

**ESO RIIO-2 Business Plan – Annex 3**  
**Stakeholder report**

9 December 2019

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## Contents

Introduction .....	2
1. A plan informed by our stakeholders .....	3
2. Our independent stakeholder group.....	18
3. RIIO-2 Challenge Group .....	99
4. A summary of our engagement activity – who and how .....	128
5. How stakeholder feedback has shaped our plan.....	158
5.1 Regulatory Framework.....	158
5.2 The changing energy landscape: scenarios.....	167
5.3 Theme 1: Ensure reliable, secure system operation to deliver electricity when consumers need it .....	172
5.4 Theme 2: Transforming participation in smart and sustainable markets.....	186
5.5 Theme 3: Unlocking consumer value through competition.....	219
5.6 Theme 4: Driving towards a sustainable whole energy future .....	232
5.7 Digitalisation and open data unlocking zero carbon system operation and markets....	263
5.8 Cost-benefit analysis.....	269
5.9 Technology underpinning our ambition.....	274
5.10 Driving focus on customers and stakeholders .....	281
5.11 People, culture and capability .....	282
5.12 Metrics and measuring performance.....	283
6. Stakeholder list.....	292

## Introduction

As we embark on this unprecedented opportunity to develop a new regulatory framework and business plan for the ESO, we need the insight and support of our customers and stakeholders so we can make sure that we focus on the right areas. Our plan must reflect stakeholders' needs and ultimately drive value for consumers. Our stakeholders have played a vital role in the production of the Business Plan.

In the Business Plan, chapter 2 - A informed by our stakeholders, explains our overall stakeholder engagement strategy. The content from that chapter has been reproduced and expanded upon here, to allow you to read this Stakeholder report without referring back to the main Business Plan. In each chapter of the Business Plan, we have specifically demonstrated how stakeholder feedback and our understanding of consumers' needs now and in the future has helped shape our proposals.

This Stakeholder report provides more comprehensive details on our engagement approach and stakeholder feedback we have received in support or challenge of our proposals in the main document. This report summarises the discussions we had at the various engagement events where we took detailed notes when talking with stakeholders.

We have organised this report into five sections:

1. **A plan informed by our stakeholders** – This details our approach to engagement and how we have understood a broad range of views from across industry and from end consumers. It is largely a repeat of the what is within the main document.
2. **Our independent ESO RIIO-2 Stakeholder Group** – This details the set-up of our stakeholder group and Chair, the role of the group and how their feedback has helped shape the development of our Business Plan.
3. **RIIO-2 Challenge Group** – This provides further information on our interactions with Ofgem's RIIO-2 Challenge Group, including what information we presented and submitted, the Challenge Group's feedback and how that has shaped our plan.
4. **A summary of our engagement activity** – This details the different types of channels we have used for engagement, the topics they covered and the representation of different stakeholder groups at each interaction.
5. **How stakeholder feedback has shaped our plan** – This provides a detailed summary of stakeholder feedback we have received in developing our plan, structured by topic, channel, the feedback we received and how it shaped our plan. Summaries of this feature in the main Business Plan document.

## 1. A plan informed by our stakeholders

### 1.1 The importance of stakeholder views

In this report, we set out what we have learnt from our engagement, and how we have structured our stakeholder engagement programme. The ESO continuously engages stakeholders and our RIIO-2 specific engagement is a natural extension of this. The summary of how stakeholders' views have shaped our proposals can be found in the main Theme chapters 4 to 8, in part 2 of the Business Plan, however further details by Theme and activities are all recorded in this supplementary Stakeholder report.

In the creation of this plan we have used stakeholder and consumer insight from a variety of sources, including:

- academic research
- webinars
- workshops
- bilateral meetings
- surveys
- consumer research

Alongside all these activities we have also, where possible, sought to use existing engagement channels in place across the ESO and utilise this stakeholder insight in the development of our plans such as Power Responsive and the *Future Energy Scenarios (FES)*<sup>1</sup>. Over 600 individual stakeholders were consulted as part of the *FES* engagements in 2019. Their views on the future of energy and the constructive challenge they provide in developing the *FES* are critical to understanding the landscape we will be operating in and therefore the activities we propose.

The engagement activities we have carried out during the development of our Business Plan are all set out in figure 1 on the next page.

We have also embraced an enhanced engagement approach through the introduction of our ESO RIIO-2 Stakeholder Group (ERSG). Comprising members from across the industry, its role was to scrutinise the production of our plan and how effective we have been at engaging stakeholders. The group will submit a report to Ofgem that sets out their views on our engagement activity and the development of our Business Plan, which will be published on our website by 23 December 2019<sup>2</sup>.

#### Our engagement objective

We are committed to working with our customers and stakeholders to help shape the future of the energy market and understand how best the ESO can deliver value for our customers and consumers. Through enhanced stakeholder engagement we will be able to create a plan that reflects their needs.

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<sup>1</sup> <http://fes.nationalgrid.com/>

<sup>2</sup> <https://www.nationalgrideso.com/about-us/business-planning-riio/ESO-RIIO-2-Stakeholder-Group>



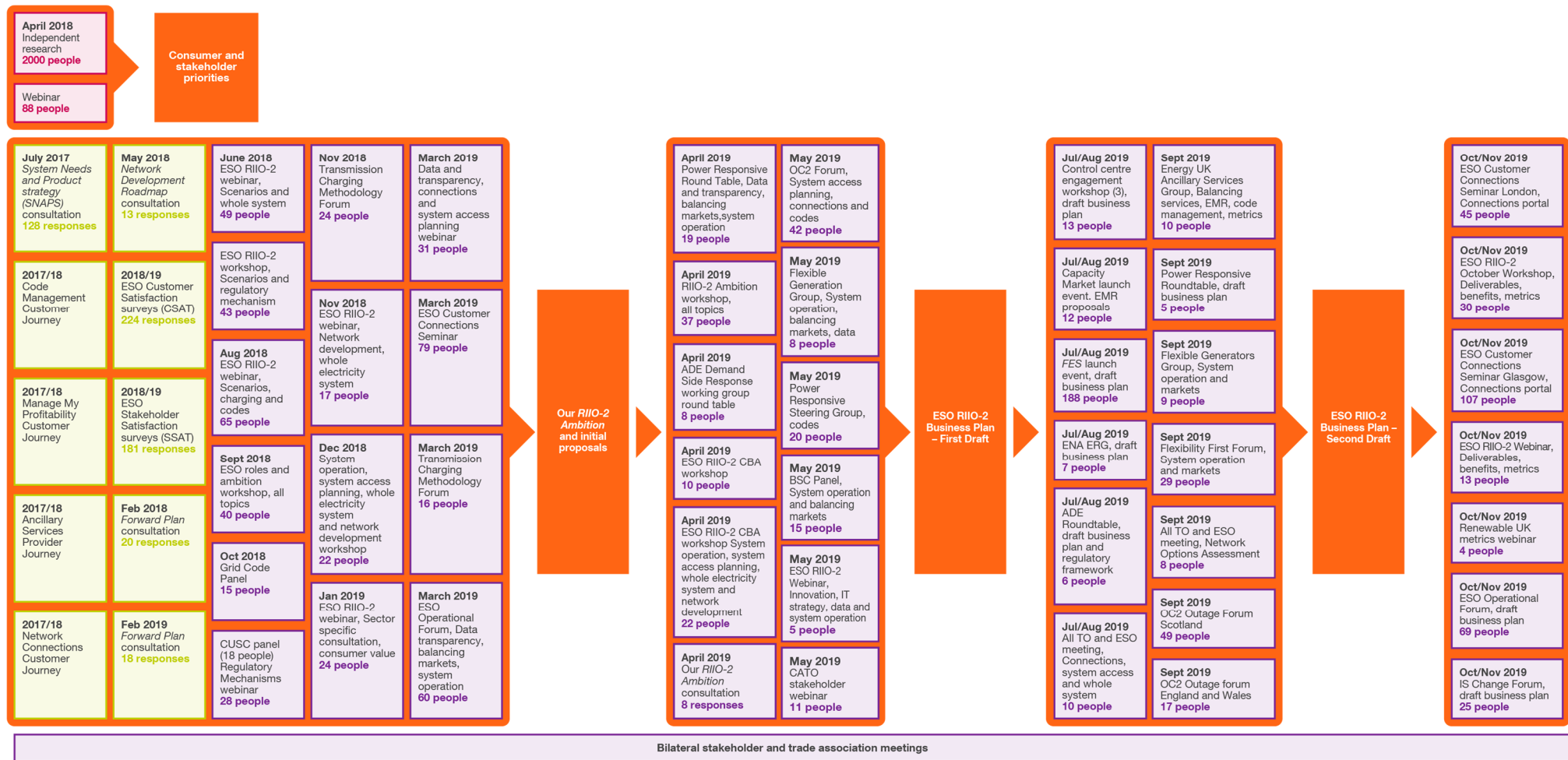


Figure 1 Stakeholder engagement overview<sup>3</sup>

<sup>3</sup> Please increase page zoom to 200 per cent to view this diagram  
ESO RIIIO-2 Annex 3 - Stakeholder report 9 December 2019 4

### 1.1.1 Engagement key themes

Feedback from stakeholders has encouraged, supported, challenged and guided us towards our ambitious Business Plan. Similarly, the broad knowledge and experience of ERSG has created an environment of robust challenge and strong support to elevate the level of ambition in our plan. This builds on our current role and capabilities to reflect the evolving role we can play as system operator in the future.

We have received a lot of support for the level of ambition we have put forward in our Business Plan. ERSG in particular has been positive about it and this has also been supported by a range of stakeholders beyond the group.

The main points we have learnt through our stakeholder engagement are that we need to:

- be ambitious and proactive, creating benefits for consumers and delivering a high-quality service in all that we do
- set ourselves up strongly to deliver against the plan, including establishing the culture needed to deliver the proposals through all levels of the organisation
- adopt a principle of open data to help facilitate transparent and efficient markets
- transform our engagement approach to involve stakeholders throughout RIIO-2 in the development and execution of our major deliverables
- be mindful of how our proposals are dependent on wider industry change initiatives
- work closely with Transmission Owners (TOs) and Distribution Network Operators (DNOs) to ensure a joined-up experience for market participants and connection customers across transmission and distribution
- make sure our funding model drives us to be ambitious and enables us to respond flexibly to new challenges as they arise, with strong incentives to deliver benefits for consumers over and above our day-to-day role
- be transparent on our shared services costs and how they have been calculated.

As a result of stakeholder feedback, we have developed our Business Plan to:

- provide clarity on the intention of our ambition on operating a carbon free electricity system and which activities contribute to its delivery
- better understand consumer views on the future energy system and show how our plan aligns to their priorities
- talk more holistically about ongoing activities, enhancements to them during the RIIO-2 period and transformational activities to help with understanding of our Business Plan
- refine and expand the cost-benefit analysis and how we explain both the costs and benefits in the Business Plan
- include investment roadmaps to achieve our ambitions, including setting out those actions that will be taken forward during the remainder of the RIIO-1 period
- take an agile, modular approach to developing our new balancing and control capabilities, including building them offline



**Strongly welcome the ESO's efforts to put forward an ambitious plan that sets clear goals and reflects stakeholder feedback.**

**Trade association**

- clarify how we will work with universities to secure an increased pool of appropriate resources
- make participation in our markets easier through delivering a single integrated platform for both balancing service markets and the Capacity Market (D4.4.1)
- remove our proposal to take on responsibility for the Capacity Market Rules
- clarify our proposed role in relation to leading the debate in Theme 4
- adopt a principle of open data – committing to sharing our data (in machine readable format) whilst ensuring that we are protecting data confidentiality and security
- transform engagement in delivering all our IT capabilities through fully involving stakeholders in their development through a design authority
- understand how our people, capability and culture need to change and have identified what we are going to do to manage this transition.

Stakeholder feedback has also helped us develop a funding model proposal that will enable the ESO to be a financeable, sustainable company that is forward-looking, ambitious and agile.

We set out more detailed changes throughout the Business Plan and the feedback that has informed this Stakeholder report.

## 1.2 Our stakeholder engagement strategy

Our stakeholder engagement strategy takes a dynamic approach. It includes continuous feedback, which enables us to develop and refine our thinking into the prioritised activities that feature in our Business Plan. We are inclusive in our engagement approach and work with a broad range of stakeholders of different sizes and across a number of sectors. We have evolved our engagement strategy to an ‘always on’ approach that removes linear time driven barriers and adopts a permanent invitation to engage.

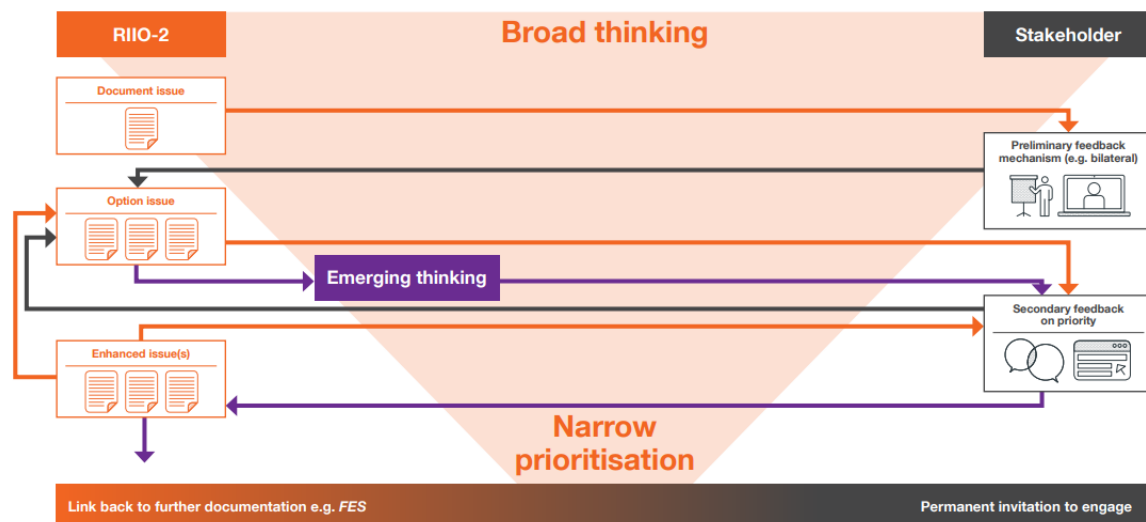


Figure 2: RIIO-2 stakeholder engagement strategy<sup>4</sup>

We seek to use the principles of the AA1000 Stakeholder Engagement Standard in our engagement approach to establish a benchmark. It means that we plan, prepare, implement

<sup>4</sup> Please increase page zoom to 200 per cent to view this diagram

and improve engagement activity, to ensure that we maximise the value of our engagement and be respectful of stakeholders' time. We are not accredited to the standard, so have not assessed our performance against it.

Instead, we commissioned an independent review of our stakeholder engagement approach in the first half of 2019 to make sure we were taking a best practice approach in developing our Business Plan. The review was positive, based on stakeholder feedback and comparison with best practice organisations. Some enhancements to evolve our approach were recommended, many of which we have taken forward as we developed our Business Plan.



**[ESO] RIIO-2 is leading the pack in terms of proactive engagement. Process isn't finished but so far, so good. Generator/supplier**

### 1.2.1 Enhanced stakeholder engagement

The RIIO-2 enhanced engagement approach involved the establishment of an independent stakeholder group to provide challenge on and input to our Business Plan proposals. In addition, Ofgem has formed a RIIO-2 Challenge Group to independently assess business plan proposals across sectors and to provide challenge on Ofgem's regulatory approach. More information on our independent stakeholder group is in section 2 of this report.

## 1.3 Dynamic engagement through the Business Plan process

We have taken an approach of continuous story creation, which fall into three broad areas – broad thinking, developing our proposals and testing our proposals. These are described in more detail below and are reflected in the structure of this report.

### 1.3.1 Broad thinking

We started the RIIO-2 process by looking to really understand what stakeholders wanted from the ESO and also what consumers' priorities were for the future energy system. These have changed throughout the process based on feedback received, although they remain the fundamental cornerstone of our plan.

To create the consumer and stakeholder priorities in figure 3, we commissioned an independent research study, reaching stakeholders, Members of Parliament and 2,000 members of the public. We also brought together the outputs of our day-to-day engagement activities from across the ESO and created additional activities as part of a coordinated programme of engagement for RIIO-2 to test and refine these priorities.

This included regular direct conversations, and an online stakeholder webinar with 88 attendees



Figure 3: Our consumer and stakeholder priorities

from 68 organisations. We further refined the priorities based on feedback from ERSG.

You can find out more about how they were created on our website<sup>5</sup>.

Our consumer and stakeholder priorities are used throughout the Business Plan to assess how our activities will deliver value. In part 2 - our proposal Theme chapters, 4 to 8, we have highlighted which consumer and stakeholder priorities are supported by our activities.

Our Consumer priorities align to the types of benefits we will deliver:

- We want an affordable energy bill is aligned to Lower bills than otherwise the case
- We want a decarbonised energy system, fit for the future is aligned to Reduced environmental damage
- We want energy to be available when we need it is aligned to Improved safety and reliability
- We want a safe and secure energy system is also aligned too Improved safety and reliability

For benefits type Improved quality of service, this is better aligned to our stakeholder priorities as consumers do not have direct interaction with the ESO. For Benefits for society as a whole, this includes broader economic and health benefits for consumers.

Throughout the Business Plan we refer to both consumer priorities and type of benefits. The above alignment allows us to read-across these two category types.

### 1.3.2 Developing our proposals

In developing the proposals in our Business Plan, we built on the priorities of consumers and stakeholders, focusing on key areas of the business we could transform. We understood we needed to be clear about what we wanted to do as business and our role within the energy transformation. A key piece of feedback we received was to be more ambitious. In September 2018 we held a workshop covering RIIO-2 and *Forward Plan* timescales to set this direction. Further development of this through our internal strategic work led us to publish *Our RIIO-2 Ambition* in April 2019 with examples of transformational activities.

We consulted on our high-level proposals through this document, inviting written views. We also used a variety of engagement channels to maximise the range of stakeholders we reached and had effective conversations with. The channels included stakeholder workshops with roundtables, direct engagement, webinars and email bulletins. The stakeholder consensus was that the document provided a good level of ambition, but they wanted to understand further detail for each of the transformational activities.

### 1.3.3 Testing our proposals

In July 2019 we published our first draft Business Plan. This provided further detail and costs of proposed transformational activities, the investments, people and capability we will need to run the ESO required to make this change. We ran workshops at the Electricity National Control Centre in July and August 2019 to talk through aspects of the Business Plan and understand stakeholder views.

We updated our draft Business Plan in October 2019 to address the feedback we received.



**Whenever there are changes they listen – they will set up a meeting quickly, they are easy to engage. Set-up is perfect.**

**Consumer interest organisation**

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<sup>5</sup> <https://www.nationalgrideso.com/about-us/business-planning-riio/have-your-say-our-future-plan>



Stakeholders were largely supportive of our proposals in the October draft Business Plan so our engagement since its publication has focused on:

- testing and further developing our performance metrics with stakeholders
- understanding their views on our more detailed costs and benefits
- engaging further with TOs (bilaterally and as a group) on our respective RIIO-2 proposals and with DNOs on aspects of our proposals on which we would like to work more closely
- engaging on the plan as a whole, in order to refine our proposals ahead of our final submission to Ofgem in December 2019.

This has primarily been through a stakeholder workshop in October 2019. We have also tested our metrics through trade association events, a webinar and bilateral meetings. Alongside this we have engaged stakeholders from across the energy industry on the regulatory framework for the ESO, in order to better understand their views on Ofgem's decisions and consultations on our funding model. This has allowed us to develop a funding model proposal that will deliver the ambitious, proactive and agile ESO that stakeholders want us to be.

A summary of the feedback we received at the October 2019 workshop on each topic is set out below:

#### **Our delivery plans:**

- A service provider thought a strategy couldn't be over five years and that the RIIO framework was not strategic enough to support the UK's net zero ambitions. Another thought it was not entirely clear looking at these deliverables how it facilitates the net zero strategy. They both agreed longer planning times are required for our ambitious proposals. We have aimed to address this feedback through our enhanced ten-year vision in chapter 1.
- A range of stakeholders agreed it is a priority to ensure coordinated delivery of systems, processes and infrastructure across the ESO and the industry to enable implementation of all the new systems, services and approaches. This will be taken forward through our design authority proposal.
- Stakeholders questioned certain deliverables in the plan and why they were later than expected. They wondered if the timelines were detailed enough and how the *Forward Plan* links to RIIO-2; a key area being our IT projects. We are including more detailed milestone charts in this version of the Business Plan in response.
- Stakeholders thought we needed to ensure we have linkages to other key external activities such as Ofgem 'Smart System;' work, Enhanced Outage Notifications and the Clean Energy and Energy Data Taskforce to ensure proposals are consistent with other directions of travel and also draw out what European-driven changes we will be implementing. Throughout the Business Plan we set out how our work links to wider change activities such as the Department for Business, Energy and Industrial Strategy (BEIS) and Ofgem joint Energy Codes Review, Energy Data Taskforce recommendations and the Energy Networks Association (ENA) Open Networks project.

#### **Creating value for consumers:**

- Stakeholders thought the balance between the main Business Plan and Annex 2 – Cost-benefit analysis (CBA) report wasn't quite right. In particular, they wanted us to show more on how we have calculated benefits in the main Business Plan not just the value of them. We have included summaries of how the benefits are calculated and references to the CBA report.

- They asked to see better links between benefits and metrics, which we have done through the metrics sections in the Business Plan and Annex 7 – Metrics and measuring performance.
- Stakeholders asked what other options we have considered in determining our preferred option. They noted we have options across the plan but not all have been through a CBA. We have assessed options through the CBA in line with Ofgem's CBA guidance and have also added a list of options considered throughout the Theme chapters in the Business Plan.
- Stakeholders questioned whether there had been appropriate engagement on Theme 3 and 4 benefits with TOs and DNOs, specifically on the impact on them of our activities. We have engaged regularly with the TOs and DNOs and this is one of the topics that has been discussed. As a result, we have further clarified the counterfactual used for the *Network Options Assessment (NOA)* expansion proposals.

### **Measuring our success:**

- Overall, we received positive feedback from stakeholders, however there were clarifications raised on the detail of the measurement approach to baselines and targets.
- There were questions raised on whether there should be a zero carbon metric or if it was appropriate to sign post where metrics support our zero carbon ambition. In response we have included a measure of the milestones towards delivering zero carbon operability; the details of which can be found in the Theme 1 chapter and Annex 7 – Metrics and measuring performance.
- We were challenged on the proposed reporting frequency and if some of the annual metrics would be better reported more frequently. Within the Annex 7 - Metrics and measuring performance we have included the proposed reporting process for our metrics as well as the frequency of reporting of each metric. We have also reviewed the proposed reporting frequencies to align them as far as possible to our regulatory reporting process.
- A service provider and cross industry representative felt some metrics were focussing on outputs rather than inputs and total system costs could be a useful metric. We have developed our metrics to reflect the performance of the ESO and delivery of its transformational activities. We have not included any metrics based upon the inputs that we receive into our processes as the feedback from stakeholders and guidance from Ofgem has been focused on ensuring that the metric proposals are an effective method of demonstrating the performance of the ESO.
- A DNO suggested it would be useful to clarify how the metrics will be used, including if they are linked to incentives or public reporting. Within our Annex 7 - Metrics and measuring performance we have included information on the reporting of our metrics within the RIIO-2 period. Currently there is not sufficient guidance available on incentives to allow us to provide a link to incentives. When further clarity on the incentive mechanism in RIIO-2 is provided we will review our metrics and target proposals as appropriate.
- A representative of the regulator thought there needs to measurement of milestones, costs, employee numbers and metrics against plans. We have had feedback since that we should look to separate reporting of delivery activities from our metric proposals. The measurement of milestones and costs will be included within our regular reporting, more details of which can be found in Annex 7 - Metrics and measuring performance.

Further feedback on each of the metrics can be found later in this annex, in section 5.12.

At our RIIO-2 engagement event in October 2019 event we also carried out a quantitative survey at the end of the day on the areas we covered:

- Deliverables – 71 per cent of those who voted agreed the timescales and associated deliverables are appropriate
- Metrics – The majority of stakeholders agreed that our proposed metrics will provide clarity on our performance. The metrics discussed at the engagement event were at a fairly early stage and have undergone further development since then, refining and adding additional detail such as targets, which were a focus of many of the questions at the event. Given the outcome of the poll question we also sought to engage further on metrics following the event. We believe that the metrics should continue to be refined up to the start of the RIIO-2 period in order to ensure that they remain relevant to the Business Plan and our activities.
- Benefits – The message we took from our stakeholders was that they needed more information to be able to take a view. There were a lot of questions in the room to understand more, which is understandable given the CBA was only published the day before and we could only go into a certain level of detail on the day. We hope that the detail in our final Business Plan and Annex 2 – Cost-benefit analysis report helps our stakeholders understand our benefits and how they've been calculated better.

Further information on how we have responded to stakeholder feedback can be found in section 5 of this annex.

#### 1.3.4 Our engagement activity

Engaging with a representative group of stakeholders gives us confidence we have created our Business Plan proposals with an appropriate breadth of stakeholder views. We mapped our stakeholders according to their interest in our Themes and activities and the level of impact that changes to our role may have on their businesses. We used this approach to plan the most effective engagement channels for individual stakeholders across a range of sectors.

We have aimed to be accessible in our engagement and where possible, use and build upon the existing engagement opportunities that we have in place. These include our customer connections seminars, charging forums, *FES* workshops and electricity operational forums. This approach ensured we made the most of a broad range of opportunities to engage. Additionally, collaboration with other bodies has given us access to wider and more specialist views in a way that is more efficient for the ESO and our stakeholders. We also created further channels to make sure we reached a broad range of stakeholders for each Theme and overarching topics such as whole electricity system.

Below is a summary of how we have engaged over and above our existing engagement channels.



<p><b>Face to face engagement, including:</b></p> <ul style="list-style-type: none"> <li>• Bilateral meetings</li> <li>• Workshops</li> <li>• Webinars</li> </ul>	<p><b>To date we have held:</b></p> <ul style="list-style-type: none"> <li>• Around 135 bilateral meetings</li> <li>• 10 Workshops</li> <li>• 11 Webinars</li> </ul>	<p><b>Which has resulted in engagement with:</b></p> <ul style="list-style-type: none"> <li>• Over 900 individuals from</li> <li>• Around 350 organisations</li> </ul>
<p><b>ESO RIIO-2 Stakeholder Group</b></p>	<p><b>To date we have held:</b></p> <ul style="list-style-type: none"> <li>• 8 meetings</li> <li>• 1 workshop</li> <li>• 1 Control Centre visit</li> <li>• 1 IT webinar</li> </ul>	<p><b>This has involved:</b></p> <ul style="list-style-type: none"> <li>• 19 of our key stakeholders</li> </ul>
<p><b>Published communications, including:</b></p> <ul style="list-style-type: none"> <li>• Bi-Monthly bulletins</li> <li>• Website</li> <li>• Thought pieces</li> <li>• Podcast</li> </ul>	<p><b>To date we have published:</b></p> <ul style="list-style-type: none"> <li>• 8 bulletins</li> <li>• 4 stakeholder reports</li> <li>• 3 thought pieces</li> <li>• 1 podcast</li> </ul>	<p><b>These have reached:</b></p> <ul style="list-style-type: none"> <li>• Average of 900 individuals through our bulletins</li> <li>• 213 plays of the podcast</li> </ul>

Figure 4: Summary of our RIIO-2 engagement

### Stakeholder engagement numbers by segment

We have met more than 900 individuals from around 350 organisations through some 1,500 interactions<sup>6</sup>. Generators, service providers and suppliers were the groups most commonly represented. However, our engagement reached a broad range of stakeholders, including those beyond the current industry participants. The 'other' category in figure 5 includes non-domestic consumers, construction companies, automotive companies and charities. In the figures below many stakeholders have been assumed to be representing more than one stakeholder segment. For example, one person may be classed as both a generator and a supplier, which will appear to inflate the numbers for these groups.



**ESO is giving a good level of access to people and events. It's all positive in terms of ability to contact and engage.**

**Distribution Network Operator**

<sup>6</sup> The number of interactions is higher than the number of stakeholders engaged with as we interacted with some stakeholders more than once.

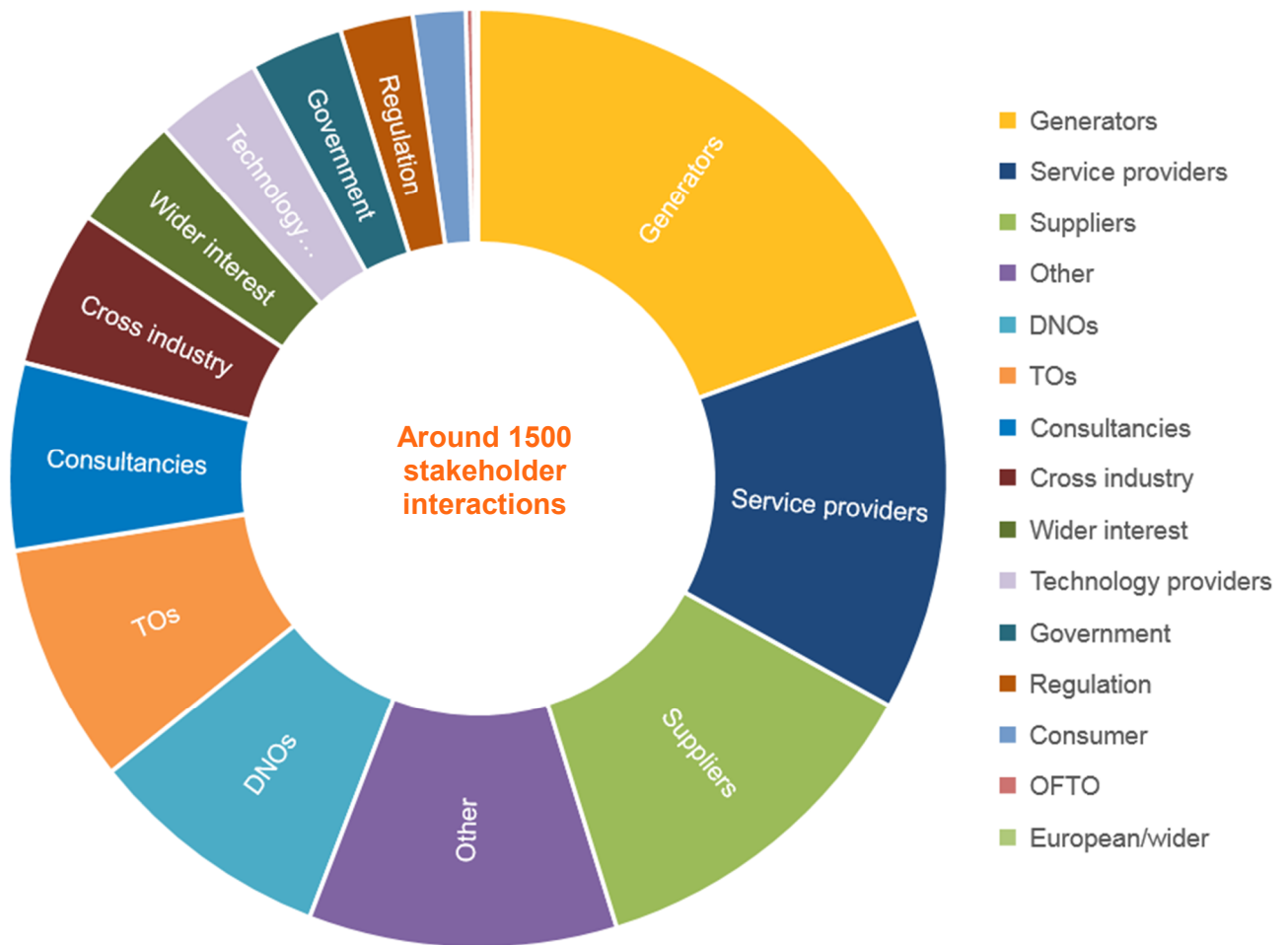


Figure 5: Stakeholders we have engaged on RIIO-2 by sector

### Accessible ESO RIIO-2 engagement

The range of engagement channels and our ‘always on’ approach to engagement have resulted in stakeholders telling us that they find the ESO RIIO-2 programme to be very accessible and that they feel well engaged and consulted. All the stakeholders we asked find it easy or very easy to engage with the ESO, and 93 per cent were satisfied or, very satisfied with the process.

Stakeholders also gave us some useful pointers on how we can improve our engagement. The Business Plan, Annex 2 – Cost-benefit analysis report and this Stakeholder report address earlier requests to see more detail on our costs and benefits, and also for us to play back the range of views we have received and how we have responded to them.

As our Business Plan process progressed we refined and further improved our engagement. For example, in response to stakeholder feedback we have engaged as much as possible through trade associations. We also investigated enhancements to make the RIIO-2 parts of our website more accessible.



**All the transmission companies are going through the price control so prompts [in emails] are useful and an importance level indicator would be useful too.**

**Network company**

## Engaging and working with network companies

As some of our key stakeholders, we have sought to engage specifically and regularly, both bilaterally and as a group, with network companies. With TOs, we have discussed our respective proposals to determine where our plans may overlap and interact such that we can work collaboratively to move forward and deliver collective value for customers and consumers. We have engaged with DNOs through the ENA, our own engagement events and have provided an open invitation to engage bilaterally on how our proposals could interact with their future role and activities and how we can work more closely together.

We continue to be actively engaged with the ENA in the lead up to RIIO-2 and beyond, most significantly through the Open Networks project where we chair two of the five work streams. We will also be involved in developing the programme of work for this project in 2020. We remain committed to collaborating with stakeholders, including network companies, to develop and implement whole system solutions to the challenges faced by the industry. We will build upon the discussions that we have had through our RIIO-2 Business Plan development to ensure coordination with DNOs as they develop their own RIIO-ED2 plans.

The ENA intends to develop a DSO implementation plan detailing the key milestones and the transition to DSO during the first half of 2020. We will ensure that our relevant Business Plan activities and milestones are fed into this process and that a whole system view is taken in the transition to DSO.

## 1.4 Understanding consumer views

Understanding consumer views has been important to the development of our Business Plan. As our engagement programme has progressed, we have further improved our approach to incorporating consumers' views. We have strengthened our understanding of their needs by undertaking additional research and engaging with a broader sector of stakeholders such as a community energy organisation and a local authority. This is alongside our direct engagement with consumer representative groups of domestic and non-domestic consumers and including such organisations on our ERSG. In our review of consumer research, we have learned the following.

The UK Energy Research Centre<sup>7</sup> (UKERC) Synthesis Report<sup>8</sup> found that the British public wants and expects change in how energy is supplied, used and governed. They are positive about the need for energy system change and do not prioritise demand over supply or vice versa. The report also found that affordability is more important than the lowest cost possible regarding energy system change. The cost related to a number of attributes such as long-term stability versus fluctuation in cost, existing market structures, getting a 'fair deal' and trust in energy companies.

A second report by the UKERC 'Paying for energy transitions'<sup>9</sup> surveyed 3,150 consumers followed by five focus groups across the UK. The study found that generally the public are willing to pay towards the transition to a low carbon, reliable and affordable energy transition but believe this is alongside both government and energy companies making a more significant investment.

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<sup>7</sup> <http://www.ukerc.ac.uk/>

<sup>8</sup> <http://www.ukerc.ac.uk/publications/energy-2050-synthesis-report.html>

<sup>9</sup> <http://www.ukerc.ac.uk/publications/paying-for-energy-transitions.html>

The group was presented with four goals the energy transition may address. The study found that all four were important and “one did not necessarily emerge as an overriding priority”. The four goals were:

- ensuring energy is affordable for all households;
- increasing the use of low carbon energy sources;
- reducing overall energy use in the UK; and
- ensuring a reliable energy supply is continuously available.

These four goals very closely align with our consumer priorities and also with four of the six long-term outcomes identified by Sustainability First as part of their New Pin<sup>10</sup> research findings. This verifies our thoughts are robust when understanding what consumers expect in the future of energy and our plan is developed with this in mind.

How they fit together:

We want an affordable energy bill	We want a decarbonised system, fit for the future		We want a safe and secure energy system	We want energy to be available when we need it
Ensuring energy is affordable for all households	Increasing the use of low-carbon sources	Reducing overall energy use in the UK	Ensuring a reliable energy supply is continuously available	
Value for money	A clean/sustainable environment		Long-run resilience	
			Quality of service	

Key:

- ESO four consumer priorities
- UKERC: Four energy transition goals
- Sustainability First: Four long-term outcomes

Figure 6: How the different consumer priorities fit together

We do know, despite these findings, that a significant proportion of people already struggle to pay their energy and water bills. The New Pin research found in 2015 that 10 per cent of households in England, 30 per cent in Wales and 39 per cent in Scotland were estimated to be in fuel poverty. In March 2019, as detailed by the BEIS Attitude tracker<sup>11</sup>, 30 per cent of a population surveyed across the UK was worried about paying their energy bills.

The report also found the public was most likely to be concerned about steep rises in energy prices in the future (75 per cent), the UK not investing fast enough in alternative sources of energy (69 per cent) and the UK becoming too dependent on energy from other countries (65 per cent). Finally, 84 per cent support the use of renewable energy.

For non-domestic consumers, we identified through direct engagement and reading relevant reports:

- New routes to market should be developed for community energy schemes. System operators should include community energy projects in their flexibility and capacity procurement strategies.

<sup>10</sup> <https://www.sustainabilityfirst.org.uk/new-pin/new-pin-pubs-sub>

<sup>11</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/800429/BEIS\\_Public\\_Attitudes\\_Tracker\\_-\\_Wave\\_29\\_-\\_key\\_findings.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800429/BEIS_Public_Attitudes_Tracker_-_Wave_29_-_key_findings.pdf)

- Community energy groups should be invited and supported to participate in local trials for flexibility, demand management, peer to peer trading and other specific services to the grid, like network cost avoidance.
- Data from heat maps and grid data is intimidating for communities to use, stakeholders wondered if it is possible to make data more accessible and easier to navigate.
- Local authorities and community energy groups were supportive of our ambition to operate a carbon free system as many of their members and customers were concerned about climate change and wanted to see more renewable energy available.
- They welcomed our proposals to remove barriers from entry to markets and their ability to aggregate their projects up to 1 MW.
- Providing further insight to policy development and our data analysis was welcomed, with *FES* being mentioned as a useful document they used to enable their business strategy and when engaging with BEIS.

#### 1.4.1 Consumers' willingness to pay

Through our independent survey of consumers, we got a very clear message that reliability and resilience are the highest priority for consumers, both now and in the future. We have drawn on other publicly available information to help us understand further consumers' willingness to pay for their different priorities<sup>12</sup>. The willingness to pay study commissioned by the four Great Britain electricity and gas transmission owners<sup>13</sup> confirmed the relative priorities of the other consumer studies as well as placing some values around the priorities.

In terms of reducing the risk of power cuts, the analysis suggests that consumers are willing to pay more to reduce the length of an interruption to power supply by one hour and also to reduce by a day the duration of a prolonged interruption causing widespread disruption.

UKERC's Paying for energy transitions report looked at public views on paying for the energy change; and previous UKERC research showed that the assumption people only care about the cheapest possible option was not necessarily correct. The work shows "public understandings of the acceptability of a sustainable system change are affected by a range of personal and social values over and above the cost appearing on their bills."

#### 1.4.2 How are we minimising cost to consumer bills?

The average GB consumer's annual electricity bill is £612 based on Ofgem's analysis in August 2019. We estimate that the average UK household will be paying £1.80 on average for the ESO's internal activities during the first two years of RIIO-2 (2018/19 prices). This equates to around 0.3 per cent of the total electricity bill and less than 0.2 per cent of the dual fuel bill. Although this is an increase in what consumers currently pay for the ESO, it is in line with their priorities and what they expect from a future energy system.

Our plans in RIIO-2 will generate around £2 billion net present value of consumer benefits over the next five years, also lowering annual consumer bills by around £3, compared to what they would otherwise have been. In each of the Theme chapters we detail how benefits

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<sup>12</sup>Including the *Estimating Electricity and Gas Transmission Consumers' Willingness to Pay for Changes in Service during RIIO2* report <https://www.nationalgridet.com/document/131211/download> and UKERC's *Paying for energy transitions* report <http://www.ukerc.ac.uk/publications/paying-for-energy-transitions.html>

<sup>13</sup>Including the *Estimating Electricity and Gas Transmission Consumers' Willingness to Pay for Changes in Service during RIIO2* report <https://www.nationalgridet.com/document/131211/download> and UKERC's *Paying for energy transitions* report <http://www.ukerc.ac.uk/publications/paying-for-energy-transitions.html>

are realised through our transformational activities. Full details can be found in Annex 2 – Cost-benefit analysis report.

### 1.4.3 How has this influenced our plan?

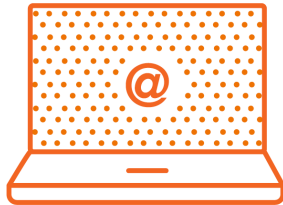
Within the Business Plan, we have highlighted which consumer and stakeholder priorities have been taken into consideration in the development of our proposals where relevant. Most of our transformational activities provide end consumer benefits and are the main focus of our Cost-benefit analysis process.

## 1.5 Let's keep talking

Stakeholder input and feedback has been incredibly important in helping us to develop our RIIO-2 Business Plan to this point. Engagement will continue to be important after submission of this plan as we move onto agreeing and then implementing the activities and changes the ESO will take forward in the RIIO-2 period. This will include:

- **Open hearings** – understanding stakeholders' views on areas of disagreement or contention that are being discussed at Ofgem's open hearings.
- **Scoping of new activities** – in order to be ready to deliver many of the new activities at the beginning of the RIIO-2 period we will need to scope them further, with the help of stakeholders. In addition, some of our proposals, such as the design authority will be implemented in advance of the RIIO-2 period.

We will also work collaboratively with stakeholders to deliver our plans, particularly where delivery of the benefits of our activities depend on other parties taking actions alongside the ESO.



Please get in contact via [box.RIIO2@nationalgrideso.com](mailto:box.RIIO2@nationalgrideso.com) if you would like to speak to us, feedback on anything in the document or be involved in the further development of the proposals.



## 2. Our independent stakeholder group

We established the ESO RIIO-2 Stakeholder Group (ERSG) to ensure that stakeholders had a representative, formalised voice in how we developed our Business Plan for the next RIIO regulatory price control period. The group has provided a focused review of our approach and conclusions but did not replace the wide-ranging engagement we needed to undertake as we developed our Business Plan proposals.

The role of our stakeholder group was to challenge and test our approach to developing our proposals, and the way that we have engaged with stakeholders to reach our views.

We wanted to make sure the members of ERSG were representative of our role in industry and reflective of the wider industry across Great Britain. Therefore, members included customers and service providers, key stakeholders and wider public interest organisations. The challenge provided by the group has proved invaluable in developing the Business Plan, pushing us to go further in our ambition, be more coherent about our approach to stakeholder engagement, and change how IT is developed in the company. They also provided extensive comment and challenge to both us and Ofgem on our regulatory framework.

We recognised the critical role that the independent Chair of the group would play, so we followed a rigorous scoping and shortlisting process of possible candidates. Charlotte Morgan<sup>14</sup>, a partner in the Global Energy and Infrastructure Group at Linklaters, was appointed the independent Chair of our stakeholder group in July 2018.

In line with the request from the Challenge Group, throughout the Business Plan we have set out in call out boxes where ERSG does or does not support our proposals. You can find more information about our group and their discussions so far on our website<sup>15</sup>. More information about our engagement with them and how we have responded to their feedback is in sections 2.9 to 2.11 of this annex.

### 2.1 Role of the group

The role of the group was to challenge and test the ESO's Business Plan, and the way we engaged with stakeholders and incorporated their feedback into our plan. The ERSG acted in an advisory capacity and not as a decision-making body. Have we been ambitious enough with our plans? Have we properly reflected the needs of the wider stakeholder community? Is our risk profile appropriate? The group looked at areas such as our total spend and efficiency targets, the focus of our innovation strategy and whether we are being truly representative of consumer and stakeholder views.

Following the submission of our Business Plan, the Chair of the ERSG will produce a report for Ofgem on behalf of the members, summarising the parts of our plan it agrees with, and



**I believe the ERSG has such an important role to play in delivering the RIIO-2 framework and, ultimately, driving value for end consumers.**

**Network company**



**ESO is very committed to ERSG, which is to their credit. It's a diverse group which is good, and it's well constructed.**

**ERSG member**

<sup>14</sup> <https://www.nationalgrideso.com/about-us/riio-regulatory-framework/riio-2-price-control-2021/our-riio-2-stakeholder-group/charlotte>

<sup>15</sup> <https://www.nationalgrideso.com/about-us/business-plans/future-planning-2021-onwards/our-riio-2-stakeholder-group/stakeholder-group-members>

any areas of concern. The report will also assess the scope and quality of our stakeholder engagement and will be published on our website by 23 December 2019.

The report will then act as a reference point for Ofgem on any areas of our Business Plan that might require further scrutiny by them, or Ofgem's RIIO-2 Challenge Group.

## 2.2 Appointing the Chair

The Chair has had a critical role in leading the ERSG, so we developed a rigorous process for their selection and worked closely with Ofgem. We shared with Ofgem a long list of potential candidates and followed the below process.

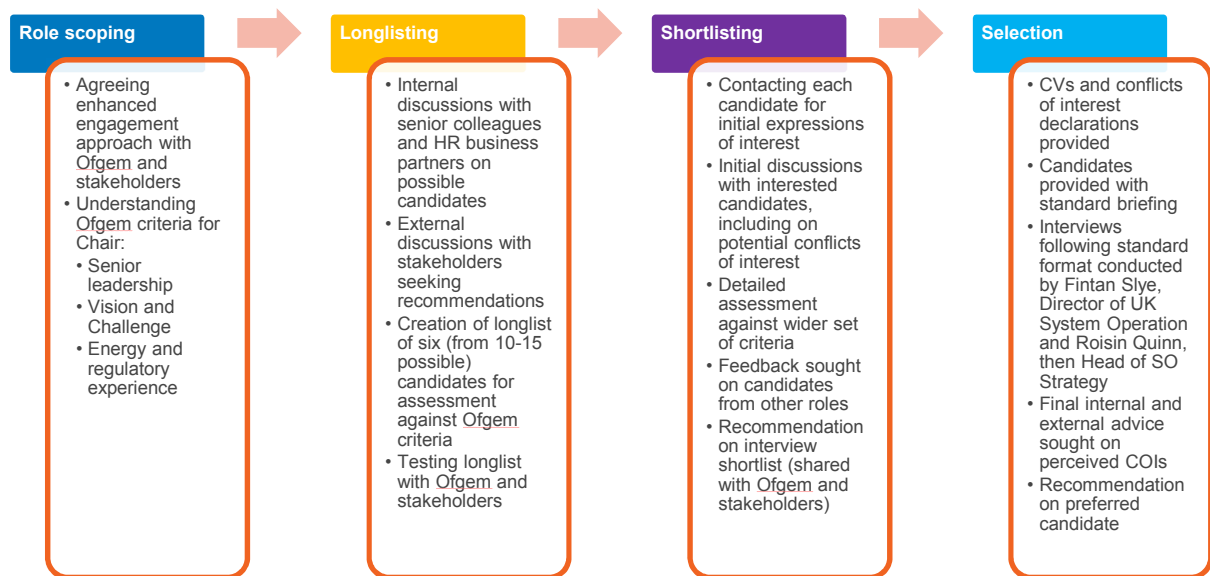


Figure 7: Process for appointing the Chair

Following this robust process and in agreement with Ofgem, we appointed Charlotte Morgan<sup>16</sup> as our Independent Chair.

## 2.3 Appointment of members

We wanted to ensure our members<sup>17</sup> were representative of our role and the wider industry across Great Britain. Members sit on the group in a personal capacity, rather than representing any particular organisation, or industry sector. Our group includes members with expertise across the breadth of the energy industry, from larger and smaller generators, network owners, energy suppliers, customers, service providers and consumer bodies amongst others. Their membership was proposed by the ESO and discussed with the chair prior to their appointment. Members of the group were:

<sup>16</sup> <https://www.nationalgrideso.com/about-us/riio-regulatory-framework/riio-2-price-control-2021/our-riio-2-stakeholder-group/charlotte>

<sup>17</sup> <https://www.nationalgrideso.com/about-us/business-plans/future-planning-2021-onwards/our-riio-2-stakeholder-group/stakeholder-group-members>



Charlotte Morgan (Independent Chair)	Simon Roberts – Centre for Sustainable Energy
Stuart Cotten – Drax	Jamie Stewart – Citizens Advice Scotland
Peter Emery – Electricity North West	Nina Skorupska – Renewable Energy Association
Toby Ferenczi – Ovo	Nigel Turvey – Western Power Distribution
Stew Horne – Citizens Advice	Chris Veal – Transmission Investment
Jo-Jo Hubbard – Electron	Barbara Vest – Energy UK
Greg Jackson – Octopus Energy (stepped down in September 2019)	Matthew Wright – Ørsted
Alan Kelly – SP Transmission	Fintan Slye – National Grid ESO
Andy Manning – Centrica	Kayte O’Neill – National Grid ESO
Catherine Mitchell – University of Exeter	Angelita Bradney – National Grid ESO
Nick Molho – Aldersgate Group	Sophie Hind (Technical Secretary) – National Grid ESO
Eddie Proffitt – Major Energy Users Council	Adelle Wainwright (Technical Secretary) – National Grid ESO (stepped down in December 2018)

Table 1 ERSG members

## 2.4 Managing conflicts of interest

We used a range of measures to manage perceived conflicts of interest by individuals on our stakeholder group. These included:

- Under the terms of reference<sup>18</sup> of the stakeholder group, we made clear that appointments were based on their knowledge, expertise and experience as individuals, not as representatives for their organisations or sectors.
- Each member of the group was required to sign a form of non-disclosure agreement, that prohibits use of information that they obtain in their role on the group, for any other purpose (including commercial purposes).
- Each member was also required to complete a declaration of business interests form that requires them to disclose any business interests (such as shares, consultancy arrangements, directorships) that they or their partner or spouse have in National Grid. We then considered any interests disclosed before making a final decision on the individual’s appointment to the panel and/or whether to share any information with them.
- Where individuals had an increased risk of a perceived conflict (such as individuals who work for an organisation that supplies services to the ESO) we assessed on a case by case basis whether it is appropriate for that individual to be excluded from forming part of the team that bids for or supplies services to the ESO during the term of their membership.

<sup>18</sup> <https://www.nationalgrideso.com/document/137541/download>  
ESO RIIO-2 Annex 3 - Stakeholder report●9 December 2019●20

- During the start of each meeting, the Chair asked the group to disclose whether they may have perceived or actual conflicts of interest in any topics being discussed at the meeting. The group then assessed whether that individual should leave the room during the discussion of that topic.

## 2.5 Induction of group members to the ESO

To enable effective discussion on our ESO proposals, we wanted the group to adequately understand our business, teams and our challenges and opportunities. To support this, the group's induction included:

- a visit to the Electricity National Control Centre, to see how we operate the system around the clock, and to give them the chance to speak to the team about their roles;
- an introduction to the National Grid business, and how the UK business is regulated;
- an introduction and overview of the ESO's regulatory framework, and incentives arrangement pre-and post-legal separation;
- an overview of our performance to date during RIIO-1;
- information about legal separation;
- a review of Ofgem's RIIO-2 framework consultation and the ESO's response; and
- the development of the RIIO-2 programme plan, proposals and engagement prior to the formation of the group.

## 2.6 Running the group

To ensure the successful running of the group we needed it to be appropriately resourced; we provided the group with necessary secretariat support as advised by Ofgem<sup>19</sup>. The Technical Secretary is an ESO employee, but on a day-to-day basis works in a role outside the RIIO-2 team. They act as independent support to the Chair and the main point of contact for the group. Their main responsibilities included: keeping minutes for each meeting, managing the action and challenge logs, supporting the Chair and group in writing their report, and helping the Chair with any other administrative duties as necessary.

The Chair and wider group also have contact with members of the ESO RIIO-2 team, who provided support for the group meetings, pre-read, papers and contents for the day. They also helped link in members with relevant subject matter experts within the business where required. The group also had three senior ESO members who provided the strategic view of the ESO business and detailed input into the discussions.

As set out in the ERSG Terms of Reference, the Chair also had a requirement to "attend NGENSO's Board meetings at least once a year" to provide an update on the stakeholder group. The Chair and the Board were free to discuss suitable topics. The Chair dialled into an appropriate part of the ESO Board in July 2019 and attended it in September 2019. In addition, the Chair attended occasional meetings with Ofgem and the Chairs of equivalent groups to discuss the progress of the group and to share any challenges or best practice examples.

## 2.7 Group meeting dates

The group had initially been set up to meet quarterly for half a day. After the initial meeting in July 2018 the group decided that to be most effective in providing scrutiny and challenge and to cover the broad range of topics needed it would be more efficient to schedule further meetings and for a full day. The group met on the following dates:

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<sup>19</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/04/riio-2\\_enhanced\\_stakeholder\\_engagement\\_guidance\\_v13\\_final.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/04/riio-2_enhanced_stakeholder_engagement_guidance_v13_final.pdf)  
ESO RIIO-2 Annex 3 - Stakeholder report●9 December 2019●21

- 25 July 2018
- 14 November 2018
- 30 January 2019
- 3 April 2019
- 4 June 2019
- 31 July 2019
- 12 September 2019
- 07 November 2019

All information relating to these meetings can be found on our website<sup>20</sup>.

## 2.8 Ongoing role of the group

We hope to continue with an evolved version of the ESO RIIO-2 Stakeholder Group beyond development of this RIIO-2 Business Plan. We are currently exploring the potential remit with the Chair and members.

## 2.9 Group feedback

The following section details the information we presented to the group and the feedback they provided on those specific areas, including the draft versions of our Business Plans. Many actions came out of these meetings for the ESO to help us shape and deliver our Business Plan and to best demonstrate sufficient engagement, consumer benefit and industry feedback. All of the group's feedback was taken into account at the appropriate time in the development process. Many of the earlier actions were to provide further information at a future meeting for the group.

The table below provides a view of where ERSG agrees or disagrees with our proposals and why. In some areas we have also provided a response to ERSG's comments for clarity. Further detail is provided in later tables that show how we have responded to all of the feedback we received from our Stakeholder Group.

Business Plan chapter	Stakeholder Group position	Comments	ESO response
A plan informed by our stakeholders	Support	Quality of information provided on feedback from customers and stakeholders and how this has been reacted to is high. Members are impressed with ESO reactivity to feedback and feel that this has resulted in a much improved Business Plan.	
Theme 1 Ensure reliable, secure system operation to deliver electricity when	Support		

<sup>20</sup> <https://www.nationalgrideso.com/about-us/business-plans/future-planning-2021-onwards/have-your-say-on-our-future-plans/eso-riio2-stakeholder-group>

<b>Business Plan chapter</b>	<b>Stakeholder Group position</b>	<b>Comments</b>	<b>ESO response</b>
consumers need it			
Theme 2 Transforming participation in smart and sustainable markets	Support	Group agrees that action should be taken on codes and capacity market arrangements. They stated decisions need to be taken at industry level on the exact scope and extent of ESO's role in this.	
Theme 3 Unlocking consumer value through competition	Support	Important and worthwhile proposals which are heading in the right direction. ESO role in development of Competitively Appointed TO (CATO) plans is no longer in scope of the Business Plan. Stakeholders are supportive of the ESO being more proactive in this area.	
Theme 4 Driving towards a sustainable whole energy future	Support	ERSG feels strongly that the ESO has a central role to play in the energy transformation and acting as a trusted advisor to government on how the UK gets there.	
Open Data unlocking zero carbon system operation and markets	Support	Stakeholder preference for data being made available earlier rather than receiving formatted/analysed data	
Technology underpinning our ambition	Support	ERSG has previously provided a great deal of challenge on the IT strategy proposal, particularly how the ESO creates a culture that can deliver such vast change, and how it brings the expertise it needs in house in short timescales. A lot of work has been done with ERSG in this area and we feel it is much improved.  Clarification was provided on IT projects and resulting Intellectual Property (IP), and that this would be owned by ESO rather than at NG Group.	

Business Plan chapter	Stakeholder Group position	Comments	ESO response
		ERSG feels it's important that consumers benefit from IP that they pay for.	
Innovation at all levels of our business	Support	<p>There has been an attempt to react to feedback but more improvements could be made. More information required on the consultation and engagement with academia which is an important part of innovation. Market collaboration should also play a larger part in innovation.</p> <p>It is important that the ESO does not feel constrained in innovation by the funding model and risk of cost disallowance</p>	We have further developed the Business Plan chapter 11 - Innovation at all at all levels of our business, to address these points. Our proposals for innovation in RIIO-2 include additional resources to enhance collaboration with academia and market participants.
Leveraging value from shared functions	Do not support	<p>Hard to justify why dedicated teams in shared functions are not a part of the ESO. This model must be fully transparent and there must be assurances that there are no potential "leakage points"</p> <p>Where the shared services model is used, the ESO must demonstrate that costs have been appropriately benchmarked</p> <p>It is not clear how IP and knowledge will be retained within the ESO under the shared services model, as committed under the "Technology underpinning our transition" section</p>	<p>The shared services model means each National Grid business benefits from economies of scale and use of expertise in each area. This creates efficiencies for each National Grid business, as it costs less than each business having its own functions. Each National Grid business pays a fair share of the costs of these functions, using the transparent unified cost allocation model (UCAM) approach agreed with Ofgem. Allocations are reviewed annually to make sure they are fair, robust and have not been affected by changes to business activities. More information is in chapter 12 - Leveraging value from our shared functions and Annex 8 – Shared services, and chapter 10 - Technology underpinning our ambition, sets out more specific information on our IT operating model, including</p>

<b>Business Plan chapter</b>	<b>Stakeholder Group position</b>	<b>Comments</b>	<b>ESO response</b>
			the role of the Head of IT for the ESO.
People, culture and capability	Support	Chapter shows the company's understanding of current culture versus where they need to get to. Could still add additional detail on change management aspects.	We have provided additional detail on our change management capability to deliver our RIIO-2 proposals in this final Business Plan.

*Table 2 ERSG position on Business Plan sections*

In this section, we have provided more detailed feedback from the group following our first draft Business Plan submission in July 2019, the associated changes that were made for our October submission, ERSG's feedback on a draft version of the October draft Business Plan and comments on a draft version of this final Business Plan submission. These can be found in the subsequent tables. The feedback we have received from the ERSG on our draft submissions has been listed in reverse chronological order so the most recent feedback is listed first. In the next section all other ERSG meetings have been listed in the order in which they took place.

## 2.10 Feedback on our draft Business Plan submissions

### November 2019 ERSG Meeting

#### Business Plan – Summary of Changes since October

##### Summary of detail presented

The ESO presented an overview of what had been updated in the October draft Business Plan following the group's feedback in the September 2019 meeting as they were asked to provide feedback on a draft version of the December Business Plan. They also discussed the feedback letter received from the Challenge Group and the work ongoing to address this.

##### ERSG Comment

The group asked for some clarification on why the Challenge Group RAG status on Stakeholder Engagement was amber/red. ERSG agreed with feedback from the Challenge Group which stated that interdependencies on delivery with other market parties still need to be addressed in the Business Plan.

The Chair asked if there were any views in the room on the ESO's relationship with network companies. It was acknowledged that there is more work to do to build closer relationships with DNOs. The ESO is a new organisation and so there is tension between how far they go and how restricted they become. For this reason, they can be perceived as stepping on toes and crossing their boundaries of roles and responsibilities. If the ESO helps the industry to recognise that this is the case, then it might help with these relationships.

The ERSG asked the company to expand on the IT strategy. They commented there is large upskilling planned but also a reliance on framework providers. They asked how the work will be split across in house versus external? ERSG said the end goal was not clear.

##### ESO Comment

We explained that the Challenge Group had some concerns on how widely stakeholders have been engaged and how much engagement the ESO had had on the topic of financing. Also, uncertainty on how engagement relates to buy in from stakeholders to help deliver the Business Plan. As a result, we have provided more evidence in the Business Plan on the types of stakeholders we have engaged, how we have engaged on the funding model and where we have received buy in.

The ESO noted this feedback.

We confirmed we would be using a flexible model and would clarify it further in this final submission, which we have done.

The Challenge Group questioned in Theme 2 whether the ESO is the right organisation to deliver the new IT system. The group asked if any more detail was given on this feedback.

We confirmed we were not aware of any information and did not believe it had been discussed at any of the meetings.

## Regulatory Framework

### Summary of detail presented

The ESO provided an update on the ongoing work around the regulatory framework as pre-read for the meeting. The Ofgem teams were invited to attend and discuss their decisions and ongoing work on the regulatory framework. This was a closed session between the group and Ofgem. The ESO was invited back into the room after this for an open discussion, which is reflected here in this table.

### ERSG Comment

The Chair gave an overview of topics that required discussion in the wider forum. The Chair asked Ofgem attendees to give their view on where things lie with the shared services model.

The Chair explained that there are obviously benefits around the shared services model in terms of economies of scale and asked whether it is a case of benchmarking and transparency of costs.

### ESO and Ofgem Comments

Ofgem confirmed that it wants to ensure that there is complete transparency over costs and where they are allocated. This was also feedback we received from the Challenge Group.

Ofgem said there are efficiencies to be gained from shared services. But benchmarking is crucial in order to understand the justification of these, as well as transparency. The ESO might look to explore how these services are procured. The licence does not specify what is included in shared services. One of the areas they have questions around is IT, as this can cover such a large range of activities; from day to day support to the development of new systems.

We asked how this differs to the current model. Shared services arrangements were agreed through legal separation, and the price control does not provide an opportunity to unpick this. We were not aware that re-visiting or exploring how shared services were procured was an option.



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The ERSG asked for information on how costs for shared services were allocated.

We explained that there are different arrangements for each service based on what is most appropriate, and these arrangements are approved by Ofgem. There is a financial model that shows how this is allocated and the Business Plan has an annex that explains how this works.

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The group asked Ofgem if there was anything additional that they were looking for.

Ofgem stated that the model was created for a different world, and they have questions around where projects, systems and assets are predominantly ESO assets and how appropriate it is to still have the shared services model.

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One group member raised concern if these arrangements were to be revisited annually, as this is not consistent with the price control setting.

The ESO summarised that there is potentially a difference in opinion on the shared services model. If there is potential to revisit this model, then there could be implications for the ESO Business Plan and also other Business Plans in the National Grid Group.

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Ofgem left the meeting at this point

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The ERSG summarised the key issues discussed with Ofgem for the ESO. The majority of the discussion was around risk in the company, how the financing arrangements work, and whether that gives enough flexibility for innovation. In terms of risk and risk structure, Ofgem explained that discussions were ongoing, and that it has asked for further justification on this from the ESO.

We noted that Ofgem's question of risk versus reward captures the difference in opinion between us and Ofgem. We are not looking for a large reward to cater for risk or disallowance; we want a framework that incentivises the right behaviours, reflects the business and the activities we undertake and provides remuneration for the services we deliver. There is a significant amount of activity performed by us that is not remunerated through a Regulatory Asset Value\*Weighted Average Cost of Capital (RAV\*WACC) model.

There was also an open conversation on cost disallowance. Ofgem sees this as a small, unusual risk. The ERSG advised Ofgem that it should give further guidance on disallowance. IT projects were discussed, and the group expressed the view that that the funding structure could make the company risk-averse. The idea of a risk contingency pot was discussed, which Ofgem seemed relatively open to on the basis that they understood the point that the group was making. Ofgem is going to take this away.

ERSG explained that Ofgem seems more concerned with over-recovery than they are with closing the risks. Attempts to deal with the risk by allowing bigger profit seem to go nowhere. It may be more productive to work on how the risk can be mitigated. If the ESO was to divorce this

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from the reward, then discussions may progress further. Ofgem was questioning whether the ESO wanted to see the risks removed or whether they wanted the potential to earn a higher reward.

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## Metrics

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### Summary of detail presented

The ESO presented a paper to ERSG on the proposed metrics for the December submission and how we had engaged stakeholders in their development.

### ERSG Comment

### ESO Comment

#### Theme 1

The ERSG asked how the metrics in this theme interplayed with the ambition for net zero. They said it is such a large aspect of the transition that you would expect to see it here. It was also questioned whether having a satisfaction survey on the design authority was the right way to understand whether it was working or not. There also needs to be focus on how the company is getting to the future and this will be done by measuring innovation.

We have included a zero carbon delivery plan metric in this Business Plan, which measures the milestones towards delivering zero carbon operability. The details of the metric can be found in the Theme 1 chapter 4 of our Business Plan and Annex 7 – Metrics and measuring performance.

In response to this feedback we have also amended the proposed design authority stakeholder satisfaction survey to be an annual reporting item outlining the design authority's work over the previous year and plan for the year ahead. We will invite stakeholder feedback to inform this. The zero carbon operability metric and design authority reporting, taken together, will provide transparency around the progress we are making against our plans. We will continue to measure innovation through reporting proposed in chapter 11 - Innovation at all levels of our business.

The group asked whether the intention of the metrics was for performance or reporting, or both.

We confirmed we saw them as reporting metrics, although recognise that they will probably need to link into incentives in some way. We are currently awaiting further clarity on the incentives mechanism for the ESO. We explained we also saw them as a way of measuring ESO investments. We would assess what each investment is trying to do and have a metric linked to them. There is a strong possibility that some of the metrics would end up in the incentives framework.

The group asked how the company would deal with the fact that investment would be upfront and benefits may not be realised until further down the line.

We explained that this has been built into the current incentive scheme, with projected future benefits considered as well as benefits realised with the year being assessed. The cost-benefit analysis for Theme 1 is also transparent about this profiling of investment in advance of benefits; the majority of the benefits are towards the later years of RIIO-2.

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The group asked about proposed metrics on system reliability and there was some confusion whether system reliability referred to IT systems or the network.

We explained the idea is to measure unplanned outages on Critical National Infrastructure (CNI) systems. We confirmed that this was referring to IT systems and would make this clearer in the metrics. We also agreed that we would consider a metric on security of supply that does not overlap with TO responsibilities. We have done this and included a proposed security of supply metric in the Business Plan.

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**Theme 2**

On the metric “Proportion of balancing services procured competitively”, the group asked what the proportion currently is.

We agreed to take this question away and to confirm the current proportion of balancing services that is procured competitively. This information can be found on page 60 of the *Forward Plan 2019-21* Mid-Year Evidence chapters<sup>21</sup>.

The group discussed the “EMR decision quality” and whether this was appropriate. The group suggested that it would be good to have more pragmatism brought into the prequalification process.

We acknowledged this was useful feedback and as it goes beyond metrics we will take it into account in how we carry out our EMR delivery role.

The group discussed the metric that proposes “consumer value savings from code modifications”, and the extent to which the ESO have control over this.

We confirmed this was more to ensure that value is being delivered by the process however, have moved this to be an annual measure rather than a metric as a result of this issue raised by ERSG and other stakeholders.

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**Theme 3**

The group asked for clarification on the “NOA participant mix” metric.

We clarified that this refers to non-network solutions and measures the move away from solutions being provided purely by the three TO companies.

The group also asked whether these metrics were intended to measure end of life assets, which links back to the question of what is an ESO role and what is a TO role.

Our proposal for measuring consumer value from the NOA process currently does not include end of life assets. As set out in our Business Plan proposals, towards the end of the five-year period of RIIO-2 we are intending to include the ability to do this into the NOA. At this point we would include it within the metric.

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<sup>21</sup> <https://www.nationalgrideso.com/document/154821/download>

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The group also asked whether the *NOA* is purely forward looking. As an important metric it may be beneficial to look back and see how decisions have outturned.

We agreed we will look at including this in the *NOA* process. It could potentially fit into Theme 1 as an aspect of regular reporting and could be helpful in engagement with Ofgem.

Having looked into this further, the *NOA* re-evaluates options every year as a single year least worst regret process until options are delivered. The ESO does not review the benefit of delivered options as a direct measure to the previously studied benefits.

NGET does, however, review the benefits of options for regulatory reporting purposes. Incremental benefits of options that are delivered are measured and recorded through the RRP. It should be noted that benefits are rarely exactly reconciled as the generation and demand connections and background are ever changing. As a result, benefits could be under stated, overstated or similar, although largely as a result of scenario change.

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**Theme 4**

The group asked if something could be included on timelines and speediness of response on connections applications.

We have now proposed a metric to measure the proportion of connection offers that are right first time.

An employee of a TO mentioned that they were also planning to survey customers that they provide network access to, and that it may be appropriate to have a common metric between the ESO and TOs.

We think it is important to have measures for the activities that we undertake. We have therefore not included this within our RIIO-2 metric proposals at this point, however it is something we are happy to explore further in the future.

The group felt that there was a gap in the metrics on this theme, as there are currently none which relate directly to the title of the theme. It may be helpful to have a metric around frequency that policy and energy solutions are being provided. It may also be a good place for the ESO to include some metrics which reference progress made in achieving the overall Business Plan, for example achieving net zero.

As set out in this table in the Theme 1 section we have now included a zero carbon delivery plan metric in this Business Plan, which measures the milestones towards delivering zero carbon operability. Our suggestion at the meeting to consider such a metric was received positively.

The group felt that it was more about demonstrating progress in the ability to operate a zero carbon system. Having something which measures contribution to decisions seems

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central to Theme 4, and the ESO are in the unique position to be able to do this kind of work.

The group remarked that there is a clear and positive aspiration to increase access and flow onto the network with the network access metrics but they questioned whether there's a risk that this isn't balanced by a metric which allows network access to be taken.

We agreed we would consider balance between aspiration to increase capacity of network and allowing access for outages in coordination with TOs. We have since added a metric assessing the number of outages that do not go ahead at short notice as a result of ESO actions.

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### **Cross-ESO Metrics**

ERSG raised concerns that the metrics should ensure that they differentiate what is beyond the control of the ESO in terms of IT delivery.

We confirmed that we would need to avoid a set of rigid incentives that are set three years out when we are proposing an agile delivery model. The performance structure needs to support agile delivery.

The group asked whether the metric on data shared is raw data or whether it also includes outcomes of studies, findings etc.

In addition to raw data we will be sharing analysis and insight where required to aid understanding of the data. A commitment to publish a prioritised list of data so that we can transform it in a way that is more useable for the industry is set out in chapter 8 - Digitalisation and open data unlocking zero carbon system operation and markets, of the Business Plan. (The group asked that this is more explicit in the metric.)

The ERSG reiterated the need for a metric around zero carbon. They said the ESO wouldn't necessarily need to be assessed against this, but it would indicate progress against the ambition. It is something that needs to be visible whether the company are judged on it or not.

We agreed that this is important, as it is the ambition which holds the Business Plan together. It is what consumers will care about and will be high profile politically.

## Competitive Appointed Transmission Owners (CATO)

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### Summary or detail presented

The ESO presented a paper to ERSG to update them on the ESO's activities in relation to CATO

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### ERSG Comment

### ESO Comment

The ERSG asked what the output will look like at the end of February 2021; how mature will the proposals be and what further will need to be done in order to launch the model?

We confirmed our view:

- Once the output is delivered by the ESO, it will then be handed back over to Ofgem and it isn't clear how they will manage it from there.
- Expectations for February 2021 will clearly be set out by Ofgem in December 2019. Legislative and licence changes will most likely be required.
- It is expected that the final output will be beyond the conceptual level, and will be specific in what needs to be done. This will include a rulebook and a blueprint for implementation.
- It is unlikely that there will be specific drafting for licence changes at this point but there will be detail of the changes required.

The group asked whether the ESO will be exploring models other than the early model, or whether they will be continuing from where Ofgem has left off. It was highlighted that one of the ways which this could be implemented was by the ESO being the procurer rather than Ofgem.

We confirmed the work we will undertake includes looking at who is best placed to run the model and Ofgem has specifically asked us what it would look like if we were to take this role.

ERSG asked if the scope of the work will include competition for non-network solutions.

We confirmed that this will be built into the plan, and that there are some challenges around how you compare network with non-network solutions. This has been achieved elsewhere and the we will be considering these instances.

The group also had questions around the ESO's involvement in distribution level competition and how they see this working.

We confirmed Ofgem have asked this as an open question and we are considering a range of options from running the competition to doing an audit of the competition. These considerations are still early in the process.

The group asked whether the ESO is doing any work on the late model

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We explained that our focus is currently on the early model as directed by Ofgem.

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The group asked where the push was coming from to explore a design only competition format.

We confirmed we weren't sure and thought perhaps the pool for competition was less limited because it's essentially a competition for ideas and could drive innovation. It would be a challenge to enforce credibility in this instance.

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The group said there is stakeholder frustration with the start stop nature of the process so far. Given that this is likely to involve license changes, the group urged the ESO to set out timelines for when updates will be given, to keep the momentum and pressure going.

We acknowledged this was useful feedback and will give it some consideration.

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## September 2019 ERSG Meeting

### Regulatory Framework

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#### Summary of detail presented

The ESO presented an overview and summary of Ofgem's 'RIIO-2 methodology for the ESO – decisions and further consultation', which confirmed the ESO's funding model and launched further consultations on financial methodologies and incentives design.

This included the following decisions:

- The ESO will be funded through a totex approach with fast and slow money
- There is the potential for additional remuneration for risks where it is not appropriate to remunerate these through the WACC
- Business Plan allowances will be set ex ante
- The total planned spend will be scrutinised and efficient allowances set as part of the two-year planning process. The ESO will not have a totex incentive sharing mechanism and all efficient costs will be passed through.
- Ofgem is continuing to analyse the risks held by the ESO
- Ofgem will retain the ability to apply a downside incentive and will consider the advantages of an asymmetric incentive scheme

The ESO confirmed it had not yet received a finance model from Ofgem so the October draft Business Plan would be based on the ESO's internal model which has been based on feedback from Ofgem so far.

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#### ERSG Comment

#### ESO Comment

A member asked for more information on raising of debt and where this will come from to be included in the Business Plan.

This has been covered in the Business Plan in chapter 9 – Financing our plan.

The group asked if the ESO was still concerned about the cost disallowance aspect of Ofgem's proposal

We confirmed that we are still concerned about this, although Ofgem has added into the consultation material that there may be a possibility for a cap on disallowance risk, which would be welcome. However, we are still very concerned about the downside only nature of this risk. In the models for other network companies there is still a sharing mechanism but in the ESO model this doesn't exist.

The Chair provided a summary of a meeting with Ofgem to discuss concerns around the funding model and explained the feedback given by them.

We explained that the innovation part doesn't deal with the IT investments that would be needed to deliver by 2025 as these are all in the BAU pot, where there is a real risk of cost disallowance.

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She noted they are interested in ERSG's view of Ofgem's risk matrix and whether the risks are real and evident.

One member suggested that it seems there is an assumption that funding will come through incentives as well as the funding model rather than just the funding model. It is important that the ESO is accountable and equipped to handle some risk on behalf of the industry, and The ERSG doesn't want it to be afraid of risk. It needs to drive the market forward and be ambitious. The Chair said this was raised with Ofgem, who said that there are two funding pools: Business as Usual (BAU) and something similar to the current Network Innovation Allowance. Ofgem is still allowing innovation funding so that the ESO isn't frightened of taking the next steps.

There is a clear disconnect between the fact that everyone wants an ambitious ESO and the funding model that is proposed by Ofgem.

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The ERSG asked the ESO if it thinks it can use this two-year probationary period to change Ofgem's view for the next ten years. If not, then an environment is not going to be created where the ESO can take risks. Could the ESO perhaps carve out some projects acknowledging that they are more risky and have some additional flexibility on these? If Ofgem doesn't make any changes to the proposed funding model, how will this affect the Business Plan?

We confirmed that we are proceeding with the Business Plan based on decisions that have been made, but there is still uncertainty as Ofgem will confirm our full funding model and key financial parameters through the determinations process in 2020. Our financeability assessment has been undertaken using Ofgem's business plan financial model and based on Ofgem's working assumptions, and we have proposed alternative assumptions where appropriate.

We have prepared our Business Plan on the assumption that we will have a sustainable funding model that ensures the financeability of the ESO as a standalone business.

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The group raised the concern that Theme 1 is all about investment, and you can't put forward a comprehensive Business Plan without having all of the financial information.

We explained that Ofgem has said that if costs are inefficient then they will be disallowed. The smallest disallowance could potentially bankrupt the company. We have asked Ofgem to give more clarity on disallowance, and its response is that it's in the licence. However, the licence is very vague, and we need more detail to understand the risks.

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They discussed the first stages of delivery of the Business Plan will be about scoping and R&D. Someone asked, in the first two-year period is the ESO really saying that these kinds of activities couldn't be delivered on this pay as you go type mechanism?

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The group had a discussion on risks. One member pointed out on a graph on pg.28, the risks looked as though they represented only 20% of total costs which seemed manageable, but did note it was dependent on how IT risks were managed. The Chair asked the ESO to explain which risks cannot be mitigated in their opinion.

The key risk we face is the revenue management role, where we handle funds much larger than the size of the ESO. There is a need for additional remuneration to address the risks this presents, and there is no compensation available in what Ofgem have set out. Other risks include cost disallowance which could be mitigated to a certain extent but will always be there, incentives downside and reputational/political/regulatory risks (for example the introduction of new roles such as EMR). It is much more difficult to quantify these latter risks.

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The Chair asked the group if everyone was in agreement that there is additional risk from the revenue role which should be remunerated.

We explained that even considering a working capital facility, handling £4 billion of someone else's money still involves risk that needs to be remunerated.

The Chair asked about the other risks that were mentioned. How does one quantify them and think through how you would remunerate what is a reputational risk?

We confirmed that it is very difficult to quantify this, and any approach would be imperfect. There is no direct comparator. Ofgem has published three tests on how to measure risk. The best comparators are SONI and EirGrid as they are two SOs that have a similar model. They typically have a layered approach with an upside only incentives layer.

Some in the group felt that this role should be taken wherever the risk is lowest. Others argued that the ESO is in the middle and this means that you only pay for the risk once rather than spreading it and having it in different places

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**Draft Business Plan feedback (Please note the references in the table have been updated to refer to the final Business Plan unless stated otherwise)**

**Overarching**

<b>ERSG Feedback</b>	<b>What have we changed as a result of this feedback?</b>
<p>The company needs to be absolutely clear on policy dependencies of the Business Plan proposals and the timing of them. The group thought that the role of the ESO is to inform, enable, and facilitate.</p>	<p>We have clarified in the Theme 4 (chapter 7), in our Leading the Debate section, that we will work with BEIS to facilitate timely development of its clean heat strategy, providing key inputs from a whole energy system perspective. We have also set out that our <i>FES</i> activity analyses the uncertainty and impact of policy, but the work itself has no specific policy dependencies. (Ref: A13 Leading the debate)</p> <p>We have highlighted in Annex 2 – Cost-benefit analysis (CBA) report where benefits are dependent upon specific regulatory decisions or activities.</p>
<p>The group considered that the narrative, particularly in Theme 1, was focused on the increase in FTE but that the evolution of capex year on year was less well explained.</p>	<p>We have split out the Control Centre architecture and systems cost justification into separate sections detailing evolution of capex and evolution of FTE (Section 4.2.3 in the Theme 1 chapter). This also cross-refers to our IT investment summaries.</p>
<p>There is an assumption in some areas we will be getting new roles e.g. code manager and Capacity Market Rules. The group would like to see the contingency on what we will do if we do not take responsibility for them.</p>	<p>We have removed our proposal to take ownership of the Capacity Market Rules. Our code manager proposal is evolving how we undertake a role rather than taking on a new role. If we did not become a code manager, we would continue to administer our codes in the same way as we do today.</p>
<p>The group wanted to see more collaborative language within the Business Plan on how we will work with others through our proposals.</p>	<p>We have reviewed and amended narrative across our plan to demonstrate where and how we plan to work with other parties to deliver our proposals and support some of their activities.</p>
<p>Further on collaboration, some members felt that in some areas the company was proposing to take over activities undertaken by other parties. There was a suggestion that it would be useful to have a clear map of the industry and who is responsible for what.</p>	<p>We committed to consider whether an industry map is required in our final Business Plan and have decided not to take it forward.</p>

When reviewing the Leadership structure, the Group asked why there was no form of Change Management role. They believe this needs clear accountability and would like to understand where this sits.

We have recognised the importance of managing change in section 3.5 Delivery confidence and have provided further detail in our final Business Plan of our Business Change team in section 13.4.

## Stakeholder engagement

### ERSG Feedback

### What have we changed as a result of this feedback?

Change figures in the Consumer willingness to pay section in chapter 2 - A plan informed by our stakeholders, to references to people being willing to pay more for activities (rather than a specific number).

This has been changed in chapter 2 of the Business Plan.

## Deliverability of the plan

### ERSG Feedback

### What have we changed as a result of this feedback?

The group wanted to see proposed deliverables and delivery dates presented more clearly, particularly on what will be delivered in the next two years. They suggested something like a milestone chart.

We have included more detailed delivery roadmaps in each Theme chapter to show the key delivery milestones over the two years covered by this Business Plan.

The group wanted to see more narrative on how we will manage the significant level of change associated with delivering our plan, including the governance around it. This was particularly in relation to the culture, people and capability changes.

We have recognised the importance of managing change in section 3.5 Delivery confidence and have incorporated additional resource for delivery in this final version of the Business Plan as part of a more developed plan for implementation.

The group wanted to understand to what extent the Business Plan has been a product of development from teams across the company versus the output of a single project team. The group asked whether management from

The Business Plan has been developed by the teams who will be responsible for delivering it, with support from a project team.

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across the company is committed to delivering the level of change required.

One member noted that in recent engagements with the company they don't seem to have enough staff to do the job and that redundancies don't seem strategic. They wanted to ask specific questions on this area at the next meeting.

We responded to the group directly on this feedback at the November meeting.

The group asked how the company is aligning and working with other parties in the industry such as TOs and DNOs to deliver some of the proposals and how they fit with the ambitions of those parties (for example for the connections and NOA proposals).

We have engaged with TOs and DNOs on our proposals through the ENA, bilateral meetings and engagement events, and we know that we need to work collaboratively with these parties to deliver efficient outcomes for consumers. We have added narrative across the Theme chapters and chapter 2 - A plan informed by our stakeholders, on how we have, and will, work with DNOs and TOs going forward.

The group considers that the company should be an enabler in the industry but thought that some sections of the plan, for example the connections section in the Theme 4 chapter, came across as more controlling.

We have reviewed the connections section of our plan and have added to the narrative, particularly in Theme 4 (section 7.2.3) around how we will work with network parties to deliver a better service for customers.

The group said we could do more to bring out our commitment to delivering proposals set out for CATO in Theme 3 and thought this section needed more focus.

Following a request by Ofgem to deliver an Early Competition Plan proposal in its' RIIO-2 Sector Specific Methodology Decision and further consultation – Electricity System Operator<sup>22</sup>, this will be developed separately to our Business Plan and therefore our proposals in this area have been removed from the plan. We talked ERSG through our plans on the Early Competition Plan at their November meeting.

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<sup>22</sup> [https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2\\_sector\\_specific\\_methodology\\_decision\\_-\\_eso.pdf](https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_eso.pdf)

## Efficiency of costs

ERSG Feedback	What have we changed as a result of this feedback?
The group requested that the company revise the costs and efficiencies chart in chapter 3 - Assumptions underpinning our plan, to make it clearer which costs are as a result of changes to the energy landscape that mean it will be more expensive just to carry on what we're doing now.	We have updated the chart and the commentary to explain that the cost increase is driven by investment in ongoing IT costs, namely cyber security and digital risk measures
The group asked the company to include a waterfall diagram to demonstrate where costs have gone up and down.	Our October draft Business Plan includes detailed waterfall charts showing the cost movements between RIIO-1 and RIIO-2.
The group questioned how the company was setting itself up for the level of IT investment set out in the Business Plan from year one of RIIO-2.	We have added to the narrative on our delivery approach to IT investment in section 10.6.2 of chapter 10.
The group asked the company to be clear on whether the benchmarks for efficient spend are against today's values or when the spend is planned.	The IT cost benchmarking has been undertaken using our proposed costs in RIIO-2 as set out in section 10.7 of chapter 10. The shared service cost benchmarking used 2020/21 costs and we have clarified this in chapter 12.
The group asked the company to include an assessment of our proposed activities against alternative options considered in the cost-benefit analysis.	The options that we considered for our proposals but discounted have not been subject to cost-benefit analysis in the same way as the proposals included in our Business Plan. We have set out the options considered and discounted in more detail in this Business Plan.
Include an assessment of avoided bill increase as a result of our proposals if possible (rather than just the total amount on the consumer bill).	We have added the avoided bill increase in chapter 1 - Introduction and context of our Business Plan.
Put figures or ranges against the major benefit component bullet points on page four of executive summary of the plan.	This has been added to the plan.



### Theme 3

ERSG Feedback	What have we changed as a result of this feedback?
<p>The company has not changed the title of Theme 3 ‘Unlocking consumer value through competition’ in accordance with previous group feedback.</p>	<p>We decided to retain the current title for Theme 3 as we want to be consistent with <i>Our RIIO-2 Ambition</i> document and our July draft plan. We consider that the content is clear that it is about networks and we have included clarification that competition in markets is included under Theme 2 Transforming participation in smart and sustainable markets.</p>
<p>The company has not understood the challenge on responsibility for ensuring that the Security and Quality of Supply Standard (SQSS) is met – i.e. where you have an independent SO and TO who is responsible for ensuring security across the entirety of the system?</p>	<p>We responded directly to the group in writing on this feedback. We think that the ESO and TOs have joint responsibility for delivering compliance with the SQSS.</p>
<p>The group reflected that to assume there would be no CATOs until RIIO-3 was not ambitious while recognising that the activity is contingent upon legislation. The group thought that the company lacked commitment to delivering onshore competition.</p>	<p>We have removed the CATO proposed activity from the Theme 3 chapter as we have been asked by Ofgem to develop an Early Competition Plan, as a separate proposal.</p>
<p>With respect to the proposal to develop the end of life assessment process in the <i>NOA</i>, the group questioned whether we had engaged with TOs sufficiently.</p>	<p>We have added more to section 6.2.3.2 in the Theme 3 chapter to clarify that we have undertaken some engagement and will continue to engage with TOs on the development of this proposal. We understand that there is an interaction with the TO Business Plans. We have also clarified the timing of our proposals and therefore when they will impact on the TOs’ plans.</p>

## Metrics

ERSG Feedback	What have we changed as a result of this feedback?
<p>ERSG had an initial discussion on metrics at the September meeting and these comments refer to metrics that were in development for the October draft Business Plan. A fuller discussion on the further developed metrics took place at the November 2019 meeting, the feedback from which is set out in the table above.</p>	
<p>The group asked the company to consider whether transparency over its' control room decisions in relation to carbon intensity will be made sufficiently transparent through current and proposed data availability or whether something more is needed.</p>	<p>We are reviewing this for our final plan but information on the carbon intensity of control room actions will be addressed by our Open Data proposals rather than by a performance metric.</p>
<p>The group asked if there should be a metric or more transparency on whether we get what we were offered by participants in the balancing market.</p>	<p>We do not consider this is appropriate for a metric as it is not a measure of our performance. However, it may be a data set we publish as part of our open data proposals and we will consider this further in that context.</p>
<p>Clarify the metric in section 7.4 in the Theme 4 chapter</p>	<p>We have clarified and updated this metric in our October draft Business Plan and highlighted we planned to engage further with stakeholders on metrics in October and to include finalised metrics in our December plan.</p>
<p>In respect of Themes 1 and 2 the group questioned whether the rationale for choosing one asset over another for balancing purposes is already covered by our proposals on transparency of decision making.</p>	<p>We discuss transparency of decision making in our open data proposals in the Digitalisation and open data unlocking zero carbon system operation and markets chapter 8 of the Business Plan.</p>

## Technology underpinning our ambition

ERSG Feedback	What have we changed as a result of this feedback?
The group asked the company to include a summary of all 33 IT investment lines and their cost, adding up to the total investment.	We have added a table to Annex 4 – Technology investment report, Appendix A: IT investments.
Clarify how or whether we will be offshoring any of our IT delivery.	We have clarified in section 10.6.2 Delivery approach that we offshore supporting capabilities across our projects delivery and ongoing support activities. This encompasses capabilities such as development, testing and third line support.
Include some narrative on how we will ensure we get value for money in our IT delivery contracts.	In section 10.6.2 Delivery approach we discuss how we have recently run a competitive tendering process that has enabled us to achieve a market-tested commercial agreement across multiple suppliers to support our application development and maintenance activities. Within 10.6.1 Our IT operating model - what we do, we also show how our operating model is designed to ensure value is achieved for the ESO
At this point can we be clear on what IT projects we will outsource and insource? Can we either provide specifics on each or a higher-level narrative?	Project delivery is dependent on a blend of internal/external resources and solutions. Within Annex 4 – Technology investment report, sections 2-6, we show the anticipated approach. As we initiate each investment, we will test our assumptions against the market and select the optimal blend of outsource/insource.
It would be good to understand more about our model for sharing risks with suppliers.	In section 10.6.2 of the Technology underpinning our ambition chapter we have added some information about our framework contracts and risk sharing approach. These framework contracts allow for different contract models – such as fixed price – which can be used to share risk.
Expand on the narrative on how the shared services model works and why we think that's the best approach and won't constrain delivery of the Business Plan.	Changes have been made to chapter 12 - Leveraging value from shared functions, and chapter 14 - People, culture and capability.
Make the narrative on us using Ofgem's approved methodology for apportioning costs for shared services, including IT, more explicit.	The allocation model is explained in chapter 12 and more detail on the IT component is set out in chapter 10.

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Set the interdependencies of the proposed IT projects out more clearly.	In this Business Plan, individual investment dependencies are defined in Annex 4 – Technology investment report, sections 2 to 6. Additionally, a summary view of interdependencies has been defined in Annex 4 – Technology investment report, 16. Appendix E: Investment dependencies.
In Theme 1, there is an assumption the reader is aware that the ESO can't continue with the current IT systems and why there is a need to spend money on new systems	We have reinforced our narrative in section 4.2.3 of the Theme 1 chapter to explain the rationale for new investment and that our current systems will become obsolete. We explain that upgrading legacy systems will not enable us to meet our ambition. We also set out a brief history in Technology underpinning our ambition, 10.3.1 ESO target landscape, where we show that our systems have been developed in response to an electricity landscape that has evolved at different rates.

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**Innovation**

**ERSG Feedback**

**What have we changed as a result of this feedback?**

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The group would like to see more information in the innovation chapter, on how we expect to work with academia and other third parties and how we will encourage industry collaboration.	We have set out more clearly how we expect to engage and work with third parties in section 11.2.2 of chapter 11, Innovation at all levels of our business in this final Business Plan.
Better explain our proposals for additional innovation funding and how this relates to a pass-through funding model.	We have better explained our proposals for additional innovation funding and how it will fit in a pass-through funding model in section 11.1.2 of chapter 11, Innovation at all levels of our business in this final Business Plan.

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July 2019 ERSG meeting (please note the references to the Business Plan relate to our final Business Plan in these tables unless stated otherwise)

## Regulatory Framework

### Summary of detail presented

We provided an overview of our response to Ofgem’s further consultation on the ESO’s funding model, set out in the ESO annex of its Sector Specific Methodology Decision in May 2019.

We presented a paper that set out a summary of our response to Ofgem’s consultation, which included:

- setting out concerns that both funding models proposed would not drive the right behaviours from the ESO or ensure that the business is financeable.
- providing early modelling analysis to support this which was set out in the annex of the paper.
- A proposed model we believe would be more appropriate to fund the ESO: a layered model made up of a RAV\*WACC, a margin on operational costs and a margin on external costs. This would be augmented by a clearly defined incentive scheme to drive us to deliver additional benefits for consumers.

### ERSG Comment

The group asked if there has been adequate time allowed in the timelines to update our Business Plan for final submission in December 2019 based on Ofgem’s final decision.

There was concern from the group that Ofgem will not make the right decision with respect to the final funding model for the ESO. The impact of the nationalisation debate on Ofgem’s decisions was discussed.

The group asked the ESO to confirm the financing plan for the ESO. Is the money expected to come from external sources of debt or loans from the National Grid plc? The Business Plan is silent on this.

### ESO Comment

We confirmed we are doing everything that we can to hit the December 2019 deadline, but if there are any unexpected decisions taken by Ofgem on our funding model or regulatory framework then it’s possible that timelines would need to be re-planned. We have performed some analysis on the RAV\*WACC model proposed by Ofgem and found that it isn’t financeable. Ofgem will be performing its own analysis in this respect

We confirmed we were still working through this and provided more clarity on this in the subsequent submissions.

Concerns were raised on the decision to approve Business Plans in two-year cycles. The industry cannot transform during this time, and it will require the ESO to start projects and make investments at risk.

We confirmed that the two-year cycle was a decision made by Ofgem.

## Overarching

### ERSG Feedback

### What have we changed as a result of this feedback?

A general comment was raised during this discussion that some of the group are unsure that ESO can deliver what is written. It feels like it could be more complicated than they can achieve.

This has been covered in our Delivery confidence narrative in section 3.5.

The group feel that our Business Plan could not actually be used to run the business. The document feels like it's more of a demonstration to Ofgem of how much is going on, more detail is needed on how these things will be done. More frankness about the challenges that must be faced is needed.

Underpinning the plan is a more detailed set of internal delivery plans. Our Business Plan needs to be kept at an appropriate level so that Ofgem and stakeholders can understand what we propose to deliver and why our costs are efficient.

How the company will get to where it needs to could be better demonstrated by describing the starting point followed by the required activities to get you to the end point. This is critical in order to get approval for chunky investments as Ofgem will need robust justifications.

This should now come out more clearly through the Theme chapters 4 to 7 with the inclusion of more information on our ongoing activities and costs alongside our proposed new transformational outputs.

It would be really helpful to have an organisation chart so that lines of reporting are clear as well as ESO-SO-group interactions. This will give clarity around how decisions will be made. This is a common expectation for writing a Business Plan. Vision statement, org structure and reporting into Board arrangements.

This was added to our October draft Business Plan.

Bring as much specificity into the Theme chapters on who provided stakeholder feedback and the extent of support there was for particular proposals.

The narrative was updated in all chapters and the types of stakeholder who gave specific feedback incorporated.

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There is no description of risks from an organisational and operational perspective. This could be addressed by a sort of SWOT analysis approach.	We have now added section 3.5 Delivery confidence – which considers the high-level risks to the delivery of our Business Plan.
It was felt that the sections got weaker as you work through the document.	The document has been updated throughout to enhance the robustness and narrative, as well as the consistency.
Provide a red line version of our October draft Business Plan for the September ERSG meeting.	Due to the significant level of change we were unable to provide a red line version so provided a detailed table of changes.
Be clearer on our role in society.	More information on this has been given in chapter 1 - Introduction and context.
Set out how we will resource the sharp increase in headcount over the first two years - give confidence we can do it.	This has been covered in the following sections: <ul style="list-style-type: none"><li>• 14.2.2 Our estimated future people profile</li><li>• 14.4 How we will attract and retain our talent.</li></ul>
Explain in the foreword that the Business Plan has been written during a period of great uncertainty and list some of the issues associated with this.	The narrative has been updated to incorporate this.

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## Stakeholder Engagement

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### Summary of feedback

The group felt that enormous detail of stakeholder feedback had been captured and well threaded throughout the document. They felt the ESO had taken on feedback from different voices in industry and reacted well to the divergent insight and feedback.

The group thought it was good to see the ESO reviewing secondary material and not only relying on its own engagement activities and consultations.

The group also supported the ESO's approach to direct consumer research in reviewing the relevant research that is in the public domain. They thought we had made good progress towards this but would like to see a wider range of engagement as they feel it is largely driven by industrial and commercial stakeholders.

### ERSG Feedback

### What have we changed as a result of this feedback?

The ESO needs to demonstrate it has consulted on our Business Plan as a whole.

This was achieved through our stakeholder workshop on 2 October 2019.

Continue to understand consumer views through the most appropriate means as thoroughly and often as possible.

Further engagement and research has taken place and has been included in the report to demonstrate our understanding of consumer views. You can see this in section 2.5 Understanding consumer views.

As engagement develops in RIIO-2, efforts should increase to engage a wider range of stakeholders.

We have included a more detailed view of our strategy in RIIO-2. This can be found in section 13.1.1.

Give the appropriate weighting to each engagement to ensure that industry engagements are not dominant.

We have captured other feedback and described where feedback has come from at a granular level. We have also presented a view of the proportions of stakeholders involved in our engagement overall and at each event.

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## Theme 1

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### Summary of feedback

Overall the group felt that our ambition was clearly laid out, and it is clear what the ESO wants to achieve by 2025. They thought that there was good evidence of stakeholder engagement particularly through sections 4.1 Overview, and 4.3 Training simulators (in reference to the July draft plan). They thought the justification for the digital twin was strong, but more could be done to show external support for it.

The group thought that our cost and benefits in some areas could be more clearly presented. Also, that some of the justifications could be better detailed so it was easier to understand the breakdown of costs, and when they occurred.

The group felt that in some cases our language was quite generic and focused on what we want to achieve, rather than what will be done to achieve it. They questioned whether we would be able to deliver what we had set out to achieve, as we had not explained what needed to be done or the risks associated with delivery.

Another point the group made was on the culture of the company to transition away from an asset-based organisation into an environment that changes daily, noting the significant change needed and difficulty in doing so. On this point, the group felt it would be good to see organisation charts of how the business is now and how it expects to be, to help clarify reporting lines and governance.

### ERSG Feedback

More detail is required on the digital twin.

It would be useful to break down the costs of the digital twin to show when components are going to be invested in and paid for.

Highlighting how the digital twin is an enabler to operating in a new world and using the stakeholder feedback you have been given would be good to evidence this proposal further

### What have we changed as a result of this feedback?

In the July draft Business Plan the narrative was updated to provide further information on the architecture and systems we proposed to develop and the benefits of this. The investment roadmap was also updated. These can be found in the Control Centre architecture and systems section 4.2. We updated the narrative around the other options considered, including the pros and cons. This is in Annex 2 – Cost-benefit analysis (CBA) report (it was previously in the main narrative).

IT investment summaries have also been created in Annex 4 - Technology investment report that provides more detail around the specific IT investments we propose to make, including why they are needed, stage of development and the costs.

We have continued to evolve our explanation of digital twin technology. In this Business Plan we have responded to this feedback in several ways. Within section 4.2.3.3 Control Centre architecture we have included the definition of digital twin technology as it will apply to us, because there are subtle differences across external organisations. We have explained how we will use digital twin technology in

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the developing of our new balancing and control capability and for enhanced simulation, and included two images in this section to illustrate this. More detail on how we will use digital twin technology, including alignment to external initiatives is in the Digitalisation strategy.

It should be noted that there is not “a” or “the” digital twin. The systems we develop will each have their own digital twin. The additional costs of this are incorporated into the individual investment lines.

The Control Centre architecture and systems narrative section 4.2 references reports from the National Infrastructure Commission and the Energy Data Taskforce that highlight the benefits of digital twins.

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Some members questioned if the net benefit was a good return given the cost. Further justification is needed and to be able see the scale and range.

We have updated the benefits case for Theme 1 and included in the narrative that we see the Theme 1 proposals as unlocking the benefits in the other Themes. We had a range already, and this is also in Annex 2 – Cost-benefit analysis (CBA) report.

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On page 37 of our July 2019 Business Plan, the pie chart shows a capex spend over five years. The pie chart on page 37 needs to give more detail so it can understand what capex expenditure is being referred to.

In the July draft submission, we provided costs in two ways for each Theme:

1. the total transformational opex, the total transformational capex and the total ongoing costs;
2. the total opex and capex split per year. Additionally, the CBA report broke down the transformational capex and opex per year for the relevant areas.

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On Page 38 the bar chart shows the evolution of costs over a period and it provides a reasonable overview but is of limited use as it isn't clear what costs and expenditures are being incurred and when.

In this submission, we have provided:

1. granular costs tables with opex, capex and FTE per year for each activity group;
2. costs per year for each investment, in the IT investment summaries.

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The way that costs and benefits are presented could be improved and further justification for preferred options could be given.

An updated benefit methodology is also in Annex 2 – Cost-benefit analysis report, but we have pulled out the high-level calculation steps in the cost-benefit analysis section for each group of activities. This also includes the pros and cons of different options we have considered.

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More granular information is needed on the activities for expanding the control infrastructure. The language is quite generic and does not focus what will be done to achieve this.

The Control Centre architecture and systems narrative and timeline seeks to address this. We have included more detail on the capabilities we propose to develop and how they fit together. This information is in the Control Centre architecture and systems section 4.2. The IT investment summaries also provide further detail.

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Section 7.3, Training simulators (in reference to the July draft plan), mentions working closely with universities. The ESO should reference work being undertaken by BEIS, Department of Education and academics and link in with the discussions to show that they are aware of industry developments when talking about working more closely with universities to get the skills required.

In the section 4.3 Control Centre training and simulation, we have outlined our discussions with academics and how these have helped shape our proposals.

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Wording for rationales could be updated to better reflect how stakeholder feedback has been taken into account.

The narrative has been updated to show how stakeholder feedback has shaped the proposals.

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## Theme 2

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### Summary of feedback

Overall the group thought the deliverables are clear in this area and they liked that progress can be easily measured against what is proposed to be achieved. They thought the rationale behind it is well articulated but thought some of the timelines would be challenging.

The group questioned some of the activities related to markets and whether they were transformational or should be an evolution of what we currently did. They felt that there was no clear justification of what was different, and they thought this was unambitious. They also thought we needed to better understand how to create a market and get players involved.

The group noted many proposals in this area are not within the ESO's remit to propose and will be decided upon by external reviews and decisions by Ofgem and BEIS.

They thought the benefits were articulated within the narrative, but we could better explain how the total is reached from each activity.

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### ERSG Feedback

### What have we changed as a result of this feedback?

Concern over overlap between RIIO-1 and RIIO-2 activities, can't clearly see the difference.

An investment roadmap has been created with RIIO-1 activities leading to RIIO-2, and we have included a much better description of this.

Would like to see further explanation given on sandboxes and why the use of these is expected to speed things up.

We have added a call out box that shows it is an approach across all the markets activities rather than a standalone deliverable and we have provided more clarity on what it actually is.

Overall total benefits and individual activities benefits did not add up and need further explanation.

The cost and benefits have been refined and reviewed for our October and December 2019 submissions. An updated benefit methodology is in Annex 2 – Cost-benefit analysis (CBA) report, but we have pulled out the high-level calculation steps in the cost-benefit analysis section for each group of activities. This also includes the pros and cons of different options we have considered.

The group questioned whether the information on markets is transformational. More clarity is needed to explain this activity.

The narrative has been updated in Theme 2, with further explanation on what this proposal seeks to achieve. It also highlights that service providers told us, through our extensive stakeholder engagement, that this will transform the experience and significantly improve the efficiency of market participation for them.

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<p>Many of the proposals in this section aren't entirely for the ESO to decide. There were also mentions of external work that was ongoing that would be good for the ESO to be aligned with.</p>	<p>The narrative has been updated in Theme 2, with further explanation provided in to show alignment with other activities: We are conscious that there are multiple ongoing BEIS and Ofgem activities, in relation to EMR (e.g. Five-Year Reviews of the Capacity Market) and we will continue to ensure there is coordination and consistency with these activities.</p>
<p>Asset register mentioned in this section but feels far off in terms of development.</p>	<p>We will continue to develop our understanding of the asset register that underpins the single market platform and how it will interact with our proposals.</p>
<p>There needs to be further demonstration that the company understands how to create a market but also how to ensure that players turn up to it. How to stimulate interest etc. What are the external dependencies which will drive the direction that we go in? What is the existing plan dependent on, where is further clarity needed?</p>	<p>New market characteristics and market platform all explicitly talk about removing barriers and attracting new players</p> <p>The plan is dependent on delivery of the milestones in the updated delivery roadmap included in this submission.</p> <p>In addition to the points above about how the market platform will reduce barriers to entry and therefore encourage more participants, the closer to real time markets and reduction in minimum participation size will encourage participation as evidenced in section 5.2.3.</p>

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**Theme 3**

**Summary of feedback**

The group felt the title for this section could be changed as it is not reflective of the contents, however they believed what we wanted to achieve in this area is good and had the potential for us to stretch our thinking further.

They felt there was more detail needed around the CATO proposals, with supporting narrative and justification of how there is no conflict of interest. When CATO was discussed again at the September meeting one member of the group felt that the ESO is not committed to delivering the CATO model and that this section is very weak.

Where the plan mentioned tools for probabilistic analysis, it was questioned whether the TOs and SO both needed to spend money in this area; responsibilities seem blurred.

The group felt that we reacted to the challenges that were given around the NOA content appropriately and they are in favour of the proposals. They thought if we were to remain technology agnostic, this would not fit with our ambition.

They also wanted more clarity and ambition around the direction we want to take the SQSS in and also discussed whether primary responsibility for meeting it sits with the ESO or TOs. This was discussed again at the September meeting.

It was noted that clearer deliverables and targets would be useful to see clearly what would be delivered and when in the five-year RIIO-2 period.

**ERSG Feedback**

**What have we changed as a result of this feedback?**

Consider changing title to reflect chapter covers planning and competition.

The decision was made to keep the title as it is to emphasise the importance of the principle of competition.

It was asked that the term technology agnostic is defined in the glossary.

This term has been added to glossary.

It was asked who is responsible for delivering SQSS, as there is a lack of clarity between the TO and SO. More clarity and ambition around the direction that they want to take the SQSS would be useful. View that SQSS should sit with ESO, to allow for more competition.

We clarified that we will lead the review and agreed the scope with TOs. This can be found in section 6.3 Review of the SQSS.

The group felt more detail is required for the CATO proposals.

The narrative has been updated to explain that details will be included in the separate Early Completion Plan - section 6.4 Supporting the design and delivery of an early competition plan.



<p>The group thought it would be good to have a section on probabilistic analysis and who should be spending money, the ESO or TOs</p>	<p>We have included probabilistic modelling as one of our areas of investment - section 6.2.3.4 Enhance our analytical capabilities to support these activities. Our investment is not contingent on TOs also making an equivalent investment.</p>
<p>When the CATO arrangements have been discussed the ESO says there are no conflicts of interest for them but from the outside it does seem that there would be conflicts.</p>	<p>We have further reviewed this, reiterated our independent position and will address issues of conflicts of interest under the early competition plan - section 6.4 Supporting the design and delivery of an early competition plan.</p>
<p>The group felt there needs to be a more coordinated approach for planning the offshore grid, and this is not mentioned in the plan.</p>	<p>We have incorporated this as an activity in Theme 4 - section 7.3.3.5 Develop a regime for an integrated offshore grid.</p>
<p>The costs in this section are not explained in any detail. Costs for extending the <i>NOA</i> are allocated to three different areas. This might be sensible, but it isn't clear if it is due to lack of detailed justification.</p>	<p>We have re-presented our costs to provide greater detail on their justifications and how the associated benefits will be achieved throughout the narrative - section 6.2.3.1 Implement and enhance competition to enable all solution types to compete to meet transmission needs.</p>
<p>Could there be some more information on plans to unlock areas of the network where any further connection is not possible, e.g. South Wales?</p>	<p>The existing <i>NOA</i> carries out an annual cost-benefit assessment of strategic investments to recommend whether it is advisable for network investment to take place.</p>
<p>Targets and deliverables are a bit vague. What will actually be delivered within the five years?</p>	<p>We have developed a detailed timeline chart setting out the key milestone dates and reflected this in the narrative across the Theme. We set our targets as part of the <i>Forward Plan</i> process with Ofgem. Our final Business Plan includes targets and historic data on our metric proposals with further detail in Annex 7 – Metrics and measuring performance.</p>

## Theme 4

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### Summary of feedback

The group felt that stakeholder feedback has been well evidenced in this section and it was fairly clear where it had been acted on.

There was some disagreement amongst the group about the role the ESO should take in leading the debate. It was discussed and clarified that we should be providing recommendations as an expert however they wondered if we had the resource to do so.

They felt the whole system approach is set out well but was not sufficiently justified. The group disagreed on whether the ESO should adopt a more facilitative role or be providing direction and leadership.

There is further information needed on the costs and when they are spent, alongside clearer justification of the benefits which have the potential to be high. The group wanted to ensure there was no double counting.

### ERSG Feedback

### What have we changed as a result of this feedback?

In section 10.1 (reference to July draft plan) there is a lack of clarity in the language used in what the ESO sees their role to be in leading the debate. ESO's role in this respect needs to continue to be discussed with stakeholders.

We have engaged further with stakeholders to test the proposed policy development role. We have reflected their views and clarified what we see our role as being alongside others in the industry and existing policy makers. See section 7.1.2 in Theme 4.

The Business Plan should clearly highlight where more direction or clarification is required from Ofgem and BEIS, in order to achieve the targets.

We have now proposed some metrics and will set targets as part of the *Forward Plan* process with Ofgem. This can be found in sections 7.1 to 7.4, Metrics sub sections. Our final Business Plan includes targets and historic data on our metric proposals, with more detail in Annex 7 – Metrics and measuring performance. We have noted Ofgem's publication on Distribution System Operation (DSO) and have articulated that our proposal is consistent with their least regrets approach to this work.

The ESO has a powerful role in the decarbonisation debate and should be signposting what needs to be done if we want to meet the targets. Still feels like their sense of their role in society isn't clear.

We have highlighted in this and other Themes how we will enable the UK to transition to a zero carbon electricity system by 2025 and help it fulfil its net zero emissions commitment by 2050. This can be found in the five-year strategy section 7.1.

In section 10.3 and 10.4 (reference to the July draft plan) the activities described are not clearly laid out and this could be improved.

We have reviewed and applied a revised structure to these sections for clarity and for consistency with the preceding ones. These now set out our ongoing activities

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	before detailing the transformational proposals, including their overall benefits, cost details and metrics.
There needs to be more information on costs. It would be useful to understand why costs are peaking in 2023/24 and to have each year broken down by deliverable.	We have developed a timeline chart, setting out our key deliverables. We have expanded on the proposed costs, highlighting what the additional FTEs will be doing and where efficiencies are expected from improved processes and systems. This is reflected across our narrative on our proposed transformation activities. 2023/24 is the start of RIIO-ED2 so costs are forecast to increase in line with increased delivery of DSO tools and processes. Our revised assumptions now see costs increasing further through RIIO-2 as cross vector considerations advance to delivery timescales.
The structure of the chapter is confusing. Need to move section 10.5.3 (reference to the July draft plan) earlier in the document as it sets ESO approach to DSO transition.	We have moved the text to earlier in the section as suggested. It has also been updated to reflect Ofgem's recent publication on DSO.
There is some confusion caused by the terminology used in this section. Whole energy system versus whole system versus whole electricity system.	We have clarified what we mean by whole electricity system in section 7.1 of Theme 4. We have reviewed the section to better clarify when we are using whole energy system and whole electricity system terms and introduced them separately as suggested.
Potential benefits are very high in this section and it isn't clear where it comes from as it is not obvious from the CBA, and there are potential issues with double counting. There is no direct cost or benefit attached to the enhanced advisory role, it's implied but not brought out.	We have reviewed and recalculated all our CBAs, ensuring they are appropriately attributed to the proposed activity and that there is no double counting. Only qualitative benefits have been attributed to our proposed role to support policy development in section Leading the debate – section 7.1.5 Transformational activities.
In section 7.4 there is a recognition that more collaboration is going to be important which is welcome, but activities seem to plan to give more power to the ESO and less to the DSO. ESO may need to adopt more of a facilitative role as the system becomes more decentralised.	We have set out what our resource and funding expectations and assumptions of TOs and DSOs are, to support a more coordinated approach to delivery of non-network solutions to system needs (detailed in Theme 3). We have also developed a detailed timeline of our proposed key deliverables for enhanced coordination, taking into account RIIO-ED2 timescales and known existing planned activities, such as establishing connections portals. We have expanded on how we will coordinate our role with TOs and DNOs in respect to delivering whole electricity system outcomes and in network access

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planning. This is referenced in section 7.1 Five-year strategy and in section 7.4 Delivering consumer benefits from improved network access planning. This is to enhance the Network Access Policy (NAP) process with TOs and work more closely with DNOs and distributed energy resources (DER) to facilitate network access. (Note that our focus is more on ways of working with DNOs as, for TOs, the SO-TO Code provides detail of how we are required to work together, whereas there is not yet a distribution equivalent).

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## Technology underpinning our ambition

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### Summary of feedback

The group felt the ESO had taken on previous challenges they made on this section and had acknowledged how important it is.

The group had some concerns over the governance of IT and whether the wider National Grid Group was leading this, or the ESO; they didn't feel it was clear. There was discussion on whether the ESO really understood the implications of the proposals and what it means to take on the role they are setting out. Becoming more IT and platform-driven would require expertise and leadership within the ESO, and a question was asked if the ESO would have a Chief Information Officer as part of the leadership team.

The group said more information needs to be given around the design authority, detailing how it will be resourced and how they will get the right people involved. The group stressed the importance of having people in house who can understand and design what is required. They would like further information on how this transition would be managed.

The group like the confidence this section gave in the ESO being able to externally procure and internally build elements. They would like to see the strategy between procuring externally and building in house and what things should fall under each. Some of the group also had a concern about procurement being a shared service rather than directly in the ESO.

ERSG Feedback	What have we changed as a result of this feedback?
The group stressed the importance of having people in house who can understand and design what is required. More information is required on how this transition would be managed. How will you get these people in house?	In chapter 14, section 14.4.3, we explain how we will retain intellectual property (IP) by bringing key knowledge roles in house.
Who will own the IP associated with these things?	Wherever possible, ESO would own IP unless in the benefit of the consumer for us not to.

There is too much jargon in this section, which suggests a potential lack of understanding of the challenge. There needs to be a better articulation of the capabilities and expertise that will be needed.	More technical areas have been rewritten to ensure they are understood better.
The design authority section needs to explain how they will resource it and get the right people in, whilst ensuring that people with vested interests are not involved.	Terms of reference have been drafted for the design authority and are summarised in chapter 10. This will be further developed by testing with industry.
The group would like to see what the strategy is between procuring externally and building in house, what things should fall under each of these?	IT investment summaries have been provided in Annex 4 - Technology investment report that provides more detail around the specific IT investments we propose to make, including why they are needed, the stage of development reached, the costs and timelines associated with them and this also includes the procurement strategy. Also see section 10.4 Total IT investment to deliver our Business Plan.
A general comment was made here that it isn't very clear what's part of the two-year proposal and what's part of the five-year proposal?	

## Innovation at all levels of our business

### Summary of feedback

The group thought there was a lack of focus in this chapter. They thought the plan seemed focused on big innovation and missed micro innovations. They were unsure if this section was to ask for more innovation or explain the strategy.

The group felt the eight-year timeline was not fit for purpose as new initiatives would be obsolete by the time they are put into practice. They also wanted to understand why benefits are too difficult to calculate.

The group felt there was a lot of innovation discussed throughout our Business Plan and detailed in the timeliness and practising of delivery well however, this was not evident in the Innovation at all levels of our business chapter.

The group would like to see more on previous projects and their current positions. They would also like to see more evidence of stakeholder engagement and what has been done as result of the feedback.

ERSG Feedback (all references are to the July draft Business Plan)	What have we changed as a result of this feedback?
Innovation timelines in figure 49 didn't make sense to some of the group. The eight-year timeline is not fit for purpose as new initiatives will be	More context has been given as to what the timeline represents. This is from once ideas leave R&D, not necessarily for individual projects (which

<p>obsolete by the time they are put into practice. It feels as though there is a lack of focus in this chapter, it would be better to focus on a handful of projects at a time and achieve timely delivery.</p>	<p>may be further developed along the Technology Readiness Level scale). Also, more justification for these timescales have been given.</p>
<p>Themes in section 13.4. made sense but more focus on what is critical may help to speed up processes.</p>	<p>More explanation of why these proposed innovations are listed against the Themes is given at beginning of section 11.4 Ongoing innovation in RIIO-2.</p>
<p>P148 says that benefits are too difficult to calculate, why is this?</p>	<p>Additional justification for this has been provided, particularly why this is difficult for the ESO as most benefits are indirect and over the long term. See section 11.1.3 Realising benefits from innovation.</p>
<p>P150 describes a central team which frees up core teams from certain tasks. Debated whether this was the right model.</p>	<p>More detail has been provided on the proposed team structure and reason behind a central team and embedded Innovation Leads. See section 11.2 Building our innovation capability.</p>
<p>On p152 it is not clear how the stakeholder views have been acted on. Will the feedback mentioned be delved into further for the next version of the Business Plan?</p>	<p>Stakeholder views have been added with a table showing exactly how we have responded to each stakeholder feedback action.</p>
<p>The chapter should reference the other innovation pieces throughout the plan to really highlight how much there is.</p>	<p>Section 11.4 Ongoing innovation in RIIO-2, details the proposed innovation from each chapter.</p>
<p>Fig 51 innovation cycle diagram ends with closing down the project and starting a new project. Not easy to tell how these are implemented into ongoing activities.</p>	<p>This diagram has been removed from the Business Plan.</p>
<p>The plan seems more focused on big innovations than micro innovations.</p>	<p>We don't believe small, incremental innovations should be eligible for innovation funding; this should be part of ongoing activities funding processes. This frees up the innovation stimulus for higher risk, more potentially disruptive innovations.</p>
<p>Some confusion about whether the ESO was using this section to ask for more funding on innovation or not.</p>	<p>The narrative has been updated in sections 11.1.2 Investing in innovation in RIIO-2, detailing what funding is being asked for and the rationale of retaining an innovation stimulus.</p>

## People, culture and capability

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### Summary of feedback

The group felt this section did not describe adequately what capabilities are needed within the business as well as the softer skill requirements. They would like to see how the balance of capabilities change and how that will be resourced.

The group felt that we hadn't addressed the cultural change required within the business to deliver our proposals. They would like to see a current understanding of how people feel in the business as result of efficiency savings and legal separation noting the impact this has on culture such not be underestimated. They would also like to the ESO to show an understanding of how and why they will need to change.

The group felt that recruiting 250 new people in a year was a huge jump and noted the HR budget is not in line with that. They wondered if we had thought of the wider implications such as on office space and ability to recruit.

### ERSG Feedback

### What have we changed as a result of this feedback?

There is no recognition that the company is currently in a transition. It is moving away from an asset bias into an environment which is changing daily. Change managing an organisation on this size and scale is incredibly difficult. There is not enough description of what they will need to change internally and how they will achieve it. There isn't a demonstration of the organisational and cultural change that will be required to achieve all of this.

The executive summary and landscape section emphasises how the landscape is changing and how we as a company need to change with it. We have taken the feedback and strengthened the Our culture section 14.5, to ensure we have the change readiness as an organisation to enact the change required. There is also a more overarching "delivery confidence" section.

They were interested to know more about what assumptions have been made on the performance and engagement levels of our employees, and the impacts of ongoing changes.

Culture and capability are a focus area in this version of our Business Plan as is our employee value proposition which will be an important lever of employee engagement.

It was unclear to our stakeholders what kind of organisation the ESO is aiming to build longer term. For example, is the ESO going to be a procurement organisation or software company?

Today we would describe ourselves as an engineering company with commercial expertise. This question is covered to some extent in chapter 14. The challenge we took from the group was whether we are being too narrow minded about what the company is today. In this version of the Business Plan we have aimed to show how we are thinking differently about what the company needs to be by continuing as a core engineering company with an emphasis on data analytics.

Our stakeholders asked for more detail to be provided both on the current and target state of the following in the next submission:

This feedback is reflected in our submission, where we are providing additional detail on the mentioned elements.



- capabilities and soft skills requirements
- FTEs and Theme allocation, people costs
- culture
- office space requirements.

We have assessed space requirements and are able to accommodate the FTE increase across our existing sites.

**Cost-benefit analysis**

**ERSG Feedback**

**What have we changed as a result of this feedback?**

There are no details of a CBA against other options.

We agreed that there are no other options (other than the baseline assumptions) so this has been added to Annex 2 – Cost-benefit analysis (CBA) report. The logic is that our own judgement or stakeholders have removed options based on their feedback and the CBA is a final check to ensure value for consumers. Discounted options have been explored to a greater extent in this final Business Plan.

There needs to be clarity on what the costs are in each Theme. There is a lack of justification on where the expected costs have come from.

All Themes have cost justification included.

Rework balance between CBA report and main document to avoid confusion and challenge around lack of detail.

This has been rebalanced so there is more information in the main report and an easier to understand flow in Annex 2 - Cost-benefit analysis (CBA) report.

## 2.11 ERSG Meetings

The following tables provide an overview of the information we presented at each of the ERSG meetings and the feedback we received from the Group as we developed our proposals.

25 July 2018

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>Scenarios</b>	<p>The ESO presented options on how to analyse the future energy landscape, by either using <i>FES</i>, or scenarios developed by an industry party. This would form the basis of the Business Plan proposals.</p> <p>The ESO's preference was to use <i>FES</i>. They also presented the stakeholder feedback they heard to date, on the proposals and the areas of uncertainty/commonality agreed across the scenarios.</p>	<p>The group believed that:</p> <ul style="list-style-type: none"> <li>• using <i>FES</i> provided the right starting point, particularly as it went through a rigorous stakeholder engagement cycle. They noted however, there was a range of scenarios, and questioned if it would be more beneficial to have a 'best' view, or if multiple views should be formed.</li> <li>• for whichever scenario used, there needed to be sufficient flexibility to grow with the pace of change.</li> </ul>	<p>ESO to provide information on the following for the next meeting:</p> <ul style="list-style-type: none"> <li>• Description of the commonalities across the scenarios.</li> <li>• Description of the underlying analysis undertaken to this point and how it will be developed.</li> <li>• Description of key dependencies (with a focus on those areas that the ESO can influence).</li> <li>• Updated list of areas of change and uncertainty.</li> </ul>	<p>The information requested was provided at a later meeting.</p>
<b>ESO vision to outputs</b>	<p>The ESO presented the current roles and principles which were defined as part of the <i>Forward</i></p>	<ul style="list-style-type: none"> <li>• The group agreed with the proposed ordering of the priorities with a</li> </ul>	<ul style="list-style-type: none"> <li>• ESO to provide further thought to the wording of the</li> </ul>	<p>The priorities were updated as result. The Consumer Priorities</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p><i>Plan</i> and asked whether it should be built upon for RIIO-2.</p> <p>The ESO wanted to ensure this fitted with the consumer and stakeholder priorities that they had shared, to produce outputs. They presented a variety of options to be taken forward.</p>	<p>strong focus on consumer.</p> <ul style="list-style-type: none"> <li>• Some suggestions were made to enhance the priorities.</li> <li>• They also asked for further clarification on the definition of consumers, noting that this may not just be end users, and of stakeholders.</li> <li>• Also discussed was the importance of the ESO's role in providing thought leadership around the trade-offs between the priorities of these groups.</li> <li>• They agreed to the proposed approach of incorporating customer and stakeholder priorities with the roles and principles.</li> </ul>	<p>priorities and the trade-offs between different stakeholder types.</p>	<p>prefix 'I want' was changed to 'We want'. The stakeholder priority 'I want accurate and user-friendly information was updated to 'I want access to comprehensive, accurate and user-friendly information.'</p> <p>The stakeholder priority 'I want transparent and stable charges' was updated to 'I want transparent and forecastable charges.'</p>
<b>Regulatory framework</b>	<p>The ESO:</p> <ul style="list-style-type: none"> <li>• will have its own regulatory structure, and due to its</li> </ul>	<ul style="list-style-type: none"> <li>• The group was interested in what these models might mean for the financeability of the</li> </ul>	<p>The ESO to consider how to further engage with the group in advance of publishing the thought</p>	<p>A separate workshop was run in September 2018 for ERSG members to deep dive</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p>unique role in industry, a new model is likely required.</p> <ul style="list-style-type: none"> <li>• presented five potential funding models that had been explored with stakeholders and of these “performance” and “layered” were favoured.</li> <li>• proposed to take forward these two models to develop in more detail, noting they would publish a thought piece in October 2018.</li> </ul>	<p>organisation. They also noted that it would be hard to calibrate a completely performance-based structure, without understanding the baseline and the potential for risk of unintended consequences.</p> <ul style="list-style-type: none"> <li>• Feedback from the members in the room and in written correspondence prior to the meeting, indicated that a layered model may be appropriate at the start, but with a view to move to performance in the longer term once baseline expectations are established.</li> <li>• It was also suggested by one member, that a mix of models may be appropriate as in some parts of the US.</li> </ul>	<p>piece on the regulatory framework and provide further detail of developed thinking.</p>	<p>into the regulatory framework developments. The outputs of this workshop helped shape the thought piece we published in October 2018.</p>

14 November 2018

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>SO Mission and the consumer and stakeholder priorities</b>	The ESO presented its new SO Mission, informed by stakeholder engagement and shared the updated consumer and stakeholder priorities.	<ul style="list-style-type: none"> <li>The group reacted positively to the update and felt that these were an improvement. There was however, a discussion around whether an additional stakeholder priority should be added, around being flexible and adaptive, driving innovation and through that, improving competition.</li> </ul>	The ESO to draft an additional stakeholder priority to include flexibility, innovation and competition.	An additional stakeholder priority was added: 'I want you to be adaptable and innovative.'
<b>Using scenarios</b>	The ESO presented further work it had developed on what the future energy landscape could look like. Key areas of uncertainty were identified in a commonality scorecard, and an eight-step approach to develop options and manage uncertainty were presented.	<ul style="list-style-type: none"> <li>The group discussed that Ofgem was considering the use of a single scenario across all RIIO-2 Business Plans, and how these pieces of work may interact. This is being considered by Ofgem's RIIO-2 Challenge Group.</li> <li>The group fed back views on the scenarios posed, and some members felt that the ESO was being more passive than directive in terms of picking preferences. Some questioned if the ESO should favour scenarios that met decarbonisation targets.</li> <li>The use of scenarios was also discussed in terms of regional</li> </ul>	<p>The ESO to report back to group:</p> <ul style="list-style-type: none"> <li>The outcome of Challenge Group discussions around use of scenarios.</li> <li>Any future views on how it works with DSOs around regional scenarios.</li> <li>Interplay between managing longer-term costs and length of price control.</li> <li>Potential impact of 1.5 degrees target on scenarios and ESO plans.</li> <li>Views on ESO role as top down versus bottom up.</li> </ul>	All actions were presented back to the group at a later meeting.

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>differences and whether it was appropriate to feed this in.</p> <ul style="list-style-type: none"> <li>Some members also sought clarification around whether the ESO was positioning itself as a top-down (command and control, national markets), or bottom-up (leave to markets, regional focus) organisation in terms of how it interacts with wider industry, and how this might affect consumer costs. The ESO representative, explained that the key difference between these models was complexity. In some cases, it made sense for consumers to have national, centralised markets and other more regional versions driven by system needs.</li> </ul>		
<b>ESO ambition and strategy</b>	<p>The ESO presented the forward strategy to test the key enablers and the seven principles developed to inform their business plan proposals out to a 2030 vision.</p>	<ul style="list-style-type: none"> <li>Following specific discussions on the enablers, there was a broader discussion around how the principles might develop further as the ESO's role becomes more defined.</li> <li>The ESO's role in articulating, informing and implementing policy outcomes was discussed</li> </ul>	<ul style="list-style-type: none"> <li>Follow up with Greg Jackson as to how the ESO could learn from other companies that use automated platforms.</li> <li>Articulate three models of data management (slider on controlling/not, what regulatory framework might be, segment</li> </ul>	<ul style="list-style-type: none"> <li>Meeting took place between Fintan and Greg</li> <li>This is something we will take forward at the appropriate</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>and it was suggested that this could be brought out more.</p> <ul style="list-style-type: none"> <li>The question around how these align with the vision of the SO across gas and electricity was raised and the ESO agreed to provide more clarity on this when discussing principles in future.</li> </ul>	<p>customers, range of information, and so on.).</p> <p>Consider:</p> <ul style="list-style-type: none"> <li>how innovation and digitisation is captured in the Theme 1 ambition</li> <li>drafting an additional enabler (Theme 2). around market design</li> <li>rewording enabler to replace “driving competition” with phrases like “in order to ensure competitive markets” or “in order to enhance competition”</li> <li>how the link with gas articulated fully when discussing principles.</li> </ul>	<p>point in development</p>
<p><b>Whole electricity system</b></p>	<ul style="list-style-type: none"> <li>The ESO presented a paper identifying six key topics around driving efficient whole system outcomes. A set of sliders on where the ESO’s thinking was</li> </ul>	<p>1. Market and information provision.</p> <ul style="list-style-type: none"> <li>Discussion in this area focused around how data should be provided and how it could be used.</li> <li>The predominant view was that although data granularity</li> </ul>	<ul style="list-style-type: none"> <li>ESO to provide information on the types of platforms that would be covered under topic 3 (whole system – technology – facilitating new routes to market).</li> </ul>	<p>In Theme 2 we discussed our activity to work with DNOs to ensure coordinated and consistent flexibility</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	produced, and the group debated these.	<p>was important, some analysis may also be useful for the market so the ESO may want to consider a move towards B on the slider.</p> <p>2. Governance – framework accessibility and alignment.</p> <ul style="list-style-type: none"> <li>• It was felt that the ESO’s positioning in this area was about right. Members expressed views about the importance of working with other code administrators and DSOs.</li> <li>• One member felt that open code governance should be replaced with direct ESO changes as directed by government policy.</li> </ul> <p>3. Technology – facilitating new routes to market.</p> <ul style="list-style-type: none"> <li>• It was felt that the ESO’s positioning in this area was about right and that the ESO is well placed to set out views on what platforms for facilitating routes to markets could be.</li> </ul>		<p>markets for needs across the whole electricity system. We also provided additional information in single markets platform and further clarification on how our platform will work with distribution markets.</p>



Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>• However, a member expressed a view about why the ESO is not currently doing this now, and questioned whether the capability existed within the ESO? The ESO agreed to come back to the group on examples of the types of platforms it was considering would fall into this space.</li> </ul> <p>4. Options development – clarifying responsibilities across the transmission-distribution interface.</p> <ul style="list-style-type: none"> <li>• The group were split about the positions in this space and recognised that there was a broader debate taking place around the transmission-distribution interface including ongoing work with the ENA Open Networks project. There was debate around local versus national markets, and the role for regional congestion markets managed by DSOs.</li> <li>• ERSG members fed back on the importance of making it</li> </ul>		

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>Network planning</b>	The ESO explained how further work is taking place as to how network planning	The discussions are captured per option below:	<ul style="list-style-type: none"> <li>• ESO to undertake further engagement on expanding the NOA to</li> </ul>	An engagement plan was

<sup>23</sup> [http://www.energynetworks.org/assets/files/14969\\_ENA\\_FutureWorlds\\_AW05\\_INT\[2\].pdf](http://www.energynetworks.org/assets/files/14969_ENA_FutureWorlds_AW05_INT[2].pdf)

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p>can drive more value in RIIO-2. The following four options were presented to the group. One or more could be taken forward, they are not alternatives:</p> <ol style="list-style-type: none"> <li>1. Expand the <i>NOA</i> to include a wider range of transmission network needs.</li> <li>2. Expand the <i>NOA</i> to assess more voltage levels.</li> <li>3. Fundamentally review the SQSS.</li> <li>4. Define the role of the ESO in facilitating competition in the build of onshore transmission networks.</li> </ol>	<ol style="list-style-type: none"> <li>1. It was felt that the <i>NOA</i> giving visibility to reinforcements that might be needed was useful, but it was questioned whether it would be suitable to fit alongside the connection offers process. <i>NOA</i> providing views on alternatives to end of life asset replacement was also seen to be positive.</li> <li>2. There was some surprise that this had been discounted as an option by the ESO, particularly because the ESO is independent in this space. There was broad agreement that more engagement should take place with stakeholders to consider this option further.</li> <li>3. ERSG felt that the ESO's position that a fundamental review was likely to be required was sensible given that it has been updated an improved on an incremental basis over the year.</li> <li>4. There were some strong views expressed that this was an area which the ESO should pursue vigorously.</li> </ol>	<p>assess more voltage levels.</p>	<p>created, and stakeholder views were fed back into the plan. An adapted proposal on lower voltage levels was included in the Business Plan as a result.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>Codes</b>	<p>The ESO presented four options that could be considered for its role in codes during RIIO-2. These included:</p> <ol style="list-style-type: none"> <li>1. Continue as Code Administrator for the codes it already administers today.</li> <li>2. Step up to a new role as Code Manager for the codes it administers today.</li> <li>3. Step away from the current Code Administration role.</li> <li>4. Grow the Code Administration role, actively seeking codes to manage.</li> </ol>	<ol style="list-style-type: none"> <li>1. A number of members expressed views that current code governance arrangements were not fit for purpose however, there were different views on how these issues could be addressed. Some ERSG members felt there was some mileage and potential efficiency to be gained in bringing some of the network codes and associated work together. Funding of the Code Administration function was also discussed, and whether this should be pulled out as a separate layer in the regulatory settlement. There was broad agreement that changes were needed in this space, and the transition to Code Manager was welcomed, with some members feeding back that this was required now rather than in RIIO-2.</li> <li>2. There was a broad conversation around this topic, and what the group felt the role of Code Manager should entail, with some participants feeling it was unclear</li> </ol>	<ul style="list-style-type: none"> <li>• ESO to take feedback on board in further development of their options.</li> </ul>	<p>All of the feedback was taken into consideration in the development of our proposals.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>A forward look</b>	The ESO representative presented a forward look up to the final submission, including ERSG meetings and Business Plan milestones.	<p>how Code Manager was different to Code Administrator.</p> <p>3. This was not seen to be a credible option given the ESO's role in delivering a few of the codes.</p> <p>4. Some members felt this to be a risky prospect, given sensitivities that there are several existing Code Administrators.</p>	<p>ESO to:</p> <ul style="list-style-type: none"> <li>• Communicate future additional ERSG dates asap so that the group can add to diaries.</li> <li>• Consider improvements suggested in terms of how the meeting is run.</li> </ul>	<p>We completed all actions by the following meeting, which included improving the way information was presented on the day, the amount of essential pre-read and how to better structure the agenda.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>In terms of future content, a member suggested that they would like more information on workforce capability, and another asked to see more information on ESO costs.</li> </ul>		

30 January 2019

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>ESO RIIO-2 ambitions</b>	The ESO presented emerging thoughts on the ambitions for RIIO-2 ahead of the March document publication.	<p>The group believes stakeholders are looking for an ambitious ESO and they don't believe it has been identified what that is. As a result, there was strong feedback that the ambition statements are not really ambitious – they describe what the ESO should be doing anyway.</p> <ul style="list-style-type: none"> <li>The ESO also needs to better articulate what it is doing that's new. The statements need to be worded in a simple and compelling way and need to be part of an engaging and exciting portrayal of the opportunity it's embracing.</li> <li>To achieve some of these ambitions, the ESO may need</li> </ul>	The ESO to consider how to incorporate this feedback within the document for publication.	All of the feedback was taken into consideration in the development of <i>Our RIIO-2 Ambition</i> document and the narrative was updated.

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>changes in licence obligations (either for them or other parties).</p> <ul style="list-style-type: none"> <li>The ESO needs to be clearer when it talks about whole system ambitions, and whether the ESO means system or sector.</li> </ul>		
<b>Stakeholder engagement</b>	<ul style="list-style-type: none"> <li>ESO presented their approach to stakeholder engagement, what had been done and planned.</li> </ul>	<ul style="list-style-type: none"> <li>The group thought the ESO should use its engagement activities to provide views and evidence from stakeholders as to what kind of company they want the ESO to be (ambitious, leader, market provider).</li> <li>They felt the ESO could learn from other sectors such as water on how to demonstrate good robust engagement.</li> <li>They understood the ESO had undertaken a vast amount of engagement but did not see how this was as result of a clear strategy or programme. They thought the ESO needed to:               <ul style="list-style-type: none"> <li>be really clear on who they are engaging with and why</li> </ul> </li> </ul>	<p>The ESO to consider how to better demonstrate the programme of engagement and thread throughout the development of its Business Plan.</p>	<p>We provided an update at a later meeting and did the following:</p> <ul style="list-style-type: none"> <li>Reviewed water companies' Business Plan submissions and associated Ofwat assessments to see what best practice and key learnings we could take to incorporate into our Business Plan development.</li> <li>Commissioned an independent review of our stakeholder</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>• have a clear strategy and process of engagement activities</li> <li>• better document the outcome of engagement and how it's going to get them what they need.</li> </ul>		<p>engagement strategy and narrative.</p> <ul style="list-style-type: none"> <li>• Better threaded our story of engagement through our ambition document and draft plans.</li> </ul>
<p><b>Ofgem's sector specific methodology</b></p>	<p>The ESO presented their initial assessment of Ofgem's consultation proposals and summarised where further clarification is needed as well as the two main areas of concern for the ESO. These are:</p> <ul style="list-style-type: none"> <li>• length of price control</li> <li>• funding model and incentives.</li> </ul>	<ol style="list-style-type: none"> <li>1. Overarching             <ul style="list-style-type: none"> <li>• The group felt the ESO needs to understand and address Ofgem's concerns, when it is proposing something different.</li> </ul> </li> <li>2. Funding model             <ul style="list-style-type: none"> <li>• Members said the ESO needs to consider what pass-through looks like without an excessive cost disallowance and audits, and whether it becomes acceptable at any point. If not, the ESO will need to explain that it has considered a middle way.</li> </ul> </li> <li>3. Length</li> </ol>	<p>The ESO to develop their views, and further engage with stakeholders as they build the detail to formally respond to Ofgem.</p>	<p>We developed a programme of engagement with key stakeholders to understand their views as we developed our position.</p>



Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>• The ESO needs to consider which of DNOs or TOs it makes most sense for the ESO to align to, and whether they could accept and want to propose some sort of hybrid model, including uncertainty mechanisms.</li> <li>• The group expects the ESO to clearly set out what they are planning to invest in over the five-plus years in the <i>Our RIIO-2 Ambition</i> document.</li> </ul> <p>4. Competition</p> <ul style="list-style-type: none"> <li>• The ESO is fully supportive of the extension of competition in transmission build.</li> <li>• There was however, a question of who takes on the additional roles involved? If the ESO doesn't think that should it be them, they should propose who they think should carry out those roles.</li> </ul>		

3 April 2019

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<p><b>Towards 2030: Our ESO RIIO-2 Ambition</b></p>	<ul style="list-style-type: none"> <li>• ESO presented the content of <i>Our RIIO-2 Ambition</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• Generally good feedback with acknowledgement the level of ambition has greatly improved and is more in line with their expectations of an ambitious ESO.</li> <li>• Some confusion over all the documents and how they fit together.</li> <li>• Question asked if the ESO has the capability, knowledge and resource to deliver the ambitious activities as articulated.</li> <li>• Some thought it was missing the ESO-DSO relationship and transition.</li> <li>• The group challenged the consumer engagement done to date and how they thought it was lacking in the ambition document and how it should be more of a focus.</li> </ul>	<p>All feedback will be reviewed in the development of the Business Plan, and the proposals for consumer engagement will be brought back to group at a future meeting.</p>	<p>All feedback was considered in the development of the Business Plan development. This included:</p> <ul style="list-style-type: none"> <li>• Completing consumer research on available information to ensure our proposals were meeting their needs</li> <li>• Creating a comprehensive CBA Report to detail the methodology, assumptions and our calculations.</li> <li>• Better articulating our justification within the narrative.</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>The group also thought the additional cost would need to be well justified to Ofgem in a price control if they are looking to cut costs.</li> <li>A member commented that the CBA could be strengthened for the July document, and be more specific.</li> </ul>		
<b>Network competition</b>	<ul style="list-style-type: none"> <li>The ESO presented a summary of what was in the paper provided for pre-read. The ESO is a strong believer in competition in all its forms. They have been actively supporting Ofgem with the work on the CATO model, but had questions on if there more that could be done?</li> <li>Should the ESO include resourcing in RIIO-2 to help launch the regime,</li> </ul>	<ul style="list-style-type: none"> <li>The group thought it was difficult to reach interested stakeholders through generic engagement, and needed to do something more targeted to get a range of views for this area</li> <li>One member questioned whether the ESO should run the tenders given it is still part of the National Grid Group, others thought the ESO was best placed and could</li> </ul>	<ul style="list-style-type: none"> <li>Further development of ESO’s position needed, and more targeted engagement with interested parties need to take place.</li> </ul>	<p>An engagement plan was created, and targeted stakeholder views were fed back via bilateral meetings and a dedicated webinar. An update was provided to ERSG at a later meeting.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p>and should the ESO be putting their name forward to run the tender process?</p>	<p>manage potential conflicts of interest.</p> <ul style="list-style-type: none"> <li>The group thought the potential options were too high level to understand the ESO's activities in this area and more development and detail is required.</li> <li>The Chair would like an update when further engagement with the right parties has taken place.</li> </ul>		
<b>Connections</b>	<ul style="list-style-type: none"> <li>The ESO presented a summary of the paper which was shared as part of the pre-read. There is now a need for visibility across the whole system (transmission and distribution). This process needs to be improved to provide greater transparency.</li> </ul>	<ul style="list-style-type: none"> <li>Members asked if DNOs were willing to adopt a "central hub" approach which the ESO was proposing; the ESO confirmed they were supportive.</li> <li>One member questioned if having a single hub would be less useful than having open protocols for interfacing, with straightforward Application Planning Interfaces (APIs).</li> </ul>	<p>The ESO was challenged on who should be paying the brunt of the costs for this change and are asked to better articulate the value. An update is to be provided when item returns to ERSG.</p>	<p>We engaged on this further at our April 2019 event and incorporated stakeholders' views back into the Business Plan. The narrative was updated to better explain the detail of the value it creates.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<ul style="list-style-type: none"> <li>• ERSG would like more detail on the magnitude of costs and how much value this proposal would generate. There was also a question on who would be paying the brunt of the costs and whether it should be consumers or those connecting to the system.</li> <li>• Most agreed it would be useful to make it easier to connect to the system, and it would be attractive for things like data centres who may move overseas if the ESO can't cope with their requests.</li> </ul>		
<b>System access planning</b>	<ul style="list-style-type: none"> <li>• The ESO summarised that the nature of the system is changing, and more time needs to be spent on the impacts of outages across the system. This will require</li> </ul>	<ul style="list-style-type: none"> <li>• There was general support for the proposal as outlined in the ambition document.</li> <li>• The Chair asked how costs are assessed, just for the ESO or across the whole system? We confirmed that we are</li> </ul>	<ul style="list-style-type: none"> <li>• No actions from this session.</li> </ul>	

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p>more resource than it currently has today.</p> <ul style="list-style-type: none"> <li>Proposals include increased transparency and immediacy of information and working with TOs and DNOs on system access requirements.</li> </ul>	<p>looking to minimise costs from a whole system perspective.</p> <ul style="list-style-type: none"> <li>The group asked if this was just a transmission level proposal, or would expand to the distribution level? We confirmed it was just transmission for now but could look to expand it to distribution too.</li> </ul>		
<b>Innovation</b>	<ul style="list-style-type: none"> <li>The ESO presented a summary of the paper that was shared as part of the pre-read materials. It discussed funding available for innovation as part of business as usual versus the ring-fenced innovation and the ESO's preference.</li> </ul>	<ul style="list-style-type: none"> <li>The group felt like the outlined approach to innovation feels like a regulated approach and is constrained.</li> <li>They felt it was more about the funding proposals rather than an innovation strategy, and they would like to see more on the strategy.</li> <li>The group agreed innovation was important and stakeholders want the ESO to be innovative, but don't see the</li> </ul>	<p>The Chair asked that the ESO comes back to a later session with more information on the strategy and examples of innovation work underway or planned, to demonstrate what funding will go towards.</p>	<p>This action was completed at the following meeting.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>proposal shows how ESO is being driven by innovation.</p> <ul style="list-style-type: none"> <li>The group asked how innovation was fostered at a board level and how “disruptive innovation” was enabled in the business.</li> <li>It was suggested that as part of the business demonstrating what they will do and how the culture will change there needs to be a chapter on company culture and how this kind of organisation is created.</li> </ul>		
<b>Reliable and secure system operation</b>	<ul style="list-style-type: none"> <li>The ESO presented a summary of the paper that was shared as part of pre-read. There were two options to operate the system in a very different way to how its currently done. The proposals included to start again and</li> </ul>	<ul style="list-style-type: none"> <li>The group asked out of which two options that were presented would be best meet the ambition, and what the difference in cost was? They also asked how the ESO intends to involve stakeholders in the new system and how the cost impact on users would be</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to consider how it will involve stakeholders in the development of new system(s).</li> <li>The ESO to engage the tech industry on how such a project could be could</li> </ul>	<p>All actions were in progress or completed by the following meeting with the further detail requested, presented.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
	<p>build a new control room or to build on top of what is already there.</p>	<p>assessed? We confirmed this was currently being considered.</p> <ul style="list-style-type: none"> <li>• Concerns were expressed that it wasn't clear from the paper what will be developed and what the proposed money will be spent on.</li> <li>• One member of the ERSG advised that the ESO should be looking to the tech industry to input into these plans, not just the electricity industry. It will require openness around specifications and plans.</li> <li>• Resource and expertise required to deliver this was also highlighted as a concern. Capability should be built in house rather than using contractors so there is internal expertise.</li> </ul>	<p>delivered and use their expertise.</p> <ul style="list-style-type: none"> <li>• The ESO to confirm their resourcing and retention of skills and capability in this area.</li> <li>• The ESO to bring this back to a future meeting with more detail.</li> </ul>	



Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
<b>IT strategy and cyber</b>	<ul style="list-style-type: none"> <li>• The ESO presented the paper which was included as part of the pre-read material. Proposals included enhancements in a more modular way, and increased collaboration with stakeholders.</li> <li>• A clearer way to communicate and a “one stop shop” for market participants to access data, policies and codes.</li> <li>• Other key points included, facilitation of a level playing field, and investment in response to cyber threats.</li> </ul>	<ul style="list-style-type: none"> <li>• There was concern over the detail on the level of change required for IT and systems throughout other papers. They felt there was no overarching strategy in this paper about what will be done.</li> <li>• The group felt it was more focused on engagement than on the specifics of how technology will be used.</li> <li>• They questioned the costs and capability needed to become a technology-based company, and clearly communicating how the ESO will meet this challenge.</li> </ul>	<ul style="list-style-type: none"> <li>• The ESO to ensure they include how they expect to achieve the cultural change required for the future, to deliver IT proposals and wider ambitions in the Business Plan.</li> <li>• The ESO to include IT strategy and cyber as an item at a future meeting and ensure that there is more detail included.</li> </ul>	<p>All actions were in progress or completed by the following meeting with the further detail requested, presented.</p>
<b>Open and transparent markets</b>	<ul style="list-style-type: none"> <li>• The ESO presented a summary of the paper it provided for pre-read and asked the group several questions.</li> </ul>	<ul style="list-style-type: none"> <li>• Members questioned the 1 MW minimum size for balancing market participants and how the ESO had arrived at that? They asked if the</li> </ul>	<ul style="list-style-type: none"> <li>• No actions from this session.</li> </ul>	

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>ESO had considered the IT implications associated with this.</p> <ul style="list-style-type: none"> <li>• In terms of data, the group suggested it would be useful to understand what level of asset information is needed versus what is available?</li> <li>• When they were asked about the design of balancing markets, they said it ultimately came down to the cost of IT and benefits gained to redesign it with all other changes happening. Throughout, they acknowledged that the ESO has a role in ensuring it is appropriate for a low carbon future.</li> <li>• The ESO needs to be careful in trade-offs between implementing things too quickly with the current pace of</li> </ul>		

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of actions
		<p>change but also staying ahead of the curve.</p> <ul style="list-style-type: none"><li>• In terms of codes, the group was supportive of the ambition, but that the ESO needs to be mindful of the current code review that is ongoing.</li></ul>		

4 June 2019

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
<b>Stakeholder and consumer engagement</b>	<ul style="list-style-type: none"> <li>The ESO presented enhancements which had been made to the stakeholder strategy since the January 2019 meeting, following internal and external reviews.</li> </ul>	<ul style="list-style-type: none"> <li>The group felt the ESO has taken positive steps to address feedback from stakeholders and consumers. However, greater clarity is needed on the source of feedback in the main body of the report.</li> <li>More evidence of where academic work has been consulted and incorporated into the plan, and how it has informed the ESO's understanding. They also felt it would be good to have further clarity on what feedback the ESO is and isn't taking on board and being clear when feedback is not agreed with.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to better reference the types of stakeholders that gave feedback in the main part of the report.</li> <li>The ESO to provide a further segmentation of types of stakeholders engaged.</li> <li>The ESO to further engage with academics on consumer research.</li> </ul>	<ul style="list-style-type: none"> <li>The content was updated to better reference sectors of stakeholders and what feedback they gave.</li> <li>Further details have been included in this Stakeholder report.</li> <li>Consumer research engagement was undertaken.</li> </ul>
<b>Ofgem's sector specific strategy decision</b>	<ul style="list-style-type: none"> <li>The ESO presented an overview of Ofgem's decision for the ESO</li> </ul>	<ul style="list-style-type: none"> <li>One member asked if it was still possible to disagree with both models that Ofgem had set out, or whether these were now finalised as the only possible options.</li> <li>Some members agreed that this seemed like an</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to set out what the two options mean for the Business Plan, and what impacts they have for consumers for the July 2019 meeting.</li> </ul>	<p>Action completed at the following meeting.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
		<p>oversimplification and that a margin for risk should be allowed.</p> <ul style="list-style-type: none"> <li>• One member commented that by looking at the difference in prices of IT projects that have a fixed price versus variable price, it would be clear why it's better to hold margin.</li> <li>• It was questioned whether Ofgem was trying to push the ESO towards something other than what has been set out in the Business Plan.</li> <li>• The Chair raised her concerns about a lack of clear communication between the company and Ofgem.</li> </ul>		
<b>Business Plan overview</b>	<ul style="list-style-type: none"> <li>• The ESO presented an overview of the business and the type of company the ESO is trying to become.</li> </ul>	<ul style="list-style-type: none"> <li>• The group commented that it was quite difficult to see what the overall value is against the cost, and that it would be helpful to have a summary table bringing all of this together.</li> <li>• Some of the group felt that the benefits were subjective and fluffy, and more info was</li> </ul>	<ul style="list-style-type: none"> <li>• The ESO to include summary table of costs and benefits in the Business Plan, and to provide a demonstration of the impacts to existing costs.</li> </ul>	<p>This has been added to the Business Plan.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
<p><b>Theme 1: Ensure reliable, secure system operation to deliver electricity when consumers need it</b></p>	<ul style="list-style-type: none"> <li>The ESO presented and summarised Theme 1 of the Business Plan.</li> </ul>	<p>needed on how these figures were arrived at.</p> <ul style="list-style-type: none"> <li>There were some questions from the group about the digital twin concept included in this section of the plan.</li> <li>A member of the group highlighted the challenge that market participants are going to have in the different ways they wish to interact. How can the ESO strive to ensure that what's being delivered is fit for purpose for as many people as possible, which may entail more traditional providers needing to change their ways?</li> <li>There was a general consensus from the group that this seemed like the right solution given the small additional cost versus large potential consumer and security benefit. Although some needed further clarity on what the digital twin solution involves, including to what level will be twinned.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to engage further with universities and educational institutions.</li> <li>The ESO to be clearer on what the digital twin will be.</li> </ul>	<ul style="list-style-type: none"> <li>An engagement plan was created, and targeted stakeholder bilateral meetings were arranged.</li> <li>A clearer explanation has been given on what a digital twin is and a further call on the IT proposals including the digital twin was planned and undertaken on 4 October 2019.</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
	<ul style="list-style-type: none"> <li>The ESO presented an overview of the IT strategy section of the business plan, along with how feedback from previous meetings had been incorporated.</li> </ul>	<ul style="list-style-type: none"> <li>The group felt that people and capability is the biggest delivery challenge facing the ESO.</li> <li>The presenters were asked where the design authority would sit – would it be a senior, budget level group or more detailed?</li> <li>A concern was raised about the resource implications that this could put on market participants. The kind of resources needed by these groups is very expensive, and small businesses may not be able to spare this.</li> <li>The Chair summarised that there had been a major step forward in this area since previous discussions, but more depth is needed in terms of demonstrating understanding of the cultural and operational change required.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to provide further detail around the design authority and their terms of reference.</li> </ul>	<p>Further information has been provided in our Business Plan.</p>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
<b>Theme 2: transforming participation in smart and sustainable markets</b>	<ul style="list-style-type: none"> <li>The ESO presented and summarised Theme 2 of the business plan.</li> </ul>	<ul style="list-style-type: none"> <li>One member commented that they didn't get the sense that much would be changed through the Ofgem codes review, more just a case of digitising the codes.</li> <li>The costs and benefits relating to this section were discussed. The group felt that the accuracy in the figures was not helpful and that it would better to have a range.</li> <li>The group said there was real opportunity in this area to demonstrate the benefit, and so it needs to be well supported and move Ofgem's focus from the cost to the magnitude of benefits that can be achieved.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to consider how it phrases these ambitions and make clear that they are steppingstones to markets as close to real time as possible.</li> </ul>	<ul style="list-style-type: none"> <li>We did this by extending the investment roadmaps to start earlier so you can see steppingstones to markets.</li> <li>We also included additional narrative on the link between operability needs/NOA and markets.</li> </ul>
<b>Open data and unlocking zero carbon system operation and markets</b>	<ul style="list-style-type: none"> <li>The ESO presented an overview of proposals to make its data open and accessible and provide a clear route to services.</li> </ul>	<ul style="list-style-type: none"> <li>The group asked who will have access to the data and whether this approach would cause any security issues.</li> <li>The Chair asked what type of data will be held back?</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to better articulate what it is doing before RIIO-2 and what it will do after.</li> </ul>	<p>As above, explained through extension of the investment roadmaps.</p>



Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
<b>Theme 3: unlocking consumer value through competition</b>	<ul style="list-style-type: none"> <li>The ESO presented and summarised Theme 3 of the Business Plan.</li> </ul>	<ul style="list-style-type: none"> <li>A member asked why this wasn't being done before 2021.</li> <li>Overall there was a general view this was a good idea.</li> <li>In reviewing the costs and benefits for this section, the ESO was asked where the capex cost comes from.</li> <li>The Chair summarised that the group is broadly in favour of the proposals, although there are details to be worked out around how the funding works when plans change.</li> <li>There are impacts on the business plans of other entities that also need to be considered here.</li> <li>Concerning the CATO regime, it was noted that the ESO has moved from reluctant to active participant in the proposals. The group are broadly in favour of the expansion of the NOA.</li> </ul>	<ul style="list-style-type: none"> <li>There is a need for the ESO to explain its approach and action plan for better recognising other parties' costs within their calculations.</li> <li>The ESO to better explain the range of scenarios in calculating the benefit.</li> </ul>	<ul style="list-style-type: none"> <li>We included qualitative whole system CBA work explicitly pulling out where the ESO is pushing costs onto third parties.</li> <li>We are not, in general, calculating the benefits in different scenarios. This is usually because we judge the benefits to be independent of scenarios, or we don't have the data to do it accurately enough.</li> <li>Some benefits, especially in Theme 3, use data from the NOA or forecast costs which will have scenarios inherently built into them. We have generally taken an average if this is the case.</li> <li>We have performed sensitivity analysis on the benefits to try to account for possible variation, but the scenarios are more high/medium/low rather than FES.</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
<b>Theme 4: Driving towards a sustainable whole energy future</b>	<ul style="list-style-type: none"> <li>The ESO presented and summarised Theme 4 of the Business Plan.</li> </ul>	<ul style="list-style-type: none"> <li>The group asked for some further clarity on what the company is proposing to do here, particularly around the connections portal which was discussed at the previous meeting.</li> <li>The group felt that the capex cost figure in this section (£70 million) was quite high compared to what is being proposed.</li> <li>The group commented that they would like to see more clarity between the ongoing and the transformational activities in the report.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to provide further justification and clarification of costs in this Theme.</li> <li>The ESO to make it clear what is business as usual and what are transformational activities.</li> </ul>	<p>All actions have been completed and updates can be seen in the Theme 4 Driving towards a sustainable, whole energy future chapter and supporting annexes.</p>
<b>Innovation</b>	<ul style="list-style-type: none"> <li>The ESO presented further information on their approach to innovation in RIIO-2 and examples of projects.</li> </ul>	<ul style="list-style-type: none"> <li>The group had a conversation around at what point does an innovation project become business as usual and how it is funded.</li> <li>One member felt that innovation is presented in the Business Plan as a standalone element, and it needs to be demonstrated that it is integrated into the culture of the business.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to further develop thinking on how it would like to be funded for innovation.</li> <li>The ESO to sharpen its narrative around company culture for innovation and</li> </ul>	<ul style="list-style-type: none"> <li>Narrative has been updated to better articulate how we would like to be funded in RIIO-2</li> <li>Innovation has been highlighted as key capability needed in the future and the narrative has been updated to show how innovation will be fostered within the organisation.</li> </ul>

Topic Presented	Summary of detail presented	ERSG Feedback	Actions	Result of Actions
		<ul style="list-style-type: none"> <li>The group thought that the fact that the innovation team doesn't deliver the projects was positive in demonstrating that innovation is being built into the business.</li> <li>Most other companies have a different structure where the innovation team do deliver the change, and it's harder to embed as ongoing activities in this way.</li> </ul>	<p>how it fosters it in others.</p>	
<b>People and capability</b>	<ul style="list-style-type: none"> <li>The ESO presented an overview of the its strategy for resourcing effectively across the four Themes in its Business Plan.</li> </ul>	<ul style="list-style-type: none"> <li>The group asked whether there's potential for competition for resource between the ESO and DNOs who will be looking for similar people?</li> <li>The group highlighted the importance of flexible working and other benefits in attracting a good workforce. They also highlighted a moral responsibility of how you behave in this space, in attracting people from other countries.</li> </ul>	<ul style="list-style-type: none"> <li>The ESO to continue developing its resource strategy.</li> </ul>	<p>Further detail has been provided in this version of our Business Plan and annexes.</p>

### 3. RIIO-2 Challenge Group

As part of Ofgem's enhanced stakeholder engagement approach, it has set up an independent RIIO-2 Challenge Group whose purpose is to assess, scrutinise and challenge companies' business plans in parallel to the companies' user groups. The group has a role in providing challenge to both the regulated companies and Ofgem. We have engaged with the group in line with their priorities work plan set out by Ofgem in February 2019.

The Challenge Group provides another welcome level of scrutiny and challenge to make sure we deliver a robust plan that will provide benefits for consumers.

We have met the Challenge Group four times over the development of the Business Plan as well as twice as part of the consistent view of the future group. We have found their feedback very valuable in helping improve the quality of our plan. Their feedback has encouraged us to be clearer on our costs, benchmarking and how we're ensuring an efficient plan; pushed for transparency of shared services costs; sought confidence in our ability to deliver the proposed IT investment and sought more clarity on our deliverables, benefits, risks, metrics and how we are going to work with others across industry to deliver our plan. We hope you will see enhancements to address these points in this final version of our Business Plan.

#### 3.1 Engagement with Ofgem's RIIO-2 Challenge Group

Date	Purpose
<b>29 November 2018</b>	<ul style="list-style-type: none"> <li>● Introductory meeting for the ENA consistent view of the future group, to present on their work to date and specifically:</li> <li>● a breakdown of changes across time (e.g. what is likely to happen within RIIO-2, RIIO-3 and beyond);</li> <li>● an explanation of changes in demand over time and how this relates to current forecasts, and</li> <li>● how the companies will forecast the impacts of the energy transition.</li> </ul>
<b>30 November 2018</b>	<ul style="list-style-type: none"> <li>● Introductory meeting for ESO business representatives and the Chair of our stakeholder group. We presented on the following topics:</li> <li>● our role as the ESO;</li> <li>● the changing energy landscape;</li> <li>● ESO performance in RIIO-1;</li> <li>● the incentive framework for 2018-21;</li> <li>● the ESO in RIIO-2; and</li> <li>● working with network companies.</li> </ul>
<b>4 December 2018</b>	<ul style="list-style-type: none"> <li>● The consistent view of the future working group received a formal request for further information and gave clear timelines as to when it expected to see further developed work. This included:</li> </ul>

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	<ul style="list-style-type: none"> <li>• key drivers that could materially affect Business Plans;</li> <li>• an updated range of scenarios and assumptions to obtain a consistent view of the future;</li> <li>• how scenarios and assumptions feed into the proposed common view of Business Plans; and</li> <li>• a common view of the future with a set of scenarios and assumptions, together with an independent commentary by the ESO on how these fit with the latest <i>FES</i> analysis.</li> </ul>
<b>22 January 2019</b>	<ul style="list-style-type: none"> <li>• The ESO received a formal request from the Chair of the RIIO-2 Challenge Group to provide information on historic expenditure trends, which included actual data and original price control forecasts since 1 April 2007 and the key reasons for differences.</li> <li>• They requested a 30-page limit submission by 25 March, which we adhered to.</li> </ul>
<b>12 February 2019</b>	<ul style="list-style-type: none"> <li>• The consistent view of the future working group was invited to present to the RIIO-2 Challenge Group and discuss further how the key drivers identified feed into the proposed common view for Business Plans, and the range of scenarios for which we will plan.</li> </ul>
<b>15 April 2019</b>	<ul style="list-style-type: none"> <li>• Further to the submitted report to the RIIO-2 Challenge Group on 25 March on historical expenditure, the ESO was formally requested to provide answers to supplementary questions.</li> <li>• Responses to the majority of the questions were requested by 24 April, with responses to the two final questions by 15 May, which we adhered to.</li> </ul>
<b>30 April 2019</b>	<ul style="list-style-type: none"> <li>• The ESO met the RIIO-2 Challenge Group and answered questions on topics included in the 25 March and 24 April submissions on historic forecasting and spend.</li> </ul>
<b>30 July 2019</b>	<ul style="list-style-type: none"> <li>• The ESO presented the Challenge Group with an overview of the draft Business Plan. This included answering questions on our planning assumptions, cost profiles from RIIO-1 to 2 and Cost-benefit Analysis.</li> </ul>
<b>30 October 2019</b>	<ul style="list-style-type: none"> <li>• The ESO presented to the Challenge Group the changes to be made between the October draft and December final Business Plans. We also responded to questions on two deep dive areas identified by the Challenge Group prior to the meeting.</li> </ul>

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*Table 3: Engagement with Ofgem's RIIO-2 Challenge Group*

Prior to the latest meeting in October 2019, we were provided with formal written feedback from the Challenge Group on our draft October submission. The below table details the feedback we received and how we have responded to this in the final Business Plan. This table is also replicated in Annex 6 – How our plan meets Ofgem's and the Challenge Group's requirements.

Topic	Challenge Group Feedback	What we have done in response to this feedback
1. Stakeholder engagement	<p>Many of the stakeholders you have engaged are existing industry participants.</p>	<p>We have highlighted throughout the Business Plan, particularly in chapters 4 to 8, where we have engaged with non-industry participants e.g. local government, potential service providers and academia. In this Annex 3 – Stakeholder report, section 6 lists all the stakeholders we have engaged with and the sectors they represent.</p>
	<p>It is not clear from the plan how this engagement translates into buy in by stakeholders who will need to help deliver the plan.</p>	<p>We have drawn out more clearly in the plan, particularly in chapters 4 to 8, where we have received buy in from stakeholders to being involved in the delivery of our proposals as a result of our engagement. For example, we set out that we have received design authority expressions of interest in chapter 4 and DNO support for joint training of control staff in chapter 7.</p>
	<p><b>In relation to financing:</b> There is evidence that you have consulted stakeholders in relation to your Plan but no indication of detailed engagement in relation to financing and certainly not to specific financing issues and the trade-offs that those imply.</p>	<p>We have engaged extensively on the financing aspects of our plan which is detailed in this annex, section 5.1. We have also set out more clearly the views we received from stakeholders within chapter 9, Financing our plan, of the Business Plan, and in Annex 5 – Finance report.</p>
2. Plan Ambition and long term vision	<p>Ofgem’s planning guidance requires a clear demonstration of the ESO’s consideration of its longer-term vision for the energy system, for example in terms of whole system approaches, innovation, consumer value and long-run costs and benefits.</p> <p>The plan sets out a challenging ambition for zero carbon power system operation by 2025. It also considers a wide range of potential</p>	<p>We have included in our final Business Plan an activity architecture which:</p> <ul style="list-style-type: none"> <li>• sets out sequential numbering of activities and deliverables; and</li> <li>• demonstrates the linkages between the ambition, activities, costs, deliverables and performance measures.</li> </ul>

future scenarios and their impacts on delivery.

Overall, the plan does not yet show how this ambition links to the chosen activities with their associated costs, deliverables and performance measures.

The hierarchy of activities is summarised in Annex 1 – Supporting information, section 2.

**Theme 1**

The plan aims to enhance system control IT systems, including proposals for a digital twin. While a positive outcome is forecast, the full project scope does not yet seem to have been defined or alternative options fully evaluated. The plan should show the inter-dependencies associated with planned activities in Theme 2.

Risks to delivery and mitigations should be addressed. Performance measures and targets should be improved and aligned with CBA benefits.

Alternative options have been included in chapter 4 (Theme 1) and in more detail in Annex 2 - Cost-benefit analysis (CBA) report. We have also added to the ‘Confidence we can deliver’ section in chapter 4 to acknowledge that the project scope is not complete at this stage. We intend to carry out the scoping activity as part of the design authority process with stakeholders in a transparent manner.

Interdependencies sections have been added to chapters 4 and 5 (Themes 1 and 2 respectively).

Risks to delivery and mitigations are set out in Annex 2 – Cost-benefit analysis (CBA) report, section 2. In Annex 4 – Technology investment report we set out the risks associated with the individual IT investments associated with all the Themes.

Performance measures and targets have been developed further with stakeholders since our October draft submission and these are detailed in Chapter 4 and in Annex 7 – Metrics and measuring performance. We have indicated how these align with CBA benefits and how they come together as a package of measures for the Theme 1 outputs in Annex 2 – Cost-benefit analysis (CBA) report and in Annex 7 – Metrics and measuring performance.



These responses on risk and performance measures apply to each of the Themes in this table, with the chapter in the Business Plan varying depending on which Theme is being discussed.

**Theme 2**

The plan aims to develop new digital market platforms including short/real-time flexibility markets, and long-term capacity markets which should be valuable. However, it is unclear whether the ESO has

- a) considered all the design options and gained support of stakeholders/Ofgem/BEIS for the market designs they are planning to implement, and
- b) whether the ESO is the right organisation to deliver and operate this new IT system.

The plan should show how future market design changes may be efficiently accommodated within the IT development plans. The full project scope does not yet seem to have been defined or alternative options fully evaluated.

Risks to delivery and mitigations should be addressed. Performance measures and targets should be improved and aligned with CBA benefits.

The plan should also set out how the ESO's code management leadership and performance will be improved to ensure that market changes can be successfully implemented.

a) The stakeholder views paragraph of chapter 5 (Theme 2), section 5.2.3.2, of our Business Plan, demonstrates that a majority of service providers are supportive of closer to real time markets for response and reserve. For other operability markets, such as stability, we have provided a call out box in Section 5.2.3 that outlines our procurement approaches to balancing services. The call out box explains that for these less mature markets we are adopting a learning by doing approach through Pathfinder projects that allow us to work with others to test different procurement approaches to meet operability needs. Furthermore, we outline how detailed markets design will be carried out with stakeholders, potentially through a whole system markets programme under the Power Responsive banner.

b) A range of service providers, suppliers and DNOs have expressed concern about the prospect of large centralised IT projects. Consistent with the approach to IT delivery outlined in Theme 1 and Annex 4 - Technology investment report, the single markets platform will be a modular system delivered in an agile way. In addition, it is expected that much of the development and integration will be



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outsourced to our delivery partners. In chapter 10 – Technology underpinning our ambition, we describe our more agile and modular approach to developing systems which means that IT development plans will be able to more efficiently accommodate market design change.

Our proposed activity A6.4 (Theme 2) Transform the process to amend our codes will allow the strategic change that stakeholders are really pushing for to be prioritised and implemented efficiently, while ensuring that it is much simpler and less time consuming to make incremental improvements. We will develop a transparent prioritisation process and agreed criteria that are aligned to the strategic direction set by BEIS and Ofgem.

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**Theme 3**

The plan includes initiatives to enhance the *NOA* and introducing commercial intertrip schemes, potentially leading to significant consumer benefits. The plan should address how delivery interdependencies with other industry participants and network companies can be achieved.

Risks to delivery and mitigations should be addressed. Performance measures and targets should be improved and aligned with CBA benefits.

We have highlighted, in Theme 3, the interdependencies between activities and discussed how we will work with industry participants to deliver them (including working with industry working groups, market participants, TOs, DNOs and BEIS).

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**Theme 4**

The plan aims to improve operational and planning data interaction with DNOs/DSOs leading to significant consumer benefits. However, the full scope does not yet seem to have been

We have added, in the description of activity A15.6 (Theme 4), a reference to the recent Transmission - Distribution data exchange publication from the ENA Open

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	<p>defined or alternative options fully evaluated.</p> <p>The plan should describe how the key risks are addressed and particularly how joint scoping and delivery interactions will be agreed with other industry participants. Performance measures and targets should be improved and aligned with CBA benefits.</p>	<p>Networks project<sup>24</sup>. This will form the basis of the first stage of our work in RIIO-2 in this area. We also recognise, consistent with Open Networks, that this is just a first phase and that in RIIO-2 more granular data can help us work with other network organisations to efficiently manage an increasingly decentralised grid. These will be developed further through industry forums including Open Networks and the Energy Data Taskforce ahead of RIIO-2. We have also added more detailed milestones to the roadmap for this activity.</p>
<p>4. Costs</p>	<p>While you have made improvements in a number of these areas, we think your plan can still be improved to provide a direct link between your activities, costs, deliverables and performance targets.</p> <p>It should set out the different options and factors you have considered in designing a plan so we can have confidence that it offers the optimum approach to benefit current and future consumers.</p>	<p>As set out above, we have included in our final plan an activity architecture which:</p> <ul style="list-style-type: none"> <li>• sets out sequential numbering of activities and deliverables; and</li> <li>• demonstrates the linkages between the ambition, activities, costs, deliverables and performance measures.</li> </ul> <p>The hierarchy of activities is summarised in Annex 1 – Supporting information, section 2.</p> <p>The different options we considered in developing our plan, and the reasons for progressing or rejecting them, have been added to chapters 4 to 7 (Themes 1 to 4) and in more detail in Annex 2 – Cost-benefit analysis (CBA) report</p>
	<p><b>Capex:</b> Your plan (Annex 4, Appendix A) describes 34 IT projects, which will contribute to</p>	<p>The majority of projects are at the scoping stage to reflect where we are in the business</p>

<sup>24</sup> <http://www.energynetworks.org/assets/files/ONP-WS1B-P4%20Data%20Scope%20-%20Final%20Report-FINAL.pdf>

delivery of the four themes. However, the vast majority of these projects appear to be at the scoping stage. Please describe how these projects will be managed to ensure that delivery can be achieved, particularly how it addresses changes in scope, cost and timing. What contingency has been included? What lessons have you learned from previous projects, both successful and unsuccessful and how has this influenced your plan?

The Gartner benchmarking report you have provided says that synergies of considering these IT investments across a portfolio has not been considered. Why have these potential savings not been captured?

Your plan should describe how you intend to govern and control these IT services and costs, which we understand will be delivered to you by National Grid Group. What delivery and contracting options have you considered, and how will you ensure successful delivery e.g. delivery/performance incentives? How will you ensure that the charges from National Grid Group are best value for consumers?

planning cycle and that our Business Plan has yet to be agreed with Ofgem. Our two-year planning cycle will allow us to update these investment proposals in our 2023 Business Plan.

Phased delivery plans enable projects and investment cases to be reviewed regularly and therefore any changes to scope, cost and timing to be incorporated more easily.

Our approach outlined in chapter 10 - Technology underpinning our ambition, is largely a response to lessons learned. This sets out that we will introduce platform architecture, iterative delivery, supplier frameworks, delivery capability, and high levels of engagement. These are summarised in Annex 4 – Technology investment report, 15. Appendix D: Lessons learned.

Gartner reviewed our portfolio on a line by line basis, testing each investment against their benchmark. They do not consider the investments as a holistic portfolio. In developing our proposal, we consider the synergies that come from reuse and consolidating applications on a modular, scalable architecture. Our portfolio is below the upper quartile of Gartner's range and reflects the nature of our historical applications. We must keep the lights on, delivering vital services while building our transformational platform architecture in parallel.

Additionally, Gartner has benchmarked our central technology investments and operations.

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Benchmarking information can be found in chapter 10 - Technology underpinning our ambition, section 10.7 RIO-2 investment benchmarking. The full Gartner report is available in Annex 4 – Technology investment report, section 18. Appendix G: Gartner benchmark report.

We have included an overview of our governance structure and how we ensure value in chapter 10 - Technology underpinning our ambition, section 10.6.

The shared service model was agreed with Ofgem during legal separation and the allocation approach is set annually with Ofgem. A new annex (Annex 8 – Shared services) sets out this process.

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**Opex:** Your plan describes in several places the support costs from National Grid Group, including costs of business service IT, hosting, enterprise data, etc. What options have you considered - do these costs represent value for money?

Your plan should describe (with a clear reconciliation) all the shared service costs from National Grid Group, also describing how you control the services and costs delivered to you by National Grid Group and how you ensure best value for consumers.

We have introduced a new Annex 8 – Shared services, which sets out all the shared services costs from the National Grid group and how these are allocated to the ESO.

Within Annex 4 – Technology investment report, sections 7-11, we show all the shared technology investments and the options considered. This has been benchmarked by Gartner as within range. The exception to this is IT operations and tooling, which was introduced as a new category after the benchmarking had taken place. The full Gartner report is available in Annex 4 – Technology investment report, 18. Appendix G: Gartner benchmark report.

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5. Innovation	<p>Your plan sets out your approach to innovation with a set of specific innovation projects in your baseline plan, alongside your proposed NIA projects. However, the ESO will be at the heart of the energy transition and the associated innovation that comes from it. How does your plan ensure that you are able to support future innovation developments initiated by others? What impact will this have on your IT development programme for example?</p>	<p>Details have been added to chapter 11 on how we will engage with third parties, including the types of external events and work groups we will establish or participate in. We set out that we will seek to engage further to create more opportunities to support third parties with their own innovations, via contributing funds, resources, data or endorsement (e.g. through letters of support).</p> <p>We have made provision for known innovation projects (see Annex 4 – Technology investment report, section 2.11 450 Future innovation productionisation). There are currently no new Network Innovation Competition (NIC) bids in the pipeline. The next submission opportunity is at the end of 2019 with the earliest Ofgem approval at the end of 2020. Any new project would not start before the RIIO-2 period. Given that NIC projects take 2-3 years, any implementation into business as usual would not take place until the latter part of the five-year RIIO-2 period.</p>
6. Resilience	<p>We have not evaluated your resilience plans for cyber and physical security.</p> <p>Your plan provides a helpful description of your approach to resourcing and workforce planning. How resilient is this plan to the increasing organisational demands caused by the wide range of planned IT and associated operational practice developments?</p>	<p>Our Business IT security report has been included with our final submission in Annex 9.</p> <p>We believe that our plan is resilient to increasing demands from an IT perspective. We have set out in more detail in chapter 10, section 10.6 How we will support the transformation, our IT operating model and delivery approach will support these future demands. Some of our proposals also specifically intend to support the IT transformation. For instance, in Theme 1 our proposals for</p>

	<p>Control Centre simulation and training (A2) are designed to ensure that our people are trained in using the new Control Centre systems (A1), which are also proposed in Theme 1.</p>
<p>6.Uncertainty</p>	<p>In Annex 2, your CBAs take account of some potential uncertainties and risks around market factors, third party factors and delivery factors. While you are not required to propose uncertainty mechanisms in your plan, a large number of future uncertainties are evident which will impact your proposed deliverables.</p> <p>We have set out the uncertainties associated with the proposed activities in Annex 2 – Cost-benefit analysis (CBA) report. In chapter 3 – Assumptions underpinning our plan, of our Business Plan, we explain that we do not have formal uncertainty mechanisms but that our regulatory framework is designed to be flexible through having a two-year planning cycle and pass-through funding. This flexibility should allow for adjustment of deliverables to account for uncertainties if and when they occur.</p>
	<p>For delivery factors i.e. implementation of new systems to time, quality and cost, under your control, please identify the key uncertainties and risks and how you propose to manage these to ensure that you deliver the optimum outcome for consumers.</p> <p>We have identified key risks and proposed mitigation measures at an investment line level (see Annex 4 – Technology investment report, sections 2 to 6) and at a portfolio level (see Annex 4 – Technology investment report, section 14. Appendix C: Portfolio risks).</p>
<p>7.Financing</p>	<p>Both the notional and actual companies have been modelled using Ofgem’s assumptions. You presented a reasonable set of sensitivities. The non-compliant ESO case has been clearly distinguished from the Ofgem required cases. However, your target ratios and the minimum required thresholds were not well explained and therefore difficult to assess.</p> <p>We have improved our articulation of target ratios and minimum required thresholds in section 9.4 of chapter 9 – Financing our plan, our financeability assessment, and section A.6 of Annex 5 – Finance report.</p>

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You have also not complied with Ofgem's request that you should analyse key alternative inputs to those they propose; this applies particularly to gearing levels.

We have considered the impact of several changing circumstances on our plan, modelling a number of sensitivities against the notional and actual company, including analysis on high gearing levels. This can be found in section 9.4 of chapter 9 – Our financeability assessment, and section A.6 Annex 5 – Finance report, section A.6.

It is important to be clear in all submissions what models or tools your quantitative output is based on. It is acceptable at this stage (though not in December) to use only your own internal financial models but important that in December the main plan and financeability analysis refers to outputs from the Ofgem business plan financial model.

A final version of Ofgem's business plan financial model (BPFM) was received on 21 November 2019. All the analysis undertaken in the financeability assessment of our Business Plan (see chapter 9 and Annex 5 – Finance report) has been undertaken using Ofgem's model on a best endeavours basis.

Specifically, we have used BPFM version 7.4 as provided by Ofgem on 21 November 2019. Multiple versions of the BPFM are required in order to provide Ofgem with the data and analysis requested.<sup>25</sup> Additional versions have been used to perform additional sensitivity testing and to consider options to improve financeability. This approach has been agreed with Ofgem.

All versions used to generate the cases discussed below have been supplied to Ofgem alongside this business plan.

We also expect transparency (i.e. clear cross-referencing to supporting files) and submission of any model or tool used for any

Please see the response above.

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<sup>25</sup> Functionality of BPFM is limited to one set of baseline information, should a scenario or sensitivity require an amended data set a new model must be completed. In particular, different versions of the BPFM are required for the notional and actual company.



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supplementary analysis included in the Business Plan, including bill impact estimations.

We note that there are issues still outstanding with Ofgem in relation to the most appropriate structure for debt financing of your plan, particularly in relation to the required working capital facility and the impact of the incentive arrangements which are eventually agreed.

We also note the uncertainty surrounding the target ratios the credit rating agencies will eventually apply in rating you. This uncertainty appears to have led you to analysis based on an unduly pessimistic view of the required target ratios and, as a result, to conclude that neither the Notional nor the Actual Company are financeable on the basis of Ofgem's working assumptions.

We have assumed that the fixed cost of the working capital facility will be funded on a pass-through basis and that there is a £0 expected incentive result (see chapter 9 and Annex 5 – Finance report).

We have set out how we have interpreted credit rating ratios for the purpose of a financeability assessment. This is in section A.6 of Annex 5 – Finance report, our assessment of financeability.

We have concluded that, under Ofgem's working assumptions, we are debt financeable in the RIO-2 period but that there is not an adequate equity investor proposition. As a result, targets selected for credit metrics are not driving a need for further remuneration to support debt financeability.

It would have been helpful to show analysis based on alternative thresholds reflecting the favourable regulatory regime which is proposed (totex pass through and limited downside penalties) and what steps you have taken to persuade the rating agencies to take this into account. We are not able to determine from your analysis how far the targeting of a rating lower than BBB+ might change your assessment of financeability and what the resulting trade-offs for the consumer might be.

As above, we consider the ESO to be debt financeable within the working assumptions so there is no need to target lower thresholds. We highlight that the ESO's peers target higher credit metrics than the Baa1 rating that we seek to maintain.

In any event, we are far from convinced that such a large premium over Ofgem's working assumptions for cost of debt (67bps versus 25bps, including upfront financing costs) and equity (9.36% versus 7.81%) allowances

We believe that we are debt financeable on both a notional and actual capital structure basis based on Ofgem's financial framework and working assumptions. However, we do not believe



is necessary nor that private sector service companies, which you cite, are useful comparators for your risk profile (or, for that reason, for determining cost of capital allowances)

You appear to have dismissed all measures to aid financeability other than increasing the allowances for cost of capital and additional revenue. You have rejected changes to both depreciation and capitalisation rates as routes to improving financeability but have not considered other routes such as reducing gearing or other measures that could reduce the risks which are of concern to the rating agencies, such as timing of cashflows.

they provide an attractive equity investor proposition.

We have reviewed our analysis and considered the impact of potential levers (dividend yield assumption, capitalisation rate, regulatory depreciation period and additional remuneration) on this equity financing challenge (see section 9.4.3 of chapter 9 – Our financeability assessment and section A.6 of Annex 5 – Finance report).

Many of the potential levers to support financeability are focused on enabling the acceleration of cash from future periods. These levers can improve certain metrics in the short term, but they present a number of challenges and do not address the lack of remuneration for certain risks and activities. Of the options reviewed, we believe the only solution that creates the conditions to support the type of ESO that stakeholders want, and provides for a more sustainable ESO, is the inclusion of additional remuneration for our services and risks that are not fully funded.

We show the impact that alternative assumptions for parameters such as total market return have on the cost of equity in the annex as an illustration. However, these are issues generic to all the networks regulated by Ofgem and are not ESO specific. We have adopted Ofgem's assumption and have not proposed an alternative cost of equity.

Equally, we use Ofgem's working assumption of 0.25% for the cost of debt. Ofgem has not yet determined the detail of our debt mechanism. Our plan

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outlines how the mechanism could work using an indexation approach such that the proposal would be based on relevant agreed market data and does not represent a request for a premium (see section 9.3.2 of chapter 9 – Cost of debt and section A.5 of Annex 5 – Finance report).

We also consider that most of the risks (e.g. legal, reputational) which you cite as requiring higher allowances, are sufficiently remunerated through the cost of capital derived from the CAPM.

We acknowledge that many of our risks are covered by the capital asset pricing model (CAPM) to some extent, but not sufficiently. A CAPM based return is applied to the RAV, but for some activities there is very little RAV and so insufficient provision of equity return, e.g. market services activities. Where activities are not represented by assets in the RAV the current RAV\*WACC cannot remunerate the risks.

We have continued to work alongside KPMG to develop our risk analysis since October, responding to Ofgem's feedback by more explicitly using CAPM. KPMG's latest report considers the relative concentration of systematic risk compared to the network companies and explains why the ESO is subject to higher levels of systematic risk that is not sufficiently remunerated through CAPM.

We have updated our risk analysis in section 9.5 of chapter 9 – Proposed alternative assumptions and section A.7 of Annex 5 – Finance report. KPMG's report can be found in Annex 5, Appendix C.

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1. IT project delivery - taking project 500, Zero Carbon Delivery (which aims to enhance operational and planning interaction with DNOs) as an example, please describe:

- a) what solution and scope options did you consider and why was this one chosen?
- b) what implementation options did you consider and why was this one chosen?
- c) what are the key inter-dependencies that are required to ensure a successful outcome?
- d) when, how, and at what cost this will this project be delivered?
- e) what are the key risks and how do you plan to mitigate them – what contingency and change control do you have in place?

Please also describe the level of delivery risk you ascribe to this project compared to your other planned IT projects.

Project 500 is an IT investment detailed in Annex 4 – Technology investment report (section 5.5 500 Zero carbon operability) for a monitoring and control system to facilitate zero carbon operation.

This system was proved on a small scale through an £8.5 million NIC innovation project, enhanced frequency control capability (EFCC).

We have added more detail, from the EFCC Closure Report, to our investment description for this project in Annex 4 – Technology investment report. We have also added more information about the risks, uncertainties and mitigations.

Similarly, we have reviewed and added further detail in line with this Challenge Group feedback to the other investment descriptions in in Annex 4 – Technology investment report, sections 2 to 6.

2. Shared services - please detail the individual elements of your current and planned future support costs that the ESO currently pays to National Grid Group and reconcile these to your plan. In addition, please provide the justification for these charges and describe the governance arrangements that are in place to agree these and deal with any disputes. In particular, please justify the decisions for

- a) the ESO to migrate its business support systems to National Grid's Sap4/Hana platform, and
- b) for funding £37m of National Grid's £80m IT hosting cost

We have included a new Annex 8 – Shared Services, which sets out the shared services unified cost allocation model (UCAM) in detail and therefore the justification for these charges. This annex also sets out what the shared services charges will be in the RIIO-2 period.

- a) We have provided more detail as to why our business support systems are being migrated to Sap4/Hana in Annex 4 – Technology investment report, section 7.5. Finance systems.
- b) The ESO's proportion of the National Grid group's IT

hosting cost has been updated for our final plan and is set out in section 9 of Annex 4 – Technology investment report.

After the ESO attended the July 2019 meeting, we were provided with formal written feedback from the Challenge Group on our draft July submission. The below table details the feedback we received and how we responded to this in our October draft Business Plan. The references have been updated from the version submitted to the Challenge Group in October to reference this final version of the Business Plan.

	<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
1. Introduction	Include costs broken down by activities and sub-activities, with clear, well-defined metrics and deliverables assigned to each of these	Each Theme chapter in the Business Plan provide costs broken down by activities and sub-activities. Detailed deliverables are provided in tables at the end of each Theme chapter. Our proposed metrics are described alongside the relevant deliverables in the Theme chapters and are summarised in Annex 7 – Metrics and measuring performance.
	Include historical costs and associated deliverables for each activity and, where possible, each sub-activity	Each Theme chapter includes the historical cost for each activity as an average cost since legal separation. This best reflects the structure of the ESO today and is the most appropriate comparison. Detailed historical costs per activity are in the data tables. Detailed deliverable schedules are included in the Theme chapters.
	Include clear links between activities, sub-activities and the performance criteria or a distinct measure of the output or deliverable to be achieved through the activities and sub-activities	Each Theme chapter clearly sets out what outputs or deliverables will be achieved through our proposed activities. Annex 4 - Technology underpinning our ambition provides more details of the IT solutions that underpin our proposed activities and deliverables.

<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
<p>Separate reporting of business support costs, with a clear description of how these have been allocated from wider National Grid Group</p>	<p>Chapter 12 sets out the separate reporting of business support costs. Section 10.4 of chapter 10 explains the ESO share of group IT costs. Further detail on how shared costs are allocated to the ESO is explained in chapter 12 and Annex 8 – Shared services.</p>
<p>Comparable external benchmarks for activities and deliverables, where relevant, to allow assessment of their relative efficiency and evidence of the ESO's steps to determine the efficiency of these, e.g. external benchmarking or market testing</p>	<p>Benchmarking has played a major part in ensuring that our proposed costs are efficient. All of our proposed IT costs have been benchmarked by Gartner and our application development and maintenance partners using a cross-sector methodology, Further information can be found in chapter 10.</p> <p>Our shared service costs have been subject to cross-sector benchmarking by Hackett, and have found to be equivalent to the most efficient companies. Further information can be found in chapter 12.</p> <p>We also conducted some high-level international benchmarking of overall ESO costs, described in section 3.1. Overall, more than 70 per cent of our proposed costs have been subject to activity benchmarking.</p>
<p>Proportionate cost-benefit analysis and justification for the proposed expenditure</p>	<p>As agreed with Ofgem, our new and transformational activities have been subject to cost-benefit analysis. This is described in detail in Annex 2 – Cost-benefit analysis (CBA) report, with high-level results in all Theme chapters of the main document. Overall our proposed new activities will deliver net benefits of £2 billion to consumers over the RIIO-2 period.</p> <p>The Theme chapters provide details on why we think our</p>

	<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
		proposed costs are justified, for example using historic activity costs or unit costs. One example on our balancing services market costs is in section 5.2.2 of the Theme 2 chapter.
	Identification of uncertainties around deliverables, with cost ranges for potential outcomes, where applicable	Against each of the new and transformational deliverables in the Theme chapters, we have set out the uncertainties and dependencies that could affect the outcomes. We have translated this into ranges for the benefits that could be achieved. Much more detail can be found in Annex 2 – Cost-benefit analysis (CBA) report.
	Clear demonstration of the ESO's consideration of its longer-term vision for the energy system, for example in terms of whole system approaches, innovation, consumer value and long-run costs and benefits.	Sections 3.2 and 3.3 of chapter 3 set out our longer-term vision for the energy system and what different scenarios mean for the ESO and other participants. Each Theme chapter begins with a five-year strategy that provides the strategic context to our proposals. Chapter 11 gives more details on our approach to innovation.
2. Plan Ambition	Your ambition is to be able to operate a carbon free, flexible whole power system in 2025. Please describe the specific activities or outcomes that your plan must deliver to achieve this	At the end of Annex 6 – How our plan meets Ofgem's and the Challenge Group's requirements, we have provided further information on the actions needed to operate a carbon free, flexible electricity system in 2025. There is also a table showing how our Business Plan proposals will contribute to this objective.
	Please provide further details of the additional actions you will be taking during the RIIO-2 period to facilitate Net Zero...	At the start of each Theme chapter we set out how the activities proposed within that chapter will facilitate the UK's commitment to net zero emissions by 2050.

	<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
	<p>... particularly your plans to facilitate cross-vector solutions i.e.. electricity, gas, transport, water and heat</p>	<p>Our Leading the debate proposals in Theme 4 outline how we will step up to facilitate solution development across many constituent areas of a whole energy system transition to net zero, including clean heat, Carbon Capture Use and Storage (CCUS), electric vehicles, and energy data.</p>
<p>3. Stakeholder Engagement</p>	<p>Your plan ambitions appear to assume extensive coordination with other industry participants and may be conditional upon multilateral agreements or future legislative or regulatory decisions.</p> <p>What assumptions have you made about your role in relation to, for example,</p> <ul style="list-style-type: none"> <li>a) future power system operation alongside DSOs, aggregators and others, and</li> <li>b) future ownership of coordination of power market IT systems and platforms?</li> <li>c) future governance of codes and market rules?</li> <li>d) future relationships with network operators and owners</li> </ul> <p>What are the alternatives you have considered and what are the implications to your plan from these assumptions? How are you seeking the most efficient solutions?</p>	<p>These assumptions are explained in Annex 1 – Supporting information, Section 5. Section 3.2 of chapter 3 of the Business Plan provides more detail on our overall approach to uncertainty.</p>
	<p>You have acknowledged that your stakeholder engagement to develop the plan is incomplete. Please ensure that this work is complete and fully justified as part of your October plan.</p> <p>We shall continue to look for evidence of how each of your proposals and commitments has been built on high-quality engagement with relevant stakeholder groups, and what difference this engagement has made to your plans.</p>	<p>Our stakeholder engagement is as complete as it can be, ahead of the final plan being submitted. We have full explanations of stakeholder feedback and how we've responded throughout the Business Plan. Chapter 2 and this detailed Stakeholder report, set out details of how stakeholder feedback has informed our plan at every stage of development.</p>
	<p>Set out briefly how your RIIO-2 strategy for engagement matches the principles in Ofgem's Business Plan guidance (paragraph 2.8); show the cost of your approach, and explain how you will measure the value and impact of your</p>	<p>This is explained in chapter 13, section 13.1.1 of our Business Plan (Our stakeholder strategy in RIIO-2).</p>



Challenge Group Feedback	What we have done in response to this feedback
<p>engagement strategy at all levels in the business</p> <p>Summarise (in a short appendix if necessary) where and how your engagement with your User Group and with the RIIO-2 Challenge Group has influenced your plan</p>	<p>Engagement with our user group is explained at a high level in section 2.4 in our Business Plan. More details on engagement with the user group and the RIIO-2 Challenge group is covered in Annex 6 - How our plan meets Ofgem's and the Challenge Group's requirements and in this Stakeholder report. We have also shown, throughout the main report, how we've responded to stakeholder group feedback in the relevant sections.</p>
<p>You say you have used the AA1000 standard as a benchmark for your methods. We would be interested to understand your ranking or any comparative score that resulted from this work.</p>	<p>In section 2.2 we set out that we are not accredited to AA1000SES so have not assessed our performance against it. Instead we commissioned an independent review of our stakeholder engagement approach earlier in the year which confirmed that we are taking a best practice approach.</p>
<p>Given the unique nature of your mission, will you use benchmarks from outside the energy sector to measure the effectiveness of your future stakeholder engagement? Please give details if so.</p>	<p>Yes, we will use benchmarks from across the energy sector and beyond as part of our stakeholder strategy detailed in section 13.1.1. We will undertake benchmarking through a combination of this best practice review; networking and forums, considering entering ourselves for awards to see where we come out; and bilateral meetings with those renowned for good customer experience. We will do this with a range of organisations, not just those in the energy sector, in order to establish what more we could and should be doing, rather than what is being done within our own industry. We are</p>



	<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
	<p>Will your senior management pay and rewards be linked to delivery of your commitments or other measures of consumer benefit and, if so, to what extent?</p>	<p>also considering becoming accredited to AA1000SES.</p> <p>Yes. This is covered in section 14.4.2. Senior management pay and reward is linked to achievement of personal objectives and the ESO performance scorecard. The set of personal objectives will include achievement of the commitments in our Business Plan. Furthermore, the bonus has five measures, one is specifically relating to achievement of SO incentives (which will be linked to consumer benefit) and another relating to Customer Satisfaction.</p>
<p>4. Future Scenarios</p>	<p>You state that your plan is designed to be consistent against a range of futures as defined in the latest <i>Future Energy Scenarios (FES)</i>. Please describe how these alternative futures have impacted your plan assumptions.</p>	<p>Chapter 3 – Assumptions underpinning our plan provides information about how we have used the latest <i>FES</i> to develop our plan and explains how we deal with uncertainty in our plan. We have included risks and mitigations for the specific activities in Annex 2 – Cost-benefit assessment (CBA) report includes market, delivery and third party sensitivities to give a range of potential benefits. Annex 2 – CBA report also explains where we have explicitly or implicitly used a range of <i>FES</i> scenarios, e.g. in forecasts of constraint costs.</p>
	<p>In Theme 1, you set out your proposals to invest in a new state of the art system operation and balancing IT systems. Please provide further details to justify your choice of solution and provide a detailed implementation plan.</p>	<p>Section 4.2.3 describes our proposals and Annex 4 - Technology investment report sets out the justification for our choice of solution and a detailed implementation plan. The main components are the new network control tool (IT investment line 110), the new enhanced balancing capability tool (IT investment line 180) and</p>

Challenge Group Feedback	What we have done in response to this feedback
	the data and analytics platform (IT investment line 220).
In Theme 2, you set out your proposals to invest in a new market platform. Please provide further details to justify your choice of solution and provide a detailed implementation plan.	Section 5.2.6 describes our proposals and Annex 4 - Technology investment report sets out the justification for our choice of solution and a detailed implementation plan. The main component is the single markets platform (IT investment line 400).
In Theme 3, you set your proposals to expand the <i>NOA</i> to enable competition and non-network solutions. Please set out the specific actions and delivery timetable you expect to achieve during RIIO-2. What assumptions do you expect TOs or DNOs should be making in their plans with regard to these investments or non-network solutions?	Section 6.2.3 and the investment roadmap set out the specific actions and delivery timetable. Options to meet network needs developed by the TOs as part of their business plans should still pass through the same levels of rigour in determining whether they would be the preferred/recommended solution when evaluated through a cost-benefit assessment process against third party options. We are keen to ensure that any options recommended in expanded <i>NOA</i> or other ESO-driven needs process are appropriately funded for both TOs and DNOs and are encouraging network companies to continue to progress discussions on this with Ofgem. In our discussions with TOs and our formal feedback on their own business plans, we have suggested to TOs that they should ensure appropriate funding mechanisms are in place to deliver investments in non-network solutions. Section 5 of Annex 1 – Supporting information highlights the assumptions we have made about network operators, network owners and other parties.
In Theme 4, you set your proposals to enhance electricity system coordination, mainly with	Section 7.4 sets out our proposals in this area and the

	<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
	<p>DNOs. Please set out the specific actions and delivery timetable you expect to achieve during RIIO-2. What assumptions do you expect TOs or DNOs should be making in their plans with regard to these investments or non-network solutions?</p>	<p>delivery timetable. Options to meet network needs developed by the TOs as part of their business plans should still pass through the same levels of rigour in determining whether they would be the preferred/recommended solution when evaluated through a cost-benefit assessment process against third party options. We are keen to ensure that any options recommended in expanded NOA or other ESO-driven needs process are appropriately funded for both TOs and DNOs and are encouraging network companies to continue to progress discussions on this with Ofgem. In our discussions with TOs and our formal feedback on their own business plans, we have suggested to TOs that they should ensure appropriate funding mechanisms are in place to deliver investments in non-network solutions. We continue to engage with DNOs through the ENA on this and will encourage them to take similar steps in the development of their RIIO-ED2 plans. Section 5 of Annex 1 – Supporting information highlights the assumptions we have made about network operators, network owners and other parties.</p>
5. Plan Costs	<p>We are concerned that your totex bid is higher than necessary, and that the efficiencies and innovations you realised during RIIO-1 have not all been brought forward, because it is not possible to track them based on the information provided to date.</p>	<p>Section 3.1 provides details on how we have brought forward £7 million annual efficiencies from RIIO-1, as well as the benchmarking we have done to ensure we start RIIO-2 at the efficiency frontier. We commit to a 1 per cent efficiency stretch target on our ongoing and shared service operational costs,</p>

Challenge Group Feedback	What we have done in response to this feedback
<p>IT expenditure</p> <p>Please provide a detailed breakdown of your proposed expenditure and its justification. In particular, for the digital twin and replacement control infrastructure – please provide a detailed justification for these IT projects setting out the ongoing activities costs, the stage of development you have reached, your design assumptions and scope of works, your cost justification, your proposed procurement approach, your timing, your proposed outputs, and the alternative design/cost options you have considered. These projects should include:</p> <ul style="list-style-type: none"> <li>• Theme 1 – replacement control system architecture</li> <li>• Theme 1 – digital twin</li> <li>• Theme 2 – market portal</li> <li>• Theme 3 – NOA modelling</li> <li>• Theme 4 – modelling, databases, etc</li> </ul>	<p>to ensure we stay at this frontier in RIIO-2.</p> <p>Annex 4 - Technology investment report provides details on all our proposed IT investments. The references are as follows:</p> <p>Theme 1 – replacement control system architecture &amp; digital twin (the digital twin forms part of the replacement control system architecture, so the investments are the same)</p> <p>110 Network control 140 ENCC Operator Console 180 Enhanced balancing capability 220 Data and analytics platform</p> <p>Theme 2 – market portal 400 single markets platform 420 Auction capability</p> <p>Theme 3 – NOA modelling 390 NOA enhancements</p> <p>Theme 4 – modelling, databases 350 Planning and outage data exchange 360 Offline network modelling</p>
<p>Why have operating costs increased e.g. support from National Grid, when you are implementing an efficiency programme during RIIO-1? What opex and capex efficiencies do you expect to realise during RIIO-2?</p>	<p>Our costs in RIIO-2 include an efficiency assumption of £7 million opex per year, based on the efficiencies we have achieved in RIIO-1. Our capex plans have been benchmarked to ensure they are efficient, and we will review these again in 2023 when we publish our next Business Plan. More information is provided in section 3.1.</p>
<p>What are the costs in your plan allocated from National Grid Group and what are you doing to optimise these costs?</p>	<p>The ESO receives shared business support services from the National Grid group. These</p>

Challenge Group Feedback	What we have done in response to this feedback
	<p>are set out in chapter 12. Section 12.1 explains the transparent cost model used to allocate the ESO's share. This shared services model means each National Grid business benefits from economies of scale and use of expertise in each area, as well as taking a proportion of the costs for each function. This creates efficiencies for each National Grid business, as it costs less than each business having its own functions. The shared service costs in this section have been benchmarked for efficiency. Furthermore, they include a one per cent efficiency stretch target to ensure we keep pace with the efficiency frontier in RIIO-2. Shared IT infrastructure costs are also allocated to the ESO under the same methodology. More detail is in section 10.4.</p>
<p>Are the benefits identified for Themes 1 to 4 realistic? Have they been tested with the industry?</p>	<p>Yes, we believe they are realistic. We have reviewed the benefits and dependencies and set this out in the Theme chapters of the Business Plan and in Annex 2 – Cost-benefit analysis (CBA) report. We tested the cost-benefit analysis through our stakeholder engagement over the summer and will continue to test as we finalise the plan. Our CBA methodology was also reviewed and challenged by an external party to ensure it was robust.</p>
<p>The options and CBA analysis are currently high level – please provide more detailed evidence about counterfactuals, options, probabilities, etc, that you have considered. Please provide evidence to show there is not double counting of benefits.</p>	<p>More detailed evidence about baseline assumptions, options, probabilities, is in Annex 2 – Cost-benefit analysis (CBA) report. This report also explains how some options were eliminated through our early</p>

Challenge Group Feedback	What we have done in response to this feedback
	<p>stakeholder engagement. We have also provided summaries of this information in each Theme chapter.</p> <p>Part of our stakeholder engagement was to better understand realistic counterfactuals and to eliminate unviable options. For our October draft Business Plan we have undertaken more sensitivity analysis, so we can talk about likelihood (high, medium, low) rather than detailed probabilities.</p> <p>Our Annex 2 – Cost-benefits analysis (CBA) report also sets out how we have avoided double counting, for example, if multiple activities are all necessary to unlock some of the benefits then, to avoid double counting, we only attribute the benefit to one of the activities. Specific measures taken are described under each activity. For example, to avoid double counting of asset savings and carbon saving we have assumed that each Regional Development Programme (RDP) will save either carbon or asset build in equal proportions, under our benefit calculations for Theme 4.</p>
<p>In your October plan, please set out the elements of your totex that may be subject to uncertainty mechanisms triggered by contingent events e.g. justification of major IT projects, agreement for market reforms.</p>	<p>In section 3.2 we explain that we do not have formal uncertainty mechanisms because our regulatory framework is designed to be flexible through having a two-year planning cycle and pass-through funding. We therefore do not have formal uncertainty mechanisms as part of our regulatory framework, though the ESO may use reopeners for cyber and physical security investments in line with the other RIIO network companies.</p>

<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
<p>Also, for your October plan submission, please provide information on your cost forecasts in the main body of the Plan document, showing how you have justified a change from your current run rate for opex and capex.</p>	<p>Each of the Theme chapters sets out detailed justification for our cost forecasts, and why these are different from our run rate, which we have calculated as the RIIO-1 average cost for this activity since legal separation. We think this gives the best comparison as it reflects the ESO business and its activities and team structures today.</p>
<p>Beginning with your annualised average actual data for RIIO-1 (covering 2013/14 to 2018/19), set out the key upward cost drivers, with a detailed justification of the need, the options that have been considered, the scope of the intervention, the volumes, the timings, and the unit costs. Then set out the key downward cost drivers, capturing the benefits from efficiency, innovation, competition, and workload volume or scope changes. Finally, show the forecast cost for RIIO-2.</p>	<p>In section 9.3 of our October draft plan we have conducted this analysis at ESO level and for seven layers of activity.</p>
<p>... including any revisions you have made from your draft 1 July draft submission.</p>	<p>Please see figure 1 and the detailed explanatory tables in Annex 6 of our October draft plan which explains the revisions that have been made since the 1 July draft submission.</p>
<p>Please provide the following downward sensitivities for your totex forecasts together with the assumptions, decisions and potential impacts underlying each. The sensitivities we require are:</p> <ul style="list-style-type: none"> <li>• A forecast for capex and opex expenditure which is no greater than the annual average of RIIO-1 actual to end March 2019. Your major new IT projects should be detailed separately as being subject to potential reopeners once justified.</li> <li>• A forecast for capex and opex expenditure which is no greater than the annual average of RIIO-1 actual to end March 2019 and which includes an additional real efficiency reduction of 2 per cent per annum. Your major new IT</li> </ul>	<p>We have provided this information in section 9.4 of our October draft plan.</p>

<b>Challenge Group Feedback</b>	<b>What we have done in response to this feedback</b>
<p>projects should be detailed separately as being subject to potential reopeners once justified.</p>	
<p>6. Plan Delivery            In your October plan, please describe the key risks to delivery of your plan ambition, and how you have mitigated these. In particular, please describe how are you going to deliver the IT projects, processes and applications for the ESO, e.g. contracting, staging strategies etc? Do you have the capability within the ESO to manage this?</p>	<p>Key risks to delivery of the plan and the mitigation are covered in chapter 3. There is more information about how we are going to deliver IT projects in chapter 10 and chapter 14.</p>

*Table 4: Challenge Group feedback on the July draft Business Plan and our response*



## 4. A summary of our engagement activity – who and how

### 4.1 Stakeholder events we have run or attended

We hosted 11 webinars, 10 workshops and attended 31 other events (these included forums, seminars, trade association meetings and other industry meetings)

We have carried out a range of stakeholder engagement as we have developed the Business Plan. This has provided us with a wealth of feedback that has directly shaped the proposals in our Business Plan and this document. We have used RIIO-2 specific engagement events to build on the engagement that takes place as part of delivering our day to day responsibilities. The table below lists all the engagement channels and events we have used for RIIO-2 (other than bilateral meetings), the topics that we discussed at those events and why. We also summarise who attended them, with the graph showing the breakdown of stakeholders by sector at each.

Channel	Date	No. of attendees	Topic(s)	Purpose of discussion
<b>RIIO-2 webinar</b>	26 April 2018	88 individuals, 68 organisations	Development of consumer and stakeholder priorities for RIIO-2	<ul style="list-style-type: none"> <li>To test with stakeholders whether we have identified the right stakeholder and consumer priorities.</li> </ul>



**RIIO-2 workshop** 22 June 2018 43 individuals, 43 organisations Scenarios, regulatory framework

- To engage stakeholders on using the *FES* scenarios and how we should account for the changing energy landscape.
- To engage stakeholders on our initial thinking on our regulatory framework and possible funding models.



**RIIO-2 webinar** 28 June 2018 49 individuals, 37 organisations Scenarios, whole system

- To engage stakeholders on the use of *FES* 2018 as a basis for our Business Plan, and test with them which changes in the energy landscape will have the biggest impact on consumers and the industry.
- To test with stakeholders their top three focus areas for whole energy and whole electricity.



<b>RIIO-2 webinar</b>	30 August 2018	65 individuals, 47 organisations	Scenarios, charging, codes	<ul style="list-style-type: none"> <li>To engage stakeholders on our approach to using a commonality scorecard to manage uncertainty.</li> <li>To engage stakeholders on our code manager role and areas of charging identified for potential change.</li> </ul>
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<b>RIIO-2 workshop</b>	24 September 2018	ERSG members	Funding models	<ul style="list-style-type: none"> <li>To share our updated thinking on our funding model and incentives with ERSG and give them an opportunity to further input and shape our thinking.</li> </ul>
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<b>ESO 2030 ambition workshop</b>	28 September 2018	40 individuals, 36 organisations	ESO roles and ambition	<ul style="list-style-type: none"> <li>To engage stakeholders on our roles in managing system balancing and operability, facilitating competitive markets, facilitating whole electricity system outcomes and supporting competition in network solutions.</li> </ul>
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<b>FES Workshops</b>	18 & 25 October 2018	126 stakeholders, 93 organisations <sup>26</sup>	Scenarios	<ul style="list-style-type: none"> <li>To test with stakeholders our approach to using scenarios and assumptions</li> </ul>
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<sup>26</sup> Total number for all four FES Workshops

<b>Grid Code Panel meeting</b>	17 October 2018	11 individuals	Codes	<ul style="list-style-type: none"> <li>To understand stakeholders' views on our role in code administration and associated funding.</li> </ul>
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<b>RIIO-2 webinar</b>	17 October 2018	27 individuals, 21 organisations	Thought piece on the regulatory framework	<ul style="list-style-type: none"> <li>Engage stakeholders on the thought piece we published and encourage them to respond to our consultation questions.</li> </ul>
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<b>CUSC Panel meeting</b>	26 October 2018	14 individuals	Codes	<ul style="list-style-type: none"> <li>To understand stakeholders' views on our role in code administration and associated funding.</li> </ul>
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<b>Transmission Charging Methodology Forum</b>	14 November 2018	19 individuals, 19 organisations	Charging	<ul style="list-style-type: none"> <li>Engage stakeholders on the future of charging in RIIO-2.</li> </ul>
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<b>RIIO-2 webinar</b>	11 November 2018	17 individuals, 15 organisations	Network development, whole electricity system	<ul style="list-style-type: none"> <li>Seek views on initial thinking on proposals.</li> </ul>
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<b>RIIO-2 workshop</b>	17 December 2018	22 stakeholders, 20 organisations	System operation, system access planning, whole electricity system and network development	<ul style="list-style-type: none"> <li>Explore stakeholder views on some of the more technical aspects of the ESO role.</li> </ul>
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<b>RIO-2 webinar</b>	28 January 2019	18 stakeholders, 17 organisations	Sector specific consultation, key messages, December workshop playback, consumer value	<ul style="list-style-type: none"> <li>Engage stakeholders on the key messages from our response to Ofgem’s sector specific consultation, summarise what we heard at the December workshop and provide an update consumer benefit work.</li> </ul>
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<b>RIO-2 webinar</b>	21 March 2019	21 individuals, 18 organisations	Data and transparency, connections and system access planning	<ul style="list-style-type: none"> <li>Engage with stakeholders on what they have told us so far and how this has shaped our ambition and proposals.</li> </ul>
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<b>ESO Customer seminars</b>	5 and 7 March 2019	61 individuals, 40 organisations	Connections	<ul style="list-style-type: none"> <li>Test our proposed activities with stakeholders who have or are going through the connections process.</li> </ul>
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<b>Transmission Charging Methodology Forum</b>	13 March 2019	19 individuals, 19 organisations	Charging	<ul style="list-style-type: none"> <li>Provide stakeholders with and update on the development of our RIIO-2 proposals.</li> </ul>
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<b>ESO Operational Forum</b>	26 March 2019	60 stakeholders, 45 organisations	Data and transparency, balancing markets, system operation	<ul style="list-style-type: none"> <li>Engage stakeholders on our proposals for system operation, balancing markets and data.</li> </ul>
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<b>Power Responsive Round Table</b>	10 April 2019	20 individuals, 18 organisations	Data and transparency, balancing markets and system operation	<ul style="list-style-type: none"> <li>Seek stakeholder views on our ambition for each topic and proposed activities for the development of our July draft Business Plan.</li> </ul>
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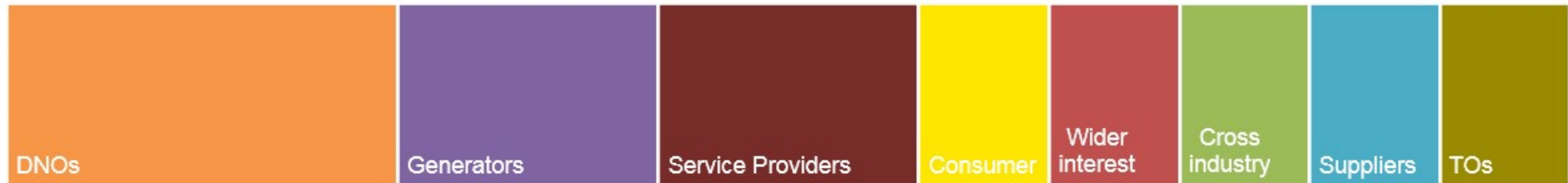
<b>RIIO-2 workshop</b>	11 April 2019	38 individuals, 28 organisations	All RIIO-2 ambitions and proposed activities	<ul style="list-style-type: none"> <li>Seek stakeholder views on our ambition and proposed activities for the development of our first draft Business Plan.</li> </ul>
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<b>ADE Demand Side Response (DSR) working group round table</b>	23 April 2019	8 individuals, 7 organisations	System operation, Capacity Market, whole electricity system and data and transparency	<ul style="list-style-type: none"> <li>Engage the working group on our ambition and proposed activities.</li> </ul>
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<b>CBA workshop</b>	25 April 2019	10 individuals, 10 organisations	Cost-benefit analysis	<ul style="list-style-type: none"> <li>Engage stakeholders on our proposed methodology for undertaking cost-benefit analysis</li> </ul>
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<b>IS Change Forum</b>	30 April 2019	43 individuals	System operation and the design authority	<ul style="list-style-type: none"> <li>Engage stakeholders on our proposed approach to implementing new balancing systems</li> </ul>
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<b>OC2 Forum</b>	1 May 2019	41 individuals, 26 organisations	System access planning and connections	<ul style="list-style-type: none"> <li>Engage stakeholders on our RIIO-2 ambition, system access planning and connections.</li> </ul>
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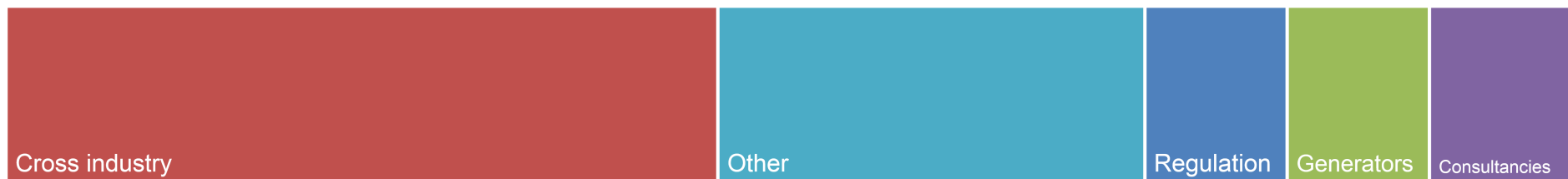
<b>Flexible Generation Group</b>	3 May 2019	8 individuals, 6 organisations	System operation, balancing markets, data	<ul style="list-style-type: none"> <li>Seek stakeholder views on our ambition for each topic and proposed activities for the development of our July draft Business Plan.</li> </ul>
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<b>Power Responsive Steering Group</b>	3 May 2019	23 individuals, 19 organisations	Codes	<ul style="list-style-type: none"> <li>Seek stakeholder views on our codes proposals.</li> </ul>
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<b>BSC Panel</b>	9 May 2019	10 individuals	System operation and balancing markets	<ul style="list-style-type: none"> <li>Seek stakeholder views on our ambition for each topic and proposed activities for the development of our July draft Business Plan</li> </ul>
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<b>RIIO-2 webinar</b>	21 May 2019	5 individuals, 5 organisations	Innovation, IT strategy, data and system operation	<ul style="list-style-type: none"> <li>• Provide an update and seek views on our further developed proposals.</li> </ul>
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<b>Onshore competition stakeholder webinar</b>	22 May 2019	13 individuals, 13 organisations	Competition in onshore transmission networks	<ul style="list-style-type: none"> <li>• Seek further and more expert views on onshore competition models and our role in the process.</li> </ul>
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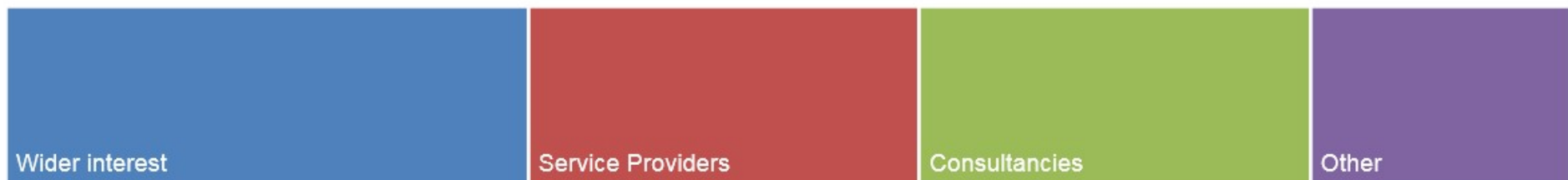
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<b>Control Centre engagement workshops</b>	16 & 30 July and 8 August 2019	14 individuals, 11 organisations	Our draft Business Plan proposals	<ul style="list-style-type: none"> <li>• Present our draft plan including costs &amp; benefits</li> <li>• Seek further views on topics where we had received mixed stakeholder opinion up to July 2019</li> </ul>
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<b>Capacity Market launch event</b>	17 July 2019	12 individuals, 4 organisations	Capacity Market	<ul style="list-style-type: none"> <li>• Discuss our Capacity Market proposals, particularly around taking ownership of the Capacity Market Rules</li> </ul>
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<b>FES launch event</b>	18 July 2019	14 individuals, 13 organisations	Lead the debate and insight and our RIIO-2 draft Business Plan	<ul style="list-style-type: none"> <li>• Test our RIIO-2 plans across all topics</li> <li>• Seek further views on the role we might take in making policy recommendations from our <i>FES</i> analysis</li> </ul>
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<b>ENA Electricity Regulatory Group</b>	24 July 2019	7 individuals, 5 organisations	Our RIIO-2 draft Business Plan proposals	<ul style="list-style-type: none"> <li>• Engage stakeholders on the detail of our draft Business Plan, particularly on topics across the themes most relevant to DNOs</li> </ul>
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<b>ADE trade association round table</b>	1 August 2019	6 individuals, 5 organisations	Our draft RIIO-2 Business Plan and ESO funding mechanism	<ul style="list-style-type: none"> <li>Engage stakeholders on the detail of our second draft Business Plan, particularly around Themes 1 and 2</li> </ul>
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<b>All TOs and ESO meeting</b>	9 August 2019	7 individuals, 4 organisations	Connections, System access and Whole electricity system	<ul style="list-style-type: none"> <li>Discuss areas of each organisations' RIIO-2 plans where there may be overlap or interaction and how we look to coordinate these activities accordingly</li> </ul>
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<b>Energy UK Ancillary Services Working Group</b>	2 September 2019	8 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on balancing and wholesale markets	<ul style="list-style-type: none"> <li>Engage stakeholders on the detail of our second draft Business Plan, particularly around Themes 1 and 2</li> </ul>
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<b>Sub-set of Power Responsive Steering Group</b>	4 September 2019	5 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on balancing and wholesale markets	<ul style="list-style-type: none"> <li>Engage stakeholders on the detail of our second draft Business Plan, particularly around Themes 1 and 2</li> </ul>
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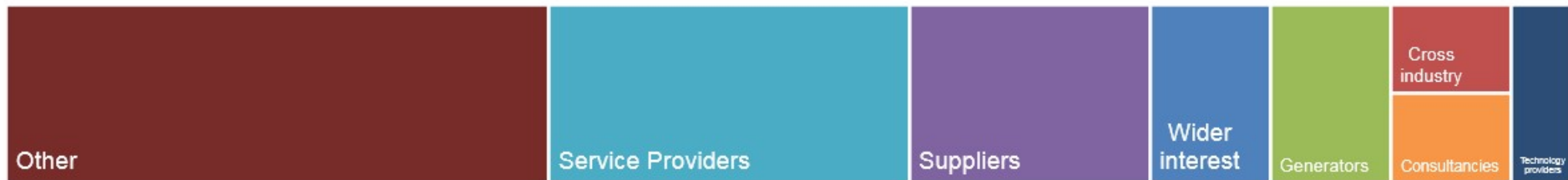
<b>All TOs and ESO Meeting</b>	4 September 2019	8 individuals	<i>Network Options Assessment</i>	<ul style="list-style-type: none"> <li>A session focused on the proposed changes to the NOA in relation to end of asset life</li> </ul>
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<b>Flexible Generation Group</b>	6 September 2019	10 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on balancing and wholesale markets	<ul style="list-style-type: none"> <li>Engage stakeholders on the detail of our second draft Business Plan, particularly around Themes 1 and 2</li> </ul>
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<b>Flexibility First</b>	11 September 2019	17 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on balancing and wholesale markets	<ul style="list-style-type: none"> <li>Engage stakeholders on the detail of our second draft Business Plan, particularly around Themes 1 and 2</li> </ul>
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<b>OC2 Forum Scotland</b>	17 September 2019	49 individuals	Our RIIO-2 Business Plan proposals with a focus on System access planning and metrics	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals on system access planning</li> </ul>
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<b>OC2 Forum England and Wales</b>	27 September 2019	Our RIIO-2 Business Plan proposals with a focus on System access planning and metrics	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals on system access planning</li> </ul>
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<b>Customer Connections Seminar London</b>	1 October 2019	45 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on connections	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals on connections</li> </ul>
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<b>October Stakeholder Workshop</b>	2 October 2019	30 individuals	Our RIIO-2 draft Business Plan proposals	<ul style="list-style-type: none"> <li>• Seek stakeholder views on our second draft Business Plan proposals</li> </ul>
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<b>ERSG Technology Deep Dive</b>	4 October 2019	6 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on technology proposals	<ul style="list-style-type: none"> <li>• Engage stakeholders on our second draft Business Plan, specifically our proposals on technology underpinning our plan</li> </ul>
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<b>Customer Connections Seminar Glasgow</b>	5 November 2019	107 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on connections and our connections hub proposal	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals on connections</li> </ul>
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<b>RIIO-2 Webinar</b>	17 October 2019	16	Our RIIO-2 draft Business Plan proposals	<ul style="list-style-type: none"> <li>Seek stakeholder views on our second draft Business Plan proposals</li> </ul>
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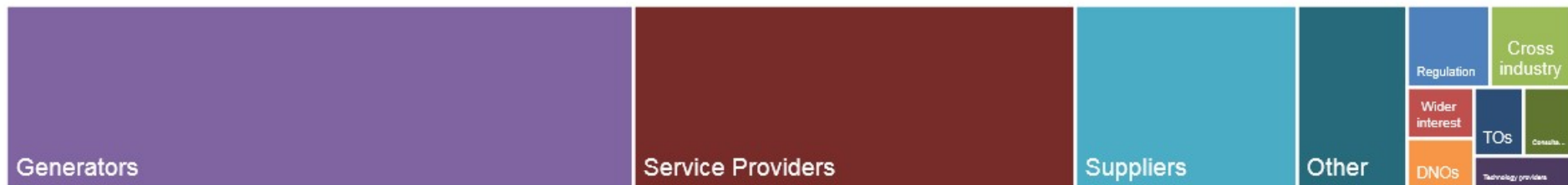




<b>Renewable UK Metrics Webinar</b>	22 October 2019	4 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on metrics	<ul style="list-style-type: none"> <li>Seek stakeholder views on our second draft Business Plan proposals, specifically on our proposals around metrics</li> </ul>
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<b>Electricity Operational Forum</b>	23 October 2019	69 individuals	Our RIIO-2 second draft Business Plan proposals, with a focus on system operation and markets.	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals on connections and codes</li> </ul>
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<b>IS Change Forum</b>	23 October 2019	25 individuals	Our RIIO-2 draft Business Plan proposals, with a focus on technology and IS investments	<ul style="list-style-type: none"> <li>Engage stakeholders on our second draft Business Plan, specifically our proposals for technological investments</li> </ul>
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### 4.2 Stakeholder engagement numbers by segment

We have met more than 900 individuals from around 350 organisations through some 1,500 interactions. Generators, service providers and suppliers were the groups most commonly represented. It is worth noting that in the figures below many stakeholders have been assumed to be representing more than one stakeholder segment. For example, one person may be classed as both a generator and a supplier, which will appear to inflate the numbers for these groups. The other category includes non-domestic consumers, consultants, charities and technology suppliers.

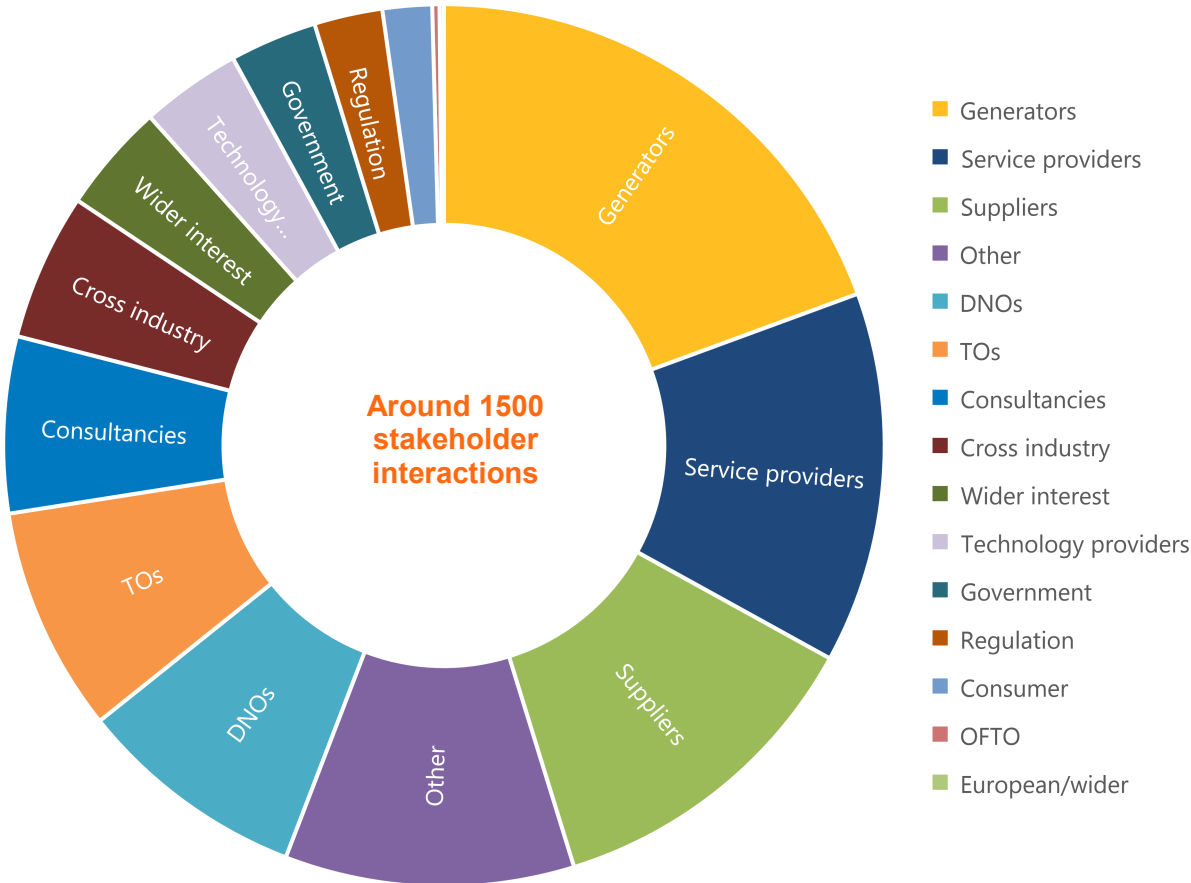


Figure 8: Stakeholders we have engaged on RIIO-2 by sector

**Webinars:** We had around 320 interactions through our webinars with similar representation from stakeholder segments as our overall engagement. The main difference is that we saw a higher proportion from the 'Other' category, demonstrating that this channel is valued by parties less directly involved with the future development of the energy industry such as non-domestic consumers or construction firms.

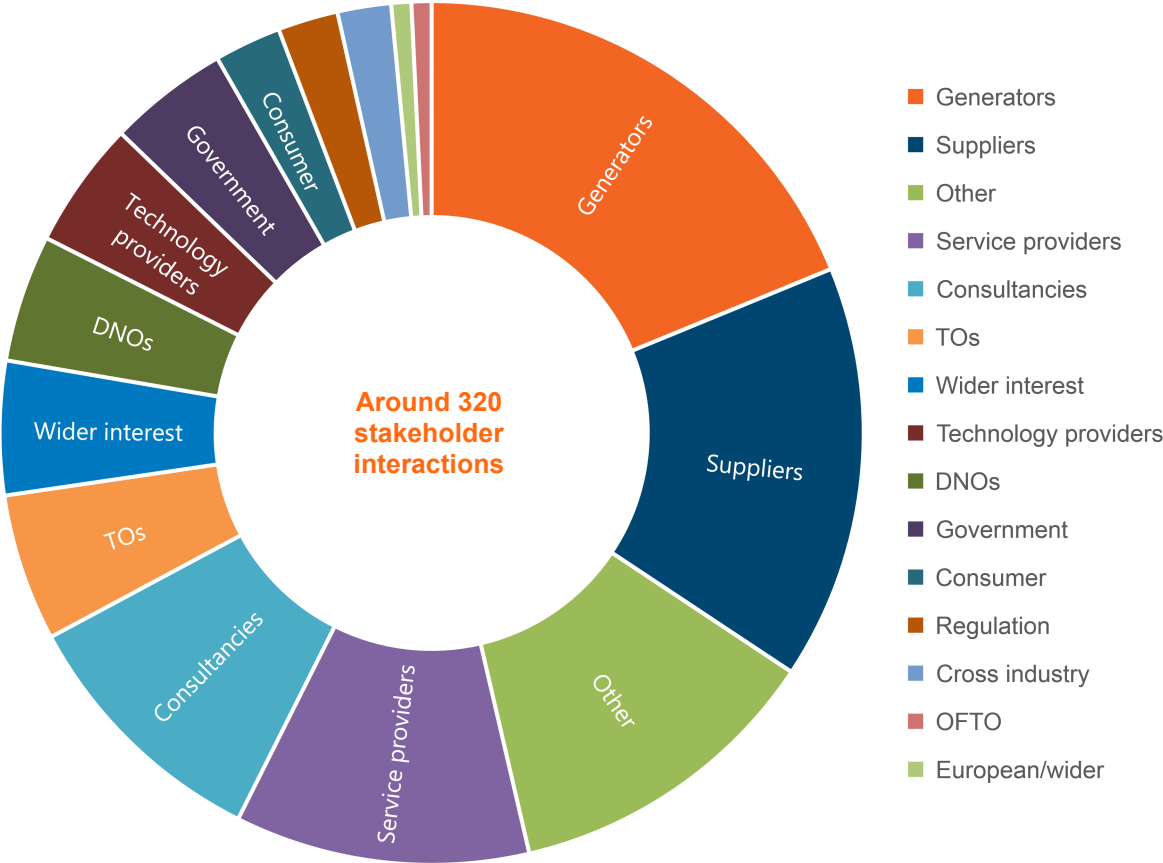


Figure 9: Stakeholders we have engaged on RIIO-2 through webinars by sector

**Workshops:** We had over 1000 interactions at our stakeholder workshops. Generators were the most represented group at our workshops followed by service providers and suppliers. Our workshops also saw a higher proportion of stakeholders from cross-industry bodies such as trade associations and 'wider interest' including academics.

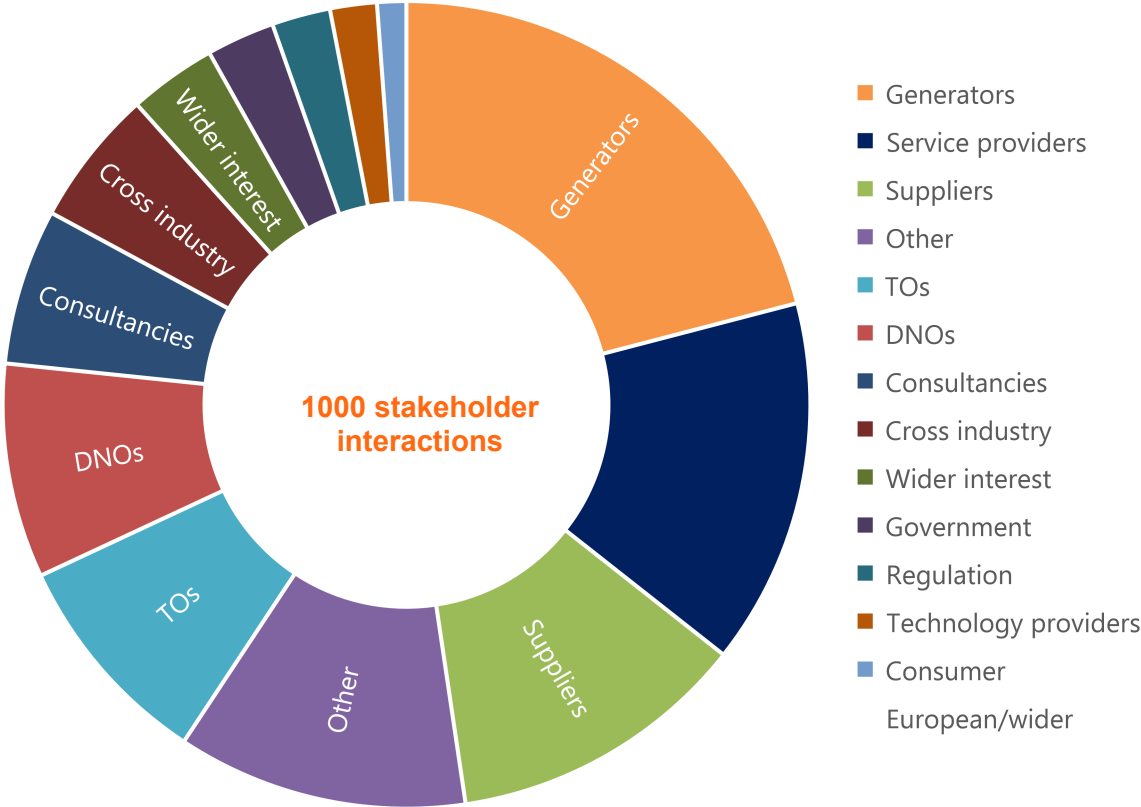


Figure 10: Stakeholders we have engaged on RIIO-2 through workshops by sector

**Bilateral meetings:** We have had an open offer to arrange bilateral discussions on our RIIO-2 priorities, vision and proposals with interested parties and have held around 135 bilateral meetings throughout 2018 and 2019. Our bilateral engagement shows a more even distribution across our stakeholder segments than other engagement channels with consumer bodies, and wider interest parties well represented.



Figure 11: Stakeholders we have engaged on RIIO-2 through bilateral meetings by sector

## 5. How stakeholder feedback has shaped our plan

Here is a summary of all our stakeholder engagement and how we have used stakeholder feedback to inform and shape our plan. We have structured these tables by discussion area (e.g. regulatory framework) or by Theme and then by the activities that sit in the main body of our Business Plan. As we set out earlier in this document, our engagement has evolved throughout our Business Plan development process and we show here what engagement we have done as the process develops.

### 5.1 Regulatory Framework

#### 5.1.1 Phase 1 Broad thinking

Channel	Aim of Event	Feedback we received	How this has shaped our plan
Ofgem framework consultation responses 2 May 2018  11 Responses	<ul style="list-style-type: none"> <li>Ofgem sought views on its proposed RIIO-2 framework</li> <li>We used this to understand stakeholders' views at that point.</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholders are generally supportive of the ESO having a separate price control to the TO.</li> <li>It was recognised that a Regulatory Asset Value (RAV)-based model would not be appropriate given the nature of the ESO business; with a small asset base alternative remuneration models needed to be considered.</li> <li>One stakeholder suggested a model based on remuneration of reasonable costs with a profit margin, and another cautioned against the ex-post model used for the Data Communications Company (DCC).</li> <li>Some stakeholders agreed that the funding model should be supplemented with appropriate incentives.</li> </ul>	<ul style="list-style-type: none"> <li>We took this feedback into account as we explored and assessed different potential funding models for the ESO.</li> </ul>

### 5.1.2 Phase 2 Developing our ambition and activities

Channel	Aim of Event & Options presented	Feedback we received	How this has shaped our plan
ESO RIIO-2 workshop 22 June 2018	<ul style="list-style-type: none"> <li>To develop a set of principles for a successful ESO regulatory framework.</li> </ul>	<ul style="list-style-type: none"> <li>An industry trade body pointed out the importance of avoiding windfall profits.</li> </ul>	<ul style="list-style-type: none"> <li>We added the principle that the framework should 'prevent windfall gains and losses that are not justified by underlying performance'</li> </ul>
43 attendees	<ul style="list-style-type: none"> <li>We presented eight principles we thought would measure a successful regulatory framework and sought feedback if these were comprehensive enough.</li> </ul>	<ul style="list-style-type: none"> <li>A consumer body suggested that transparency would be important to include in the principles.</li> <li>In our stakeholder workshop, an additional principle was suggested around delivering carbon and cost reductions.</li> </ul>	<ul style="list-style-type: none"> <li>We added the principle that the framework 'is sufficiently simple and transparent for the ESO, Ofgem and industry stakeholders to understand.'</li> <li>We did not include an additional principle. We considered that carbon reduction is included in the fourth principle. Additionally, the first principle of encouraging the ESO to deliver value covers cost reduction as well as recognising the potential for necessary short-term cost increases, to drive longer term savings, and the importance of meeting customer and consumer needs.</li> </ul>
	<ul style="list-style-type: none"> <li>To provide an overview and gain feedback on five possible funding models for the ESO: RAV,</li> </ul>	<ul style="list-style-type: none"> <li>Some stakeholders suggested looking elsewhere for examples of models:                             <ul style="list-style-type: none"> <li>National Air Traffic Services for an example of a performance model; and</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>We looked at the funding models for these suggested organisations to identify where we could pull out appropriate features. We also met</li> </ul>



Channel	Aim of Event & Options presented	Feedback we received	How this has shaped our plan
	<p>margin, layered, performance, commitments.</p> <ul style="list-style-type: none"> <li>The options presented were the five different funding models and we asked stakeholders which funding models we should take forward to explore in further detail.</li> </ul>	<ul style="list-style-type: none"> <li>Independent System Operators (ISOs), such as those in the USA.</li> <li>Stakeholders pointed out that the activities the ESO undertakes, and the risks we hold, must inform the ESO's final funding model.</li> </ul>	<p>Gatwick Airport to understand their model further.</p> <ul style="list-style-type: none"> <li>We agreed with stakeholders that the activities the ESO undertakes and the risks we hold must inform the ESO's final funding model.</li> <li>We planned and carried out further engagement with them over the following months to understand the outcomes stakeholders wanted from us and identify how to deliver these. We built this into our development of proposals for a funding model.</li> <li>We also undertook to provide a clearer explanation of the risks the ESO holds, given feedback that many stakeholders do not understand this.</li> </ul>
<p>ESO RIIO-2 webinar 28 June 2018  49 Attendees</p>	<ul style="list-style-type: none"> <li>To provide an overview of the information we presented at the event on our principles and potential funding models.</li> <li>The options presented were the five different funding models and we asked stakeholders which funding models we should</li> </ul>	<ul style="list-style-type: none"> <li>There was very little/no qualitative or poll support for the RAV and margin models, or the ESO/customer contract approach in the commitments model.</li> </ul>	<ul style="list-style-type: none"> <li>In the workshop, we had originally proposed the commitments model as one of the models we would continue to develop.</li> <li>We did not pursue the commitments model any further due to concerns around the ESO/customer contract approach.</li> <li>We continued to focus on understanding the outcomes that</li> </ul>

Channel	Aim of Event & Options presented	Feedback we received	How this has shaped our plan
	take forward to explore in further detail.		stakeholders wanted and developed a strong focus on outcomes in the funding model.
<i>ESO RIIO-2 Thought piece</i> 15 October 2018	<ul style="list-style-type: none"> <li>To provide an overview of a suitable regulatory framework for the ESO, and seek feedback on our thinking around incentives, financeability, risks and options for a funding model.</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholders generally supported the layered model and its principles.</li> </ul>	<ul style="list-style-type: none"> <li>We continued to develop our view that a two-year price control is not ideal for the ESO, which is a message we heard from multiple stakeholders, both in response to our thought piece and in bilateral meetings.</li> </ul>
Podcast 16 October 2018 213 plays	<ul style="list-style-type: none"> <li>We presented two options of potential funding models to stakeholders which had more detail around how they could work in practice, listing the benefits and challenges of each.</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholders agreed with the pros and cons of each potential funding model.</li> </ul>	<ul style="list-style-type: none"> <li>On the funding model, we took into account the messages in responses to the thought piece that the ESO's framework should enable us to deliver on decarbonisation, provide value to consumers and be transparent.</li> </ul>
Webinar 17 October 2018 28 Attendees		<ul style="list-style-type: none"> <li>Stakeholders had views on whether asymmetric incentives would be appropriate for the ESO.</li> </ul>	<ul style="list-style-type: none"> <li>We also heard in responses to the thought piece that incentives need to be complementary to the funding model and work to drive additional behaviours. This has influenced our position that the funding model and incentives need to be designed in parallel to ensure they each incentivise different behaviours</li> </ul>

### 5.1.3 Phase 3 Testing our ambition and activities

Channel	Aim of Events	Feedback we received	How this has shaped our plan
Various bilateral meetings December 2018 - March 2019	<ul style="list-style-type: none"> <li>To engage with stakeholders on the ongoing development of our proposals for a funding model.</li> <li>Ofgem's sector specific consultation document sought views on potential models they were considering; we engaged with stakeholders on these options as well as our own further thinking</li> <li>Topics discussed during bilaterals included: <ul style="list-style-type: none"> <li>- Types of funding models (Layered, RAV*WACC, Cost pass-through, Layered with Margins)</li> <li>- Cost disallowance mechanism</li> <li>- Upside/downside incentives framework</li> <li>- Efficiency</li> <li>- The ability for the ESO to raise debt</li> <li>- Risk profile</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Some stakeholders believe a pass-through funding model would not work, as it would not mimic a competitive environment or incentivise the ESO to focus on the priorities for industry. They also believed it would not provide incentive for the ESO to be more efficient.</li> <li>A smaller number could see the benefits of a pass-through approach.</li> <li>Stakeholders believe that if the ESO is best placed to do something and hold the risk, the ESO should have a funding model that remunerates us for that.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Most stakeholders were supportive of a layered funding model.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Stakeholders had mixed views on introducing a cost disallowance – a few were supportive, with one saying it should only be used in extreme circumstances where other stakeholders disagreed with the proposal.</li> <li>All agreed that an uncapped, unknown disallowance poses too much risk to the ESO.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>One stakeholder thought the sharing factor incentivised the ESO not to spend in order to get the efficiency incentive benefits, whereas others thought removing it wouldn't create additional consumer benefits.</li> </ul>	<ul style="list-style-type: none"> <li>We took this feedback into account in our response to Ofgem's Sector Specific Methodology consultation on 14 March 2019.</li> <li>We proposed: <ul style="list-style-type: none"> <li>A layered model approach to enable transparency and tailored remuneration to each of the ESO's varied activities.</li> <li>A model that we believed would achieve stakeholders' expectations of us to be more agile and ambitious, while remaining efficient – this included a flexibility mechanism to enable us to respond to rapid changes in the energy landscape, and the retention of a sharing factor to encourage efficiency.</li> <li>A softer sharing factor on underperformance to avoid the risk of spending less to receive additional benefits.</li> <li>Two-yearly proportionate reviews within a longer price control, to provide a balance</li> </ul> </li> </ul>

Channel	Aim of Events	Feedback we received	How this has shaped our plan
		<ul style="list-style-type: none"> <li>• They acknowledged that if it was removed there would need to be some way to drive efficiency.</li> <li>• Stakeholders strongly supported the ESO having strong incentives, although there were mixed views on how they should be applied.</li> <li>• Some stakeholders would like to see a downside within the incentive framework, whereas others thought positively skewed incentives would drive better behaviours.</li> <li>• Many stakeholders thought consumer benefit should be at the heart of incentives.</li> <li>• Stakeholders consistently said that they want us to be agile, ambitious, innovative and strongly incentivised.</li> </ul>	<p>between flexibility and certainty.</p> <ul style="list-style-type: none"> <li>• Improvements to strengthen the incentive scheme, in order to more effectively drive the ESO deliver additional benefits for consumers.</li> </ul>
<p>Various bilateral meetings following the publication of Ofgem’s Sector Specific decision and further consultation document</p> <p>June 2019 – August 2019</p>	<ul style="list-style-type: none"> <li>• To engage with stakeholders on Ofgem’s decision and further consultation document.</li> <li>• The responses included specifics on the financing of the ESO as well as the incentive framework and profiling of risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Many stakeholders raised the concern that the proposed funding models are not suitable for an asset-light organisation and will negatively affect the delivery of our ambition.</li> <li>• There was some confusion as to why a purely RAV*WACC model was being proposed rather than a layered model including margins, after previous negative views provided from stakeholders on a RAV*WACC model alone.</li> <li>• There was a concern raised around what the models could potentially do to our risk profile. Stakeholders felt there needs to be more consideration on the risk asymmetry, especially if</li> </ul>	<ul style="list-style-type: none"> <li>• We took all of this feedback into account as we continued to look at how we could be potentially funded in RIIO-2.</li> <li>• In our response to the decision document we set out our concerns around Ofgem’s proposals and detailed our own suggestion for a layered funding model for the ESO. We believe our preferred model will best deliver consumer benefit, recognise the type of business the ESO is and ensure we are a flexible, sustainable and</li> </ul>

Channel	Aim of Events	Feedback we received	How this has shaped our plan
		<p>we were exposed to significant downside incentives.</p> <ul style="list-style-type: none"> <li>• Stakeholders agreed that we need to be funded sufficiently to be able to do our job effectively.</li> <li>• Stakeholders agreed that we should be incentivised to drive down costs, and one stakeholder mentioned they did not believe a cost pass-through model would achieve this.</li> <li>• One stakeholder had concerns that this model would not incentivise us to offer long-term contracts and with the risk of a cost disallowance will introduce more risk.</li> </ul>	<p>financeable business, set up for the future.</p>
<p>Responses to Ofgem's consultation on the ESO funding model</p>	<ul style="list-style-type: none"> <li>• Ofgem sought further views on the ESO funding model and incentives.</li> <li>• We used this to understand stakeholders' views.</li> </ul>	<ul style="list-style-type: none"> <li>• A DNO, a generator and the Challenge Group all agreed that a bespoke debt indexation mechanism is appropriate for the ESO.</li> <li>• It was acknowledged the ESO should be remunerated for its risks. There were mixed views on how this should be calculated.</li> <li>• In relation to the stated cash flow risk of revenue collection, there were mixed views on whether the ESO should bear this risk or if it sat better with the TOs.</li> <li>• A generator thought more analysis was needed to reach a decision on the ESO's funding assumptions, while a DNO said they felt they didn't have enough information to comment, but any assessment should be evidence based.</li> <li>• Two generators and a trade association thought the strength of the performance incentive should</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken all of this feedback into account as we have completed more analysis and further developed our proposed framework.</li> </ul>

Channel	Aim of Events	Feedback we received	How this has shaped our plan
		<p>be independent of the assessment of the ESO's Business Plan, and a generator said that the pot should be appropriately calibrated to enable the ESO to pursue consumer value.</p> <ul style="list-style-type: none"> <li>• A supplier said “the ESO should have an incentive scheme based on quantifiable consumer outcomes and impacts; these should cover short and long-term targets such as cost efficiency, supporting net zero, reliability and safety, with overarching outcomes/impacts of whole system coordination, transparency and simplicity.”</li> <li>• A TO thought there was currently “too much scope for subjective assessment by the panel in the current evaluation approach. Incorporating a set of deterministic financial metrics to reduce the extent of the panel’s evaluation could be an improvement.”</li> <li>• A generator commented that the performance panel’s composition could benefit from a larger number of members, including SMEs from different parts of industry</li> <li>• Most stakeholders believed the incentive scheme should encourage behaviours from the ESO that drive whole system and strategic solutions as well as consumer value.</li> <li>• Most stakeholders believed cost efficiency should be measured in some way, but not at the expense of causing risk-averse behaviour or leading to a focus specifically on internal costs.</li> </ul>	

Channel	Aim of Events	Feedback we received	How this has shaped our plan
		<ul style="list-style-type: none"><li>• A number of stakeholders mentioned that a much more definitive definition of 'economic' and 'efficient' spending were required to reduce the risk created by the cost disallowance mechanism</li></ul>	

## 5.2 The changing energy landscape: scenarios

We have talked to stakeholders about the changing energy landscape at the following events:

### 5.2.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
<i>FES</i> conference and workshops during 2017	<ul style="list-style-type: none"> <li>Scenarios needed to better reflect the changing energy landscape and rate of change. This included elements of specific topics such as heat, transport, power demand and flexibility, gas supply and electricity supply.</li> </ul>	<ul style="list-style-type: none"> <li>For 2018, the four scenarios were updated on new axes to include two levels of decentralisation and two levels of decarbonisation.</li> <li>Updates were made to modelling processes to ensure it captured some of the changes identified under specific topics.</li> <li>All this means that the scenarios we are using to base the Business Plan on, are robust and endorsed by stakeholders.</li> <li>More information can be found here.<sup>27</sup></li> </ul>

### 5.2.2 Phase 2 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
ESO RIIO-2 workshop 22 June 2018	<ul style="list-style-type: none"> <li>Stakeholders did not see the creation of a single 'best-view' of the future energy landscape as credible, due to the level of change and uncertainty facing the industry.</li> <li>Most stakeholders agreed that we should seek to understand the commonalities across the four <i>FES</i> 2018 scenarios and asked that</li> </ul>	<ul style="list-style-type: none"> <li>We continued to use <i>FES</i> 2018 as the foundation of our plan. We carried out more detailed analysis of the areas of change/uncertainty when <i>FES</i> 2018 had been published and more information was available.</li> </ul>

<sup>27</sup> <http://fes.nationalgrid.com/media/1346/future-energy-scenarios-2018-stakeholder-feedback-document-published-feb-2018.pdf>



Channel	Feedback we received	How this has shaped our plan
	<p>we provide more detail on these as we develop our thinking.</p>	<ul style="list-style-type: none"> <li>• We created a commonality ‘scorecard’ and a process in which we intended would be used to help manage uncertainty although our two-year Business Planning cycle means this is no longer relevant.</li> </ul>
	<ul style="list-style-type: none"> <li>• We should focus further analysis on the possible technical and policy changes that could significantly affect industry processes or consumer value.</li> </ul>	<ul style="list-style-type: none"> <li>• We reduced and consolidated some of the technology topics, for example specific generation technologies into broad categories like renewable technologies. We balanced the lists between the technology and policy, and market categories.</li> </ul>
	<ul style="list-style-type: none"> <li>• In terms of the challenges and uncertainties, stakeholders felt the area of digitisation and big data needed to be considered further and asked for more of a balance between the technical changes, the policy and market changes, with some saying our original list was “too technocratic”.</li> <li>• Top areas of change and uncertainty highlighted by stakeholders:               <ul style="list-style-type: none"> <li>• Digitisation of the energy system</li> <li>• Electrification and decarbonisation of transport</li> <li>• Change in Government energy policy</li> <li>• Local generation and storage</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• We refined our areas of change/uncertainty to specifically include digitisation and have incorporated this into our work on IT as part of our Business Plan development.</li> </ul>
<p>ESO RIIO-2 webinar 28 June 2018</p>	<ul style="list-style-type: none"> <li>• Stakeholders broadly supported using <i>FES</i> as the basis for our analysis of the energy</li> </ul>	<ul style="list-style-type: none"> <li>• As above</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>landscape for RIIO-2 and didn't have any alternative suggestions</p> <ul style="list-style-type: none"> <li>• There are a few key challenges stakeholders believe we need to be wary of when basing our future Business Plan on scenarios.</li> <li>• There is also a broad range of other changes that could impact the landscape. The top three being:               <ul style="list-style-type: none"> <li>• Increasing renewable generation capacity</li> <li>• Increased decarbonisation of transport</li> <li>• Increased digitisation across the energy sector</li> </ul> </li> </ul>	
<p>ESO RIIO-2 webinar 28 August 2018</p>	<ul style="list-style-type: none"> <li>• Over two-thirds of stakeholders agreed or somewhat agreed the process created for using the commonality scorecard and the scorecard itself was a good approach to establishing the commonalities between scenarios per activity.</li> </ul>	<ul style="list-style-type: none"> <li>• The process was further developed and refined to test with stakeholders at a future event with working examples.</li> </ul>
<p>Establishment of 'consistent view of the future' networks working group.</p>	<ul style="list-style-type: none"> <li>• Ofgem and the RIIO-2 Challenge Group requested that all the network companies should agree a set of common factors and assumptions for developing their core view of the future for the next price control period.</li> </ul>	<ul style="list-style-type: none"> <li>• The consistent view is based on <i>FES 2018</i>, again this supports our plan to use this as the basis of our Business Plan analysis (see above).</li> <li>• We have received additional scrutiny from Ofgem's RIIO-2 Challenge Group, which has provided guidance, for example around central assumptions and ensuring whole</li> </ul>

Channel	Feedback we received	How this has shaped our plan
		<p>energy system thinking is fully embedded within the Business Plan.</p> <ul style="list-style-type: none"> <li>We continued to build on this and referenced the consistent view of the future in the July draft of our Business Plan. In this version of the Business Plan we are aligned to Ofgem’s guidance around how to use it. Please see our Business Plan chapter 3 Assumptions underpinning our plan.</li> </ul>

### 5.2.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
<p><i>FES</i> workshops October 2018</p>	<ul style="list-style-type: none"> <li>Scenarios process (using <i>FES</i> to determine how certain or common an outcome is): Stakeholders were broadly supportive of the proposed approach, however some stakeholders challenged if three levels of uncertainty were required.</li> <li>It was suggested that the eight-step process should start with “outcomes” rather than activities. The options we develop, and subsequent activities, will be developed around meeting out 2030 ambition.</li> <li>Some stakeholders were concerned that the ESO could categorise much of the uncertainty as level two due to its place as a middle ground.</li> </ul>	<ul style="list-style-type: none"> <li>We continued with the proposed approach, ensuring each step of the process was sufficiently documented.</li> <li>We confirmed that level 2 should be used for genuine binary choices as indicated by <i>FES</i> or, for example, where a policy decision may reasonably go one of a few ways.</li> <li>We discussed regional points with Scotland stakeholders and <i>FES</i> has looked to enhance its regional analysis.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• There were discussions around regionalisation of the key drivers.</li> <li>• Uncertainty mechanisms: Stakeholders felt that a shorter price control can help manage uncertainty but had concerns this could lead to price signals changing too often, which could hinder investment decisions. Incremental smaller changes on a regular basis are better than making big changes on a less regular basis.</li> <li>• Stakeholders questioned how we would deal with big uncertainties. A specific example on renationalisation was given.</li> <li>• There was a lack of support for mechanistic trigger points (e.g. on the number of EVs or installed wind capacity).</li> <li>• There were suggestions to structure the Business Plan for different timeframes e.g. short, medium and long term for different investment types.</li> <li>• There was varied feedback as to what trigger points should look like, and how to ultimately manage uncertainty, with several stakeholders questioning how a more mechanistic approach would work for the ESO.</li> </ul>	<ul style="list-style-type: none"> <li>• We continued to develop our thinking on managing uncertainty through our regulatory frameworks work stream.</li> <li>• We explained the commonality scorecard is designed to ensure the ESO is proactive in looking at specific regulatory and/or policy decisions that may arise. On renationalisation, we stated that we would be proceeding in the manner set out in Ofgem’s Framework Decision document.</li> <li>• We confirmed that this was being picked up by the regulatory framework developments.</li> </ul>

### 5.3 Theme 1: Ensure reliable, secure system operation to deliver electricity when consumers need it

A summary of the key themes from our engagement activity:

- Stakeholders asked for clarity on our 2025 carbon-free ambition. Some asked if the ESO would be forcing the system to be carbon free, while others wondered if it meant operating a no-transmission or no-synchronous generation system.
- Some stakeholders said they would like to see a roadmap out to 2025 to understand when key milestones would be delivered.
- Although many stakeholders were supportive of the proposal to develop new balancing and control capabilities, due to the challenges the operating environment brings to the system, some had concerns over the scale and deliverability of big IT projects.
- Most stakeholders were in favour of us setting up a design authority to guide development of new balancing and control capabilities. They also supported agile delivery. Stakeholders want us to be transparent with how the system is created and how decisions are made. They also wanted further clarity on what the digital twin is.
- Stakeholders support us working in partnership with universities to develop enhanced training courses and agree we should develop enhanced simulation to match our proposed new Control Centre tools.

#### 5.3.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
Customer and market provider feedback	<ul style="list-style-type: none"> <li>• We heard that we need to deliver more effective systems, to be able to adapt more quickly and to have a more proactive role in supporting the markets to deliver what we need from a system operation perspective.</li> </ul>	<ul style="list-style-type: none"> <li>• We have used this feedback to propose a set of activities (A1) that will provide the control and dispatch capability required by us and our stakeholders.</li> <li>• We have proposed the delivery of new capability in a more agile way, with stakeholders at the heart of the design and testing processes.</li> </ul>
Balancing Programme feedback	<ul style="list-style-type: none"> <li>• The ESO needs to have more open communications on the Electricity</li> </ul>	<ul style="list-style-type: none"> <li>• We have learned our lessons from the EBS programme and understand how important it is for stakeholders we are transparent about</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	Balancing System (EBS). Concern was also expressed on how it is progressing.	progress. This has directly influenced our plan to propose a design authority approach to system development in RIIO-2.
The ESO <i>Forward Plan</i> development processes for 2018/19 and 2019-21	<ul style="list-style-type: none"> <li>Stakeholders, particularly service providers, have urged us to complete the rollout of the ancillary services dispatch platform (ASDP) as soon as possible.</li> <li>Stakeholders, particularly service providers and generators, would like greater transparency of control room decision making.</li> </ul>	<ul style="list-style-type: none"> <li>We are aware of the impact that our system replacements have on stakeholders and the importance of implementing new systems on time. We have applied this to our RIIO-2 proposals to provide as much transparency as possible to stakeholders and be clear on implementation milestones.</li> <li>We will provide greater transparency on control room actions through our 'Open Data' (A17) proposals. The design authority proposal in Theme 1 (D1.4.2) will also increase transparency for stakeholders on how systems are being set up for dispatch.</li> </ul>

### 5.3.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
ESO 2030 ambition workshop, 28 September 2018 RIIO-2 stakeholder workshop, 17 December 2018	<p>We talked to stakeholders at workshops about our system operation role. The key themes consistent across all round table discussions from these events were:</p> <ul style="list-style-type: none"> <li>We need to be clear on the respective roles and responsibilities between the ESO and DSO.</li> </ul>	<p>In response to each of the key themes:</p> <ul style="list-style-type: none"> <li>We have proposed to provide clarity in the ESO and DSO roles as part of our RIIO-2 activities, and we will need to make sure that consistent arrangements develop across transmission and distribution that allow services providers to appropriately stack revenue streams.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>Stakeholders, particularly service providers, want more transparency around the decisions that are made in the control room to understand the value of services to us.</li> <li>We need to get better at delivering large IT programmes and be clear on the risks/delays to projects.</li> <li>If the ESO is going to promote long term solutions to operability challenges, then we need to look at long term contracts.</li> <li>A different control architecture is required as we move to a digital platform where the world is connected more peer to peer with parties contracting with a central organisation, with a distribution network or with each other.</li> </ul>	<ul style="list-style-type: none"> <li>As part of our open data and transparency activities, we are proposing to develop a data portal (A17) that will provide the platform to share operational decisions and outcomes.</li> <li>We know that we must build our capability around delivery of IT projects and the trust of stakeholders in this respect – this has been built into our IT strategy. Our proposal to use a cross-industry design authority (D1.4.2) to develop new system operation capability also looks to address this concern from stakeholders on IT delivery.</li> <li>We will continue to assess the role of longer-term contracts within our balancing services markets.</li> <li>We propose to refresh our system operation capabilities as part of our RIIO-2 activities.</li> </ul>

### 5.3.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
	<b>Our zero carbon ambition</b>	
Operational forum, trade association round tables, bilateral meetings and Flexible Generation Group.	<ul style="list-style-type: none"> <li>We presented our ambition to “transform the operation of the electricity system so that, by 2025, it can operate carbon free” at several forums and groups.</li> </ul>	<ul style="list-style-type: none"> <li>Further detail around how we will meet our ambition has been developed as we have built our Business Plan and through subsequent stakeholder engagement.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Across March, April and May 2019	<ul style="list-style-type: none"> <li>The ambition has been very positively received by most of the stakeholders. As a next step, people want to understand the cost of and the milestones to achieving the ambition to understand if it is achievable.</li> <li>More widely stakeholders asked us to clarify what the ambition means and whether we intended to drive zero carbon market solutions. We have been asked for this clarification across several engagement forums particularly by service providers and generators.</li> <li>A few stakeholders at the operational forum, at our RIIO-2 event in April 2019 and at the OC2 Forum, thought it may be too ambitious and that we shouldn't underplay the challenges around operating a zero carbon network e.g. inertia.</li> </ul>	<ul style="list-style-type: none"> <li>We have clarified what we mean by the ambition within this plan and that this is ability to run a carbon-free system if that's what the market provides. This can be found in the accompanying zero carbon operation paper.</li> </ul>
<b>A1 Control Centre architecture and systems</b>		
ESO operational forum, 26 March 2019	<ul style="list-style-type: none"> <li>We presented our ambition and hosted a lunchtime stand to discuss our proposed activities:</li> <li>We discussed our proposal to upgrade control capability (A1) and the options to achieve it with two service providers, a consultancy and a generator. All but the generator were supportive of the offline build option. The generator was concerned that a cross-industry design group (D1.4.2) could become a 'talking shop'.</li> </ul>	<ul style="list-style-type: none"> <li>We have subsequently engaged stakeholders further on how the cross-industry design authority (D1.4.2) will work in practice and how we involve stakeholders to assess the impact of system development to their businesses.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
RIIO-2 stakeholder event, 11 April 2019	<p>At our round table event, we talked through the proposals set out in our ambition document and heard:</p> <ul style="list-style-type: none"> <li>• Stakeholders want us to avoid ‘big bang’ IT projects because they always fail in the energy (and other) sectors and were supportive of a more modular/agile build approach to new control capability.</li> <li>• They agreed with the concept of a cross-industry design authority (D.1.4.2) to involve end users in defining capability requirements although emphasised that all market participants will be able to get involved – it needs to be representative.</li> <li>• The National Infrastructure Commission is proposing a ‘digital twin’ and the ESO could get involved with that.</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that further ‘big bang’ IT projects are to be avoided and that is why we propose to undertake modular development of systems in a more agile delivery approach.</li> <li>• We have subsequently engaged further with stakeholders on how we can most effectively set up the design authority (D1.4.2) and make it representative.</li> <li>• Following this feedback we researched the National Infrastructure Commission’s proposal to inform our own Theme 1 proposal to develop digital twin technology (A1.4).</li> </ul>
Power Responsive and Association of Decentralised Energy (ADE) round tables, April 2019	<p>We had the opportunity to speak to stakeholders in more detail about our system operation proposals (A1) at Power Responsive and ADE round tables. The key themes from these engagement activities were:</p> <ul style="list-style-type: none"> <li>• Stakeholders want to see a roadmap of the key milestones to achieve the ambition/activities and want to know that these will be fixed (with consequences for non-delivery).</li> <li>• The agile development approach used recently by the ESO for the Platform for Ancillary Services (PAS) system worked well.</li> </ul>	<ul style="list-style-type: none"> <li>• We have developed a roadmap for replacing our control and balancing capability in this plan, in which we have included further detail in this final Business Plan. We have also developed metrics to measure our performance, in conjunction with stakeholders.</li> <li>• We are adopting an agile development approach for new system capability and this will be modular in nature.</li> <li>• We have undertaken benchmarking activity and further stakeholder</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• We need to benchmark across other sectors and other countries.</li> <li>• In terms of our resourcing proposal, it was generally agreed a mix of power system and computer science knowledge is needed for control engineers, but with increasing focus on the latter. We need to look at what other sectors are doing to plug data skills gaps.</li> <li>• We had recommendations from stakeholders as to who we should engage with further for our system operation proposals.</li> </ul>	<p>engagement in line with stakeholder suggestions.</p>
IS change forum, 30 April 2019	<p>We hosted a stand at the forum to talk about our IT strategy and system operation proposals:</p> <ul style="list-style-type: none"> <li>• Stakeholders were supportive of our proposal to replace control capability (A1).</li> <li>• All those we spoke to supported and were enthused by our design authority proposal (D1.4.2) for capability development and implementation, some remarking that recent PAS system development had been positive.</li> <li>• We received expressions of interest to be part of the cross-industry design authority from two market participants.</li> <li>• We identified two further opportunities for engagement; one on adoption of AI (D1.2.3), the other was the idea of an IT hackathon that should include energy and non-energy industries.</li> </ul>	<ul style="list-style-type: none"> <li>• This echoes what we heard at previous engagement sessions.</li> <li>• We will continue to take the proposal forward.</li> <li>• We have taken note of these expressions of interest but will undertake a more formal process, to determine design authority representation.</li> <li>• We will engage further on IT development, as suggested by stakeholders, ahead of the RIIO-2 period.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Flexible Generation Group, 3 May 2019	<ul style="list-style-type: none"> <li>• There was general agreement that control capability (A1) requires upgrading, but stakeholders said that we needed to learn from previous projects and ensure transparency around progress along with prioritised and agile delivery.</li> <li>• We need to make it clear what systems market participants will need to interface with and don't change requirements once they have been set (so that market participants don't waste money). We also need to learn the lessons from EBS.</li> <li>• The group wanted to see a roadmap of deliverables.</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposal to use a cross-industry design authority (D1.4.2) intends to address this concern.</li> <li>• It is absolutely our intention to make system interface requirements transparent to the industry and our proposed cross-industry design authority approach should deliver that.</li> <li>• We have provided a roadmap within this Business Plan.</li> </ul>
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<p>A summary of the views we received:</p> <ul style="list-style-type: none"> <li>• More information is required on the activities that we are proposing for stakeholders to assess whether we can meet our ambition.</li> <li>• There appears to be some overlap between our <i>Forward Plan</i> and RIIO-2 proposals e.g. the introduction of real-time inertia monitoring.</li> <li>• For the new tools that we are proposing to implement, it must be clear (through trials and impact assessments) that they will add benefit e.g. AI reduces balancing costs.</li> <li>• As we had heard in our face to face engagement, respondents want to see a roadmap or programme of deliverables that will meet the 2025 zero carbon ambition.</li> </ul>	<ul style="list-style-type: none"> <li>• This Business Plan provides further detail on how we intend to meet the ambitions we have set and how we will measure the delivery of activities to meet that ambition</li> <li>• We have clarified in our Business Plan exactly what will be delivered and in what timescales.</li> <li>• We have provided information in our Business Plan around the benefit of our proposals.</li> <li>• We set out a roadmap and more detail in this plan for how we intend to meet our ambition.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<p>We used our Control Centre events to talk more to stakeholders about our proposal to use a design authority (D1.4.2) and how we ensure it is representative of industry participants.</p> <ul style="list-style-type: none"> <li>• A renewable energy company said it was very supportive of the approach and we should to be subject to external challenge. Also, that Ofgem has been talking about releasing funding to enable small parties to attend these types of things;</li> <li>• A consumer body suggested that we could invest more time with smaller parties to support their needs and ensure they can be involved. They also questioned whether a consumer lens in the process would be required;</li> <li>• A member of local government and an energy technology company asked whether trade associations could be involved to ensure that the Design Authority is representative;</li> <li>• A consultancy asked if it should be called an advisory board if it didn't have the remit to say no to the ESO, whereas two DNOs and a consumer body thought it was reasonable that the ESO had the final decision making authority as long as we justify our actions; and</li> <li>• A generator thought that the design authority would be like a project management discussion and stressed that transparency on scope, timelines and budget were critical for industry participants. They also wanted the lessons</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that the design authority should provide an avenue for external challenge to our approach and that smaller market participants should have the opportunity to participate;</li> <li>• We will further consider the role of particular stakeholders in the design authority process, including trade associations and consumer interest groups;</li> <li>• We agree that we should have the final decision-making authority within the design authority but that the authority will ensure that the ESO is held to account;</li> <li>• We will further consider what should be discussed in the design authority meetings as we develop Terms of Reference over the coming months.</li> <li>• We have refined our proposal such that the design authority is twin-layered: a strategic design authority to inform the overall direction and a delivery design authority that will provide input into the design, development and testing phases of our solution development.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>learnt from EBS to be explored before the start of RIIO-2.</p>	
<p>DNO bilateral meetings, various, September and October 2019</p>	<p>We discussed our design authority (D1.4.2) proposals with DNOs and heard the following from one DNO:</p> <ul style="list-style-type: none"> <li>• The selection process for the design authority needs to be appropriate and it should have IT focused participation.</li> <li>• The group should advise and steer but the ESO should retain decision making power.</li> <li>• The ESO may need to pay people to get the right expertise on the design authority.</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that the selection process needs to be right to make the design authority effective.</li> <li>• As set out above, we agree that the ESO should have the final decision-making authority within the design authority but that the authority will ensure that the ESO is held to account.</li> <li>• We will further consider representation and required skillsets for the design authority in the coming months.</li> </ul>
<p><b>A2 Control Centre training and simulation</b></p>		
<p>RIIO-2 stakeholder event, 11 April 2019</p>	<p>We asked stakeholders at our round table event about our resourcing proposals, particularly our proposals on training control engineers:</p> <ul style="list-style-type: none"> <li>• It was generally agreed that our control engineers of the future require a mix of power system and computer science knowledge, but with increasing focus on the latter.</li> <li>• We need to look at what other sectors are doing to plug data skills gaps.</li> <li>• A supplier thought that we didn't necessarily need control engineers to have market knowledge and that it's not the ESO's job to solve market-wide recruitment issues. A service provider and a DNO also agreed that it wasn't</li> </ul>	<ul style="list-style-type: none"> <li>• We have engaged further on this proposal to determine what skill sets stakeholders think we should develop.</li> <li>• We have engaged stakeholders more specifically on the proposals on resourcing at our Control Centre events.</li> <li>• We already have links with the mentioned universities, and we have now engaged further with these and other institutions on possible future partnerships (D2.2.1).</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>the ESO's role to bridge industry skill gaps alone.</p> <ul style="list-style-type: none"> <li>Stakeholders questioned whether universities were running programmes already e.g. Strathclyde and Bath.</li> </ul>	
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received</p>	<p>We had two comments on our resourcing proposals:</p> <ul style="list-style-type: none"> <li>Ensuring that people as well as systems are 'upgraded' for the new world is vital and often missed.</li> <li>There appears to be little mention of talent retention within our resourcing proposals.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that having the right people with the right capability will be key to our future success as system operator.</li> <li>We agree that retention is an essential element of a resourcing strategy and have sought to develop our proposals further in this area.</li> </ul>
<p>Control Centre engagement events, 16 &amp; 30 July and 8 August 2019</p>	<p>We asked stakeholders about our training proposals (A2.2 and A2.3) and whether we should be taking a leading role to develop skills for the wider industry. In summary:</p> <ul style="list-style-type: none"> <li>A renewable energy company said that currently the ESO is not a training organisation but there is no reason why we couldn't partner with others to deliver a good training package.</li> <li>A consumer body and a DNO wondered if it was our role to think about the needs of the wider industry and whether an organisation such as the ENA was better placed. However, a consumer body thought that someone had to do something about the skills shortage. They also wondered whether we could have different training packs with different companies.;</li> </ul>	<ul style="list-style-type: none"> <li>The majority of stakeholders supported us in taking a leading role in training for the wider industry.</li> <li>We will continue to work with the ENA and DNOs to gauge interest in working together on developing training packages but recent discussions with DNOs indicate that they think this is a good idea.</li> <li>We have since had discussions with academia, on how we could partner to deliver training that is tailored more to our business requirements and with other parties such as the National HVDC centre. (See below for the outcomes of these discussions)</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• A consultancy, a renewable energy company and a generator agreed that the ESO should be leading on training for the industry and that if we rely on separate approaches, we will get a mismatch in system operation language and approaches.</li> </ul>	
ENA Electricity Regulation Group (with DNOs), 24 July 2019	<ul style="list-style-type: none"> <li>• One DNO asked if we were proposing to build into the simulator (D2.1.3), the Low Voltage (LV) networks or whether there is potential to build it in if DNOs think that could work.</li> <li>• The same DNO also asked whether our proposed training package (D2.3.2) would be focused on training people or designing the algorithms to sit within the control systems.</li> <li>• One DNO thought that system balancing will become a lot more automated in the future – we need to make sure that our (ESO and DNO) visions align in this space and that we are not being short-sighted</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposed simulator will be scoped and built primary for the transmission network but could be adapted for lower voltage networks if DNO parties see value in us doing so.</li> <li>• Our training package is currently looking at training future Control Centre engineers, but we set out in our plan how the skill sets of those people are changing to be more data and IS focused.</li> <li>• We agree that we should work closely with DSOs, as they become established, to ensure efficient development of whole system operation.</li> </ul>
Discussions with academia, 12 – 16 August 2019	<p>We spoke to three academic institutions about possible opportunities for working together to tailor training for future control room staff (D2.2.1). The key points were:</p> <ul style="list-style-type: none"> <li>• All three universities were positive about potentially working with us to provide more tailored training around system operation;</li> </ul>	<ul style="list-style-type: none"> <li>• We have used these discussions to feed into our training proposals based around a phased approach, which will allow us to trial some relatively quick options in the short term, test for results and then go on to develop a more bespoke module or course in the longer term.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• They talked about different options for supporting our needs including guest lecturing, dissertation project setting, on-line or distance learning and possibly setting up new modules within existing courses/evolving current material;</li> <li>• We need to make a clearer link between the skills people have and how they can use them in the ESO; and</li> <li>• One university thought that we have a role in leading wider industry training needs and working with DNOs to support the DSO transition in this context.</li> </ul>	<ul style="list-style-type: none"> <li>• We will continue to discuss these options and our thinking with these institutions over the coming months.</li> </ul>
DNO bilateral meetings, various, September and October 2019	<p>We asked three DNOs if they supported the idea of working together to train Control Centre resource given future growing need:</p> <ul style="list-style-type: none"> <li>• They all agreed that we should work together on training.</li> <li>• We need to bear in mind the differences between transmission and distribution operation when looking to work together but agree in principle it should be positive.</li> <li>• One thought that collaboration on training could also extend to more general wider market training e.g. trading arrangements.</li> <li>• Another thought that we should have more detailed discussion on the possible skillsets required.</li> </ul>	<ul style="list-style-type: none"> <li>• We will continue these conversations with DNOs in 2020/21.</li> <li>• We have refined our proposals to discuss and agree the skillsets required across the ESO and DNOs, according to our roles and responsibilities.</li> <li>• We have undertaken a visit to the National HVDC centre in Cumbernauld to learn about what they do (see notes from this visit below).</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>Another DNO mentioned its National HVDC centre in Cumbernauld which has a control room and real-time simulation tools, and the DNO thought it had the potential to play a role in relation to our training proposal.</li> </ul>	
Visit to National HVDC centre in Cumbernauld, 21 October 2019	<ul style="list-style-type: none"> <li>We were shown real time simulation capabilities and replicas of physical systems at the HVDC centre.</li> <li>We discussed where we could use their capability e.g. interconnector simulation coupled with our data and system operation experience to deliver enhanced training capability.</li> </ul>	<ul style="list-style-type: none"> <li>We have reflected in our plan that we identified areas where our respective skills and resources could be used in collaboration to deliver enhanced training and simulation capability.</li> <li>We have already started to benefit from joint working in this area with colleagues from the ESO attending training at the HVDC centre.</li> </ul>
<b>A3 Restoration</b>		
RIIO-2 stakeholder event, 11 April 2019	<ul style="list-style-type: none"> <li>We heard support for our proposals particularly from service providers.</li> <li>Mixed views on what role different technologies (renewables) and demand side can actually play in providing restoration services.</li> <li>The ESO should do more to bring creativity to Black Start solutions and bring down the cost.</li> </ul>	<ul style="list-style-type: none"> <li>We discuss in our plan, in Theme 1, that we have started and will continue to run a fully competitive Black Start procurement process, with submissions from a wide range of technologies connected at different voltage levels on the network.</li> </ul>
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<p>A summary of views from respondents are as follows:</p> <ul style="list-style-type: none"> <li>Stakeholders, including a trade association and a supplier, support using learnings from innovation projects, taking these into ongoing</li> </ul>	<ul style="list-style-type: none"> <li>Our restoration proposals look to take the output from the Black Start NIC project (A3.3) and implement the findings.</li> <li>While Black Start provision from DER is the focus of the NIC innovation</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>activities and extended into future scenarios such as cold and stationary Black Starts.</p> <ul style="list-style-type: none"> <li>• A renewable developer and generator commented that there was a lot of mention of DER participation in restoration, but that large-scale transmission-connected renewables could offer service provision. To encourage participation, the ESO should provide a view of requirement early in the build process.</li> </ul>	<p>project, we also set out in Theme 1 that we will continue to develop restoration markets to reduce barriers to entry for all market participants and promote participation from a wide range of technologies connected at different voltage levels on the network.</p>
<p>DNO bilateral meetings, various, September and October 2019</p>	<p>We sought DNO views on our restoration proposals and heard:</p> <ul style="list-style-type: none"> <li>• Support for the Black Start NIC project (A3.3) and its direction;</li> <li>• Agreement that it will, quite rightly, have implications for DNOs when implemented;</li> <li>• Two DNOs highlighted that there is an innovation project to look at islanding at a conceptual level for restoration (micro-resilience).</li> </ul>	<ul style="list-style-type: none"> <li>• We will continue to engage with DNOs throughout the NIC project and going into the RIIO-2 period on our proposals, and their implications for DNO parties</li> <li>• We are aware of the micro-resilience project and will ensure that we continue to engage to understand any interactions with our own activities.</li> </ul>

## 5.4 Theme 2: Transforming participation in smart and sustainable markets

A summary of the key themes from our engagement activity:

- Stakeholders have told us that having a single, integrated portal for ESO markets will transform the experience and significantly improve the efficiency of market participation for service providers.
- The sandbox market environment was welcomed by stakeholders, who are sometimes frustrated by our ability to move quickly enough in response to changing market conditions.
- Service providers have welcomed the move to closer to real time markets, which will drive value for consumers.
- Stakeholders have told us that we need to ensure that our plans for flexibility markets are consistent and aligned with developments at the distribution level.
- Stakeholders have consistently told us codes are not fit for purpose and would welcome significant improvement in this area but would like us to be mindful of the ongoing review by BEIS and Ofgem.
- The balance of stakeholder feedback does not support the ESO taking on administration of the Capacity Market Rules.

### 5.4.1 Build the future balancing service and wholesale markets (A4)

#### 5.4.1.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
Ancillary services customer journey - Deep dive provider experience sessions with a representative sample of small, medium and large service providers in June and July 2018.	<ul style="list-style-type: none"> <li>• Newer providers struggle with workload and capacity as they often work extremely hard to secure their requirements, such as funds or a contract, leaving them little time to build and set up.</li> <li>• Information doesn't always flow between teams and manual data entry is common.</li> </ul>	<ul style="list-style-type: none"> <li>• Key focus areas for our proposed activities include: <ul style="list-style-type: none"> <li>• transforming the service provider experience to make it easier to offer services to the ESO</li> <li>• enhancing transparency of both our processes and data</li> <li>• adopting tools and approaches that will allow us to respond to market change in a more agile manner.</li> </ul> </li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>The ESO needs to be able to move at pace to respond to the changing market</li> <li>There is a thirst for transparency. Providers want to understand the decision-making processes behind the scenes, for example, across payments and dispatch.</li> </ul>	<ul style="list-style-type: none"> <li>In particular, our market portal (A4) proposal was developed explicitly to address the pain points identified by service providers in terms of the level of effort required to participate in our markets and to enhance overall transparency of the process and our decision making.</li> </ul>
<i>System Needs and Product Strategy (SNAPS)</i> consultation in July 2017 – over 100 responses from a wide range of stakeholders	<ul style="list-style-type: none"> <li>Standardisation is the way forward for future products. Standardised products may lead to secondary trading and to more efficient stacking of services.</li> <li>A mix of short-term markets and long-term contracts is the preferred option.</li> <li>Potential to trial alternative procurement approaches such as auctions was well received.</li> </ul>	<ul style="list-style-type: none"> <li>We are building the need for standardised products, the ability to use short and long-term contracts as well as test new approaches into our proposals.</li> <li>Our day ahead auction for response (D4.4.1) and reserve and sandbox approach will enable us to respond to this feedback.</li> </ul>

#### 5.4.1.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
ESO 2030 ambition workshop, 28 September 2018 RIIO-2 stakeholder workshop, 17 December 2018	<ul style="list-style-type: none"> <li>Balancing services markets should be shorter-term, technology neutral and operating closer to real-time, at least in day ahead timescales, greater insight is required into the future needs for these markets.</li> </ul>	<ul style="list-style-type: none"> <li>Our proposal to move to day ahead auctions for response and reserve products (A4.3) aims to directly address this point, moving procurement closer to real time.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• Transparency was identified as the key principle both to stimulate markets and provide foresight into future ancillary services requirements.</li> <li>• Participants need better information on market structure and liquidity to decide which markets they should be investing in.</li> </ul>	<ul style="list-style-type: none"> <li>• Our market platform (A4.4) proposes to give access to both historical and forecast data to support investment cases and decision-making.</li> </ul>
	<ul style="list-style-type: none"> <li>• Market arrangements need to be flexible and delivery of change should be agile.</li> </ul>	<ul style="list-style-type: none"> <li>• Our sandbox approach will address stakeholder calls for us to respond more quickly to the changing market, allowing us to trial new services in an agile manner.</li> </ul>
	<ul style="list-style-type: none"> <li>• Whilst change should be delivered incrementally, it is important to set out a clear strategic direction of intent.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Our RIIO-2 Ambition</i> document was designed to provide a clear strategic direction of intent. This has been supplemented by more detail in our Business Plan on our ten-year vision and five-year strategy.</li> </ul>
	<ul style="list-style-type: none"> <li>• The ESO was considered well placed to take a leading role in defining future markets.</li> </ul>	<ul style="list-style-type: none"> <li>• We have proposed an activity to review wholesale and balancing markets. As this activity does not start in the first two years of the RIIO-2 period, detailed content on this topic has been removed from the Business Plan.</li> </ul>
Power Responsive Steering Group – January, April and October 2018	<ul style="list-style-type: none"> <li>• Demand Side Flexibility providers need to see a ‘whole pot’ of opportunity. Customers want to know which DSF services are stackable to access multiple revenue streams. This can be beneficial when prices are less certain or</li> </ul>	<ul style="list-style-type: none"> <li>• In our proposal for the single markets platform (D4.4.1), we have included the ability for providers to register an asset and see what ESO services the asset can qualify for across our markets.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Power Responsive Steering Group notes can be found on their website <sup>28</sup>	<p>reducing due to increased liquidity or to wider industry changes.</p> <ul style="list-style-type: none"> <li>• DSF providers need to understand when future balancing problems may arise for the system and what problem needs solving by when.</li> <li>• Steering Group members suggested that including information on longer term requirements and price trends would help demand side providers to understand their cost-benefit proposition and returns on investment.</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposed data platform (A5.2), integrated with the market portal, will provide information on current and future balancing issues.</li> </ul>
	<ul style="list-style-type: none"> <li>• Most mature markets (e.g. frequency) are solving national issues but some system operability issues are becoming more regional so it is important to understand the interplay between the ESO and DNOs.</li> <li>• Conflict between transmission and distribution requirements can create a confusing landscape to the demand side provider, and limit a provider's ability to move between markets, particularly if different markets/services don't align.</li> </ul>	<ul style="list-style-type: none"> <li>• In our Business Plan, we have committed to working collaboratively with the DNOs, sharing necessary data and accelerating development of markets at distribution level (D4.3.1).</li> <li>• We will design our systems to integrate this data into our electricity control room processes, and the cost signals that these markets provide will allow the ESO to take a whole system view when making decisions.</li> </ul>
	<ul style="list-style-type: none"> <li>• Regular auctions – there was a general preference for market-based mechanisms to facilitate competitive prices and regular procurement exercises to build a track record.</li> </ul>	<ul style="list-style-type: none"> <li>• A key pillar of our proposed approach to market development is the day ahead auction for response and reserve (A4.3),</li> </ul>

<sup>28</sup> <http://powerresponsive.com/updates/>

Channel	Feedback we received	How this has shaped our plan
Bilateral meetings and ongoing activities engagement with market participants	<ul style="list-style-type: none"> <li>Many of our stakeholders participate in both the balancing services markets and the Capacity Market. From analysis of their feedback on the separate markets, we recognised that they experienced similar pain points with both, and that there is significant duplication of effort in managing their participation in both markets.</li> </ul>	<p>providing a stable market with regular and predictable procurement timescales.</p> <ul style="list-style-type: none"> <li>We therefore moved away from our original proposal of a new platform for balancing alongside an improved Capacity Market portal, and instead we will deliver a single integrated platform, to participate in balancing service markets and the Capacity Market (D4.4.1).</li> <li>This approach has the added advantage that it will be simpler to build and maintain than two separate systems.</li> </ul>

#### 5.4.1.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
<p>We tested the proposals in <i>Our RIIO-2 Ambition</i> document with in-depth discussion at two interactive forums in April 2019:</p> <ol style="list-style-type: none"> <li>Power Responsive Steering Group round table, attended by 19 stakeholders</li> <li>ESO RIIO-2 stakeholder workshop attended by 30 organisations including wider interest representatives, aggregators,</li> </ol>	<p><b>Overall comments</b></p> <ul style="list-style-type: none"> <li>Our ambitions in this area were widely welcomed. However, we were cautioned not to try to be all things to all people.</li> <li>We were asked to provide more clarity on when activities would be delivered. What are the key milestones to be achieved at what point?</li> </ul>	<ul style="list-style-type: none"> <li>We have sought to clarify this point specifically to the activities below.</li> <li>We have provided an investment roadmap in our final Business Plan to provide additional clarity on what will be delivered and when.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
generators, suppliers, networks and academics.	<ul style="list-style-type: none"> <li>There was some confusion about how the proposed activities relate to ongoing activities such as our <i>SNAPS</i> work and PAS.</li> </ul>	<ul style="list-style-type: none"> <li>In our Business Plan, we have sought to be much clearer on what we are delivering in the current regulatory period compared to what we are doing in RIIO-2.</li> </ul>
We also had the opportunity to test our proposals at group meetings of the ADE and Renewable UK as well as through bilateral meetings with several interested stakeholders.	<b>A4.3 A single day-ahead response and reserve market</b>	
	<ul style="list-style-type: none"> <li>Strong support across all stakeholder segments for the move to procurement closer to real time. However, many large and small market participants highlighted the need for longer term price signals.</li> </ul>	<ul style="list-style-type: none"> <li>We will work with stakeholders to ensure the objectives and scope of the wholesale and balancing markets review address issues, regarding longer term price signals as appropriate.</li> </ul>
	<b>A4.4 A single, integrated portal platform for ESO markets</b>	
	<ul style="list-style-type: none"> <li>The platform sounds like a potentially problematic large IT system. We shouldn't be talking about one platform but rather a federated IT architecture (FIA); supporting semi-autonomous independent systems ESO-DSO-aggregator-supplier.</li> <li>Several stakeholders expressed concern about our capacity to deliver large IT projects.</li> </ul>	<ul style="list-style-type: none"> <li>We emphasised that the ESO market platform will interface with other relevant systems and processes. We see the platform as part of an integrated ecosystem that includes ESO-DSO-aggregator-supplier and other parties, rather than a monolithic system covering all markets and networks.</li> <li>In chapter 10 - Technology underpinning our ambition, we outline how we will transform our IT capability and delivery approach to support our proposed RIIO-2 activities.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>The proposed concept and functionality of the market platform was very well received by a wide range of stakeholders.</li> <li>However, we need to provide clarity on what the platform is and is not.</li> </ul>	<ul style="list-style-type: none"> <li>In our Business Plan, we have made it very clear which markets we anticipate the platform will cover.</li> <li>We have also clarified that the purpose of our platform is to make it easier for people to sell services to the ESO rather than for all flexibility services on all networks.</li> </ul>
<b>A design for the markets of the future</b>		
	<ul style="list-style-type: none"> <li>Based on the views provided by those we have engaged, there is a general agreement on need to reform wholesale and balancing markets, with a focus on efficient price discovery. Of those expressing a view, a large majority of parties (including all the smaller market participants) were in favour of the ESO leading this activity, but a minority did not agree, and felt others should be involved or that this activity was broader than our core responsibilities.</li> <li>Several stakeholders also called for greater clarity on the scope and the desired outcome.</li> </ul>	<ul style="list-style-type: none"> <li>Our intention is to work with key stakeholders to scope the project and define the desired outcome, to ensure that the project is collaborative and meeting stakeholder needs and expectations from the start. Especially noting some of the above stakeholder concerns about our role.</li> <li>As this activity does not start in the first two years of the RIIO-2 period, detailed content on this topic has been removed from the Business Plan.</li> </ul>
	<ul style="list-style-type: none"> <li>It was widely suggested that the review should join up with the long-term future of the Capacity Market, as well as other industry transformations, such as</li> </ul>	<ul style="list-style-type: none"> <li>We share this view and will scope the exercise to ensure that dependencies with other strategic programmes of work are accounted for.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>charging and access significant code review (SCR), as well as code reform and decarbonisation of heat and transport.</p> <ul style="list-style-type: none"> <li>It was suggested that the review should be framed in terms of “how do you enable sharp enough signals to drive value?”</li> </ul>	
	<b>A 4.3 A single day-ahead response and reserve market and a single, integrated portal platform for ESO markets</b>	
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received Draft Business Plan, July 2019 One written response received</p>	<ul style="list-style-type: none"> <li>A broad range of stakeholders including trade associations, generators and suppliers, were overwhelmingly supportive of our ambition to transform access to ESO markets and associated activities, including the market platform and day ahead auction for response and reserve. However, there was also a call for further detail on the proposals.</li> </ul>	<ul style="list-style-type: none"> <li>We have continued to develop these proposals, building on the aspects highlighted as desirable by stakeholders.</li> <li>We have included significantly more detail on the proposals in our Business Plan.</li> </ul>
	<ul style="list-style-type: none"> <li>We have been asked to provide more clarity on how our work to transform balancing markets at the transmission level is aligned with the development of flexibility markets at the distribution level.</li> <li>One stakeholder commented on the need for more detail on how the ESO market portal would be aligned with the</li> </ul>	<ul style="list-style-type: none"> <li>As an active member of the ENA Open Networks project, we are at the heart of emerging thinking on future markets for flexibility. Through this project, we are developing coordinated thinking and processes, which will feed into the development of our portal.</li> <li>We recognise the need for more proactive leadership in this space and</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>ENA Open Networks project, and other potential market designs.</p> <ul style="list-style-type: none"> <li>Some stakeholders proposed that the ESO should take a more proactive leadership role in operating the whole electricity system and coordinating national and local markets for flexibility.</li> </ul>	<p>have recently indicated that we believe an approach consistent with Future Worlds<sup>29</sup> World B (coordinated procurement and dispatch) is a pragmatic least regrets way forward building on our existing ways of working.</p> <ul style="list-style-type: none"> <li>We have developed our RIIO-2 Business Plan in alignment with this position.</li> <li>We have provided more clarity on our intention to ensure interoperability between our single market platform and those at the distribution level and that we will work with DNOs and others to achieve this.</li> </ul>
	<ul style="list-style-type: none"> <li>One trade association has proposed several detailed commitments and metrics that they believe we should be committing to in our RIIO-2 Business Plan. These include committing to closer to real time procurement for all balancing services and PAS-style dispatch for all services.</li> </ul>	<ul style="list-style-type: none"> <li>Our RIIO-2 Business Plan is broadly consistent with the proposals received. Where we have not been able to explicitly commit to the proposals, for example regarding closer to real time procurement for all services, we have been explicit as to the reasons and the next steps in these areas.</li> </ul>
	<ul style="list-style-type: none"> <li>A large generator/supplier raised the concern that sandboxes can promote niche markets, with the risk that this will</li> </ul>	<ul style="list-style-type: none"> <li>The intention of the sandbox is not to develop niche markets, but to rapidly test developments to existing markets,</li> </ul>

<sup>29</sup> [http://www.energynetworks.org/assets/files/14969\\_ENA\\_FutureWorlds\\_AW05\\_INT\[2\].pdf](http://www.energynetworks.org/assets/files/14969_ENA_FutureWorlds_AW05_INT[2].pdf)

Channel	Feedback we received	How this has shaped our plan
	not deliver the most efficient procurement from the market as a whole.	new markets and new products before rolling them out fully in our market environment. It will ensure that IT systems integration doesn't slow down market development.
	<ul style="list-style-type: none"> <li>• A number of stakeholders have expressed concern about the ESO's capability to deliver complex IT projects. There is a general concern about delays to project delivery.</li> </ul>	<ul style="list-style-type: none"> <li>• In chapter 10 - Technology underpinning our ambition, we outline how we will transform our IT capability and delivery approach to support our proposed RIIO-2 activities.</li> </ul>
	<b>A design for the markets for the future</b>	
	<ul style="list-style-type: none"> <li>• A large generator/supplier commented that they did not think there was justification for the ESO leading a review of wholesale markets, and that we should focus on well-functioning markets for system operation and balancing.</li> <li>• A majority of stakeholders have expressed support for this activity, noting more strongly that this needs to take into account wider developments in the industry such as the Capacity Market review and the ongoing SCR for charging and access.</li> </ul>	<ul style="list-style-type: none"> <li>• Well-functioning markets for system operation and balancing are at the heart of our proposals to design the markets of the future. However, we believe that this activity cannot be conducted in isolation from other elements of the market such as a wholesale and capacity due to the interactivity of the different markets. We have therefore continued to develop this proposal in our Business Plan.</li> <li>• As this activity does not start in the first two years of the RIIO-2 period, detailed content on this topic has been removed from the Business Plan</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>It is important that all of the major changes in the industry (such as charging and access SCR) are coordinated to avoid unnecessary cost.</li> </ul>	<ul style="list-style-type: none"> <li>We share this view and have signposted the key industry change initiatives that impact on our activities.</li> </ul>
<p>As part of our open invitation to have bilateral sessions, we have also engaged a range of stakeholders including two wider interest groups, service providers, generators and suppliers</p>	<p><b>A4.3 A single day-ahead response and reserve market and a single, integrated portal platform for ESO markets</b></p> <ul style="list-style-type: none"> <li>Stakeholders were broadly supportive of the move to day ahead auctions and encouraged us to do so as quickly as possible.</li> </ul>	<ul style="list-style-type: none"> <li>In our Business Plan, we have proposed to deliver the day ahead auction for response and reserve against a timeline that we think is very aggressive.</li> </ul>
		<ul style="list-style-type: none"> <li>As set out above, as an active member of the ENA Open Networks project, we are at the heart of emerging thinking on future markets for flexibility. Through this project, we are developing coordinated thinking and processes which will feed into the development of our portal.</li> <li>We recognise the need for more proactive leadership in this space and have recently indicated that we believe an approach consistent with Future Worlds World B (coordinated procurement and dispatch) is a pragmatic least regrets way forward building on our existing ways of working.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>We need to be a lot clearer on the relationship between our RIIO-2 proposals and our ongoing work under SNAPS and other related work such as the development of other platforms.</li> </ul>	<ul style="list-style-type: none"> <li>We have provided more clarity on our intention to ensure interoperability between our single market platform and those at the distribution level and that we will work with DNOs and others to achieve this.</li> <li>In our Business Plan, we have articulated how our RIIO-2 proposals build on the progress made against SNAPS commitments.</li> </ul>
	<p><b>A design for the markets of the future</b></p> <ul style="list-style-type: none"> <li>A number of stakeholders including a large generator and wider interest groups, expressed support for us to lead the discussion for reviewing markets in a holistic way but also noted the important role for BEIS and Ofgem in driving legislative change.</li> </ul>	<ul style="list-style-type: none"> <li>We are clear in our proposals that the scope of this work does not go beyond making recommendations and that we will approach this work as an industry wide collaboration process.</li> <li>As this activity does not start in the first two years of the RIIO-2 period, detailed content on this topic has been removed from the Business Plan</li> </ul>
<p>Control Centre engagement events, 16 &amp; 30 July and 8 August 2019</p>	<p><b>A4.3 A single day-ahead response and reserve market and a single, integrated portal platform for ESO markets</b></p> <ul style="list-style-type: none"> <li>A service provider told us that the single market platform is a great ambition as the current approach is time consuming given the number of markets. A single platform is important</li> </ul>	<ul style="list-style-type: none"> <li>We have provided significantly more detail on how our RIIO-2 proposals in this area build on our ongoing work in RIIO-1, including a delivery roadmap covering both periods.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Trade association roundtables, August and September 2019	<p>to be able to reduce that time-consuming element.</p> <ul style="list-style-type: none"> <li>• A trade association and a service provider told us that the market platform “should draw out more clearly transmission and distribution aspect and need for alignment across national and local markets and portals” e.g. everyone use Electricity Forward Agreement (EFA) blocks, easy to go from one market to another.</li> <li>• A trade association told us that the ESO needs to be conservative and produce a detailed plan.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Broad support for our proposals in this section but request for further information on how the proposals align with changes outlined in the product roadmaps and other developments during the RIIO-1 period.</li> <li>• A wide range of generators and service providers had questions on the functionality of the single market platform and whether it would support end-to-end processes.</li> <li>• A wide range of generators and service providers had questions on alignment of our proposals for flexibility markets and the single market platform with</li> </ul>	<ul style="list-style-type: none"> <li>• We have provided more detail on the processes that the single market platform will cover.</li> <li>• We have provided more clarity on our intention to ensure interoperability between our single market platform and those at the distribution level and that we will work with DNOs and others to achieve this.</li> <li>• We have provided further narrative on the importance of consistent and aligned markets at the local and national level.</li> <li>• Further detail on transparency is included in chapter 8 - Digitalisation and open data unlocking zero carbon system operation and markets.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>market and platform developments at the distribution level.</p> <ul style="list-style-type: none"> <li>• A generator and a trade association asked for further information on the asset register that underpins the single market platform.</li> </ul>	
Power Responsive roundtable, September 2019	<ul style="list-style-type: none"> <li>• A number of large and small service providers told us that we need to be much clearer on our role in markets, particularly across transmission and distribution.</li> <li>• We need to be clearer on interoperability and how our proposals for the markets and the single market platform will interact with distribution level markets.</li> <li>• Consistency of what is procured and how is very important across markets.</li> <li>• The market requires greater transparency on what we need and when.</li> </ul>	
Meeting with a distribution network company	<ul style="list-style-type: none"> <li>• The single market portal needs to better show interoperability between transmission and distribution markets. For example, one registration process for both transmission and distribution parties</li> </ul>	



Channel	Feedback we received	How this has shaped our plan
RIIO-2 workshop, October 2019	<ul style="list-style-type: none"> <li>They highlighted the importance of working with DNOs to develop the market platform.</li> </ul>	
	<ul style="list-style-type: none"> <li>An automotive industry stakeholder told us that we need to focus our strategy more on distribution markets</li> </ul>	<ul style="list-style-type: none"> <li>We will ensure our plans and delivery are consistent and aligned with developments at the distribution level. This includes procuring balancing services from distribution connected parties, alongside DSOs.</li> </ul>
	<ul style="list-style-type: none"> <li>We were asked how our proposals for an asset register that underpins the single market platform are aligned with others being developed.</li> </ul>	<ul style="list-style-type: none"> <li>We have provided further clarity and assurance in our Business Plan that our intention is to build on our existing asset registers, including the Transmission Entry Capacity (TEC) register as well as the Platform for Ancillary Services (PAS) register.</li> <li>In addition, we will coordinate the development of asset register functionality to facilitate ESO markets with wider industry developments including a sector wide Asset Registration Strategy as part of the delivery of Energy Data Taskforce Recommendation 4: Coordination of asset registration.</li> </ul>
	<ul style="list-style-type: none"> <li>There was a consensus that we need to ensure coordinated delivery of systems, processes and infrastructure across ESO and the industry to enable</li> </ul>	<ul style="list-style-type: none"> <li>We have been clear in our Business Plan that we will work with DNOs and others to ensure that common standards, including interoperable</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	implementation of all the new systems, services and approaches.	systems, a common data model and shared minimum specifications are central to the design and delivery of the single market platform (D4.1). This interface will also allow the ESO and DSOs better visibility of what services are being provided to whom, as well as any network limitations on service provision.
	<ul style="list-style-type: none"> <li>We were asked several questions about how our RIIO-2 proposals link in with ongoing work including proposals for response and reserve, inertia and reactive power markets</li> </ul>	<ul style="list-style-type: none"> <li>Our final Business Plan provides a detailed delivery roadmap outlining developments from 2019 through to the end of the RIIO-2 period. This shows how current work on each market joins up with RIIO-2 proposals.</li> </ul>
	<ul style="list-style-type: none"> <li>We were asked why the day ahead market for response and reserve comes so late in our proposals – 2025/26</li> </ul>	<ul style="list-style-type: none"> <li>Our Business Plan now clarifies that the day ahead market for frequency response (D4.3.2) will be trialled in 2021. The later milestone for the single market for response and reserve (D4.3.4) comes in 2023/24. Our investment roadmap shows that steady progress will be made from now through to 2023/24 to develop new markets and integrate them in the single markets platform as additional functionality is developed.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>We were told that we need to account for changes to settlement. Cash flow is extremely important, especially for smaller providers.</li> </ul>	<ul style="list-style-type: none"> <li>We have proposed upgraded charging and billing processes and systems to keep pace with the change.</li> </ul>
	<ul style="list-style-type: none"> <li>We heard that we need to engage early on development of the single markets platform (A4.4).</li> </ul>	<ul style="list-style-type: none"> <li>Engagement on the single markets platform will align closely with the design authority described in Theme 1 of the Business Plan.</li> </ul>
DNO bilateral meetings, various, September and October 2019	<ul style="list-style-type: none"> <li>Delivery of the single markets platform (A4.4) needs to be incremental and in stages, modular and scalable, to mitigate the high level of uncertainty in how markets will play out.</li> </ul>	<ul style="list-style-type: none"> <li>This approach is reflected in our Business Plan proposals and IT delivery approach.</li> </ul>

## 5.4.2 Transform access to the Capacity Market (A5)

### 5.4.2.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
Customer satisfaction surveys and customer feedback	<ul style="list-style-type: none"> <li>• There are continued frustrations with the EMR portal which, if improved, could help to provide the level of support through the Capacity Market process that stakeholders desire.</li> <li>• We have also heard that the overall process and rules are complex particularly for new entrants.</li> </ul>	<ul style="list-style-type: none"> <li>• This has shaped our <i>Forward Plan</i> proposals to improve/replace the Capacity Market portal, and our RIIO-2 proposed activity to develop a common platform for balancing services and the Capacity Market.</li> <li>• It also shaped our previous proposal to take on the development of Capacity Market Rules.</li> </ul>

### 5.4.2.2 Phase 2 Developing our ambition and activities and Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 Stakeholder engagement event, 11 April 2019	<p><b>Take on responsibility for management of the Capacity Market Rules</b></p> <ul style="list-style-type: none"> <li>• General agreement that there is frustration about the Capacity Market Rules and regulations and the change process. Agreement that the process needs to be improved and that the rules should be simplified.</li> <li>• There were varying views on what role the ESO should have in this area. Some argued that this is ultimately about changes to</li> </ul>	<ul style="list-style-type: none"> <li>• The balance of stakeholder feedback did not support the ESO taking on accountability for administering the Capacity Market Rules and we have therefore removed these proposals from our Business Plan.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>regulations and rules which are seen as the government's responsibility, but the ESO could help to shape the vision for regulation. Others considered that the ESO could take a stronger role in driving the regulatory change process.</p> <ul style="list-style-type: none"> <li>• Stakeholders at two out of the three round table sessions questioned the EMR ringfence and whether this was still required following legal separation of the ESO.</li> </ul>	<ul style="list-style-type: none"> <li>• We believe that the legal separation of the ESO removes any conflict of interest and Ofgem has consulted on this in its five-year review in April 2019. Ofgem's conclusions state that they will "consider the removal of the data sharing 'ring fence' around the EMR delivery body in order to achieve greater efficiency of working with the rest of NGESO."</li> <li>• We will continue to engage with Ofgem and stakeholders on this issue and will reflect the outcome in our delivery plans for our role in RIIO-2.</li> </ul>
<p>ADE DSR working group meeting, 23 April 2019</p>	<ul style="list-style-type: none"> <li>• The group questioned why the ESO was better placed to manage the rules than Ofgem</li> <li>• It was felt that the change process was only really required due to the complexity of the rules and that if they were written more simply it would clarify requirements for participants.</li> </ul>	<ul style="list-style-type: none"> <li>• The balance of stakeholder feedback did not support the ESO taking on accountability for administering the Capacity Market Rules and we have therefore removed these proposals from our Business Plan.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019</p> <p>11 Responses received</p>	<p><b>A5.2 Deliver an enhanced platform for the Capacity Market within the single, integrated ESO market platform</b></p> <ul style="list-style-type: none"> <li>There was general support for developing a new enhanced Capacity Market portal and combining with the balancing services portal.</li> </ul>	<ul style="list-style-type: none"> <li>We have included our proposals for access to the Capacity Market through the Market Platform in our Business Plan.</li> </ul>
	<p><b>Take on responsibility for management of the Capacity Market Rules</b></p>	
	<ul style="list-style-type: none"> <li>There is general support for reforming the Capacity Market Rules but mixed views about transferring responsibility for the ESO. Some parties believe our proposals will lead to a more efficient process. One generator expressed the opinion that Ofgem should continue to administer the rules.</li> <li>Stakeholders requested further information on our proposals in this area as well as further explanation for the transfer of responsibility.</li> </ul>	<ul style="list-style-type: none"> <li>The balance of stakeholder feedback did not support the ESO taking on accountability for administering the Capacity Market Rules and we have therefore removed these proposals from our Business Plan.</li> </ul>
	<p><b>Take on responsibility for management of the Capacity Market Rules</b></p>	
<p>As part of our open invitation for bilateral meetings, we have also engaged a range of</p>	<ul style="list-style-type: none"> <li>Members of a wider interest group confirmed that current arrangements for managing the Capacity Market Rules were not</li> </ul>	<ul style="list-style-type: none"> <li>The balance of stakeholder feedback did not support the ESO taking on accountability for administering the Capacity</li> </ul>

Channel	Feedback we received	How this has shaped our plan
stakeholders including two wider interest groups, service providers, generators and suppliers	satisfactory but asked for further explanation of why we thought we were better placed to take them on.	Market Rules and we have therefore removed this proposal from our Business Plan.
Capacity Market launch event, July 2019	<ul style="list-style-type: none"> <li>We asked stakeholders, including market participants, consultants and academics, whether we should take on accountability for administration of the Capacity Market Rules. Whilst the feedback was evenly split for and against, the parties advocating against were more robust in their views than those for.</li> </ul>	<ul style="list-style-type: none"> <li>The balance of stakeholder feedback did not support the ESO taking on accountability for administering the Capacity Market Rules and we have therefore removed this proposal from our Business Plan.</li> </ul>
Control Centre engagement events, 16 & 30 July and 8 August 2019	<ul style="list-style-type: none"> <li>Capacity Market rule administration should sit outside Ofgem, could be ESO, could be Elexon. We need to convince people; Code Administrators Code of Practice (CACoP) scores improvement is a good start but there is a way to go. There needs to be a track record of progress and we should step into the role of code manager as early as possible.</li> <li>A trade association and market participant questioned where the financial benefit was of us doing it</li> </ul>	

Channel	Feedback we received	How this has shaped our plan
Trade association roundtables, August and September 2019	<p>versus Ofgem and noted Ofgem do a pretty good job already.</p> <ul style="list-style-type: none"> <li>• Felt the "transforming participation in Capacity Market" benefit is possibly too low (£38 million net) given size of the market, but "transform access to the Capacity Market" is too high (£46 million net) given the low clearing prices versus size of that market.</li> <li>• Stakeholders, including large and small generators, and transmission and distribution connected, told us that due to dissatisfaction with our performance as EMR Delivery Body, they did not want us to take on accountability for administration of the Capacity Market Rules.</li> </ul>	



### 5.4.3 Develop code and charging arrangements that are fit for the future (A6)

#### 5.4.3.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
<b>A6.1 Code management/market development and change</b>		
As part of our customer journey work which started in March 2017, we have engaged via bilateral meetings with stakeholders from various sectors across the industry (generators, suppliers, interconnectors, industry bodies, DNOs, interconnectors)	<p>We gained considerable insight, including:</p> <ul style="list-style-type: none"> <li>• Current code change is tactical rather than strategic;</li> <li>• Code change and the process can be opaque for new entrants;</li> <li>• Questions on the independence of parties involved in the process; and</li> <li>• Lack of upfront work on code change means that motives and drivers for the change are unclear.</li> </ul>	<ul style="list-style-type: none"> <li>• We have started and will continue to make changes to our current service provision.</li> <li>• We have ensured that our list of possible characteristics for the code manager role reflects this feedback and we therefore think that many of the issues identified can potentially be addressed by a code manager e.g. requirement for a 'critical friend' and more strategic code modification.</li> </ul>
2017,2018 and 2019 Code Administrators Code of Practice (CACoP) survey results.	<ul style="list-style-type: none"> <li>• Poor results in 2017 reflected the discussions we have had in our customer journey discussions e.g. feedback received on information on our website, frustrations with the modification process and greater support required for smaller players/new entrants.</li> <li>• Significantly improved scores in 2018 reflected our focus on addressing the issues that stakeholders have raised with us.</li> <li>• Scores dipped again in 2019 reflecting the burden that is being felt across</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposals for code manager seek to address the concerns that are raised through the CACOP survey results.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Bilateral meeting with a wider interest organisation in November 2018	<p>industry of change management and governance processes</p> <ul style="list-style-type: none"> <li>• Across our engagement on codes, we have heard from only one ‘wider interest’ stakeholder that we should potentially step away from our current codes role. When we discussed this further, their concern was around perceptions of the independence of the ESO and making decisions in the right interests.</li> <li>• This stakeholder also agreed with others’ frustrations around the number of mods and some mods taking a long time to progress. This stakeholder also, however, recognised that other code administrators have more flexible funding arrangements that could make mod processes more responsive to stakeholder needs.</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken on board the concerns surrounding independence and have received positive feedback on our level of independence since separation of the ESO from NGET.</li> <li>• We think possible enhancement of code objectives under a code manager role to better represent the interests of consumers will be important.</li> <li>• Ofgem has confirmed that the ESO will be funded through a RAV*WACC model with cost pass-through for efficient costs across all of our roles in RIIO-2.</li> <li>• We are continuing to work with Ofgem to look at our different roles to assess if additional funding arrangements are required. More details can be found in chapter 9 – Financing our plan.</li> <li>• In its sector specific consultation published in December 2018, Ofgem confirmed that it does not currently intend to remove our role as code administrator from the ESO.</li> </ul>

### 5.4.3.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
<b>A6.1 Code management/market development and change</b>		
<p>We sought to engage stakeholders about the role of a code manager at our RIIO-2 webinar, at the October 2018 Customer (Connections) seminars, and at a Grid Code and a Connection and Use of System Code (CUSC) panel meeting.</p>	<ul style="list-style-type: none"> <li>• Building on the feedback that parties require more support in the code modification process, in our RIIO-2 webinar we asked a poll question on the potential characteristics of a code manager. Most respondents agreed that the characteristics we had presented were appropriate. The following comments were provided by those who responded we had 'mostly' described the right characteristics provided:               <ul style="list-style-type: none"> <li>• Something needs to be done about the dominance of the 'big six' on the CUSC panel.</li> <li>• Needs to be independent.</li> <li>• What about facilitating greater competition with codes (wherever there are benefits to the consumer of doing so).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• We looked to further explore the characteristics of a code manager with additional stakeholders and presented to code panel members (see below). In these discussions, we heard more about what resource requirements a code manager might need.</li> <li>• We have adopted the characteristics as endorsed by stakeholders as we develop our thinking on the transition to code manager.</li> </ul>
<p>Customer (Connections) seminars in October 2018</p>	<ul style="list-style-type: none"> <li>• We offered a round table discussion on this topic at the seminar but there was limited uptake by stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>• The customer seminar wasn't the right forum for this discussion. As a next step, we decided that engaging with the code panel members directly at panel meetings would be beneficial.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
CUSC panel meeting, 26 October 2018 and Grid Code panel, 17 October 2018	<ul style="list-style-type: none"> <li>• There is a perceived conflict between the ability to raise modifications and be a good ‘critical friend’.</li> <li>• A code manager role will require modelling/analysis resource and legal resource to do the legal text.</li> </ul>	<ul style="list-style-type: none"> <li>• We will look to address any potential conflicts in the code manager role in future detailed design work and test this further with stakeholders.</li> <li>• We have factored additional legal and modelling resource into our plan</li> </ul>
<b>A6.4 Transform the process to amend our codes (funding this role)</b>		
ESO RIIO-2 Stakeholder Group workshop, 24 September 2018	<ul style="list-style-type: none"> <li>• An example of the layered funding model was shared with the ERSG members and there was a consensus that it was right to pull out code administration as a layer in the model.</li> </ul>	<ul style="list-style-type: none"> <li>• Ofgem has confirmed that the ESO will be funded through a RAV*WACC model with cost pass-through for efficient costs across all of our roles in RIIO-2.</li> </ul>
Bilateral meeting, consumer interest organisation in November 2018	<ul style="list-style-type: none"> <li>• In a bilateral meeting, a consumer interest organisation also agreed that a code administration funding layer was appropriate and allows for better benchmarking between different code administrators and introduces competitive pressures.</li> </ul>	<ul style="list-style-type: none"> <li>• We are continuing to work with Ofgem to look at our different roles to assess if additional funding arrangements are required.</li> </ul>
Grid Code panel meeting, 17 October 2018	<ul style="list-style-type: none"> <li>• A panel member suggested that an allowance should be put in place to fund the ESO for developing the legal text associated with code change.</li> <li>• We also heard this from CUSC panel members on 26 October.</li> </ul>	

Channel	Feedback we received	How this has shaped our plan
CUSC Panel meeting, 26 October 2018	<p>One panel member, a TO, talked about the following attributes for a potential code manager funding arrangement:</p> <ul style="list-style-type: none"> <li>• There is benefit in an agile funding model that unlocks the right value of funding at the right time.</li> <li>• Needs to be transparency in the process and level of funding.</li> <li>• Even with a short-term funding duration, such as an annual process, there needs to be an element of certainty for the code administrator to control opex resources. Therefore, a funding model with an element of baseline and a process that provides additional top up against workload/outputs could work.</li> </ul>	
<b>A6.4 Transform the process to amend our codes</b>		
2030 Ambition workshop, 28 September 2018	<ul style="list-style-type: none"> <li>• Stakeholders raised common concerns on the existing market frameworks in terms of too much complexity, the slow pace of change and limited opportunity for smaller/new players to participate in modifications.</li> </ul>	<ul style="list-style-type: none"> <li>• This has shaped and formed our ambition to remove code governance as a perceived barrier to change and to transform the code amendment process.</li> </ul>
CUSC Code Panel discussion, 26 October 2018	<ul style="list-style-type: none"> <li>• In our CUSC Code Panel discussions, one stakeholder set out that we need to align the obligations of driving towards consumer value outcomes with the objectives that sit within the code and we have also heard this through our customer journey work.</li> </ul>	<ul style="list-style-type: none"> <li>• A 'stronger consumer value objective' sits within our understanding of possible characteristics of a code manager.</li> </ul>

### 5.4.3.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 Stakeholder event, 11 April 2019	<b>A6.4 Transform the process to amend our codes</b>	
	<ul style="list-style-type: none"> <li>Stakeholders at the round table sessions supported the ambition to remove code governance as a barrier to entry.</li> <li>Recognition that the codes can also be a barrier to flexibility and innovative projects.</li> </ul>	<ul style="list-style-type: none"> <li>We have continued to develop our proposals for a more agile and accessible code change process in our Business Plan.</li> </ul>
	<ul style="list-style-type: none"> <li>The stretching level of ambition was noted in code reform and a couple of stakeholders were concerned that we would not have the appropriate level of resource to deliver this activity effectively.</li> </ul>	<ul style="list-style-type: none"> <li>In our Business Plan we have laid out a delivery and resourcing plan to set us up for success.</li> </ul>
	<ul style="list-style-type: none"> <li>There were divided views as to whether we should be a proactive code manager or remain as a code administrator to improve our service provision.</li> <li>Many stakeholders, including large and small market participants, were in favour of us taking a proactive role in this area.</li> </ul>	<ul style="list-style-type: none"> <li>We have started, and will continue, to improve our code administration service provision, but consider that we can add significantly more value through a code manager role.</li> </ul>
	<b>A6.5 Work with all stakeholders to create a fully digitalised Grid Code by 2025</b>	
	<ul style="list-style-type: none"> <li>Stakeholders were generally supportive of the proposal but, as above, a small number of stakeholders noted the ambitious nature of the proposals and questioned our ability to deliver.</li> </ul>	<ul style="list-style-type: none"> <li>In our Business Plan, we have laid out a delivery and resourcing plan to set us up for success. To facilitate a level playing field for all parties, being able to access, understand and use the</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>A plain English “lite” version of the code was proposed as a possible alternative to a fully digitalised version.</li> <li>A number of stakeholders, whilst supportive overall, highlighted that we need to ensure that market participants still understand the obligations on them if you simplify the Grid Code. The obligation will still be on individual parties to ensure that they are compliant with the code.</li> </ul>	<p>relevant parts of the code are very important.</p> <ul style="list-style-type: none"> <li>We agree with this point and have reflected this in our Business Plan.</li> </ul>
<p>ADE DSR working group meeting, 23 April 2019</p>	<ul style="list-style-type: none"> <li>More clarity was requested on what the ‘principles based’ Grid Code actually means? And what are the principles to be applied?</li> <li>There was a suggestion to start simple with principles and then bolt on/add to those for the exceptions or what you need over and above the minimum.</li> </ul>	<ul style="list-style-type: none"> <li>The Energy Codes review, happening now, is driving the principles-based approach and we will soon know more about this and the direction of travel.</li> <li>We have been clearer in the Business Plan that the first activity to deliver the digitalised whole system grid code will be to define objectives, scope and outcome together with stakeholders.</li> </ul>
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received</p>	<p><b>A6.5 Transform the process to amend our codes</b></p> <ul style="list-style-type: none"> <li>Whilst support was expressed for our proposals in this area, one party cautioned that we should not try to pre-empt the work of the ongoing codes review.</li> </ul>	<ul style="list-style-type: none"> <li>We fully support the Energy Codes Review and have set out the changes that we believe should be made to our codes based on industry engagement to date.</li> <li>We recognise that our RIIO-2 proposals will require amendment, should they not</li> </ul>

Channel	Feedback we received	How this has shaped our plan
		<p>align with the outcomes of the Energy Codes Review.</p> <ul style="list-style-type: none"> <li>We have articulated the relationship of our proposals to the Energy Codes Review in our Business Plan.</li> </ul>
	<p><b>A6.5 Work with all stakeholders to create a fully digitalised whole system Grid Code by 2025</b></p> <ul style="list-style-type: none"> <li>Further information was requested on Grid Code and SQSS revision, as well as further information on coordination between these pieces of work.</li> <li>There was general support for creating one integrated Grid Code. One stakeholder expressed the need to ensure that in addition to enhancing the accessibility of the code we should also reappraise the content.</li> </ul>	<ul style="list-style-type: none"> <li>Further detail on creation of digitalised Grid Code and the rationale for it are provided in this Business Plan.</li> <li>We will be engaging a wide range of stakeholders as we deliver this work in the RIIO-2 period. The scope of our engagement will include testing the appetite for reappraising the content of the code, in addition to simplification and making it more accessible.</li> </ul>
<p>Control Centre engagement events, 16 &amp; 30 July and 8 August 2019</p>	<ul style="list-style-type: none"> <li>There needs to be a clearer process on why code modifications are being prioritised</li> </ul>	<ul style="list-style-type: none"> <li>We have been clearer that we will develop a transparent prioritisation process and agreed criteria that are aligned to the strategic direction set by BEIS and Ofgem.</li> <li>We have been clear that stakeholder-led change will continue to be important and will feed into this process.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
As part of our open invitation for bilateral sessions, we have also engaged a range of stakeholders including two wider interest groups, service providers, generators and suppliers	<p><b>A6.5 Work with all stakeholders to create a fully digitalised whole system Grid Code by 2025</b></p> <ul style="list-style-type: none"> <li>Stakeholders support the proposal to move to a streamlined, digitalised Grid Code, but cautioned that if we are directing parties to the part of the code that applies to them, liabilities are appropriately managed.</li> <li>It was also noted that this is a huge undertaking and questioned the deliverability by 2025.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that liabilities need to be appropriately managed and have made this point in our Business Plan.</li> <li>We have sought to resource this activity appropriately to ensure we can deliver in the planned timescales.</li> </ul>
Trade association roundtables, August and September 2019	<ul style="list-style-type: none"> <li>Asked for more clarity on our proposals to digitalise the Grid Code <ul style="list-style-type: none"> <li>Does it include reforming content?</li> <li>What does digitalise really mean?</li> </ul> </li> <li>A service provider challenged us that we were presuming the outcome of the BEIS-Ofgem Energy Codes Review</li> </ul>	<ul style="list-style-type: none"> <li>We have been clear that our intention is to determine the scope, objectives and approach together with stakeholders at the outset of this activity in 2021. This will ensure that there is a consensus on the direction of this work from the beginning.</li> <li>We have included a call out box that articulates how our proposals interact with the Energy Codes Review</li> <li>Our proposals on transforming the process to amend our codes aim to be agile and inclusive.</li> </ul>
DNO bilateral meetings, various, September and October 2019	<ul style="list-style-type: none"> <li>How does our grid code proposal fit with the broader codes and standards review work?</li> <li>Supportive of whole system grid code, challenge is to make sure our governance is agile and inclusive</li> </ul>	<ul style="list-style-type: none"> <li>We have included a call out box that articulates how our proposals interact with the Energy Codes Review</li> <li>Our proposals on transforming the process to amend our codes aim to be agile and inclusive.</li> </ul>

## 5.4.4 Look at fully or partially fixing one or more components of Balancing Services Use of System (BSUoS) charges (A6.6)

### 5.4.4.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 30 August 2018; Charging Futures, September 2018; Charging Forum, October 2018.	<ul style="list-style-type: none"> <li>At each of these forums we asked stakeholders the same question: 'How significant an issue [within the current charging arrangements] is:               <ul style="list-style-type: none"> <li>(a) volatility</li> <li>(b) predictability</li> <li>(c) whole system signals</li> <li>(d) the lack of a level playing field?</li> </ul> </li> <li>Typically, the highest scoring options in terms of the biggest perceived issues for charging were the predictability and volatility of charges.</li> </ul>	<ul style="list-style-type: none"> <li>This feedback has directly informed our proposed activity to fix one or more elements of the BSUoS charge if it is deemed appropriate to do so.</li> </ul>
Transmission Charging Methodology Forum, 14 November 2018	<ul style="list-style-type: none"> <li>We asked the group to make recommendations as to how the perceived issues of volatility/predictability could be addressed. Many of these responses were suggestions to flatten or fix BSUoS, or to improve forecasting of the components of charges.</li> <li>Members also thought that greater transparency of information and access to data that can impact charges would be useful so that industry parties can take their own view on cost drivers.</li> </ul>	
DNO bilateral meetings, various, September and October 2019	<ul style="list-style-type: none"> <li>Combining the transmission and distribution Grid Codes is inevitable at some point.</li> </ul>	This feedback is consistent with our plans for a whole system Grid Code.

#### 5.4.4.2 Phase 2 Developing our ambition and activities and Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
Transmission Charging Methodology Forum, 13 March 2019	<ul style="list-style-type: none"> <li>The group agreed that the proposal was a positive step and there was consensus that people wanted us to take it forward. It was also noted that we need to understand the financing costs of this proposal and that information from suppliers on risk premia would also be needed.</li> </ul>	<ul style="list-style-type: none"> <li>We have taken this proposal forward in our final version of the Business Plan, in accordance with the work that the BSUoS task force is doing and will continue to look at the potential financing costs associated with fixing elements of the charge.</li> </ul>
RIIO-2 stakeholder event, 11 April 2019	<ul style="list-style-type: none"> <li>Increasing stability of the charge will improve forecastability, particularly for smaller players. The groundwork for this activity will be undertaken by the BSUoS task force.</li> </ul>	
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<ul style="list-style-type: none"> <li>One stakeholder did not support this activity in isolation given the ongoing charging and access review.</li> </ul>	<ul style="list-style-type: none"> <li>This activity is not being progressed in isolation from wider industry developments. We would only seek to proceed with this activity if it aligns with any ongoing industry review processes, including SCRs relating to charging and access, and it is demonstrated to be in the interests of consumers.</li> </ul>
Control Centre engagement events, 16 & 30 July and 8 August 2019	<ul style="list-style-type: none"> <li>A supplier felt the BSUoS saving was high and wanted to understand more how the risk to the ESO was 10 per cent versus the risk to all of the industry?</li> </ul>	<ul style="list-style-type: none"> <li>We have included additional explanation (including the ESO versus industry risk) to the Business Plan and the CBA report referencing the BSUoS Task Force report.</li> </ul>

## 5.5 Theme 3: Unlocking consumer value through competition

A summary of the key themes from our engagement activity:

- Stakeholders have told us they would like us to introduce competition in solutions to meet transmission network needs and supported our proposals to expand our approach to seek both network and non-network solutions.
- Most stakeholders supported our proposals to extend *NOA* to other areas of development, however some wanted clarification on how this would complement work undertaken already by the TOs, particularly for end of life asset replacement.
- Stakeholders had mixed views on whether a fundamental review of the SQSS was required or necessary. Some thought that a more targeted review would provide focus and deliver results in a timely manner.
- Stakeholders have expressed different views regarding our role in future competitive processes for transmission assets. Some thought there is the potential for conflicts of interest whereas others thought it could be managed.

### 5.5.1 Network development (A7 – A12)

#### 5.5.1.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
<p><i>Network Development Roadmap</i> consultation, May 2018 – we sought industry feedback on our thoughts and approach to developing our network planning processes</p>	<p>We received 13 responses to this consultation from network companies, potential market participants and academics:</p> <ul style="list-style-type: none"> <li>• Many respondents saw value in expanding the <i>NOA</i> process such that network and non-network providers can compete to meet transmission system needs (A9).</li> <li>• Respondents thought that we could apply a <i>NOA</i> type approach to other needs, including solutions that meet both transmission and distribution needs and wider works in connection offers.</li> </ul>	<ul style="list-style-type: none"> <li>• We are taking this development forward in <i>Forward Plan</i> timescales but as a continuation of this work, our RIIO-2 proposal is to fully embed the extensions to this process to facilitate competition.</li> <li>• We have proposed to extend the <i>NOA</i> approach to planning currently covered by TOs in connection agreements and end-of-life asset replacement (A9), if the case exists to do so.</li> <li>• We are also proposing to improve coordination across transmission and distribution network boundaries, through</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>Respondents generally wanted to understand in more detail how a probabilistic approach to analysis might be applied.</li> </ul>	<p>facilitating consistency across lower voltage levels.</p> <ul style="list-style-type: none"> <li>Since the consultation, in our <i>Network Development Roadmap</i>, we have sought to clarify this and have taken forward work in <i>Forward Plan</i> timescales, to adopt probabilistic modelling.</li> <li>In RIIO-2 we propose to continue to invest in this area further.</li> </ul>

#### 5.5.1.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 1 November 2018	<p>We presented our initial thinking and options on how the <i>NOA</i> process could be extended (A9) and sought views, via a poll, to which areas it could be extended. The responses were:</p> <ul style="list-style-type: none"> <li>A Yes – connection wider works (13 per cent)</li> <li>B Yes – end of life asset replacement (13 per cent)</li> <li>C Yes – lower voltage levels (9 per cent)</li> <li>D Yes – all of the above (13 per cent)</li> <li>E Yes – but it's not on your list (0 per cent)</li> <li>F No – none of the above (13 per cent)</li> </ul> <ul style="list-style-type: none"> <li>We also asked whether there would be merit in us carrying out a fundamental review of the SQSS in RIIO-2; six stakeholders supported a review whereas two were unsure.</li> </ul>	<ul style="list-style-type: none"> <li>There were mixed views from the poll. The majority of voters thought we should extend the process in some form, so we undertook further engagement with more stakeholders to understand what we should take forward in our RIIO-2 proposals. The December 2018 and April 2019 RIIO-2 engagement workshops provided that opportunity for further engagement.</li> <li>Again, and recognising that this is a fairly technical subject, we would explore this question further with stakeholders at our</li> </ul>

Channel	Feedback we received	How this has shaped our plan
		December 2018 RIIO-2 engagement event.
RIIO-2 Stakeholder workshop, 17 December 2018	<p>We talked to stakeholders in a series of round table sessions about extending the <i>NOA</i> process (A9) and a possible SQSS (A12) review. The key messages we heard from stakeholders were:</p> <ul style="list-style-type: none"> <li>• General support for looking at extending a <i>NOA</i> type approach into additional areas in terms of a consistent methodology or coordination role.</li> <li>• Less appetite for ESO doing the assessments, particularly lower voltage given it's a very different network.</li> <li>• General interest in seeing more specific proposals on what extending the <i>NOA</i> would look like so that a more informed view can be formed. E.g. how would it affect timeframes for connections.</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken forward proposals to extend the <i>NOA</i> process.</li> <li>• Given stakeholder feedback around whether we should be doing the assessment we were minded to remove the proposal to undertake assessments at lower voltages but sought to engage further on this point.</li> <li>• We noted stakeholder requests to provide more detail on how extending the <i>NOA</i> could work in practice and sought to engage further with network companies on this.</li> </ul>
	<ul style="list-style-type: none"> <li>• Agreement that revisions are needed to the SQSS. However, no clear agreement on whether that should involve fundamental review or continuation of existing processes.</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken forward the proposal to review the SQSS and explored further with stakeholders on the extent of such a review.</li> </ul>

### 5.5.1.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 stakeholder event, 11 April 2019	<p>At round table sessions, we discussed our network development (A7) proposals as set out in our ambition document. We heard:</p> <ul style="list-style-type: none"> <li>• All stakeholders agreed that we should be looking to embed competition in network planning.</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken forward our proposals for extending the <i>NOA</i> process (A9) in our Business Plan.</li> <li>• As we develop the detail of our proposals further we will ensure that we are</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>Stakeholders also supported the ESO in expanding its network planning approach to a wider set of transmission network needs.</li> <li>However, two generators raised that we should be careful of the impact that approach could have on the energy market, in terms of contracting with providers in particular locations.</li> </ul>	<p>transparent and provide fair and open opportunities for market participation to avoid negative impacts to the energy market.</p>
	<p>We asked if stakeholders agreed that the ESO is not best placed to assess lower voltage networks in <i>NOA</i>, and whether instead we could be taking on a supporting role to DNOs as they develop and embed their own assessment processes.</p> <ul style="list-style-type: none"> <li>Stakeholders generally agreed that the ESO is not best placed to undertake the assessments at lower voltages but were supportive of the ESO having a role in providing support and a consistent analytical approach to network planning at lower voltage levels.</li> <li>However, one generation stakeholder considered that we could undertake these assessments depending on the respective future roles of DSOs and the ESO and that these still need to be clarified.</li> </ul>	<ul style="list-style-type: none"> <li>We have heard general stakeholder support and therefore plan to take forward our proposal to improve coordination across transmission and distribution network boundaries, through facilitating consistency and assessments at lower voltage levels.</li> <li>We recognise that roles are still unclear and we have proposed elsewhere in our plan to facilitate clarification of roles between DSOs and the ESO.</li> </ul>
	<p>We asked if stakeholders thought that the SQSS should be reviewed and whether it would be a light touch review or a fundamental review:</p> <ul style="list-style-type: none"> <li>Of the seven stakeholders that had a view (from generation, service provider, government and network sectors), the majority were supportive of a review of the SQSS</li> <li>A service provider questioned if you needed a standard at all and pointed to approaches used in other countries.</li> </ul>	<ul style="list-style-type: none"> <li>We agree with stakeholders in that we believe that a review of the SQSS (A12) is required and consider that the standard itself is still needed.</li> <li>We discuss in this plan how a more proportionate review of the standard may be appropriate and we have engaged further with the TOs on this subject to seek their views.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>There were no definitive views as to whether it should be a light touch or wholesale review, but stakeholders thought that a full review could take a long time and would need a timetable associated with it.</li> </ul>	
Meeting with the three onshore TOs, 29 April 2019	<ul style="list-style-type: none"> <li>We discussed possible options for how to review the SQSS with TOs. All contributors agreed that a fundamental review would not be helpful, but that some form of review beyond the usual update processes is required.</li> </ul>	<ul style="list-style-type: none"> <li>We have proposed to lead a focused and targeted review of the SQSS (A12) within Theme 3.</li> </ul>
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<ul style="list-style-type: none"> <li>Three of the responses to our consultation have highlighted areas within our ambition document that appear to have overlap with activities in our <i>2019/21 Forward Plan</i>, particularly around expansion of the <i>NOA</i> and modelling developments.</li> </ul>	<ul style="list-style-type: none"> <li>We have clarified in our plan exactly what will be delivered and in what timescales across <i>Forward Plan</i> and <i>RIIO-2</i> deliverables.</li> </ul>
Network Development Event, 16 May 2019	<p>At this event we discussed how to apply commercial solutions to network challenges:</p> <ul style="list-style-type: none"> <li>Stakeholders (particularly service providers) highlighted that optimising the alignment of how we communicate and tender different needs could significantly help more providers to enter the market by supporting the business case needed for them to invest in new assets.</li> </ul>	<ul style="list-style-type: none"> <li>As our modelling of these issues and potential solutions grows, we will need to continue to improve how we communicate future needs and we will continue to engage stakeholders on our approach.</li> </ul>
Control Centre engagement events, 16 & 30 July and 8 August 2019	<p>We discussed the assessment of non-network and network solutions further with stakeholders and their views were:</p> <ul style="list-style-type: none"> <li>Stakeholders from generation, consultancy and renewables sectors agreed that introducing non-network solutions to the <i>NOA</i> process would bring value but thought that the process needs to be highly transparent.</li> </ul>	<ul style="list-style-type: none"> <li>We will continue to develop our approach to assessing network and non-network solutions (A8) and involve stakeholders in this process.</li> <li>We have added further detail to the roadmap in Theme 3.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	<p>They wanted a roadmap of when this would be done and to understand how the assessment would be made between regulated and non-regulated solutions.</p>	
<p>All TO webinar on end of asset life assessment, 4 September 2019</p>	<p>We held a webinar with TOs in response to previous requests for more information on our end of asset life proposal (A9.4). We presented some further detail, particularly around timescales and sought TO views.</p> <ul style="list-style-type: none"> <li>• One TO was concerned that there was limited time to factor in an uncertainty mechanism for their RIIO-2 Business Plan in time for final submission (to account for the possible impact of our end of asset life proposal).</li> <li>• The same TO thought that if we are to proceed with an ESO assessment of existing assets, all TOs and the ESO collectively need to develop a transparent and robust process to ensure that TOs have the ability to deliver the necessary non-load investment works to best manage network risk.</li> <li>• The opportunity to influence projects that are planned for years 1 and 2 of RIIO-2 is limited.</li> </ul>	<ul style="list-style-type: none"> <li>• We recognise that TOs currently have their own established processes for assessing end of asset life replacement.</li> <li>• We agree that we need to work further with the TOs to develop this process if we are to expand the <i>NOA</i> to include this activity and we plan to do so in the RIIO-2 period.</li> <li>• We have made it clearer in our plan, and to the TOs, that our proposals will not impact TO Business Plans for the RIIO-2 period. We will introduce the assessment and recommendation process for end of asset life in RIIO-2, but the investments impacted by the <i>NOA</i> output will be for the RIIO-3 period and onwards.</li> </ul>
<p>DNO bilateral meetings, September and October 2019</p>	<p>We engaged with three DNOs to discuss our proposal to support their own assessments (A10.1).</p> <ul style="list-style-type: none"> <li>• DNOs supported and were keen to work toward a <i>NOA</i>-type approach.</li> <li>• One commented that there is probably more value to be gained from applying the <i>NOA</i> to transmission rather than distribution investments due to the size of investments.</li> <li>• They also thought that our <i>NOA</i> methodology document could be more detailed and easier to follow.</li> </ul>	<ul style="list-style-type: none"> <li>• As set out in our plan, we will continue to work with and support DNOs as required, and to a level that provides value to consumers, as they develop their own approaches.</li> <li>• We will review our <i>NOA</i> methodology document in light of this feedback.</li> </ul>

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Channel	Feedback we received	How this has shaped our plan
RIIO-2 October engagement event, 2 October 2019	<ul style="list-style-type: none"><li>• A service provider asked if we were proposing to assess end-of-life assets in the <i>NOA</i> due to a known problem with the process.</li><li>• This stakeholder and a TO were also concerned that there may be double counting of benefit between the ESO's and the TOs' Business Plans associated with end-of-life asset replacement.</li></ul>	<ul style="list-style-type: none"><li>• As set out above, the ESO is likely to be able to offer additional insight beyond the TOs' own analysis and therefore may be able to recommend a more efficient outcome than the current process.</li><li>• We have clarified in Annex 2 – Cost-benefit analysis report that this is not double counting but that the ESO benefits identified in this Business Plan will likely be in addition to the TO identified benefits.</li></ul>

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## 5.5.2 Supporting the design and delivery of an early competition plan

Prior to publication of our draft Business Plan in July, we undertook the stakeholder engagement set out in the following table on the role we should take in developing competition in onshore transmission. We have since been asked by Ofgem, in its RIIO-2 Sector Specific Methodology Decision and further consultation – Electricity System Operator<sup>30</sup>, to develop an Early Competition Plan proposal (as discussed in the Theme 3 chapter of our Business Plan). We are keen to progress this and, in anticipation of Ofgem establishing the enabling approaches, have initiated some workshops to begin engaging and collaborating with those interested in the regime, such as design, construction or financing companies that might participate in a CATO competition. We will continue to work iteratively with Ofgem to develop this proposal and engage widely with stakeholders, including the RIIO-2 Challenge Group and ESO Stakeholder Group (ERSG), to ensure proposals are practical and maximise consumer value. The Early Competition Plan will be published separately from our Business Plan, along with the stakeholder feedback received in its development. We have kept the stakeholder feedback carried out in developing the Business Plan in this report for completeness.

### 5.5.2.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
ESO 2030 Ambition workshop, September 2018	<p>We discussed our role in supporting competition in network solutions at our round table event where we heard:</p> <ul style="list-style-type: none"> <li>• The earlier in the network development process competition is introduced the more opportunity for innovation and cost reduction.</li> <li>• There was a call for clarity on where the risk lies, particularly for consenting, under the CATO model.</li> <li>• In order for a developer to add value in the CATO model they would need to be involved before the need is defined.</li> </ul>	<ul style="list-style-type: none"> <li>• We engaged stakeholders further via subsequent engagement channels on their preference for an early or late model for CATO and the role that the ESO might take in terms of consenting.</li> </ul>

<sup>30</sup> [https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2\\_sector\\_specific\\_methodoloy\\_decision\\_-\\_eso.pdf](https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodoloy_decision_-_eso.pdf)

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 1 November 2018	<ul style="list-style-type: none"> <li>We looked to test what role the ESO should play in facilitating competition in advance of legislation to enable CATOs and sought views, via a poll, on whether we were asking the right questions (what role should the ESO play pre and post legislation and what was the preferred model for competition).</li> <li>Six out of eight stakeholders confirmed that, yes, we were asking the right questions.</li> </ul>	<ul style="list-style-type: none"> <li>We looked to take our initial thinking and test it further with a wider group of stakeholders in subsequent engagement events.</li> </ul>

#### 5.5.2.2 Phase 2 Developing our ambition and activities and Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 stakeholder event, 11 April 2019	<p>At round table sessions, we discussed the proposals set out in our ambition document. We heard:</p> <ul style="list-style-type: none"> <li>Stakeholders generally preferred the early model due to the greater potential for innovation and cost savings for consumers.</li> <li>Some, however, did see merit in the late model and the argument for keeping different options available – using the appropriate model in each circumstance.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that flexibility in which model to apply may hold merit.</li> </ul>
	<ul style="list-style-type: none"> <li>There are a range of different industry bodies who could carry out the tender process for onshore competition.</li> </ul>	<ul style="list-style-type: none"> <li>We have thought about the types of other organisations that have the skills to carry out the tender process but will consider this role as we develop the overall process further.</li> </ul>
	<ul style="list-style-type: none"> <li>If the ESO was responsible for tendering we would be likely to consider the benefits to the system and the more</li> </ul>	<ul style="list-style-type: none"> <li>We will continue to work with Ofgem and stakeholders on the detail of respective roles and capabilities.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019</p> <p>11 Responses received</p>	<p>technical considerations, but we may not have the appropriate resource and capability post-legal separation.</p> <ul style="list-style-type: none"> <li>Some stakeholders (from networks, generators and developer sectors) were concerned that we may not be sufficiently independent from National Grid Electricity Transmission (NGET) or that we didn't have the necessary skill set to run the tender process. Others from network, local government and service provider sectors thought we were well placed to carry out the tender process.</li> <li>One respondent commented that while they could see the logic for a larger role for the ESO to support Ofgem in running the competitive tenders for delivery of onshore transmission, it would create potential conflicts of interest due to the implications for National Grid's TO business.</li> <li>Another respondent said that they would like to see more details of the process for the ESO achieving the ambition of considering all viable options to solve network challenges, including opening the Strategic Wider Works (SWW)<sup>31</sup> process to market participation and associated tender processes.</li> </ul>	<ul style="list-style-type: none"> <li>We understand that stakeholders may have this concern, but we are now legally separate from the National Grid TO and have a number of strong measures in place to prevent the transfer of information and conflicts in our governance.</li> <li>We note the risk that an enhanced role for the ESO could be seen as being at odds with the aims of National Grid's TO business. This is one of the key reasons behind the legal separation of the ESO within the National Grid Group, such that it can better demonstrate independence of thought and operation.</li> <li>Until we have further detail from Ofgem regarding their preferred model for competition in onshore transmission, it is difficult for us to get into the detail of exactly how we will work with them to achieve their aims. However, we would anticipate any tender process to involve a clear articulation of requirements, and a</li> </ul>

<sup>31</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/critical-investments/strategic-wider-works>

Channel	Feedback we received	How this has shaped our plan
Bilateral meetings, May 2019 – we have spoken to TOs, a consultancy and a developer.	<p>We talked about our ambition document and asked stakeholders for their reflections. In summary, we heard:</p> <ul style="list-style-type: none"> <li>On whether the early or late model is more appropriate, two stakeholders thought that the early model is better in the long term for savings for consumers but because the process is very new for the UK it may be a good idea to start off with the late model, which should be easier to implement.</li> <li>A stakeholder thought it would be useful to see the pros and cons of the early and late models to be able to compare.</li> </ul>	<p>full engagement process to maximise the potential for submission of solutions to system needs.</p> <ul style="list-style-type: none"> <li>We note that Ofgem have stated they will consider their interim Competition Proxy Model<sup>32</sup> (CPM) and Special Purpose Vehicle models for SWW<sup>33</sup> within RIIO-1, pending clarity on the legislative approach for CATO. For how we will seek to meet other network challenges, please refer to our plans for enhancing the NOA process.</li> <li>We note these views and agree that further consideration of the type of model to apply may be required.</li> <li>We commented on some of the costs and benefits of the late model in our response to Ofgem’s Sector Specific Consultation<sup>34</sup>.</li> </ul>

<sup>32</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-competition-proxy-delivery-model>

<sup>33</sup> <https://www.ofgem.gov.uk/ofgem-publications/138794>

<sup>34</sup> <https://www.nationalgrideso.com/document/139766/download>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>One stakeholder disagreed with our rationale for not undertaking a consenting role if a late model were to be adopted. However, another commented that this work could be contracted out to third parties.</li> </ul>	<ul style="list-style-type: none"> <li>This will be explored further as we engage stakeholders on the Early Competition Plan.</li> </ul>
	<ul style="list-style-type: none"> <li>A TO and a developer expressed concern about the ESO's role in onshore tenders given our position within the National Grid group.</li> </ul>	<ul style="list-style-type: none"> <li>As above, we are now legally separate from National Grid TO and have a number of strong measures in place to prevent the transfer of information and conflicts in our governance.</li> </ul>
Dedicated webinar, 22 May 2019	<p>Following feedback from our RIIO-2 stakeholder group we held a webinar with 11 expert attendees to discuss the detail of onshore competition. We heard similar feedback to our earlier engagement sessions but also:</p> <ul style="list-style-type: none"> <li>Mixed views as to whether an incumbent TO should be able to participate in a tender if it has undertaken the preliminary works under a late model (a TO thought that they were best placed as they know their network and stakeholders).</li> </ul>	<ul style="list-style-type: none"> <li>There is further work required to determine specific roles and arrangements and this will be carried out as part of developing the Early Competition Plan.</li> </ul>
	<ul style="list-style-type: none"> <li>A TO thought that there could be more work undertaken to develop the early model in advance of legislation.</li> <li>A developer recognised that the ESO's work on the NOA is valuable and should continue to give visibility of potential opportunity ahead of the CATO regime being implemented.</li> </ul>	<ul style="list-style-type: none"> <li>We continue to progress work on our Early Competition Plan in line with Ofgem's request and will engage stakeholders further on the detail of our role.</li> <li>We propose to expand and enhance the NOA process (A9) as set out in this plan.</li> </ul>
Control Centre engagement events,	We talked further with stakeholders about CATO models and the role we could take in a future process. We heard:	<ul style="list-style-type: none"> <li>We continue to progress work on our Early Competition Plan in line with</li> </ul>

Channel	Feedback we received	How this has shaped our plan
16 & 30 July and 8 August 2019	<ul style="list-style-type: none"> <li>• A renewable energy company and a consultancy thought that the early model was a sensible first step and had greater scope for innovation.</li> <li>• On the subject of who should manage the tender process, stakeholders understood the nervousness expressed in our previous engagement about the ESO running tenders given our position in the National Grid Group. However, two consultancies and a generator were not sure that Ofgem was better placed to do it.</li> </ul>	Ofgem's request and will engage stakeholders further on the detail of our role.

We will use the stakeholder feedback summarised here, in addition to further views we receive, as we develop and engage on our Early Competition Plan. These will be presented as part of the Early Competition Plan process rather than in this report.



## 5.6 Theme 4: Driving towards a sustainable whole energy future

A summary of the key themes from our engagement activity:

- Stakeholders have told us whole energy system solutions are essential to transformation of the energy landscape and highlighted the importance of working with other network companies to ensure consistent processes, efficient and appropriate exchange of data and information, and coordinated standardised experiences that work for customers.
- Stakeholders have shown some support for us to inform policy development as there is recognition that we could use our unique perspective, particularly on the system operability and network costs of different pathways, to provide more support to policy makers and help to drive the energy system transition.
- Our proposal to create a connections portal which guides customers through the process was welcomed by stakeholders who could also see merit in having access to connection and delay charges, user liabilities and construction progress through the portal.

### 5.6.1 Leading the debate (A13)

#### 5.6.1.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
Each year from October to February we hold a large number of workshops with a wide range of stakeholders to inform the development of <i>FES</i>	<ul style="list-style-type: none"> <li>• Stakeholders have commented that our analysis should be more directed at policy makers and that we should be facilitating debate on how the UK can deliver different pathways.</li> </ul>	<ul style="list-style-type: none"> <li>• We have clarified our proposal on Leading the debate (A13) in Theme 4.</li> </ul>

### 5.6.1.2 Phase 2 - Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIO-2 Stakeholder engagement event, 11 April 2019	<ul style="list-style-type: none"> <li>A number of stakeholders wished to clarify that it is government that sets energy policy and it is our role to inform policy development through analysis.</li> </ul>	<ul style="list-style-type: none"> <li>We have developed our proposal based on this understanding.</li> </ul>
ESO <i>Our RIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<ul style="list-style-type: none"> <li>All stakeholders consulted were supportive of the ESO providing insight and analysis to support government in the formation of energy policy. However, there were mixed views on whether the ESO should be making policy recommendations.</li> <li>One large generator/supplier felt that our proposals to make policy recommendations, went beyond the boundary of our role. In contrast, a large renewable generator highlighted that the ESO has a unique position as the interface between multiple market actors, and that we should be offering positions on how to address decarbonisation.</li> </ul>	<ul style="list-style-type: none"> <li>We have continued to work with stakeholders to develop and refine our proposals for how we can apply our skills and insight to drive consumer value. The result is detailed within Theme 4 of our Business Plan.</li> </ul>

### 5.6.1.3 Phase 3 - Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<p>We sought to explore further views at our Control Centre events on what our role could be with respect to making policy recommendations from the <i>FES</i>. We also discussed what role we should take in facilitating regional <i>FES</i> publications by other parties. We heard the following:</p> <p><b>Making policy recommendations:</b> A consultancy and two generators agreed that:</p>	<ul style="list-style-type: none"> <li>Following this feedback, we have sought to clarify our role in this area. On balance we agreed that making policy recommendations is not our area of expertise or our role but that we do have a unique perspective in the industry and on system operation related issues.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• We should not be making value judgements off the back of our <i>FES</i> analysis particularly as these are only possible futures.</li> <li>• We should be providing the analysis and facts to the market and to policy makers for them to make their own views (and the raw data for others to do their own analysis).</li> <li>• The ESO should have a whole system lens and be impartial.</li> </ul> <p>Conversely, two DNOs, a consumer body, a member of local government and an energy technology company thought that we should go further from the <i>FES</i> analysis and make policy recommendations, saying that we were well placed to do so.</p>	<ul style="list-style-type: none"> <li>• We have therefore amended our proposal to undertake bespoke analysis and industry engagement to inform policy development (D13.4) and decisions rather than make policy recommendations.</li> </ul>
	<p><b>A13.5 <i>FES</i>: Integrating with other networks (Regional <i>FES</i> development):</b></p> <ul style="list-style-type: none"> <li>• Some stakeholders, including a DNO and a supplier, thought that regional <i>FES</i> should build on each other and ‘add up’ to the national picture.</li> <li>• Others (a supplier, a member of local government and a renewables company) thought that regional differences should exist and we just need to understand how assumptions differ across them.</li> <li>• A consultancy company thought that we should be taking a leading role on ensuring consistency across regional scenarios which can very quickly become misleading for industry.</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that there is value in having different analysis and conclusions from different parties.</li> <li>• We have refined our proposal to look to align processes and data capture across regional <i>FES</i> development where appropriate and is in the consumer interest to do so.</li> <li>• We will look to work closely with those producing regional <i>FES</i> to ensure we understand each other’s approaches.</li> </ul>
<p><i>FES</i> 2019 launch event, 18 July 2019</p>	<ul style="list-style-type: none"> <li>• Most people we spoke to about our proposals were supportive of the ESO stepping into a role where we make policy recommendations from the <i>FES</i> analysis. These</li> </ul>	<ul style="list-style-type: none"> <li>• As set out above, we have amended our proposal to undertake bespoke analysis and industry engagement to</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>included stakeholders from the renewable energy, supplier and gas distribution network sectors.</p> <ul style="list-style-type: none"> <li>One supplier company thought that we were ultimately a commercial organisation and that we should remain impartial in our analysis.</li> </ul>	inform policy development and decision making.
Trade association round table, 1 August 2019	<p>Members of the trade association had different views on the role we should adopt in the policy area:</p> <ul style="list-style-type: none"> <li>One member thought that we should be driving change by leading the debate</li> <li>Another trade association member and a service provider thought that we shouldn't be trying to position ourselves in the centre of the system or making recommendations from potentially incorrect information</li> <li>Instead, a service provider thought we could make our assumptions more explicit or that we could set out what policies would need to be in place to achieve each scenario</li> </ul>	
DNO bilateral meetings, various, September and October 2019	<ul style="list-style-type: none"> <li>One DNO thought that <i>FES</i> is going to become more regionalised rather than less and that there could be merit in aligning timescales of development across the various parties.</li> <li>Another thought that the process of data exchange could be more formal in the future.</li> <li>On our amended proposal to support policy development, one DNO agreed that the ESO should not stray into telling others how to do their jobs but that we absolutely had a role in informing policy decisions given our area of expertise.</li> </ul>	<ul style="list-style-type: none"> <li>We will use this feedback as we continue to work with DNOs and other parties on our regional <i>FES</i> proposals.</li> </ul>

## 5.6.2 Taking a whole electricity system approach to connections (A14)

### 5.6.2.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
<p>Via our satisfaction survey process, we have interviewed a total of 57 customers across networks, large and small customers, and different fuel types in 2018/19.</p> <p>Customers scored us an average of 7.96/10 for connections and generally provided positive feedback on our current connections service level.</p>	<p>The areas for improvement that customers have fed back to us are:</p> <ul style="list-style-type: none"> <li>• They have seen improvement in the level of collaboration to achieve mutually beneficial results between the ESO and customer but there is more to do.</li> <li>• More timely responses to queries – a question was raised as to whether this should be achieved through more staff.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Customers want us to challenge the TOs more and to not just be a ‘post box’ in the process.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Customers would appreciate more consistency across transmission and distribution processes (quality of process too).</li> </ul>	<ul style="list-style-type: none"> <li>• This feedback, coupled with the recent growth in connection applications to the ESO, has led us to propose activities in RIIO-2 that will help us to provide a more flexible customer account and contract management service.</li> <li>• Our proposals will provide easier access to connection and contract information from the ESO and a central place to access TO and DNO information.</li> <li>• We also propose to increase FTE resource in the connections team for our ongoing activities.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• As part of our engagement programme, we have talked to the TOs about our respective RIIO-2 proposals but also about our day-to-day service provision to customers.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• This feedback has directly informed our proposals for a whole system focussed connections hub and connections seminars. Where our RIIO-2 proposals have the potential to interact with other network companies, we will drive consistency in look and feel where possible.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Customer journey work, 2018/19 - we interviewed a number of customers to understand their experiences from our connections process.	<p>The main themes of feedback were that customers can experience:</p> <ul style="list-style-type: none"> <li>• Lack of timely responses to queries</li> <li>• Lack of transparency and customers expect a more collaborative approach</li> <li>• Lack of efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>• We have used these key themes to build upon our <i>Forward Plan</i> commitments with our RIIO-2 proposals. The central hub and online customer portal proposals will provide a central place for prospective and contracted customers to find information about the connection process and about their connection agreements. We think that these 'self-serve' tools will allow customers and stakeholders to more efficiently navigate the connections process, with support from the ESO.</li> </ul>

#### 5.6.2.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
Customer connections seminars, March 2019 – presentation and round table discussion.	<ul style="list-style-type: none"> <li>• We asked attendees of the seminars, via a poll, whether they had any views on possible activities that we could propose for RIIO-2. A total of 23 stakeholders voted with 12 supporting the central connections hub proposal (A14.4); eight supporting the online account management proposal; and 11 supporting working more closely with DNOs.</li> </ul> <p>We also asked whether we were missing anything (again via a poll) and we received these views:</p>	<ul style="list-style-type: none"> <li>• We continued to develop and take forward all our proposals for further stakeholder engagement since this event given that they received a similar level of support from stakeholders.</li> <li>• This is something that we will continue to work on in <i>Forward Plan</i> timescales and through industry initiatives on asset</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>Some focus on accuracy of information in Transmission Entry Capacity/Embedded<sup>35</sup> registers would be of assistance.</li> </ul>	<ul style="list-style-type: none"> <li>registers, including our RecorDER project<sup>36</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Shorter lead time to service procurement (for example, the week-ahead trial, for more items, and shorter).</li> </ul>	<ul style="list-style-type: none"> <li>We believe that this feedback relates to our balancing services proposals.</li> </ul>
	<ul style="list-style-type: none"> <li>Do what you already do 100 per cent right before adding new stuff.</li> </ul>	<ul style="list-style-type: none"> <li>We do not think we have the option to stand still, particularly with the pace of change of the energy industry. But we recognise that we still need to get the basics right for our customers and that our RIIO-2 proposals will support this.</li> </ul>
	<ul style="list-style-type: none"> <li>Continue focus on wider access to the Balancing Mechanism (for DER)</li> </ul>	<ul style="list-style-type: none"> <li>This is a reference to proposals elsewhere in our Business Plan but enhancements to our connections process will facilitate connection of greater DER volumes.</li> </ul>
	<ul style="list-style-type: none"> <li>Transparency of connection charges including use of system, application fees and securities.</li> </ul>	<ul style="list-style-type: none"> <li>This is something we have taken forward as information we will include in the online customer portal.</li> </ul>
	<p>In the afternoon of the customer seminar we hosted round table discussions on RIIO-2 to understand further views and requirements. Four stakeholders, including a TO, a DNO, and two renewable energy developers, attended.</p> <p>These stakeholders were generally supportive of all proposals particularly around the following:</p>	<ul style="list-style-type: none"> <li>These stakeholders were positive about our proposals so we continued to develop them.</li> <li>We have and will continue to engage with transmission and distribution network companies to ensure that our central</li> </ul>

<sup>35</sup> <https://www.nationalgrideso.com/connections/registers-reports-and-guidance>

<sup>36</sup> <https://innovation.ukpowernetworks.co.uk/projects/recorder-formerly-der-asset-register/>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>• There are a lot of processes and information gathering involved across different parties so streamlining these and having access to information in one place is useful.</li> <li>• If TOs are producing system capacity heatmaps then these should be in a common format and companies should share best practice.</li> <li>• Some standardisation across transmission and distribution connection processes would be beneficial.</li> <li>• The ESO is best placed to look across transmission and distribution and take a balanced view.</li> <li>• The ESO could be able to provide additional information and alternative connections approaches at the time of application.</li> </ul>	connections hub proposal will bring value for customers in an efficient way.

### 5.6.2.3 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 21 March 2019	<p>We asked our webinar attendees for their reflections on our RIIO-2 proposals and to prioritise them according to their own business requirements. Generally, our proposal to provide improved access for DER (A16.3) to available headroom across T/D interfaces came out as the highest priority, closely followed by 'working with network organisations'. In addition, we heard:</p> <ul style="list-style-type: none"> <li>• One stakeholder highlighted that there was some overlap between these</li> </ul>	<ul style="list-style-type: none"> <li>• In terms of overlap with <i>Forward Plan</i> activities, building on our earlier customer journey work, we intend to scope out the functionality of our proposed Customer Connections portal during the remainder of the RIIO-1 period.</li> <li>• This will enable us to efficiently plan and deliver the portal within a two-year period at the start of RIIO-2. We will ensure this pathway is clearly communicated to stakeholders.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	<p>proposals and those commitments in our <i>Forward Plan</i>.</p> <ul style="list-style-type: none"> <li>• A generator fed back that the online connections portal was a 'nice to have' and that if the connection experience is positive, they are not concerned if it is online.</li> </ul> <p>Webinar attendees also provided some ideas in terms of what information the customer connections portal could provide:</p> <ul style="list-style-type: none"> <li>• delay costs and user liabilities</li> <li>• charging statements and methodologies.</li> </ul>	<ul style="list-style-type: none"> <li>• Other stakeholders during our engagement have been positive about an online portal and we have sought further customer views at our connections seminars in October and November 2019.</li> <li>• We will incorporate stakeholder ideas for portal content into the scoping phase of the project.</li> </ul>
RIIO-2 stakeholder event, 11 April 2019	<p>At round table discussions with small and large generation companies and network companies, we heard:</p> <ul style="list-style-type: none"> <li>• The majority of stakeholders welcomed our proposals; and</li> <li>• smaller companies valued the proposals to provide more information online and in one place for multiple network companies.</li> </ul> <ul style="list-style-type: none"> <li>• DNOs and one generator questioned the value of a central connections hub if customers were simply signposted elsewhere.</li> <li>• However, this was countered by views that a central connections hub would be</li> </ul>	<ul style="list-style-type: none"> <li>• We have taken forward all proposals in our Business Plan and have incorporated further detail for stakeholders.</li> <li>• We continued to seek views on what information and therefore value the central connections hub proposal (A14.4) will provide.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>beneficial specifically for location-neutral projects, particularly if we could provide guidance on the most efficient connection voltage.</p> <ul style="list-style-type: none"> <li>• DNOs were keen to understand more about our proposals to facilitate connection of DER (A16.3) and could see benefit in the ESO expanding the Appendix G process further.</li> <li>• One large generation company did not think that our proposals were ambitious and sounded like business as usual for the ESO. They reflected that we should be proposing to look at areas such as queue management and capacity hoarding.</li> <li>• We asked whether it should be customers or consumers that pay for these proposals given that customers will directly get the benefit but stakeholders wanted to see further cost-benefit analysis before taking a view.</li> </ul>	<ul style="list-style-type: none"> <li>• We have continued to engage with DNO companies further on our whole electricity system proposals to ensure that they create benefit for our customers and for consumers.</li> <li>• We continued to monitor feedback, and most stakeholders believe our proposals are ambitious, including the ERSG.</li> <li>• We believe that both suggested areas for focus are already being considered through Ofgem's work on access and forward looking charges as well as the ENA's Open Networks project.</li> <li>• We have engaged further on the costs associated with our plan. Discussions on the funding model and related mechanisms should determine how costs are recovered.</li> </ul>
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019</p> <p>11 Responses received</p>	<p>We received the following views in respect of our connections proposals:</p> <ul style="list-style-type: none"> <li>• One network company fed back that they did not think that the ESO is best placed to give guidance on where to connect, or</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that we should not duplicate activity undertaken by other parties. We have heard from some of our stakeholders, for example at our event in April 2019, that they would welcome a central hub for connection information and</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	to provide dedicated connections account managers for DER. They also thought that we should be careful not to create unnecessary duplication in the process.	guidance on where to connect especially where a project is location neutral.
	<ul style="list-style-type: none"> <li>• A trade association welcomed our ambition in this area and thought that a number of the activities would help to deliver it.</li> <li>• They welcomed clarity on whether the ESO intends to act as the connection account managers for DER or to coordinate with current connection account managers within the DNOs.</li> </ul>	<ul style="list-style-type: none"> <li>• It is our intention to coordinate where there may be issues across the transmission and distribution boundary and ultimately facilitate a smoother application process for DER customers.</li> </ul>
	<ul style="list-style-type: none"> <li>• A consumer interest organisation expressed concern that our ambition to “reduce friction for participants in their interactions anywhere on the electricity network” lacked substance and was not necessarily within the control of the ESO.</li> </ul>	<ul style="list-style-type: none"> <li>• We sought to understand the views of this stakeholder in more detail to be able to clarify our proposals to address the concern.</li> </ul>
	<ul style="list-style-type: none"> <li>• A supplier said that they supported the activities and welcomed the intent to work with DNOs to take a whole electricity system view.</li> <li>• They set out that they had encountered difficulties when distribution connections have an impact on the transmission network.</li> <li>• They also raised that there is ongoing ENA work to standardise connection</li> </ul>	<ul style="list-style-type: none"> <li>• We will ensure that we learn from the approach that the ENA is taking on standardisation, but we want to ensure that where value can be derived sooner, we facilitate its delivery.</li> <li>• We have clarified in our plan that the additional resource we seek is to add value for customers when there are connection-related issues across the transmission-distribution interface. We do</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>procedures across DNOs, and that where appropriate this could be extended to the ESO and TO approaches if it seen beneficial, but that the DNO standardisation should be achieved first.</p> <ul style="list-style-type: none"> <li>• Dedicated connections account managers are encouraged however it is unclear if these should sit in the ESO or DNO.</li> </ul>	<p>not intend to duplicate the roles of other parties.</p>
<p>All TO and ESO meeting, 9 August 2019</p>	<ul style="list-style-type: none"> <li>• We talked about our respective connections proposals with the TOs as we understood from published RIIO-2 draft plans and previous discussions in which we have discussed our respective proposals for developing connections portals. The TOs told us that they are looking to develop online solutions for their aspects of the connections process.</li> </ul>	<ul style="list-style-type: none"> <li>• We agreed that we should coordinate on our respective proposals to ensure that we ultimately deliver an efficient product for customers and that we will have further meetings to discuss scope and technical solutions across all portals.</li> </ul>
<p>DNO bilateral meetings, various, September and October 2019</p>	<ul style="list-style-type: none"> <li>• One DNO appreciated the customer proposition of our connections hub (A14.4) but suggested it could be done through the ENA to get wider support</li> <li>• The same DNO highlighted that DNOs had already spent a lot of money creating front ends on their connections processes so may not want a replacement system</li> <li>• Two DNOs suggested we think about how the hub ties in with Energy Data Taskforce aspirations.</li> </ul>	<ul style="list-style-type: none"> <li>• We will consider how we could use the ENA for coordinated development of connections portals</li> <li>• We do not propose that DNOs replace their systems but there may be merit in having some interface capability between the ESO and DNO system in future</li> <li>• We will remain mindful of the Energy Data Taskforce outputs as we scope and develop our online portal</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Customer connections seminars, 1 October and 5 November 2019	<p>We hosted round table sessions at the seminars to seek stakeholder views on our connections hub proposal (A14.4) and how we should work together with TOs to deliver online portals in a coordinated way. Stakeholder views were:</p> <ul style="list-style-type: none"> <li>• Customers were positive about our proposals and could see merit in the 'Great Britain connections landing page'.</li> <li>• The question was raised by three renewables customers at separate sessions as to why the TOs were building portals given that the ESO is the contractual counterparty and whether the ESO should be the only online interface with the customer ("a one stop shop").</li> <li>• Customers were keen that if we and the TOs are all building portals, they need to look and feel consistent, and be able to interface with each other.</li> <li>• We also talked about what functionality customers would want from our portal/the connections hub landing page and we received suggestions including charging information, termination amounts, current contracts.</li> <li>• Customers thought that when we start to build our portal we could test functionality with a customer focus group and two generator customers offered to be part of such a group.</li> </ul>	<ul style="list-style-type: none"> <li>• We agree that we need to remain coordinated with the TOs as they also build their online customer portals and that each portal should reflect the role of each party in the connections process e.g. we understand that one TO is looking to pilot functionality around the pre-application process where TOs are more heavily involved in customer discussions.</li> <li>• We have spoken to the TOs about setting up further sessions to agree some common principles for our portals</li> <li>• We have taken on board customers suggestions on functionality and will incorporate these into the scoping phase of the portal.</li> <li>• We will consider how best to test functionality as we start to develop our portal. A customer focus group could be beneficial for getting feedback.</li> </ul>

### 5.6.3 Taking a whole energy system approach to promote zero carbon operability (A15)

#### 5.6.3.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
<p>The ENA's Future Worlds consultation, July 2018 – this considered how a range of relevant industry functions and activities (such as system design and operation) will change to meet the challenges of the future energy landscape.</p>	<p>From the 47 responses received by the ENA to this consultation, we learned the following in respect of the ESO role specifically:</p> <ul style="list-style-type: none"> <li>• The strongest consensus, supported by analysis, is for the coordinated and collaborative future provided through World B.</li> <li>• Responses highlighted the importance of working with other network companies to ensure consistent processes, efficient and appropriate exchange of data and information, and coordinated standardised experiences that work for customers.</li> <li>• They indicated a need for aligned codes and frameworks to support the energy transition.</li> <li>• They highlighted that the ESO should continue to play a role in overall management of the national electricity system, including in times of system stress and emergencies.</li> </ul>	<p>We developed five key areas of focus for our whole electricity system work which informed our stakeholder engagement. We looked to explore the potential RIIO-2 business impacts and role for the ESO across these five areas:</p> <ul style="list-style-type: none"> <li>• information provision;</li> <li>• framework accessibility and alignment;</li> <li>• facilitating routes to market;</li> <li>• clarifying responsibilities across the transmission-distribution interface; and</li> <li>• system event preparedness and restoration.</li> </ul>

### 5.6.3.2 Phase 2 Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
ESO Ambition stakeholder workshop, 28 September 2018	<b>A6 Aligned commercial, technical and regulatory arrangements across transmission and distribution</b>	
	<ul style="list-style-type: none"> <li>• Codes need to move from a predictable engineering environment to one that can manage risk in a data-driven system whilst maintaining a robust engineering standard.</li> <li>• The codes need to accommodate innovation.</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposals for transforming code governance and to employ a principles-based approach in our Grid Code proposal (A6.5) seek to address this.</li> </ul>
	<ul style="list-style-type: none"> <li>• There is a risk that an uncoordinated approach to the future ESO/DSO model means that industry cannot effectively engage with and respond to the change. A lot of frustration was expressed on this topic.</li> </ul>	<ul style="list-style-type: none"> <li>• We intend to work closely with DNOs and through the ENA to support the DSO transition. There are activities proposed across all the Themes in our plan that are intended to support the DSO transition in a coordinated way.</li> </ul>
	<ul style="list-style-type: none"> <li>• There was a call to simplify and unify governance to drive alignment across transmission and distribution. We need to look at the synergies across the two models and pull it all together under one governance structure.</li> </ul>	<ul style="list-style-type: none"> <li>• We have sought to address this in our Theme 2 code proposals.</li> </ul>
	<ul style="list-style-type: none"> <li>• The ESO has visibility of the impact of code changes and that there is an opportunity for the ESO to promote alignment across the codes.</li> </ul>	<ul style="list-style-type: none"> <li>• Through our proposal to step up to a code manager (D6.4), we will take a more coordinated view across the codes.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<b>Provision of information and tools to enable efficient whole system decisions across operational and investment timescales</b>	
	<ul style="list-style-type: none"> <li>All data on transmission and distribution network costs and constraints needs to be available together. We need to be brave and publish the data.</li> </ul>	<ul style="list-style-type: none"> <li>Our proposals on the data portal (A4.4) and working more collaboratively with network parties aim to address this request.</li> </ul>
	<ul style="list-style-type: none"> <li>Markets should facilitate a common understanding on costs for all decisions across transmission and distribution, including a clear articulation of the needs required.</li> </ul>	<ul style="list-style-type: none"> <li>We will work with DNOs to ensure consistent articulation of needs, costs and decisions.</li> <li>Our Theme 2 proposals will support the development of coordinated markets across transmission and distribution.</li> </ul>
RIIO-2 webinar, 1 November 2018	<ul style="list-style-type: none"> <li>There is currently no one party in place to facilitate the new world, the ESO could play a facilitative and connective role inclusive of large and small.</li> </ul>	<ul style="list-style-type: none"> <li>Our proposals for a central connections hub (A14.4) look to provide a single point where parties can find information about different networks.</li> </ul>
	<ul style="list-style-type: none"> <li>We asked attendees of the webinar whether our five identified areas of work were the right areas to focus on. Stakeholders broadly agreed that they were the right areas.</li> </ul>	<ul style="list-style-type: none"> <li>The five areas have all been taken forward into our RIIO-2 proposals. We have engaged further with stakeholders on the detail around their priority areas to further shape those proposals.</li> </ul>
	<ul style="list-style-type: none"> <li>We also asked if stakeholders could prioritise across the five areas – the key area of priority was the Clarifying responsibilities across the transmission-distribution interface, closely followed by Information provision and Facilitating routes to market.</li> </ul>	



Channel	Feedback we received	How this has shaped our plan
<p>We explored the five areas with stakeholders in more detail via an ESO whole electricity system consultation in December 2018 (to which we received seven responses) and a RIIO-2 workshop, 17 December 2018</p>	<p><b>Information provision</b></p>	<ul style="list-style-type: none"> <li>We have carried out further engagement on what data stakeholders want access to and how they want to use it to inform our data portal proposal.</li> </ul>
	<p><b>Aligned and accessible frameworks</b></p>	<ul style="list-style-type: none"> <li>Our proposals to review the code governance process and the Grid Code (A6.1) seek to address this feedback.</li> </ul>
	<p><b>Consistent and Transparent Flexibility Markets</b></p>	<ul style="list-style-type: none"> <li>Our market platform proposal (A4.4, under Theme 2) seeks to address this feedback. We also set out in our plan that we will work with stakeholders, including DNOs, to ensure that ESO markets are consistent and coordinated with other markets throughout the RIIO-2 period.</li> </ul>
	<ul style="list-style-type: none"> <li>We need to be brave about publishing data but be clear on parties' roles and who should publish what information.</li> </ul>	
	<ul style="list-style-type: none"> <li>We need a regulatory framework that defines what we should be doing at whole electricity system level – clarity on how parties work together.</li> <li>Review of the code governance process is required.</li> </ul>	
	<ul style="list-style-type: none"> <li>Links in with data and someone is required to coordinate across networks.</li> <li>Markets need to work on a regional, local and national level.</li> <li>Need to design solutions to fix the problem with appropriate lengths of contracts.</li> <li>Consistent and transparent markets are required.</li> </ul>	

<b>Clear coordinated roles and responsibilities</b>	
<ul style="list-style-type: none"> <li>• We need clarity of roles – what is the difference between ESO and DSO?</li> <li>• Need a process to define roles and to include stakeholders (who should be leading this e.g. ENA, ESO, Ofgem).</li> </ul>	<ul style="list-style-type: none"> <li>• In our work on whole system operability we set out how we intend to ensure there are clear roles and responsibilities for system operators.</li> <li>• This will be particularly evident in the run up to RIIO-ED2 in April 2023.</li> </ul>
<b>System risk and resilience</b>	
<ul style="list-style-type: none"> <li>• We need to understand the risk and how digitalisation and decentralisation will impact – how could automation help.</li> <li>• We need to define our role and the roles of others.</li> <li>• How could the ESO report better on system security on a longer-term basis.</li> <li>• Could we provide more information on future system operability?</li> </ul>	<ul style="list-style-type: none"> <li>• Our restoration proposals within this plan (A3, under Theme 1), seek to build upon the work being undertaken by the Black Start Task Force and the NIC project to bring a whole system solution for restoration.</li> </ul>

### 5.6.3.3 Phase 3 Testing our ambition and activities

<b>Channel</b>	<b>Feedback we received</b>	<b>How this has shaped our plan</b>
RIIO-2 stakeholder event, 11 April 2019	We discussed our proposals with stakeholders on operability from our ambition document, and we heard the following:  <b>Create a common portal to share network data</b>	
	<ul style="list-style-type: none"> <li>• Open data for all will deliver the most innovation and consumer value, and that investors and technology</li> </ul>	<ul style="list-style-type: none"> <li>• This is something that we have discussed further with network</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>companies need consistent data from different network companies to give value to their propositions.</p> <ul style="list-style-type: none"> <li>Stakeholders could see there being value in seeing transmission, distribution and ESO data in the same format and timescales.</li> </ul>	<p>companies in our ongoing engagement with them.</p> <ul style="list-style-type: none"> <li>Work is also being progressed through Open Networks workstream 1B for data sharing in both operational and planning timescales.</li> <li>In chapter 8 - Digitalisation and open data unlocking zero carbon system operation and markets we detail our proposals for making our data available and accessible in one place on our data portal (D17.1). This will include sharing the outputs of data exchange with other parties as appropriate.</li> </ul>
	<b>Work with DNOs to develop clear roles and responsibilities</b>	
	<ul style="list-style-type: none"> <li>The ESO and DNOs have complimentary capabilities, which creates a good basis for a future partnership.</li> <li>We should be looking to use the two-year period between RIIO-2 and ED2, to test ways of working between the ESO and DNOs. We should be starting now to work out where challenges and conflicts may arise, with a view to solving them before the start of RIIO-ED2.</li> <li>We can help DNOs by defining what is different about being a DSO and what capabilities are required.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that the ESO and the DNOs working together will be a positive relationship and we continue to work with all network companies through the ENA and our own engagement programme.</li> <li>We will work with DNOs to develop clear roles and responsibilities ahead of RIIO-ED2.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<b>Review of the SQSS and Grid Code</b>	
	<ul style="list-style-type: none"> <li>• The SQSS is no longer fit for purpose and needs a review. We should be however, investing effort to support parties that will be affected by SQSS change.</li> <li>• Stakeholders could see value in combining transmission and distribution codes. Perhaps with a first step of harmonising definitions to align them.</li> </ul>	<ul style="list-style-type: none"> <li>• We have received wide support for a review of the SQSS and, following further engagement, have proposed to undertake a targeted review in Theme 3 of our plan (A12).</li> <li>• We need to recognise the potential impact of framework changes on stakeholders and consider implementation timescales and approaches appropriately.</li> <li>• Harmonisation of codes across transmission and distribution is addressed in our proposal for a whole system digitalised Grid Code (D6.5) in Theme 2.</li> </ul>
	<b>Develop and deliver arrangements that optimise network operation across the whole electricity system and ensure the system remains operable in a zero carbon future</b>	
	<ul style="list-style-type: none"> <li>• We don't need to decide what future world we want to end up in just yet but in the meantime consistency across DNOs and between transmission and distribution is key.</li> </ul>	<ul style="list-style-type: none"> <li>• We will seek to drive consistency across transmission and distribution where our current roles allow.</li> <li>• We intend to take an incremental least regrets approach to the DSO transition consistent with Ofgem's work on DSO.</li> </ul>
	<ul style="list-style-type: none"> <li>• DNOs tend to be less expert at markets than the ESO and if the ESO is going support the DSO transition then it should be paid for doing so.</li> </ul>	<ul style="list-style-type: none"> <li>• DSO transition arrangements are yet to be determined but we continue to be</li> </ul>

Channel	Feedback we received	How this has shaped our plan
		involved through ENA and other engagement.
	<ul style="list-style-type: none"> <li>Stakeholders, including a consumer interest organisation, at one round table agreed that while they were very supportive of our ambition to be able to operate a zero carbon network by 2025, we shouldn't look to achieve it at any cost.</li> <li>We must think about long and short-term consumer benefit. We shouldn't bake in sub-optimal solutions just to ensure we hit our ambition and must take an agile approach if it looks like we may not achieve it, for example, a year out.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that it would not be optimal for consumers to overspend in order to deliver on the ambition we have set. We will ensure that our plan remains agile throughout the RIIO-2 period and beyond.</li> </ul>
	<ul style="list-style-type: none"> <li>A generator representative thought that the zero carbon system operation ambition would not be met because we need things like inertia markets to be in place now so that there is a business case for change.</li> <li>In response one stakeholder thought that wind could provide a lot more services than it does currently.</li> </ul>	<ul style="list-style-type: none"> <li>We will take learnings from the ongoing stability pathfinder to inform our RIIO-2 delivery of operability markets.</li> <li>As part of Theme 2 we will continue to develop balancing services to allow parties to participate on a level playing field and enable providers to participate closer to real time.</li> </ul>
	<ul style="list-style-type: none"> <li>Incorporate whole electricity system thinking into the network design and development process.</li> <li>One stakeholder questioned whether it would be beneficial to use innovation funding for Regional Development Programmes (RDPs), which would facilitate the sharing of outputs at the end. There was some agreement on this point.</li> </ul>	<ul style="list-style-type: none"> <li>Our Theme 3 proposals intend to meet this criterion.</li> <li>The RDPs were developed as part of ongoing innovation in order to start delivering consumer value sooner.</li> <li>We will endeavour to share outputs as we undertake more RDPs in future.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>RDPs should be applied to more whole system opportunities like heat and transport and should be much larger in nature.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that RDPs could be wider in scope in future and that an agile approach and would lend itself to broader issues in future.</li> <li>In Theme 4 we have proposed activity A15.9 Identify future operability needs across the whole energy system, where we will begin to look at how we can take advantage of opportunities from related energy sectors to develop new operability tools.</li> </ul>
	<ul style="list-style-type: none"> <li>RDPs are very network focused, which makes it more difficult for service providers to understand how they can meet a need.</li> </ul>	<ul style="list-style-type: none"> <li>We consider that RDPs are more system operator focussed to meet an operational need but if there is a greater wish to understand information about them then we can facilitate that.</li> </ul>
	<ul style="list-style-type: none"> <li>The learning from each RDP will de-risk and lower the cost of applying that solution in a new place, so there should be ongoing benefit.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that this may be the case, but we also consider that each RDP may be applied in a different way and to very different system needs.</li> </ul>
	<ul style="list-style-type: none"> <li>Two attendees discussed whether the RDPs were sticking plasters to system issues and whether these issues could be more proactively resolved to avoid the need for RDPs.</li> </ul>	<ul style="list-style-type: none"> <li>We are looking to determine a strategy in <i>Forward Plan</i> (RIIO-1) timescales for possible applications of RDPs into the RIIO-2 period.</li> </ul>
ADE DSR working group, April 2019	<ul style="list-style-type: none"> <li>A stakeholder asked how flexible we are around the adoption of different worlds (other than World B)? They were concerned that we get along a path of World B but</li> </ul>	<ul style="list-style-type: none"> <li>We have adopted a least regret approach to this and we think that our preferred option of deeper relationship with DSOs under a World B scenario</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	then need to change path – need to look at least regret options.	combines the natural evolution of the ESO role with the lowest cost of industry implementation and facilitates a whole system view that will deliver consumer value.
Bilateral meetings, various, April 2019	<p>A renewable generation company fed back that they think:</p> <ul style="list-style-type: none"> <li>• The ESO should lead in the DNO to DSO transition and that we should set standards for DSOs.</li> <li>• There needs to be a large market formed for all the products being developed - doesn't think local products for local markets would be efficient.</li> </ul>	<ul style="list-style-type: none"> <li>• We think we have a role to play in facilitating clarification of roles between the ESO and DNOs rather than set standards.</li> </ul>
	<p>Another generation company provided their views on whole system operability. They:</p> <ul style="list-style-type: none"> <li>• questioned whether World B was the right world to base our thinking (and IT design) upon</li> <li>• disagreed with Baringa's interpretation of World B</li> <li>• recognised that the codes and frameworks elements of our proposals will be influenced by Ofgem and BEIS review.</li> </ul>	<ul style="list-style-type: none"> <li>• These comments relate to Baringa's assessment of the ENA Future Worlds work.</li> <li>• We understand the costs compared relate to network organisations only.</li> <li>• We believe broader consideration of overall industry costs need to be considered to understand which future pathway delivers greatest consumer value.</li> </ul>
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<p>We received the following views on our <b>whole system operability proposals (A15)</b>. Most stakeholders who commented positively supported our ambition and proposals in this area, with one saying that we should be doing more in this space due to our unique position in the industry.</p> <ul style="list-style-type: none"> <li>• A supplier said that they recognise an RDP may be efficient in some areas but cannot be assumed it will</li> </ul>	<ul style="list-style-type: none"> <li>• We think that a tactical application of an approach to meet specific regional needs is required and in line with a</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>always deliver the best value for consumers so we do not recommend a wholesale rollout.</p> <ul style="list-style-type: none"> <li>Where constraints exist, the proposed RDP should be fully tested against other traditional investment and market solutions to identify the greatest consumer value.</li> </ul>	<p>clear strategy rather than a wholesale rollout and this is reflected in our proposals in Theme 4.</p> <ul style="list-style-type: none"> <li>We will ensure that other methods to meet the need are explored and that the RDP itself explores options.</li> </ul>
	<p>On the common portal for sharing data:</p> <ul style="list-style-type: none"> <li>A trade association and two generation stakeholders said they were supportive of improving data sharing between network operators and improving modelling across system boundaries. They thought using a common portal is sensible.</li> <li>One generation stakeholder thought that it could be expanded to provide data to all market participants and could draw upon work by the ENA on the standardisation of data and a common resource register.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that we should be drawing upon the work being undertaken by the ENA on data. Our work here will also be consistent with Energy Data Taskforce recommendations.</li> <li>In chapter 8 - Digitalisation and open data unlocking zero carbon system operation and markets we detail our proposals for making our data available and accessible in one place on our data portal (D17.1). This will include sharing the outputs of data exchange with other parties as appropriate.</li> </ul>
<p>RIIO-2 engagement event, 2 October 2019</p>	<ul style="list-style-type: none"> <li>A supplier asked how our plan aligns with ENA Open Networks Project</li> <li>Two stakeholders reflected that we need to work more closely/questioned whether we were working closely enough, with DNOs</li> <li>A table of stakeholders (comprising a DNO, government, academia) agreed that a priority for the ESO is to ensure coordinated delivery of systems, processes and infrastructure across ESO and the industry to enable</li> </ul>	<ul style="list-style-type: none"> <li>We have set out in chapter 2 how we will continue to engage with the ENA and the Open Networks project</li> <li>We agree that we need to continue to work closely with DNOs and we recognise the importance of doing so</li> <li>We also agree that coordination with other parties will be key to the success of our, and others', plans.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	implementation of all the new systems, services and approaches	
	<b>A15.10 Development of a regime for an integrated offshore grid</b>	
ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019 11 Responses received	<ul style="list-style-type: none"> <li>• A renewable developer highlighted that growth in offshore wind will require a substantial step-change in the way connection to the onshore transmission network is considered</li> <li>• This stakeholder wanted to see more in our plan about activities to coordinate between onshore and offshore grid connections</li> <li>• They reflected that closer coordination on strategic reinforcements to the onshore network will be required to ensure an optimal solution for consumers</li> </ul>	<ul style="list-style-type: none"> <li>• This has informed our proposal in Theme 4 to work with stakeholders to develop the appropriate commercial, technical and regulatory arrangements that will facilitate an efficient integrated offshore grid.</li> </ul>
Bilateral stakeholder discussions, various 2019	<ul style="list-style-type: none"> <li>• We have spoken with three large offshore developers who are requesting our support and collaboration to enable more strategic development of the grid to facilitate offshore wind e.g. through changes to the OFTO framework and wider transmission reinforcement arrangements</li> </ul>	<ul style="list-style-type: none"> <li>• We continue to work with these stakeholders to progress discussions around offshore grid development and this has informed our Theme 4 proposal.</li> </ul>

## 5.6.4 Delivering consumer benefits from improved network access planning (A16)

### 5.6.4.1 Phase 1 Broad thinking

Channel	Feedback we received	How this has shaped our plan
Customer satisfaction surveys, 2018 – we surveyed generation companies, DNOs and TOs	<p>Customers were generally positive about our outage planning process and service although we have still sought to improve our processes in RIIO-1. Some of the other customer comments we received are:</p> <ul style="list-style-type: none"> <li>• Want to see better coordination between the ESO and DNOs to better align outages with all parties involved.</li> <li>• Transmission outages and changes to those outages can have impacts on DNOs' networks that the ESO does not understand.</li> </ul>	<ul style="list-style-type: none"> <li>• This is feedback that has directly influenced our proposals to work more closely with DNOs and to assess the whole system impact of outages on the transmission system (A16.3).</li> <li>• Again, this is something that we want to address and looked to explore further at our RIIO-2 engagement event in December, at the OC2 Forum and with DNOs.</li> </ul>

### 5.6.4.2 Phase 2 developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 stakeholder event, 17 December 2018	<p>The key themes from these discussions were:</p> <p>In terms of the ESO's role, we need to:</p> <ul style="list-style-type: none"> <li>• Increase transparency of outage constraint costs for industry parties, otherwise they cannot act to reduce their impact on them.</li> <li>• Understand the value associated with reducing short notice outage churn.</li> </ul>	<ul style="list-style-type: none"> <li>• Our business plan includes proposals to increase transparency costs associated with changes outages (A16.2).</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>In terms of possible TO incentives in this area, stakeholders agreed that there is merit in looking at incentives. However, network companies thought we should:</p> <ul style="list-style-type: none"> <li>• Consider what is the baseline against which good or poor performance could be measured</li> <li>• Avoid unintended consequences e.g. TOs putting in long outage requests just so that they can do some simple things to perform well under an incentive</li> <li>• Consider that TOs need flexibility on outage planning to be efficient.</li> </ul>	<ul style="list-style-type: none"> <li>• We sought further views on incentivising network parties at our stakeholder event on 11 April 2019 (see below). We have also engaged with TOs on this subject.</li> </ul>
	<ul style="list-style-type: none"> <li>• In terms of whole system thinking, some stakeholders fed back that transmission outages and system access can have consequences for distribution networks.</li> </ul>	<ul style="list-style-type: none"> <li>• We have developed a proposal to manage deeper outage coordination across the transmission-distribution interface and to better understand the whole system cost of outages (A16.3).</li> <li>• We also propose to notify more parties, connected to distribution networks, of transmission outages that may impact them.</li> </ul>

#### 5.6.4.3 Phase 3 testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 21 March 2019	We asked attendees whether they would support further development of our proposals. There was support for different proposals across different stakeholders. We also heard:	

Channel	Feedback we received	How this has shaped our plan
	<ul style="list-style-type: none"> <li>One stakeholder asked, in relation to our proposal to extend the TOGA system (A16.4): What is the lowest voltage being considered for outage notifications?</li> </ul> <hr/> <ul style="list-style-type: none"> <li>A generation company pointed out that there are some parallels between our proposal to enhance outage coordination across the transmission – distribution interface (A16), and Ofgem’s Sector Specific Consultation content where Ofgem has proposed to implement a single Network Access Policy and to apply it to DNOs.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>There needs to be common compensation tools across transmission and distribution if you are trying to coordinate effectively. There must also be a common view between parties as to how much embedded generation/DSR is connected – the ESO and DNOs need to address this to deliver "deeper coordination" on outage planning.</li> </ul>	<ul style="list-style-type: none"> <li>We are proposing to notify affected parties connected to distribution networks of transmission outages that could materially affect them (A16.3).</li> <li>We are not intending to directly notify parties of distribution network outages but welcome views on this point.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>We support Ofgem’s proposal to implement a single Network Access Policy and that this could be applied to DNOs or other parties. We think that our proposals are complementary to Ofgem’s.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>We agree with the comments made by this stakeholder and have proposed to work more closely with DNOs to coordinate and communicate outage notifications.</li> </ul>
RIIO-2 stakeholder event, 11 April 2019	We shared our proposals with stakeholders and we heard the following:	
	<ul style="list-style-type: none"> <li>Transparency of information about outages (for distribution connected parties) is an important first step for more bespoke constraint management services, and that our proposal to introduce text alerts from the TOGA system are only useful if parties can respond in some way.</li> </ul>	<ul style="list-style-type: none"> <li>This was counter to the feedback we heard at our December event where we heard that transmission outages can have cost impacts to distribution connected parties so we want to ensure that they have information on forthcoming outages as a first step</li> </ul>

Channel	Feedback we received	How this has shaped our plan
		<p>even if they cannot necessarily respond.</p> <ul style="list-style-type: none"> <li>• Longer term, we think that information on outages could be incorporated into the customer portal we are proposing in our connections proposals.</li> <li>• We agree that the potential exists for constraint management services across the transmission-distribution interface and see greater outage coordination as a step towards facilitating this.</li> </ul>
	<ul style="list-style-type: none"> <li>• Stakeholders agreed that there could be benefit in greater collaboration across transmission and distribution on the impact of outage plans. However, there were differing views as to whether the ESO should notify distribution-connected parties directly of outage impacts or whether the ESO should interface with the relevant DNO.</li> </ul>	<ul style="list-style-type: none"> <li>• Our outage system, TOGA, is already accessed by some distribution parties and we believe that extending this functionality to smaller parties can drive consumer benefit.</li> <li>• We are aware that many relevant stakeholders operate across Great Britain and value consistency.</li> </ul>
	<p>We asked stakeholders if they thought there was merit in incentivising network companies to minimise costs associated with short notice outage changes:</p> <ul style="list-style-type: none"> <li>• There were mixed views on this with network parties being unclear as to the benefit an incentive would provide over and above the existing obligations.</li> <li>• One network company also thought that the ESO should be assessing TO outage plans before RIIO-2 to ensure that they are efficient.</li> </ul>	<ul style="list-style-type: none"> <li>• We have talked with network companies about the merits of an incentive and how that incentive could be designed.</li> <li>• We are currently not expecting to undertake a review of the TO outage plans for the RIIO-2 period outside of normal code processes.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019</p> <p>11 Responses received</p>	<ul style="list-style-type: none"> <li>One network company commented specifically on our system access proposals (A16) saying they will require wider industry agreement before being taken forward and we need to be mindful of the existing obligations of parties to notify system outages.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that we will require further and more detailed engagement on these proposals before the RIIO-2 period.</li> </ul>
<p>All TO and ESO meeting, 9 August 2019</p>	<p>We talked about our respective proposals for system access (A16) with the TOs. The key points of the discussion were:</p> <ul style="list-style-type: none"> <li>We set out our proposal to expand the Scotland mechanism to facilitate short term outages changes to the England and Wales TO;</li> <li>One TO thought that there was more value to be gained for consumers by challenging and changing outages in the two to three year ahead timeframe and we should be braver in this respect; and</li> <li>On the subject of new incentives in this area, two TOs thought that existing code and licence obligations were sufficient to drive positive behaviours and value.</li> </ul>	<ul style="list-style-type: none"> <li>We agree that there is further consumer value to be delivered from medium to longer term review and change in outages and this complements the proposals that we have made in our plan.</li> <li>Any incentive in this area would need to be carefully designed to avoid unintended consequences and ensure that the interactions and additional requirements on all parties involved are understood.</li> </ul>
<p>Network Access Policy (NAP) Working Group, 18 September 2019</p>	<p>At the all TO-attended quarterly NAP meeting, there was discussion about network access proposals (A16) for RIIO-2.</p> <ul style="list-style-type: none"> <li>Two TOs thought that there could be a role for incentivisation on the SO-TO interface in relation to managing system access to deliver additional benefit to consumers.</li> </ul>	<ul style="list-style-type: none"> <li>We will continue discuss this with the TOs prior to the start of RIIO-2 and as the single GB NAP is developed further.</li> </ul>
<p>DNO bilateral meetings, various,</p>	<ul style="list-style-type: none"> <li>Two DNOs supported the need to work more collaboratively in outage planning</li> </ul>	<ul style="list-style-type: none"> <li>This feedback is supportive of our proposal to work more closely with</li> </ul>

Channel	Feedback we received	How this has shaped our plan
September and October 2019	<ul style="list-style-type: none"> <li>• They highlighted that they can be flexible with outages at distribution level and more liaison is required to take into account these issues</li> <li>• DNOs have also expressed interest in extending the NAP process to cross transmission-distribution coordination and said that this would require a funding mechanism to facilitate it.</li> </ul>	<p>DNOs to facilitate network access (A16.3).</p> <ul style="list-style-type: none"> <li>• We will continue to discuss extension of the NAP process with DNOs in the lead up to RIIO-2.</li> </ul>
Network Access Policy (NAP) Working Group, 27 November 2019	<ul style="list-style-type: none"> <li>• We provided an update to the TOs in response to the views they expressed at the previous NAP meeting:</li> <li>• We communicated that we have amended our business plan to say that we will continue to discuss possible mechanisms for realising additional value with the TOs prior to the start of RIIO-2 and as the single GB NAP is developed further.</li> </ul>	<ul style="list-style-type: none"> <li>• The TOs noted the update and we will continue to work with them in the lead up to RIIO-2.</li> </ul>

## 5.7 Digitalisation and open data unlocking zero carbon system operation and markets

### 5.7.1 Phase 1 Broad thinking

Channel	Feedback we received	How is this has shaped our plan
<p>In 2017 and 2018, as part of our “Manage my profitability customer journey”, we conducted deep dive sessions with a representative sample of the Big six, large independent and small independent retailers, to understand their experience of being an ESO customer.</p>	<p>We received a lot of insight into user experience of the information that we provide, particularly around charging. Other aspects included:</p> <ul style="list-style-type: none"> <li>• Information provided is often incomplete or unreliable.</li> <li>• There is no opportunity to question or interrogate the data provided by the ESO and supporting narratives are not provided.</li> <li>• Information sharing is not consistent and information is hard to retrieve.</li> <li>• Frequency of information sharing does not meet user requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Our ambition and proposals for open data and transparency have been developed explicitly to address these concerns.</li> <li>• Our preferred option includes the commitment to share our data management capability and share a much wider range of data, simple insight to explain the data, query functionality and far more accessible and usable data sets.</li> </ul>
<p>In May and June 2018, we conducted an ancillary services customer journey with a representative sample of small, medium and large service providers.</p>	<ul style="list-style-type: none"> <li>• There is a thirst for transparency. Providers want to understand the decision-making processes behind the scenes, for example, across payments and dispatch.</li> </ul>	
<p>SNAPS consultation in July 2017 – over 100 responses from a wide range of stakeholders.</p>	<ul style="list-style-type: none"> <li>• Transparency of market information was identified as one of the key enablers of efficient markets in the consultation on reform of balancing services procurement.</li> </ul>	



## 5.7.2 Phase 2 - Developing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
ESO 2030 Ambition workshop, 28 September 2018; RIIO-2 stakeholder workshop, 17 December 2018	<ul style="list-style-type: none"> <li>• Stakeholders want more data including market dynamics, such as real time market data, and a strong emphasis on problem statements such as locations of constraints and how these problems are being solved.</li> <li>• Some stakeholders called for all possible market and operational data to be made available in its rawest form for those who want it.</li> <li>• In addition to the raw data which can be difficult to use, analysis and insight is also required to facilitate a level playing field for all parties to participate equally in markets.</li> <li>• There is a strong desire for one source of the truth as multiple platforms could develop adding unnecessary complexity.</li> <li>• We need to be mindful of risks and unintended consequences of sharing more data such as cyber security, data privacy and the potential for market gaming.</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposals for open data have been developed directly in response to the feedback we have received on our ambition, to make as much as our data open and accessible as possible.</li> </ul>
	<ul style="list-style-type: none"> <li>• Transparency was identified as the key principle both to stimulate markets and also to provide foresight into future ancillary services requirements.</li> <li>• Participants need better information on market structure and liquidity to decide which markets they should be investing in.</li> <li>• Greater insight is required into the future needs for these markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Our ESO platform proposes to give access to both historical and forecast data to support investment cases and decision-making.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
Power Responsive Steering Group – January, April and October 2018	<ul style="list-style-type: none"> <li>• Demand Side Flexibility providers need to understand when future balancing problems may arise for the system – and what problem needs solving by when.</li> <li>• The steering group members suggested that including information on longer term requirements and price trends would help demand side providers to understand their cost-benefit proposition and returns on investment.</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposed ESO platform, integrated with the market platform, will provide information on current and future balancing issues.</li> </ul>
Power Responsive Steering Group notes can be found on their website <sup>37</sup>		

### 5.7.3 Phase 3 - Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
RIIO-2 webinar, 21 March 2019	<ul style="list-style-type: none"> <li>• We shared our developing thinking on our ambition around data sharing and transparency and asked attendees two survey questions about their data and transparency requirements: <ul style="list-style-type: none"> <li>• Question 1: What is your requirement for data, analysis and functionality? We presented the three options documented in our Business Plan and asked stakeholders which option best met their needs. Option 1 – simply share raw data; Option 2 – share raw data with simple explanation and insight; Option 3 - share raw data and advanced analysis and insight</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• We have used the feedback received on question one, alongside other feedback document here, to inform our choice of preferred option, option 2.</li> <li>• We will use the feedback on question 2 to prioritise our work to process and share data and information as we conduct this work in the RIIO-2 period.</li> </ul>

<sup>37</sup> <http://powerresponsive.com/updates/>

Channel	Feedback we received	How this has shaped our plan
<p>We tested the proposals in <i>Our RIIO-2 Ambition</i> document with in-depth discussion at two interactive forums in April 2019:</p> <ul style="list-style-type: none"> <li>Power Responsive Steering Group</li> </ul>	<p>as well as providing greater interaction and tools to allow stakeholders to manipulate the data.</p> <ul style="list-style-type: none"> <li>Stakeholders told us that they would like the functionality provided in option 3 but that we should focus on delivering the fundamental requirements of option one. Some stakeholders also commented that we needed to provide a certain level of insight and explanation to support stakeholders in use of the data that we provide.</li> <li>Question 2: What further types of data will be useful to you? Please prioritise: We presented four generic data categories and asked stakeholders to prioritise which data sets were of most value to them. In order of preference stakeholders selected are forward-looking view of system requirements; whole electricity system view of constraints; real-time margins and utilisation; and transparency on control room decision making processes.</li> <li>Understanding of future requirements will allow parties to innovate to come up with new solutions to problems.</li> <li>Transparency of control room decision making is essential to foster market confidence and greater participation.</li> <li>We need to look at other developments in this area such as the Energy Data Taskforce.</li> </ul>	<ul style="list-style-type: none"> <li>We have factored these requirements in to our proposal in the Business Plan.</li> <li>In our Business Plan, we have articulated how we see our work on open data supporting the ambitions of the Energy Data Taskforce.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
<p>round table, attended by 19 stakeholders</p> <ul style="list-style-type: none"> <li>• ESO RIIO-2 Stakeholder workshop, 11 April 2019, attended by 30 organisations</li> </ul> <p>We also had the opportunity to test our proposals at group meetings of the ADE and Renewable UK as well as through bilateral meetings with several interested stakeholders.</p>	<ul style="list-style-type: none"> <li>• At the workshop, we asked the same survey questions as we asked at the RIIO-2 webinar in March 2019. The responses were mostly in favour of options one and two. In addition, we heard that we should not try to provide too much insight and analysis as this may prevent other, better placed, parties from innovating in this space. This is consistent with the comments received in the webinar that we should focus our attention on getting the data out in a usable format with a limited amount of insight sufficient to help stakeholders understand and use the data.</li> </ul>	<ul style="list-style-type: none"> <li>• This feedback has informed our identification of our preferred option in this Business Plan; option 2.</li> </ul>
<p>ESO <i>Our RIIO-2 Ambition</i> document consultation, April 2019</p> <p>11 Responses received</p>	<ul style="list-style-type: none"> <li>• Large generator/suppliers as well as an industry body representing smaller parties all strongly supported our ambition and proposed activities for data and transparency. Examples of data that stakeholders would like to see published include: demand; generation; frequency; power flows; system constraints; line outages; and balancing actions.</li> <li>• Stakeholders also told us it would be helpful and valuable for the ESO to publish data in a range of formats, including simple reports that allow easy access to</li> </ul>	<ul style="list-style-type: none"> <li>• We will reflect these requirements in our work to develop our ESO data portal.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>information suitable for any user together with downloadable data files and Application Programming Interfaces (APIs) that facilitate access to data for those market participants and other interested parties.</p>	
<p>As part of our open invitation for bilateral sessions we have also engaged a range of stakeholders, including two wider interest groups, service providers, generators and suppliers.</p>	<ul style="list-style-type: none"> <li>• Greater transparency around control room decision making was requested.</li> <li>• The members of a wider interest group told us that they wanted as much data as possible in machine readable format and that we should focus on ESO portal option one – focus on getting the data out.</li> <li>• Future requirements for balancing services was highlighted as a key piece of market intelligence to inform commercial decisions.</li> </ul>	<ul style="list-style-type: none"> <li>• These requests are all included in the scope of our ESO data portal</li> </ul>
<p>Power Responsive roundtable, September 2019</p>	<ul style="list-style-type: none"> <li>• The balancing services market requires greater transparency on what we need and when.</li> </ul>	<ul style="list-style-type: none"> <li>• This is included in the scope of our plans to assess and publish the data that we hold.</li> </ul>
<p>DNO bilateral meetings, various, September and October 2019</p>	<ul style="list-style-type: none"> <li>• A DNO highlighted commercial sensitivities about sharing data, and that generators and customers not happy with giving intel away</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposals are clear that we will implement a transparent process for assessing any requirement for aggregation or anonymisation of datasets according to published criteria including consumer privacy, security, commercially sensitive or negative consumer impact. This process will address any concerns from market participants or energy users regarding data sharing.</li> </ul>

## 5.8 Cost-benefit analysis

### 5.8.1 Phase 1 & 2 Broad thinking and Developing our ambition and activities

Channel	Feedback we received	How is this has shaped our plan
ESO RIIO-2 Stakeholder Workshop 25 April 2019	<ul style="list-style-type: none"> <li>A wide range of stakeholders (including academics, generators, a DNO, service providers and TOs) broadly supported our process. They acknowledged the challenge of this for the ESO given we do not directly interact with consumers and our benefits are potentially wider ranging and hard to monetise.</li> </ul>	<ul style="list-style-type: none"> <li>The process we created was used within our July draft Business Plan to provide a simplified CBA while awaiting the finalised Ofgem model. We continued with our process but moved to the Ofgem CBA model for this and the October versions of the Business Plan. In doing this we continued building on our analysis to date and refreshed and expanded our benefits analysis in key areas based on updated costs, <i>FES</i> 2019 and the ENA consistent view of the future.</li> </ul>
	<ul style="list-style-type: none"> <li>Stakeholders supported our approach being consistent with the HMRC <i>Green Book</i> and other network CBAs on spend to ensure consistency and enable Ofgem to easily compare.</li> </ul>	<ul style="list-style-type: none"> <li>Ofgem's model has been used, which means we will have aligning views on discounting and depreciation of capex investments. It also allows easy comparison across all the RIIO companies.</li> </ul>
	<ul style="list-style-type: none"> <li>Stakeholders thought we need to better define the question we are asking when completing a CBA. What are we looking to CBA and why?</li> </ul>	<ul style="list-style-type: none"> <li>The ESO activities were split into ongoing and transformational (new) activities – with the transformational activities being justified by the benefits they will deliver for consumers alongside stakeholder evidence. This was tested further to ensure the right level has been achieved.</li> </ul>
	<ul style="list-style-type: none"> <li>Stakeholders felt there were limited areas where a robust CBA could be undertaken in the topics presented – they gave investment in the Control Centre as an example where a robust CBA could be undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>Only some transformational activities have a proportional CBA (11 in total across the ESO out of 16 transformational activities) including investments in the Control Centre.</li> </ul>

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| <ul style="list-style-type: none"> <li>For scenarios and sensitivities, stakeholders supported using <i>FES 2018</i> to underpin our benefits analysis but struggled to see how some activities would vary due to different energy landscapes. They felt there was potentially more value in looking at changing cost bases, varying start days of major projects or significant policy shifts</li> </ul> | <ul style="list-style-type: none"> <li><i>FES 18</i> was used as the basis for the July draft submission. There were some benefit areas that were sensitive to a <i>FES</i> scenario and others not related to the energy landscape e.g. policy assumptions. We have also specifically called out the assumptions across the submission and updated with <i>FES 19</i> data and the ENA consistent view of the future.</li> </ul> |
| <ul style="list-style-type: none"> <li>There is a trade-off between all the benefits for society e.g. cost versus service, but the prioritisation must be Ofgem’s decision.</li> </ul>  | <ul style="list-style-type: none"> <li>Ofgem set the framework for our CBA and they will use this alongside our stakeholder engagement and commercial/technical judgement as evidence when making their assessment.</li> </ul>  |
| <ul style="list-style-type: none"> <li>If you are using scenarios to underpin the CBA analysis, how do you justify the cost and could it potentially push an activity in a certain direction?</li> </ul>  | <ul style="list-style-type: none"> <li>No single <i>FES</i> scenario is a base of the analysis – there is a broader assumption around commonalities rather than a specific pathway. This was also updated to incorporate <i>FES 19</i> data.</li> </ul>   |
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### 5.8.2 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<ul style="list-style-type: none"> <li>A stakeholder felt that there was no flow through in narrative about how Theme 1 activities will unlock benefits in other themes.</li> </ul>	<ul style="list-style-type: none"> <li>The narrative was updated to better show the dependencies between themes and how different activities can enable others.</li> </ul>
	<ul style="list-style-type: none"> <li>A stakeholder felt that in Theme 2 the benefit for “transforming participation in the balancing market and Capacity Market” was possibly too low (£38 million net) given the size of the market, but “transform access to the Capacity Market” was too high (£46</li> </ul>	<ul style="list-style-type: none"> <li>The CBA has been reviewed and updated accordingly in the development of the proposals and further engagement.</li> </ul>

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Channel	Feedback we received	How this has shaped our plan
	<p>million net) given the low clearing prices versus the size of that market.</p>	
	<ul style="list-style-type: none"> <li>A stakeholder felt the BSUoS saving was high and wanted to understand more how the risk to the ESO was 10 per cent versus the risk to all of the industry? Although they agreed with our approach, they thought we were being conservative with our estimates.</li> </ul>	<ul style="list-style-type: none"> <li>The CBA has been reviewed and updated accordingly in the development of the proposals and further engagement.</li> </ul>
	<ul style="list-style-type: none"> <li>One stakeholder questioned if it only takes two years to realise £600 million of benefits</li> </ul>	<ul style="list-style-type: none"> <li>We believe our CBA is robust and has been rigorously tested and reviewed.</li> </ul>
<p>RIIO-2 engagement event, 2 October 2019</p>	<ul style="list-style-type: none"> <li>Many stakeholders commented it wasn't always fully clear in the main Business Plan how benefits are calculated. It was asked that we review the balance between the main Business Plan and CBA report. Specifically, how we have calculated benefits not just what they are.</li> </ul>	<ul style="list-style-type: none"> <li>We have included summaries of how the benefits are calculated and references to Annex 2 - CBA report.</li> </ul>
	<ul style="list-style-type: none"> <li>A range of stakeholders asked to see a stronger link between the CBA and metrics.</li> </ul>	<ul style="list-style-type: none"> <li>We have added to the Business Plan how the benefits and metrics are linked and included a detailed cross reference in Annex 7 – Metrics and measuring performance.</li> </ul>
	<ul style="list-style-type: none"> <li>One stakeholder raised that by focusing on activity based themes we could be compromising some of the benefits. They thought activities should be prioritised according to benefit.</li> </ul>	<ul style="list-style-type: none"> <li>There are interdependencies between many of our activities. With higher benefit activities being dependent on lower benefit activities.</li> </ul>
	<ul style="list-style-type: none"> <li>A few stakeholders said benefits need to be looked at across the whole system and we need to consider third party costs and benefits as part of ESO CBA. Another said several parties will claim overarching</li> </ul>	<ul style="list-style-type: none"> <li>We have highlighted where third parties support the benefit case and if any costs are expected to fall on them. Our benefit case considers activities the ESO can directly influence. As with all CBAs,</li> </ul>



Channel	Feedback we received	How this has shaped our plan
	benefits – how can the ESO pull out the ones we will specifically deliver?	care should be taken when comparing across organisations and time frames to arrive at a wider benefit.
	<ul style="list-style-type: none"> <li>We were asked if we had considered if we can deliver any activities sooner as it would be good to have visibility of options analysis to see what could have been delivered and when.</li> </ul>	<ul style="list-style-type: none"> <li>We have undertaken sensitivity analysis which looks at deliverability. We have not, however, considered cases of bringing investment forward.</li> </ul>
	<ul style="list-style-type: none"> <li>Stakeholders would like to see how numbers compare with alternative options. They would like us to publish different CBA options to show/support justifications</li> </ul>	<ul style="list-style-type: none"> <li>All our CBAs, with calculations and assumptions, have been published for transparency.</li> </ul>
	<ul style="list-style-type: none"> <li>One stakeholder asked if the £3 saving on the consumer bill was at risk of being realised if the activities are not delivered.</li> </ul>	<ul style="list-style-type: none"> <li>The £3 net saving on consumer bills is from the ESO costs and benefit as presented in this Business Plan. Any changes to these could affect the £3 net saving, depending on size and direction of the change.</li> </ul>
	<p>In Theme 1 a few clarifications were required. We were asked:</p> <ul style="list-style-type: none"> <li>if the CBA took account of new (potential SQSS) requirements?</li> <li>how did we arrive at £75,000 for training?</li> <li>if the National Grid Ventures interconnection report was a robust source? A broader range of evidence is required to support this benefit area.</li> <li>A stakeholder said that ‘unlocking 1% of flexibility’ is an undersell and if we don’t do this then the knock-on effect on suppliers is great.</li> </ul>	<ul style="list-style-type: none"> <li>We have undertaken a break-even analysis of the proposal to review the SQSS.</li> <li>The cost of training is based on internal estimates.</li> <li>We have moved away from the NGV interconnection report and undertaken our own analysis</li> <li>We have revised our analysis around unlocking flexibility benefits.</li> </ul>

Channel	Feedback we received	How this has shaped our plan
	<p>In Theme 2 stakeholders fed back two points regarding the response and reserve prices stating:</p> <ul style="list-style-type: none"> <li>• in the long run response and reserve prices will go up when moving markets closer to real time, due to a lack of long-term price signals discouraging investment</li> <li>• in the CBA it says prices will fall in markets, which does not send a solid investment signal to potential providers</li> <li>• We were also asked if we had considered including the benefits of reduced carbon intensity.</li> </ul>	<ul style="list-style-type: none"> <li>• Our analysis is not a forecast of future response and reserve spend, but used to estimate the value of the response and response market today for estimation of consumer benefits.</li> <li>• We have considered the benefits case here for reduced carbon intensity, but these benefits are realised in Theme 1 and are analysed there.</li> </ul>
	<ul style="list-style-type: none"> <li>• In Theme 3 a stakeholder stated TOs deliver benefits based upon end-of-life and they were concerned there may be double counting with benefits captured in the TO plans.</li> </ul>	<ul style="list-style-type: none"> <li>• We propose to expand our network planning processes to look at TO end-of-life asset replacement decisions. Currently, TOs consider the best way to replace these assets. However, they do not have access to the same level of operational data as the ESO. We believe that by reviewing decisions, the ESO would be able to recommend a different approach</li> </ul>
	<p>In Theme 4:</p> <ul style="list-style-type: none"> <li>• A stakeholder raised a concern around the whole system cost of connections as all the TOs are proposing digital online tools and the ESO timeline looks quite late.</li> <li>• Another mentioned distribution costs associated with RDPs do not seem to be accounted for.</li> </ul>	<ul style="list-style-type: none"> <li>• The timelines shown are for the full functionality to be delivered. We will incrementally increase our capability over the RIIO-2 period, working with TOs to ensure optimal solutions.</li> <li>• Benefits for the asset saving RDPs are net of distribution costs</li> </ul>

## 5.9 Technology underpinning our ambition

### 5.9.1 Phase 1 Broad thinking, Phase 2 Developing our ambition and activities

Channel	Feedback we received	How is this has shaped our plan
IS Change Forum - where we present active projects and proposed strategic RIIO-2 approach, April 2019	<ul style="list-style-type: none"> <li>The Chief Development Officer at Arenko Group presented on the need for technologies to be more responsive to emerging technologies</li> <li>We received positive feedback about our recent moves towards iterative delivery and the fact that this methodology will become the dominant methodology.</li> <li>We received positive feedback about our proposal for greater industry engagement through a design authority – two stakeholders expressed interest to be members of the Group</li> <li>We received positive feedback about our proposal to move towards more modular, and iterative solutions</li> </ul>	<ul style="list-style-type: none"> <li>This insight is reflected holistically within chapter 10 - Technology underpinning our ambition and more specifically within Annex 4 – Technology investment report where investment lines are detailed on a case-by-case basis.</li> <li>We have taken forward our proposal for the design authority given stakeholder support received.</li> </ul>

### 5.9.2 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How is this has shaped our plan
After feedback from the ERSG, a series of one-to-ones were arranged to gain specific, focused insight for chapter 10,	<ul style="list-style-type: none"> <li>We should be writing the narrative in a simpler way by removing IT jargon.</li> <li>We were asked if our IT spend is efficient and it was suggested we should provide alternative options that we have considered. We were asked</li> </ul>	<ul style="list-style-type: none"> <li>In response to this feedback, we have made multiple changes to chapter 10 - Technology underpinning our ambition. The changes we have made include:</li> </ul>

<p>Technology underpinning our ambition, May – June 2019.</p>	<p>if we had fully understood and benchmarked our costs.</p> <ul style="list-style-type: none"> <li>Stakeholders wanted to see clear deliverables that could be checked at the end of the price control period. It was questioned how we can demonstrate that we have achieved our technology ambitions?</li> <li>We need to lead on data alignment and the market would be disappointed to wait to have access to data. Transport for London is a good example where making data available is more important than a portal.</li> <li>It is important to highlight culture and sourcing as one of the biggest challenges.</li> <li>It is important to invest in IT as it provides the value for money on the consumer bills.</li> <li>We need to include capacity within the investment proposals to respond to technologies as they come along</li> <li>Stakeholders thought that how we deliver is important. They felt the focus was more on technology than how we are going to adapt. The industry would like to see more about how we improve our delivery processes. If we require investment from industry, there needs to be good trust between all parties.</li> </ul>	<ul style="list-style-type: none"> <li>Simplified technical language to make it more accessible to a non-technical reader while still retaining the insight.</li> <li>Re-structured the chapter to have a more intuitive and consistent flow.</li> <li>Listed the individual technology investments and roadmaps within Annex 4 - Technology investment report. We also included technology options where appropriate.</li> <li>We have included a benchmarking report in Annex 4 - Technology investment report.</li> <li>Updated our operating model to show services provided by group IT and resources dedicated to ESO.</li> <li>Extended our response within chapter 14 - People Culture and Capability.</li> <li>The design authority has been extended to a two-tier approach – one tier focused on strategic direction, the second tier focused on project delivery.</li> <li>The shared investments section has been expanded with additional definition included in Annex 4 - Technology investment report, sections 7 to 11..</li> </ul>
<p>Our application development and maintenance partners (a mix of technology providers) support us in</p>	<p>We have shared our ambitions and the scope of our investment lines to gain advice and feedback regarding our approach. Specifically, this includes:</p> <ul style="list-style-type: none"> <li>What solution options are available to us and what is the recommended approach.</li> </ul>	<ul style="list-style-type: none"> <li>This support has helped us to develop a realistic technical response with solution options that underpin our business ambitions.</li> </ul>

<p>technology design and delivery. We have dialogue to shape the approach and scale of investments. Engagement is on-going.</p>	<ul style="list-style-type: none"> <li>Without breaching client confidentiality, providing insight into relevant industry investment comparators.</li> <li>Supporting our teams to develop high-level technical designs.</li> <li>Defining the digital twin concept, technology design, and target use-cases</li> <li>Guidance for complex programme delivery including offshore application development.</li> </ul>	<ul style="list-style-type: none"> <li>This insight is reflected holistically within chapter 14 - People Culture and Capability, and more specifically within Annex 4 - Technology investment report where investment lines are detailed on a case-by-case basis.</li> </ul>
<p>Technology benchmarking with Gartner, an industry recognised, independent technology benchmarking organisation. Two iterations of benchmarking, February to July 2019</p>	<ul style="list-style-type: none"> <li>We have shared our ambitions and the scope of our investment lines with Gartner to gain advice and feedback regarding our proposed levels of investment.</li> </ul>	<ul style="list-style-type: none"> <li>In response to Gartner's feedback, we have been able to validate our assumptions and adjust anticipated investment levels where appropriate.</li> </ul>
<p>Bilateral meetings (Transport, government departments, a system operator and other). Various from March to September 2019</p>	<p>There are a wide range of organisations that through consultation, observations and experience, have helped to inform our perspective in the following areas:</p> <ul style="list-style-type: none"> <li>How to become a data-centric organisation and the need to expose data quickly without waiting for perfection</li> <li>How to adapt strategy and operational activity based on simulation and modelling</li> <li>How to manage complex projects such as Critical National Infrastructure (CNI) data centre migration and management</li> </ul>	<p>This insight is reflected holistically within the Technology underpinning our ambition chapter 10 and more specifically within Annex 4 – Technology investment report where investment lines are detailed on a case-by-case basis. Specifically:</p> <ul style="list-style-type: none"> <li>Our approach to our operating model</li> <li>Guiding our data quality expectation and transparency</li> <li>Shaping our expectations about the variety, veracity and velocity expectations of</li> </ul>

	<ul style="list-style-type: none"> <li>Insight into alternate approaches to balancing services.</li> </ul>	<ul style="list-style-type: none"> <li>simulations and to start small and grow simulations iteratively</li> <li>Managing the challenges and complexity of CNI environments and the risks and costs associated with aged technical assets.</li> </ul>
<p>Meeting with one of our application development and maintenance partners, September 2019</p>	<ul style="list-style-type: none"> <li>Our partner gave us further understanding of the IX Journey (a way of doing agile implementation), the digital reference architecture and how to build a centre of excellence from scratch.</li> <li>We discussed the ESO business priorities and need for change. We sought their feedback and perspectives on new ways of working; design thinking, Agile, development opportunities, start-up mindset.</li> <li>They discussed two examples of which we could learn from:             <ul style="list-style-type: none"> <li>Company A case: new ways of working to help drive transformation in the rest of the organisation</li> <li>Company B: turning innovation into a new business and team discussion</li> </ul> </li> <li>We also discussed their enterprise design thinking and digital twin proposal.</li> </ul>	<ul style="list-style-type: none"> <li>The feedback from this meeting has helped us ratify our approach to:             <ul style="list-style-type: none"> <li>Modular, platform-based architecture</li> <li>Agile delivery methodologies</li> </ul> </li> <li>It has also strongly reinforced the need for cultural change when delivering large transformative projects which is reflected in chapter 14 - People Culture and Capability.</li> </ul>
<p>Meeting with one of our application development and maintenance partners and a government department, October 2019</p>	<p>We were able to discuss and learn from their experience in the following areas:</p> <ul style="list-style-type: none"> <li>Operating model approach and evolution, covering platforms and operations</li> <li>Transforming a legacy estate into a more supportable, portable estate using containers</li> </ul>	<ul style="list-style-type: none"> <li>The feedback we received from this meeting affirmed our approach to a modular architecture, iterative delivery methodology, and that we have a delivery partner that can support our ambition with a demonstrable example in the government department.</li> </ul>

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- Leveraging infrastructure as code to deploy environments quickly
  - How to develop culture and build communities to drive excellence via people transformation and capability development
  - Feature based development & deployment with microservices, using continuous integration, continuous delivery and automated testing
  - Agile at scale and how we get multiple disparate teams delivering products/features onto a common platform
  - Understand how the government department uses a Business Operations Centre to track end user performances across a large disparate estate
  - Transformation of service integration & management from a legacy to DevOps based delivery & associated cultural change
- It also highlighted the key opportunities and challenges that we need to prepare for. This will inform our preparatory activities over the remainder of RIIO-1.

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National HVDC Centre visit, October 2019

- We met with the National HVDC Centre manager and talked through our use cases around simulation and digital twin technologies, supporting our ambition.
  - After discussing our proposals, it seemed as though the National HVDC Centre capabilities:
    - a) would be able to enhance our network modelling offline studies in terms of faster run times.
    - b) may be expandable to cover simulation and control room training of the operation of new interconnectors and HVDC cables.
- We will continue to engage with the National HVDC Centre and test our needs against their capabilities (ability to run 50 nanosecond studies in real time) via a formal feasibility analysis report
  - We will look to partner on future training and simulation needs.
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c) may not be the right tool to simulate market operation of network  
 d) may be able to simulate network replies of dispatch instructions but for that scenario we may not need such a powerful simulator.

IT change forum, October 2019.

- We received positive feedback from attendees such as a battery/storage company and market participants.
- Attendees welcomed greater industry engagement through a design authority. There was curiosity around how we will engage and share early insight so they can act quickly to be able to participate in energy markets.
- There was also interest in understanding if we are planning to keep communication methods consistent and standardised.
- We received positive feedback on the need to transform our IT in order to achieve the 2025 zero carbon commitment.
- We received positive feedback on the concepts of the data platform and the digital engagement platform.
- We received positive feedback on the scale of benefits in the CBA compared to the outlay, and interest in the methodology used.

- All feedback we received was in line with our submission which reinforced the need for transformation.

RIO-2 engagement event, 2 October 2019

- Two service providers commented that we said we will no longer be using a “waterfall” approach but the delivery timeline does appear to be quite waterfall-like. Previous experience is that the ESO can’t deliver these complex projects, one

- We added a line in page 4 of Annex 4 – Technology investment report that explains, “We expect most of the investments to follow an iterative approach, as explained in our strategy - although they appear in this



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asked if we will be able to achieve a more dynamic delivery world?

- Delivery plan does not seem agile, rather waterfall. You can't do two years of planning and engagement before delivering because stuff will change. Define success and needs first and then do.
- A range of stakeholders questioned what capability we would have in house versus what we expect to outsource
- A different service provider asked, considering our past experience (EBS) and difficulties with PAS, how do we ensure we aren't going to have the same issues?

document to have a single go-live date (as per a waterfall delivery methodology). This means they will experience various implementation cycles and may comprise different modules.”

- We have explained further in our approach section whether we intend to outsource work or not.
  - More details have been provided on lessons we have learnt, in Appendix D of Annex 4 – Technology investment report.
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## 5.10 Driving focus on customers and stakeholders

### 5.10.1 Phase 3 - Testing our ambition and activities

Channel	Feedback we received	How is this shaping our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<p>We asked stakeholders to what extent we should be a consumer advocate:</p> <ul style="list-style-type: none"> <li>• A consumer interest body questioned how we might interact with consumer advice organisations in this space and that various consumer organisations have different specialisms.</li> <li>• A generator thought that we should consider direct engagement with consumers but that it wasn't a priority.</li> <li>• A consultancy representative wasn't sure whether we could be a consumer advocate without talking to consumers directly and building a level of trust.</li> </ul>	<ul style="list-style-type: none"> <li>• Following this feedback we have clarified our role in relation to consumer engagement in chapter - 13 Driving focus on customers and stakeholders.</li> <li>• We will develop our presence as a balanced and neutral partner to consumers, becoming a consumer champion across the energy markets and providing data and marketing to enable behaviour change around energy use.</li> </ul>

## 5.11 People, culture and capability

### 5.11.1 Phase 3 - Testing our ambition and activities

Channel	Feedback we received	How is this shaping our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<ul style="list-style-type: none"> <li>At the events, we asked stakeholders to rate the nine dimensions of our operating model (leadership, culture, governance, process, capabilities, organisation, systems, management information, performance information) and indicate where we are now and where we should be in the future.</li> <li>We received seven responses across the two events, with the largest gap identified in systems.</li> </ul>	<ul style="list-style-type: none"> <li>We have used this to inform our culture transformation roadmap.</li> <li>We considered mechanisms to reinforce our desired culture across the various components of the operating model with a focus on ensuring our systems enable the culture we are seeking to achieve.</li> </ul>
Trade union (TU) engagement	<ul style="list-style-type: none"> <li>We have held specific sessions with the full time TU officers and local TU representatives to outline our Business Plan ambitions.</li> <li>The TU has asked for information on future FTE requirements and capability requirements.</li> </ul>	<ul style="list-style-type: none"> <li>We have included significant detail on our future FTE and capability requirements in the Business Plan, including our resourcing and capability strategy to meet the future requirements.</li> </ul>

## 5.12 Metrics and measuring performance

### 5.12.1 Phase 2 Developing our metrics proposals

Channel	Feedback we received	How is this shaping our plan
Control Centre engagement events, 16 & 30 July and 8 August 2019	<b>Theme 1 metrics</b>	
	<ul style="list-style-type: none"> <li>Stakeholders have highlighted the importance of our work to minimise balancing costs.</li> </ul>	<ul style="list-style-type: none"> <li>We propose measuring and reporting the total balancing costs monthly in line with feedback from stakeholders (Metric 1).</li> </ul>
Trade association roundtables, August and September 2019	<ul style="list-style-type: none"> <li>We understand from stakeholder feedback on the <i>Forward Plan</i> that demand and wind generation forecasts are an important area, and one which they would like to see more progress in.</li> </ul>	<ul style="list-style-type: none"> <li>We propose measuring our demand forecast accuracy (Metric 3).</li> <li>We are proposing not having a metric on wind generation forecasting. We expect wind generation to become more difficult for the ESO to forecast, because it will be increasingly co-located with storage solutions. Forecasting wind generation would therefore rely on the ESO having access to commercially sensitive information that we do not have.</li> </ul>
	<ul style="list-style-type: none"> <li>We have heard positive feedback from some stakeholders on our proposal for a metric providing confidence and transparency to market participants on our Control Centre actions.</li> <li>Some commented that ESO actions are often taken in real-time for operability or economic reasons, and that such factors would need to be considered.</li> </ul>	<ul style="list-style-type: none"> <li>We further explored a metric on the percentage of times we have dispatched in merit order although later decided this was now not appropriate for the reasons set out in Annex 7 – Metrics and measuring performance.</li> </ul>
	<ul style="list-style-type: none"> <li>Some stakeholders mentioned that transparency of system health was important and something they currently had limited visibility of.</li> </ul>	<ul style="list-style-type: none"> <li>We are proposing a metric for critical national infrastructure system health (Metric 2).</li> </ul>

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| <ul style="list-style-type: none"> <li>• We have heard from stakeholders that they believe we should be measuring our ability to run a zero carbon system in line with our stated ambitions.</li> </ul>   | <ul style="list-style-type: none"> <li>• We are proposing a metric to measure the delivery of our actions to operate a zero carbon electricity system.</li> </ul> |
| <ul style="list-style-type: none"> <li>• We consulted stakeholders on a metric for our training simulator proposal, using the working method of a measure of the number of people who have been trained.</li> <li>• We received feedback from our stakeholders that they do not believe that this metric is one that would provide visibility of the performance of the ESO.</li> </ul> | <ul style="list-style-type: none"> <li>• We have removed this metric from our proposals in response to the feedback.</li> </ul>                                   |
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**Theme 2 metrics**

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| <ul style="list-style-type: none"> <li>• Service providers and trade associations have consistently told us that measuring the proportion of balancing services that are procured through competitive markets would be an appropriate measure for the outcome we are seeking to achieve.</li> </ul>  | <ul style="list-style-type: none"> <li>• We have proposed a metric to measure the proportion of balancing services procured through competitive means (Metric 6).</li> </ul> |
| <ul style="list-style-type: none"> <li>• We also engaged stakeholders on a further two metric proposals:             <ul style="list-style-type: none"> <li>• Reduction in procurement lead-time of services due to introduction of the single market platform; and</li> <li>• Increase in number of service providers following introduction of platform and revised service terms (to facilitate smaller providers).</li> </ul> </li> <li>• We received very mixed feedback on these proposals with many service providers suggesting that simply measuring these numbers is not a good reflection of the quality of our outputs.</li> </ul> | <ul style="list-style-type: none"> <li>• We engaged further on these metrics and as a result of the feedback received decided not to take them forward.</li> </ul>           |
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| <ul style="list-style-type: none"> <li>• Service providers and trade associations we engaged with have told us that it is appropriate for us to continue to survey our customer satisfaction as part of the CACoP process.</li> </ul>  | <ul style="list-style-type: none"> <li>• We will continue to survey via CACoP.</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Service providers and trade associations consulted have told us that for the Capacity Market it would be appropriate to measure market liquidity/concentration e.g. Herfindahl-Hirschman Index (HHI) and accuracy of auction parameters.</li> </ul> | <ul style="list-style-type: none"> <li>• We continued to progress work on this metric but decided not to take it forward as the number of participants in a market has a lot of external influences that are outside of our control.</li> <li>• Instead we are going to measure process quality as this is something that trade associations felt was important for our EMR processes.</li> </ul> |
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**Theme 3 metrics**

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| <ul style="list-style-type: none"> <li>• We received positive feedback regarding the value savings that are passed on to the customer since the introduction of the <i>NOA</i> in RIIO-1.</li> </ul>                              | <ul style="list-style-type: none"> <li>• We propose continuing this metric in RIIO-2 as we continue to drive for optimal network solutions and propose using our calculation methodology set out in our <i>Forward Plan</i> (Metric 10).</li> </ul>                   |
| <ul style="list-style-type: none"> <li>• An energy technology company thought that we could measure the number of system needs identified that are then put through the <i>NOA</i> network versus non-network process.</li> </ul> | <ul style="list-style-type: none"> <li>• We have proposed surveying stakeholders on their satisfaction of the <i>NOA</i> process which should identify if stakeholders think that a greater number of system needs should be assessed by it (<i>NOA</i>).</li> </ul>  |
| <ul style="list-style-type: none"> <li>• A generator suggested we could measure how quickly we roll out pilot projects to across the system once tested.</li> </ul>   | <ul style="list-style-type: none"> <li>• We have looked to avoid delivery-based metrics where possible. Ofgem is looking for us to have a clear separation between delivery of activities, which are part of our regular reporting cycle, and performance.</li> </ul> |
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- Our metrics should be focussed on performance and as this is more delivery based it is included as a reporting item.

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**Theme 4 metrics**

For connections, a consumer interest organisation thought:

- that there was still a place for surveying our customers but added that we shouldn't bombard them with surveys; and
- that we could measure whether customers had the relevant information required through the connection process.

- We agree and propose to continue to survey customers on the quality of their connections experience.
- We think that questions around information provision can be factored into the survey question design.

- For whole system operability, a consumer interest organisation thought we could have a more delivery-based metric i.e. have we done what we said we would do in our Business Plan. And perhaps something around bringing stakeholders along with us to deliver whole system solutions.

- We have proposed a reporting item to track the implementation of technology in our plan.
- We will consider whether whole system solutions could form part of our customer/stakeholder satisfaction survey questions.

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OC2 Forum, 17 and 27 September 2019

- At this event, attended by generator, DNO and TO stakeholders, we used some round table time for stakeholders to give us their thoughts on how we could measure our Theme 4 network access activities. From this session we received a list of suggested measures.

- Some of the measures that stakeholders proposed were more applicable to TO activities rather than ESO activities
  - The two metrics (14 and 15) we have proposed for our network access activities were suggested by stakeholders at these events.
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### 5.12.2 Phase 3 Testing our ambition and activities

Channel	Feedback we received	How this has shaped our plan
Business Plan engagement event, 2 October 2019 Cross cutting metrics	<b>Theme 1 metrics</b>	
	<ul style="list-style-type: none"> <li>Stakeholders stressed the importance of measuring the benefits of the proposed investments highlighted in the CBAs in relation to the control room.</li> </ul>	<ul style="list-style-type: none"> <li>We have included a proposal on how to measure and report on the benefits that have been proposed in the CBAs, which is included in Annex 7 – Metrics and measuring performance.</li> </ul>
	<ul style="list-style-type: none"> <li>A consultant felt the metric proposed in the October draft Business Plan for the number of parties providing restoration services is not an appropriate measure given the level of control that the ESO has over the output</li> </ul>	<ul style="list-style-type: none"> <li>We have removed this from our metric proposals and have included it as an annual reporting item.</li> <li>Additionally, we have included the reporting of the method of procuring Black Start services (for example, through open tenders) within our balancing markets metric in Theme 2 (Metric 6).</li> </ul>
	<ul style="list-style-type: none"> <li>A representative of the regulator questioned if there should be a metric to measure progress against our zero carbon ambition</li> </ul>	<ul style="list-style-type: none"> <li>We have included a metric proposal on the achievement of the milestones required in our ability to run a zero carbon electricity system (Metric 5)</li> </ul>
	<ul style="list-style-type: none"> <li>A representative of the regulator questioned the reporting frequency of our metric proposals. There was a view that we had included too many metrics that were reported annually.</li> </ul>	<ul style="list-style-type: none"> <li>We have revised our proposals for December to include more frequent reporting but note that clarity is still required on the reporting process for the ESO during RIIO-2.</li> </ul>
	<ul style="list-style-type: none"> <li>A trade association suggested we don't just have a year on year numerical metric but quantify actions taken against impact on balancing costs, similar to the end of year performance panel.</li> </ul>	<ul style="list-style-type: none"> <li>We have included a proposal for a metric for a day ahead forecast for balancing costs in which we will report the actions taken to demonstrate the value delivered by the ESO in reducing balancing costs.</li> </ul>



Channel	Feedback we received	How this has shaped our plan
<b>Theme 2 metrics</b>		
	<ul style="list-style-type: none"> <li>• A trade association questioned if we should be reporting the number of participants in the balancing markets</li> <li>• A supplier questioned if spend is the correct method for tracking the percentage split in bilateral contracts for balancing services</li> </ul>	<ul style="list-style-type: none"> <li>• Our proposal is to measure the total value of the contracts for balancing services split by mandatory, commercial and tendered. This will give a view of the percentage breakdown for each procurement type.</li> <li>• The number of participants will fluctuate and is largely outside of the control of the ESO so as a result we have not included it in our proposals.</li> </ul>
	<ul style="list-style-type: none"> <li>• A representative from the regulator suggested that we could also have a satisfaction measure to support understanding of the impact of proposed changes to balancing services markets.</li> </ul>	<ul style="list-style-type: none"> <li>• We will be including this as part of our measurement of customer and stakeholder satisfaction that will apply across the ESO.</li> </ul>
	<ul style="list-style-type: none"> <li>• Another code administrator questioned the ability of the ESO to control and influence the customer value that is delivered through code modifications.</li> </ul>	<ul style="list-style-type: none"> <li>• We have removed this metric from our proposals and have included it as an annual reporting item instead.</li> </ul>
	<ul style="list-style-type: none"> <li>• Another code administrator raised a concern on the consumer value from modifications metrics that the ESO would be prioritising high consumer value modifications without considering the other potential impact on industry.</li> </ul>	<ul style="list-style-type: none"> <li>• As above we have removed this metric from our proposals and have included it as an annual reporting item instead.</li> </ul>
	<ul style="list-style-type: none"> <li>• A representative from the regulator asked if there would be benchmarks and targets provided in the December Business Plan for the EMR forecasting metric.</li> </ul>	<ul style="list-style-type: none"> <li>• We have provided both historical accuracy and RIIO-2 targets in the Business Plan for EMR forecast accuracy.</li> </ul>

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**Theme 3**

- A service provider questioned if the *NOA* consumer value metric takes into account the efficiency of delivering resilience to the network
- The *NOA* is an economic assessment and not an assessment that looks at compliance/resilience. The SQSS and Grid Code look at the requirements of the network and are the planning and operating standards. There can be a lot of overlap between the two assessments which often leads to thinking that the *NOA* does evaluate resilience.

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**Theme 4**

- A TO questioned the link between the balancing cost savings presented in the metric in Themes 1 and 4.
  - Our proposals are designed to complement each other rather than duplicate as the two metrics work over different time horizons.
  - Balancing costs saved through new operability solutions are measured over 2-30 years (Metric 12) and have already been saved by the time the control room activities are working to reduce balancing costs closer to real time (Metric 1).
  - A trade association asked for clarity on what we mean by the capacity released through operability solutions
  - We have included this clarity in our detailed proposals found in Annex 7 – Metrics and measuring performance.
  - A government representative asked if there should be a metric on coordination across transmission and distribution or flexible markets across the ESO and DNOs.
  - Our current metric proposals take this into account. Any piece of work we do on coordinated design, which could be something that makes use of DNO flexibility markets at some point, would be something we would capture the value of within our operability metric (Metric 13).
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**Cross cutting metrics**

- A government representative asked for more information on how the proportion of ESO data shared metric would work and whether it would include prioritisation of order of data to be published.
- In our Business Plan we have included further details on this proposal, including that the data will be presented in machine readable format and prioritised with external stakeholders.

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**Bilateral meetings with trade associations and a consumer group, various dates, October – November 2019**
**Theme 1**

- Stakeholders have fed back that our proposal for a balancing cost day ahead forecast metric is a good idea in principle but have concerns regarding the forecast
- We understand these concerns and will be developing our day ahead balancing cost forecast in the last year of the *Forward Plan* to make sure that it is sufficiently accurate and auditable to be included as a metric in RIIO-2.
- A number of stakeholders encouraged the design authority stakeholder survey to survey wider stakeholders and not just the members
- We have clarified in our proposals for reporting items that our survey will be of wider stakeholders
- Stakeholders have asked if we can have a measure of the amount of zero carbon generation on the network
- We have included a measure of our ability to achieve the milestones in order to run a zero carbon network in 2025 in our metric proposals. We do not believe that it is right as a technology neutral ESO that we have a direct metric on the amount of zero carbon on the network as this may distort our role.

**Theme 2**

- Stakeholders have asked for greater transparency of current performance and targets related to balancing services procured through competitive means
  - We have included this data within our Annex 7 – Metrics and measuring performance in our final submission.
  - Stakeholders asked if it is possible to have a metric regarding the digitalisation of the Grid Code
  - We considered a metric in this area and decided against it due to concerns on the ability to
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separate performance from delivery, as delivery would be reported as part of our standard regulatory reporting.

- Stakeholders asked if it is possible to have an EMR metric related to quality and the number of items overturned via the dispute process
- We have listened to this feedback and included a proposed a quality metric for EMR (Metric 7).

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**Theme 3**

- A stakeholder asked if the number of non-TO participants in the *NOA* is a measure of the performance of the ESO or if it outside of the ESO's control
- We understand the concerns that have been raised in this area and have removed this as a metric. Instead we are proposing to have this as an annual reporting item

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**Theme 4**

- Stakeholders have fed back that they believe we should have a right first time metric for our customer connections process.
  - We agree with the suggestions from stakeholders and have included a Right first time metric proposal (Metric 11).
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## 6. Stakeholder list

Below is an alphabetic list of all the stakeholders that we have engaged with to develop this Business Plan.

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
4D Energy	<b>Other</b>	Balfour Beatty Investments	<b>Other</b>
ABB	<b>Technology provider</b>	Banks Group	<b>Consultancy</b>
Accenture	<b>Other</b>	Baringa Partners	<b>Consultancy</b>
ADE	<b>Cross industry</b>	Baywa-re	<b>Supplier</b>
Aecom	<b>Cross industry</b>	Be Storage	<b>Service provider</b>
Aggregate Industries	<b>Service provider</b>	BEAMA	<b>Wider interest</b>
Air Products	<b>Technology provider</b>	BEIS	<b>Government</b>
Aldersgate Group	<b>Cross industry</b>	Benit	<b>TO</b>
AMDEA	<b>Other</b>	BeStorage	<b>Service provider</b>
American Superconductor Corporation	<b>Other</b>	Birmingham Uni	<b>Wider interest</b>
Anesco	<b>Service provider</b>	Blue Energy Co	<b>Generator</b>
Aquind	<b>Generator</b>	Boxergy	<b>Other</b>
Arenko	<b>Consultancy</b>	British Ceramic Confederation	<b>Other</b>
Arup	<b>Consultancy</b>	British Steel	<b>Other</b>
Atkins	<b>Consultancy</b>	Brockwell Energy	<b>Generator</b>
Aurora Energy	<b>Wider interest</b>	Bryt Energy	<b>Generator</b>
Avon Utilities and Generation	<b>Service provider</b>	Bucleuch	<b>Other</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Burns Mcdonnell	<b>Other</b>	Committee on Climate Change	<b>Wider interest</b>
Cadent Gas	<b>DNO</b>	Community Energy England	<b>Wider interest</b>
Calon Energy	<b>Generator</b>	Community Wind Power	<b>Generator</b>
Capgemini	<b>Technology provider</b>	Conrad Energy	<b>Generator</b>
Cardiff Uni	<b>Wider interest</b>	Cornwall Insight	<b>Wider interest</b>
Carlton Power	<b>Generator</b>	Corrie Energy Partners	<b>Other</b>
Carrington Power Station	<b>Generator</b>	Crown Commercial Service	<b>Service provider</b>
Centre for Connected and Automated Vehicles	<b>Wider interest</b>	Delta EE	<b>Other</b>
Centre for Sustainable Energy	<b>Wider interest</b>	Denchi Power	<b>Supplier</b>
Centrica	<b>Supplier</b>	DFT	<b>Government</b>
CEPA	<b>Consultancy</b>	Diamond transmission corp	<b>OFTO</b>
Challenging Ideas	<b>Wider interest</b>	DNVGL	<b>Consultancy</b>
Chameleon Technology	<b>Other</b>	Drax	<b>Generator</b>
Citizens Advice	<b>Consumer</b>	Dunstan Thomas	<b>Other</b>
Clearstone Energy	<b>Other</b>	E4Tech	<b>Other</b>
Climate ER	<b>Supplier</b>	EA Technology	<b>Other</b>
Cognito Software	<b>Other</b>	ECIU	<b>Wider interest</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Ecotricity	<b>Supplier</b>	ENECO	<b>Supplier</b>
EcuSol	<b>Other</b>	ENEL	<b>DNO</b>
EDF	<b>Supplier</b>	EnelX	<b>Service provider</b>
Edinburgh University	<b>Wider interest</b>	Energy Bridge	<b>Consultancy</b>
EDPR	<b>Generator</b>	Energy Consultancy	<b>Consultancy</b>
Eelpower	<b>Service provider</b>	Energy Potential	<b>Consultancy</b>
Eirgrid	<b>TO</b>	Energy Systems Catapult	<b>Consultancy</b>
Eleclink	<b>TO</b>	Energy UK	<b>Cross industry</b>
ElectraLink	<b>Other</b>	Energy Unlocked	<b>Consultancy</b>
Electric Power Research Institute	<b>Wider interest</b>	Engage consulting	<b>Other</b>
Electricity Efficiency	<b>Other</b>	ENGIE	<b>TO</b>
Electricity North West	<b>DNO</b>	Envirotech Energy Solutions Ltd	<b>Consultancy</b>
Electricity Supply Board	<b>Generator</b>	Envision Energy	<b>Other</b>
Electron	<b>Service provider</b>	ENWL	<b>DNO</b>
Element Power	<b>Service provider</b>	Eon	<b>Supplier</b>
Elexon	<b>Cross industry</b>	EP UK Investments	<b>Generator</b>
ENA	<b>Cross industry</b>	Equinor	<b>Generator</b>
Enappsys	<b>Other</b>	ESB	<b>Generator</b>
Encraft	<b>Other</b>	EUA	<b>Other</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
European Marine Energy Center	<b>Service provider</b>	Government	<b>Government</b>
Exeter Energy Policy Group	<b>Cross industry</b>	Grain LNG	<b>Other</b>
ExxonMobil	<b>Wider interest</b>	Green Frog Power	<b>Generator</b>
Facta NV	<b>Other</b>	Green Power	<b>Other</b>
Falckgroup	<b>Generator</b>	Greenspan Energy	<b>Generator</b>
Flexible Power Systems	<b>Technology provider</b>	Grid Edge Policy	<b>Wider interest</b>
Flexitricity	<b>Service provider</b>	GridBeyond	<b>Service provider</b>
Flogas Britain Limited	<b>Other</b>	Gyron LLP	<b>Other</b>
Fluence	<b>Other</b>	Habitat Energy	<b>Generator</b>
Formac	<b>Other</b>	Halo Clean Tech	<b>Other</b>
Forsa Energy	<b>Other</b>	Harbour Energy	<b>Other</b>
Frazer Nash	<b>Consultancy</b>	Harmony Energy Storage	<b>Service provider</b>
Fred Olsen Renewables	<b>Generator</b>	Hartree Partners	<b>Consultancy</b>
Freewheel Consulting	<b>Consultancy</b>	Haven Power	<b>Supplier</b>
Gas Networks Ireland	<b>DNO</b>	Highview Power Storage	<b>Service provider</b>
Gasrec Limited	<b>Supplier</b>	Hitachi	<b>Technology provider</b>
Gazprom	<b>Supplier</b>	Hive Energy	<b>Other</b>
Geo	<b>Other</b>	HMRC	<b>Government</b>
Glen Dimplex	<b>Other</b>	Horizon Nuclear Power	<b>Generator</b>



<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Howard Kennedy LLP	<b>Other</b>	Korean Power Exchange	<b>Other</b>
Hudson Energy	<b>Supplier</b>	KPMG	<b>Other</b>
IBM	<b>Technology provider</b>	Kregor	<b>Other</b>
Ili Energy	<b>Generator</b>	Levelise	<b>Other</b>
Imperial College	<b>Wider interest</b>	Liberty	<b>Other</b>
Indigo Power	<b>Supplier</b>	Lime Jump	<b>Service provider</b>
Infinergy	<b>Other</b>	Linklaters	<b>Other</b>
Infinis	<b>Service provider</b>	London Mayor's Office	<b>Government</b>
Innogy Renewables UK Ltd	<b>Generator</b>	Long Harbour	<b>Other</b>
Intelligent Alternatives	<b>Generator</b>	Low Carbon Contracts Company	<b>Other</b>
Island GP	<b>Service provider</b>	Low Carbon Gas Ltd	<b>Supplier</b>
Jacobs	<b>Other</b>	Low Carbon Vehicle Project	<b>Cross industry</b>
JLL	<b>Other</b>	LSTC	<b>Other</b>
John Laing/Foresight	<b>Other</b>	Major Energy Users Council	<b>Cross industry</b>
Kaluza	<b>Service provider</b>	Mallory Land	<b>Other</b>
Karpowership	<b>Other</b>	Manx Utilities	<b>Generator</b>
Kings College London	<b>Wider interest</b>	Marchmont Hill	<b>Other</b>
Kingsbury Renewables	<b>Generator</b>	Marchwood Power	<b>Service provider</b>
Kiwi Power	<b>Service provider</b>	Mercedes Benz	<b>Other</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Mineral Product Association	<b>Cross industry</b>	Northern Powergrid	<b>DNO</b>
Moixa	<b>Service provider</b>	Notts City council	<b>Government</b>
Mott MacDonald	<b>Other</b>	Npower	<b>Supplier</b>
Muirhall Energy	<b>Generator</b>	NR Electric UK Ltd	<b>Other</b>
Murphy Group	<b>Other</b>	NTR Plc	<b>Generator</b>
Mutual Energy	<b>Other</b>	Nuvve	<b>Other</b>
Myriad Solar	<b>Generator</b>	Octopus Energy	<b>Service provider</b>
National Grid Electricity Transmission	<b>TO</b>	Ofgem	<b>Regulation</b>
National Grid Ventures	<b>Service provider</b>	Oil and Gas Authority	<b>Regulation</b>
National HVDC Centre	<b>Technology provider</b>	Open Energi	<b>Service provider</b>
Natural Power	<b>Consultancy</b>	Opus Energy	<b>Supplier</b>
Navigant	<b>Consultancy</b>	Origami Energy	<b>Service provider</b>
Nemo Link	<b>Service provider</b>	Ørsted Wind Power (UK)	<b>Generator</b>
Network Rail	<b>Other</b>	Other	<b>Consultancy</b>
New Stream Renewables	<b>Generator</b>	Ovo	<b>Service provider</b>
Nissan	<b>Other</b>	PA Consulting	<b>Consultancy</b>
Nokia	<b>Consultancy</b>	PassivSystems	<b>Service provider</b>
Norges Bank Investment	<b>Other</b>	Pcubed	<b>Other</b>
Noriker	<b>Service provider</b>	PE Systems Ltd	<b>Technology provider</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Peak Earth	<b>Wider interest</b>	Renewable Energy Association	<b>Cross industry</b>
Peakgen	<b>Service provider</b>	Renewable UK	<b>Cross industry</b>
Pearlstone Energy	<b>Service provider</b>	Res Group	<b>Generator</b>
Peter Moynan Consulting	<b>Other</b>	Ridg Power	<b>Generator</b>
Peterborough Environment City Trust	<b>Wider interest</b>	Rolls Royce	<b>Other</b>
Piclo (previously Open Utility)	<b>Other</b>	RWE	<b>Supplier</b>
Pivot Power	<b>Other</b>	S & C Electric Company	<b>Other</b>
Planet Planning	<b>Other</b>	S6	<b>Other</b>
Power and Renewables	<b>Other</b>	Saint Gobain	<b>Other</b>
Powervault	<b>Technology provider</b>	Samad Power Limited	<b>Technology provider</b>
PSC Consulting	<b>Consultancy</b>	Scottish Government	<b>Government</b>
Qmulus	<b>Other</b>	Scottish Power	<b>Supplier</b>
Quorom	<b>Other</b>	Scottish Power Renewables	<b>Supplier</b>
Rambol	<b>Other</b>	Scottish Renewables	<b>Wider interest</b>
REA	<b>Wider interest</b>	Sembcorp Energy UK	<b>Generator</b>
Reactive Technologies	<b>Service provider</b>	Severn Trent	<b>Service provider</b>
Reg Power	<b>Service provider</b>	Shakespeare Martineau	<b>Other</b>
REMAP Project Solutions	<b>Other</b>	Sharp	<b>Technology provider</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Shear Water Wind	<b>Generator</b>	Statoil	<b>Generator</b>
Shell	<b>Generator</b>	Stemy Energy	<b>Service provider</b>
SHEPD	<b>DNO</b>	Storelectric	<b>Service provider</b>
SHE-T	<b>TO</b>	STSC Ltd	<b>Other</b>
Siemens	<b>Technology provider</b>	Suncredit	<b>Generator</b>
Simec	<b>Generator</b>	Sustainability First	<b>Consumer</b>
Simon Griew Consulting Ltd	<b>Consultancy</b>	Swan Barton	<b>Other</b>
Smartest Energy	<b>Supplier</b>	Swansea University	<b>Wider interest</b>
Solar Associates	<b>Consultancy</b>	SWECO	<b>Consultancy</b>
Solar Trade Association	<b>Wider interest</b>	Tata Steele Europe	<b>Other</b>
SONI	<b>Other</b>	Teal Hippo	<b>Consumer</b>
SPED	<b>DNO</b>	Tech UK	<b>Cross industry</b>
SPEN	<b>TO</b>	Terna	<b>European/wider</b>
SPT	<b>TO</b>	Tesla	<b>Service provider</b>
SSE	<b>TO</b>	TFL	<b>Other</b>
Stag Energy	<b>Service provider</b>	The Crown Estate	<b>Service provider</b>
Stantec UK	<b>Other</b>	The Energy Workshop	<b>Consultancy</b>
Stark	<b>Other</b>	TINV	<b>Consultancy</b>
Statkraft	<b>Generator</b>	TNEI Energy Consultancy	<b>Consultancy</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
Tokyo Electric Power Company	<b>TO</b>	Utility First Ltd	<b>Supplier</b>
Transmission Investment	<b>OFTO</b>	Vattenfall	<b>Generator</b>
Triton Power	<b>Generator</b>	Vector	<b>Other</b>
Truenorthit	<b>Technology provider</b>	Vectorcuatro Group	<b>Service provider</b>
UCL Energy Institute	<b>Wider interest</b>	Ventient	<b>Other</b>
UK Power Reserve	<b>Service provider</b>	Ventoludens	<b>Other</b>
UKPN	<b>DNO</b>	Veolia	<b>Service provider</b>
Ultimetrics	<b>Other</b>	Verizon	<b>Technology provider</b>
Uniper	<b>Generator</b>	Versus Energy	<b>Other</b>
Uniper Global Commodities	<b>Service provider</b>	Verv	<b>Other</b>
United Kingdom Onshore Oil and Gas	<b>Other</b>	Viridor	<b>Service provider</b>
United Utilities	<b>Service provider</b>	Vitol	<b>Service provider</b>
University of Birmingham	<b>Wider interest</b>	VPI-I	<b>Service provider</b>
University of Oxford	<b>Wider interest</b>	Wales and West Utilities (WWU)	<b>DNO</b>
University of Strathclyde	<b>Wider interest</b>	Waters Wye	<b>Consultancy</b>
University of Ulster	<b>Wider interest</b>	WatersWye Associates	<b>Other</b>
University of Warwick	<b>Wider interest</b>	Welsh Government	<b>Government</b>
Upside Energy	<b>Service provider</b>	Welsh Power	<b>Service provider</b>

<b>Organisation</b>	<b>Sector</b>	<b>Organisation</b>	<b>Sector</b>
WH Power Systems Consultant/Warwick University	<b>Wider interest</b>	Wood Group	<b>Consultancy</b>
Wheatley Solutions	<b>Other</b>	WPD	<b>DNO</b>
Wileys	<b>Other</b>	Xero Energy	<b>Consultancy</b>
Wind Harvest	<b>Technology provider</b>	Yellow Wood Energy	<b>Other</b>
Wind2	<b>Generator</b>	Zenobe Energy	<b>Service provider</b>
Wirsol	<b>Other</b>	ZTP	<b>Other</b>



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