ESO Forward Plan and Reform of Balancing Services

Rhiannon Marsh
Ancillary Services
Development Manager
...thinks across networks, plays a more active part in the energy system and helps to shape frameworks for markets ...transparent in our decisions and actions and promote increased use of markets...
...continue to run the electricity system safely, securely, sustainably and efficiently.

Our vision delivered through 4 roles

70+ deliverables across 7 principles
Principle 3: removing barriers and creating equitable markets for balancing services

- Frequency response and reserve
- Reactive Power
- Restoration/Black Start
- Wider access to the Balancing Mechanism
- Intermittent generation
- Provider experience
Frequency response and reserve

End of Forward Plan 18/19
Frequency response and reserve

Weekly frequency response auction trial
- Phase 1 – 25\textsuperscript{th} April 2019
- Phase 2 – September 2019

Low frequency static response service for Phase 1

For each Electricity Forward Agreement (EFA) block in the week (42x)

- **Sort**: Rank sell orders by price
- **Squeeze**: Determine if the marginal offer can be accepted
- **Slice**: Accept / Reject
- **Next EFA Block**
Reactive power

### Figure 0.1: Roadmap of actions

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Q3</td>
<td>Q4</td>
<td>H1</td>
<td>H2</td>
<td>H1</td>
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</tbody>
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- **Q3**
  - Raise a CUSC mod for removal of ERPS
  - Publish an invitation for Expressions of Interest for provision of Reactive Power service in South Wales

- **Q4**
  - Deliver changes to the MBSS to provide greater transparency of costs and actions
  - Work with network owners to design an approach for efficient Reactive Power flows between networks

- **H1**
  - Enhance Reactive Power Service
  - Work with industry to determine the future role for Reactive Power and design more competitive commercial services

- **H2**
  - Obligatory Reactive Power Service
  - Roll-out of new approach to Reactive Power services

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*This is an agile project which will retain flexibility on which features to deliver and in which order, depending on service priorities and technical considerations.*
# Reactive – Future Work

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicate reactive power requirements &amp; historic spend</td>
<td>Per region, to be clear about what we need in short, medium and long term and confidence levels of requirements, alongside historic voltage costs to increase transparency of spend on voltage actions.</td>
<td>Q2 2019-20</td>
</tr>
<tr>
<td>Implement approach for efficient reactive power flows between networks</td>
<td>Having worked with network owners to design a whole system approach to managing reactive power flows between networks, implement that approach.</td>
<td>Q2 2020-21</td>
</tr>
<tr>
<td>Work with industry to determine future role for reactive power and design more competitive reactive power services</td>
<td>Industry engagement through webinars, consultations and workshops as appropriate, to explore options to improve reactive power services and refines these to arrive at an approach that can be implemented.</td>
<td>Q4 2018-19 – Q2 2020-21</td>
</tr>
<tr>
<td>Commence implementation plan to enable rollout new approach to competitive reactive power services</td>
<td>Improved reactive power service that promotes competition where possible and enables economic and efficient procurement.</td>
<td>Q3 2020-21</td>
</tr>
<tr>
<td>Power Potential trial with UK Power Networks (UKPN)</td>
<td>Innovation project in partnership with UKPN aiming to create a new reactive power market for DER and generate additional capacity on the network.</td>
<td>Q2 – Q4 2019-20</td>
</tr>
<tr>
<td>Review learning from Power Potential</td>
<td>Learnings to inform whether to procure reactive power services from DER and if so, how to do so in partnership with DNOs.</td>
<td>Q4 2019-20</td>
</tr>
</tbody>
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## Restoration

**EOI Launched**

1st Feb 2019

**NIA/NIC Approved**

- **2018/19**
  - **Q2**: Work with industry on provision from new technologies, and on use of new restoration approaches (e.g., whole electricity system approaches)
  - **Q3**: Improve metrics to provide more transparency on costs and capacity requirements
  - **Q4**: Develop a combined services methodology and contract structure

- **2019/20**
  - **H1**: Develop and evolve a market approach for Black Start procurement
  - **H2**: Trial of market approach for Black Start procurement in one region*

- **2020/21**
  - **H1**: NIA/NIC Approved
  - **H2**: EOI Launched

- **2021/22**
  - **All year**:
Wider access the Balancing Mechanism (BM)
## Intermittent Generation

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<tr>
<td>Raise code modification to apply Power Available consistently across technical &amp; commercial codes</td>
<td>Power Available, Maximum Export Limit (MEL) and De-Load need consistent application across technical and commercial codes to facilitate accurate settlement and imbalance reporting</td>
<td>Q1 2019-20</td>
</tr>
<tr>
<td>Publish Power Park Module signal best practice guide</td>
<td>Functional description of best practise for Power Park Modules submitting Power Available to supplement technical codes</td>
<td>Q2 2019-20</td>
</tr>
<tr>
<td>Deliver Power Available integration phase 1</td>
<td>Integration of Power Available into energy calculations to improve control room visibility of Power Park Modules returning from BOAs and high-wind shutdown</td>
<td>Q3 2019-20</td>
</tr>
<tr>
<td>Publish wider strategy on flexibility from intermittent generation</td>
<td>Long-term vision and next steps for increasing flexibility from intermittent generation</td>
<td>Q4 2019-20</td>
</tr>
<tr>
<td>Deliver Power Available integration phase 2a</td>
<td>Integrate Power Available into settlement and real-time response calculations to facilitate use of wind units for Mandatory Frequency Response (MFR)</td>
<td>Q4 2019-20</td>
</tr>
<tr>
<td>Deliver Power Available integration phase 2b</td>
<td>Improve wind forecasting and response optimisation by blending Power Available with wind forecasts close to real-time.</td>
<td>Q3 2020-21</td>
</tr>
</tbody>
</table>
Provider experience

What we set out to achieve – being a better buyer

- Deliver a great provider experience for a diverse set of businesses
- Make it easier for National Grid ESO as the buyer and providers as the seller, while reducing balancing costs, fostering innovation and competition

Understand the end to end experience for providers and how we can improve it

- Mapped end-to-end experience
- Engagement with colleagues and providers to provide insights

Deliverables align to ESO Forward Plan incentives
Provider experience - key deliverables from insights

Balancing Services Guide ✔
  • One stop shop, signposting

Open innovation environment ✔
Feedback at key moments of the Provider Journey
  • Onboarding ✔ - continue to refine
  • Tendering ✔ - continue to refine
  • Contract start – under development June 2019
  • Query management – under development June 2019

Calendar of events ✔

Future work:
  • Provider portal
  • Ongoing surveying to inform performance benchmarks
How to stay informed and provide your views

There are a number of ways you can keep up to date on the progress we’re making on the reform of balancing service and Principle 3 activities.

The latest developments are signposted through:

• **ESO incentives performance website** – progress reporting on a monthly, quarterly and six-monthly basis
• The **Future of Balancing Services website** – including our monthly newsletter published on the site
• The **Future of Balancing Services mailing list** – you can subscribe via the Future of Balancing Services website
• The **Six Month Operability Report** – one of our ESO Forward Plan commitments, highlighting the challenges we face in maintaining an operable electricity system