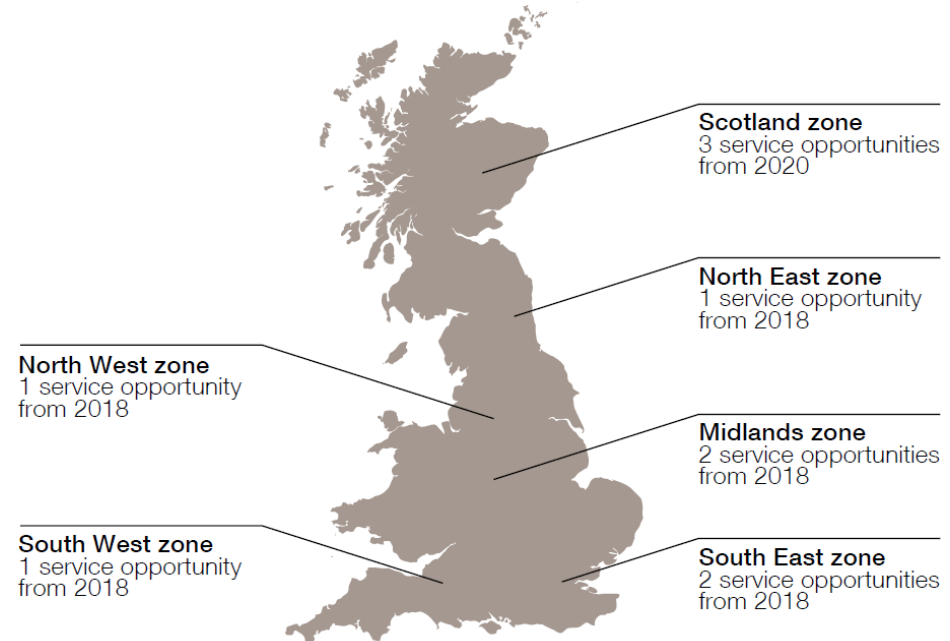
- Need is increasing substantially as a result of changing generation mix
- Existing markets do not properly value reactive capability
- There is no route to market for Distributed Energy Resources
- Markets will be designed to be more regional, potentially short term and with greater transparency of requirements
- We will trial access to the reactive capability of distribution-connected assets through Power Potential innovation project



Black Start

- The requirement for providers remains constant
- The current provider base is reducing
- Opportunities for new parties are available from 2018
- We are reviewing our strategy to better suit future generation backgrounds
- We are investigating new black start restoration strategies in the longer term to enable Distributed Energy Resource participation

Black Start service opportunities

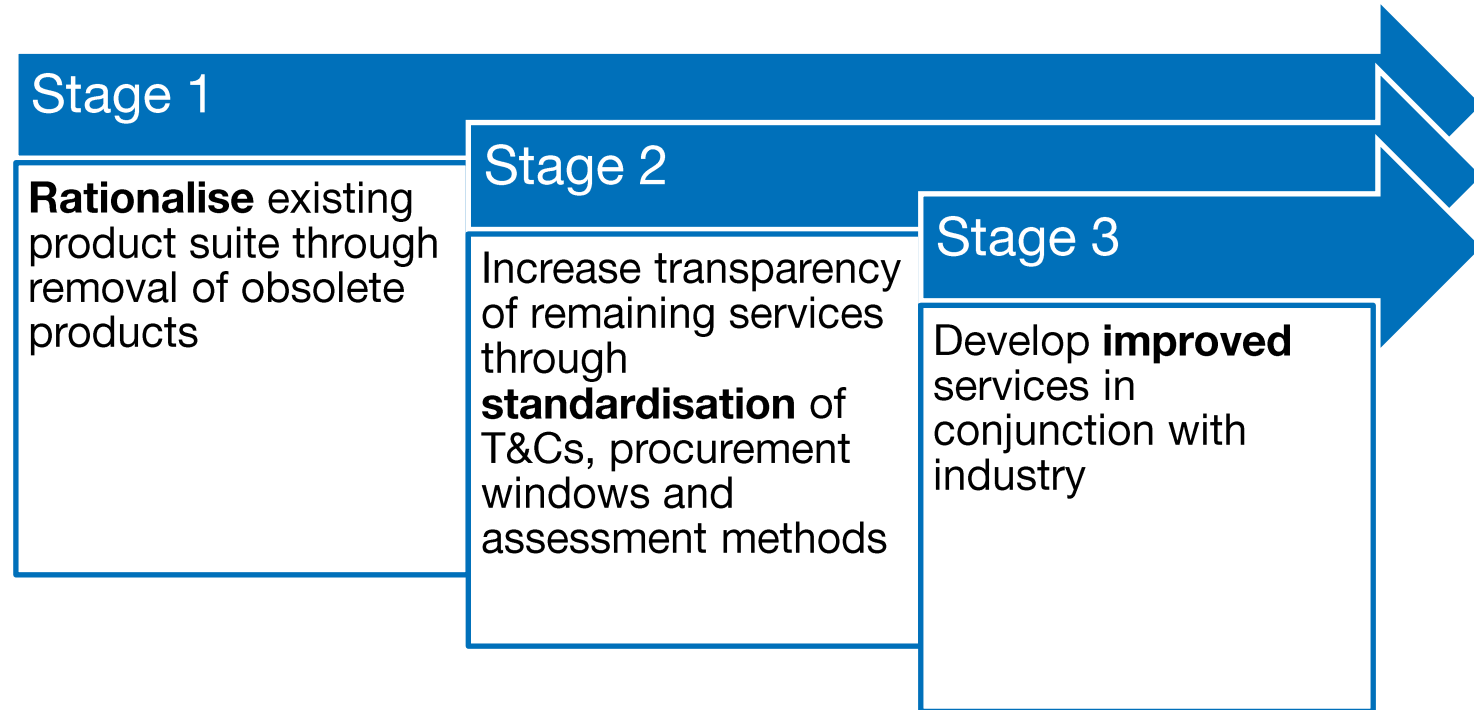


Product Strategy

Adam Sims – SO Flexibility Manager

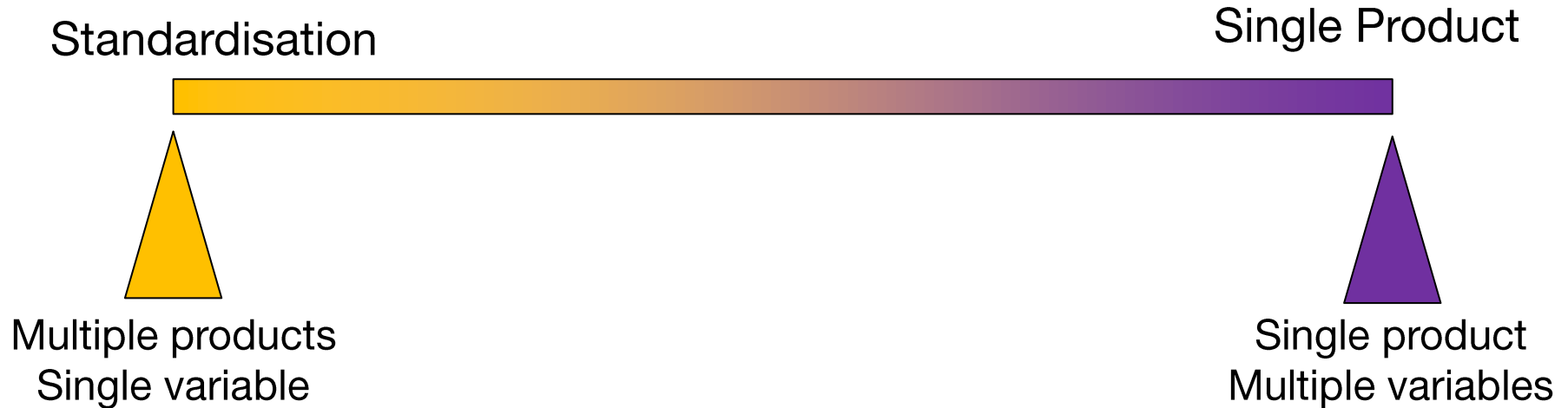


Simplification



Stage 3 - Improvement

- ◆ Where should ancillary services sit on this spectrum?



Stage 3 - Improvement

**Short Term
Price Signal**

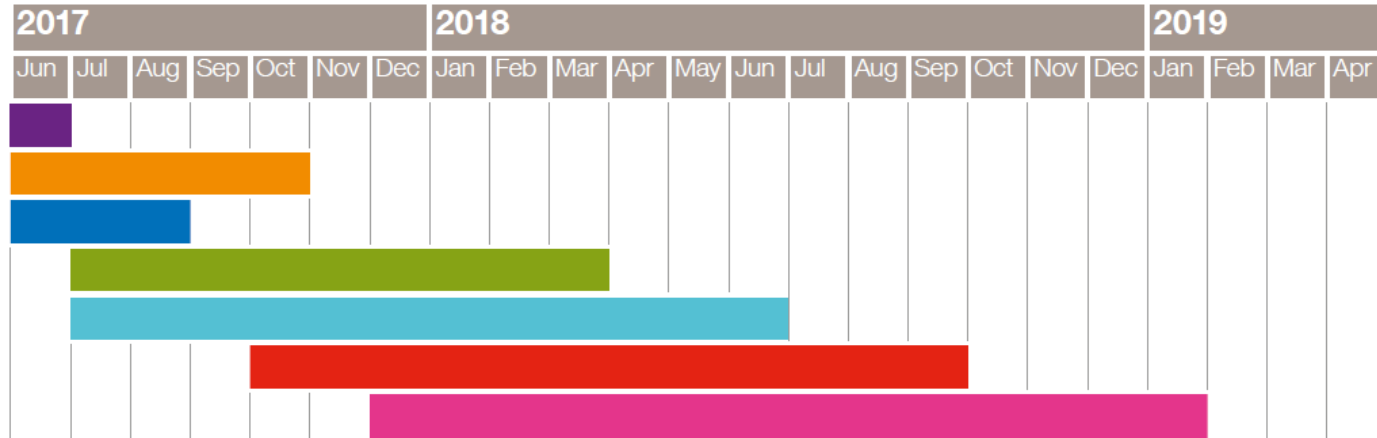


**Long Term
Contracts**

Consultation

- 5 week consultation window (responses by 18th July)
- Questions are listed in the end of the System Needs & Product Strategy report
- Website form used for responding via SurveyMonkey
- We will publish a summary of responses shortly after the window closes

Timeline for Key Work Areas



- Rationalisation ■ Standardisation ■ Improvement strategy
- Frequency response improvement ■ Reactive improvement
- Reserve improvement ■ Black start improvement

Continuing the Conversation

We welcome your questions via chat for the Q&A session.

Our consultation is open and we would be grateful for your responses.

Visit our new web page to find the consultation and full document:

www2.nationalgrid.com/futureofbalancingservices

Contact us via email:

futureofbalancingservices@nationalgrid.com

