

Engagement Log: Innovation NGET_A12.01_Engagement Log

December 2019

As a part of the NGET Business Plan Submission

nationalgrid

ENGAGEMENT LOG: INNOVATION

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Section	Progress	Status
Pre-engagement	✓	Final
Post-engagement	✓	Final
Challenge & review	✓	Final
Conclusions	√	Final

ENGAGEMENT LOG

Priority: We will be innovative

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EXECUTIVE SUMMARY

1. PRE-ENGAGEMENT

Our stakeholders have told us we need to deliver an ambitious long-term innovation programme, focused on delivering a clean energy system and lowering costs for future bill payers.

This stakeholder priority therefore covers medium and long-term innovation that delivers value to consumers in future regulatory periods or through the decarbonisation, improved safety and cost-effective integration of the energy vectors.

The key programmes and expected outputs around which we develop our innovation portfolio, as well as the total value of the investment will impact the pace at which we can respond to technology and customer needs and hence the value we can provide to our stakeholders in the future.

Desired outcomes from this engagement are to:

- i. Inform stakeholders on the innovation programme and output of individual projects delivered during T1; and the impact on the value they receive,
- ii. understand stakeholder concerns and their views on the type, size and nature of the innovation allowance as well as the outputs we should focus on to deliver them to drive most value, and ultimately,
- iii. Conclude what RIIO-2 price control innovation allowances we should request from the insights gained.

A fundamental building block of our innovation programme is our stakeholder engagement programme and how we intend to engage across the UK innovation landscape and beyond. We have been leading a number of workshops and consultations with our stakeholders since 2015 to modify our governance, innovation programme and communications methods based on changing stakeholder behaviours and requirements. Whilst these engagements are referenced in this log and are a key component of our business as usual stakeholder engagement, this log focuses on T2 engagement.

In planning engagement, insight has been gathered from publicly available documents, business as usual engagement and from stakeholder user group feedback. In addition to focused engagement on innovation, it is crucial engagement in this area also draws on the stakeholder feedback received in other topic areas, e.g. facilitate the energy systems of the future, because innovation has both short and long term impacts on the network.

With this in mind, the following engagement plan was developed for the we will be innovative priority using a mixture of inform and consult (on the spectrum of engagement in section 6.4):



Channel	Who	When (green= complete)
Three workshops on the Deeside Centre for Innovation	Technical experts, Network Licensees, suppliers, academics and research institute representatives	2015
Initial workshops	NGET stakeholder list invite	July 2017
Online consultation	NGET stakeholder list invite	July – August 2017
Innovation Stakeholder Workshop	NGET stakeholder list invite	July 2018
Podcasts	NGET stakeholder list and beyond	August 2018 onwards
Social Media	NGET stakeholder list and beyond	August 2018 onwards
Low Carbon and Networks Innovation Conference	LCNI attendees	October 2018
Innovation Stakeholder Workshop	NGET stakeholder list	February 2019
Utility Week Live	Attendees of utility week live	May 2019
T2 Webinars	Targeted stakeholder list	July and August 2019
Innovation Stakeholder Workshop	NGET stakeholder list	October 2019
Low Carbon and Networks Innovation Conference	LCNI attendees	October 2019

2. POST-ENGAGEMENT

Summary of engagements on this topic to date are included below (more detail of outputs are in the main body of log). Learnings and outcomes were used to inform our business plans and our ongoing engagement approach throughout creation of the draft business plans, with conclusions only being drawn upon conclusion of our engagement activities, to feed into our formal submission in December. Due to the nature of the innovation allowances, further engagement around the allowance governance framework and reporting, as well as further details around the Strategic Funding Innovation Pot.

Summary of engagement to date:				
	Channels	Stakeholder segments enga	ged	
	Workshops, Online surveys, Webinars, Consultation, Bespoke sessions Bi-lateral's Strategic partnerships with academic institutions	Academics Consumer bodies Regulatory Consumer Technology companies Interest groups Social Media	Large customers Network companies Suppliers EPC contractors Governmental Industry Other generators	
Engagement feedback to date	propose innovative s solutions • We need to collabora industry delivers bett	e our challenges with you. This will allow our suppliers to we solutions earlier in the process delivering more and cheaper borate more. Tackling major challenges as a whole energy better solutions for customers. Pro-actively collaborating with a artners will deliver greater benefits.		



	 We need to share more data. Getting the balance right between security and transparency is crucial in allowing our stakeholders to understand our challenges and propose better solutions We need to make it easier for SMEs to collaborate with us.
Learning for future engagements	 Stakeholders like easy access, online channels such as webinars, podcasts and videos Engagement to inform the innovation strategy should comprise of both direct engagement in innovation and indirect engagement around the future of energy and expectation with internal gap analysis Most stakeholders are unaware of the breadth of work that is done by utilities, the governance process and how allowances work Engagement across the UK innovation landscape in the subject of we should aim to both increase the breadth of stakeholder and technology companies and entrepreneurs involved in the sector by consolidating governance and access to funding across the innovation landscape

3. STAKEHOLDER GROUP CHALLENGE & REVIEW

The Stakeholder Group reviewed our approach and raised the following points and challenges.

Stakeholder challenge	Our response
The approach lacks an apparent engagement strategy	We have developed a stakeholder strategy and modified our governance to embed stakeholder feedback into our yearly plan. This engagement log and the innovation chapter in our business plan clearly set out our engagement strategy. We also have an Innovation engagement strategy and plan.
Without a clear innovation strategy with key priorities, it will be difficult for stakeholders to comment.	We have produced an innovation strategy which is clear in the innovation chapter of our business plan
The stakeholders identified, appeared to be a select group of the usual incumbents and the same strategic partnerships.	We have used a variety of engagement channels (including workshops, online consultation and bilateral meetings) to try and ensure a broad range of stakeholders can contribute their views. We recognise that there is more to do in this area if we are to broaden our innovation engagement to a wider group of stakeholders
The information on the website suggests a minimal approach to transparency including many publications but little communication which would	We have revamped our website to be more transparent and collaborative
make it very difficult for new innovators to understand how they might contribute to NGET's energy system transition journey.	https://nationalgridet.com/imagining- tomorrow/innovation
The commentary related to the engagement and why NGET were innovating suggested the programme of innovation was to meet the needs of the stakeholders first with no link back to the business need.	We have now made it clear in our business plan document that innovation can help us meet both stakeholders and business needs.



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4. CONCLUSIONS

The feedback obtained to date has had an impact in the Business Plan in the following points:

- Consumer and stakeholder engagement for innovation is more in depth, covering a variety of channels
- A new three step approach to engage with stakeholders has been adopted ("consult, involve, collaborate")
- Simpler more accessible and transparent narrative is now used in our business plan.
- We have simplified the innovation programme for easier access around two areas, delivering cheaper and cleaner energy
- We have focussed more investment on decarbonisation
- We have included are cultural commitments into our BAU innovation programme, not funded through innovation stimulus funds
- We will find ways to be more open and transparent, ensuring we are more accessible to SMEs

PRE-ENGAGEMENT

1.1 WHAT IS THE TOPIC AND WHY IS IT BEING ENGAGED ON?

I. What is the subject: background and all information (evidence) required to understand what is being engaged on; link to outputs (or incentives)

The societal imperatives to transition to clean energy, drive down current and future consumer costs and the opportunities provided through digitisation are driving rapid changes in our energy system. In addition, the whole energy system is becoming more integrated and other sectors are becoming ever more dependent on energy (e.g. transport) as they drive towards net-zero carbon.

Innovation in the whole energy system is critical to enabling these rapid changes and clean energy solutions for other sectors to take place. Within National Grid, innovation is integral to both our core regulated business in the UK and US, and National Grid Ventures.

Innovation in our business covers everything from everyday continuous improvement through to step change technological breakthroughs and is core to us achieving the outcomes our stakeholder needs.

Within electricity transmission, business as usual innovation is key to delivering near term core performance focussing on safety, reducing costs, reliability, customer satisfaction and employee engagement. Transformative innovation is key to enabling the rapid changes in our energy system and clean energy solutions for other sectors.

The stakeholder priority, 'We will be innovative, is comprised of three main topic areas shown in figure 1.





Figure 1 – Key topic areas for engagement

Our business plan which will work towards meeting the stakeholder priority above will include our proposed investments in the areas of **cleaner** and **cheaper** energy as well as delivering the **future innovation culture**.

The Cleaner Energy programme focuses on reducing the carbon footprint of the energy sector. Delivering Cheaper Energy innovates to reduce the cost to help lower consumer bills. Enabling our Future Innovation Culture focusses on driving a culture of innovation throughout the business.

II. Where are we today/what do we deliver today, and what do we currently understand from stakeholders on future development

As we describe below, we are undertaking a range of stakeholder engagement on our innovation programme during RIIO-T1. Stakeholders want us to continue to drive continuous improvement in our performance and to seek transformative innovations that may change the way we work. We have actively pursued both of these forms of innovations.

During T1 we have invested a total of £76.8m on innovation. We have also invested more than £34m in continuous improvement through business wide programmes which further improves and embeds our innovation culture. Our innovation investment is summarised in the following table:

Funding source	Number of Projects	Investment
NIA	161	£47.3m NIA
Deeside Centre of	1	£10m NIC
Innovation (NIC)		£14m NGET
GIL Innovation	1	£3m Siemens
Partnership (Totex)		£3m NGET
		(sanctioned)
Total	163	£77.3m

Annex A12.02 provides further detail on our T1 performance by asset category.

III. The industry drivers for this topic

The energy transition is driving the whole energy system to become more integrated. Other critical sectors such as transport are becoming ever more dependent on energy as they drive towards net-zero carbon. There is also a strong drive to reduce current and future consumer costs to ensure that reliable, clean energy is delivered in an affordable way. Innovation in the whole energy system is critical to enabling these rapid changes, reducing costs and allowing clean energy solutions for other sectors to take place.

IV. Flag interactions with other topics

Innovation interacts with all our topics. We have ensured that the development of our innovation priorities also draws on feedback received in the following related topic areas:

- Facilitate the transition to the energy system of the future what role there is for transmission in the future, how might the need for the network change over time. If there is a greater dependence on the electricity network in the future, we will want to understand from our stakeholders what they expect from our network in the future, and what this means for investment on innovation within RIIO T2.
- Easy to connect and use what service our customers want now and, in the future, will influence whether this is an area of focus for our innovation programme.



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 Provide value for money – can we find innovative solutions to make energy more affordable for consumers now and in the future.

1.2 WHAT ARE THE DESIRED OUTCOMES FOR THIS ENGAGEMENT?

I. What are the desired outcomes from this engagement? (incl. where you most need to engage)

We understand from our engagement in 2017 that innovation is a priority for stakeholders. The primary purpose of the ongoing engagement on this topic is to consult our stakeholders on what we need to include in our plans for RIIO-2, by sharing options (including our current/default approach where appropriate), understanding their priorities and preferences, and including any new insight in how we build our plans.

More specifically, our key aims around our engagement programme are to understand:

- How important is innovation for our stakeholders in our T2 plans?
- · What topics we should be focussing on?
- What are our stakeholders' views on our proposed strategy?
- How we should be funded for innovation activities moving forward?

We have also discussed with stakeholders how we can best enable collaboration with third parties in our innovation work.

II. What are the measures of success?

Measures of success in planning engagement and engaging with our stakeholders on the topic of reliability can be summarised as follows in table 1:

Prir	nciples	Check
1	Define and map our stakeholders – We want to understand who our stakeholders are, which of them are either impacted or interested in this topic and why and determine how many stakeholders we will want to engage with and how.	√
2	Be clear what we want to achieve with "engagement" – Our desired outcomes for engagement are outlined above in section 1.2 I, summarised as understanding our stakeholders desired balance between risk, availability and affordability and agreeing an approach for sharing plans for our stakeholders to help develop.	\
3	Understand the "spectrum of participation" and difference between each part of that spectrum - This is part of our stakeholder mapping and understanding the impact and interest of our stakeholders as shown in figure 6.	√
4	Engage early in the process, review and improve throughout – We are already adapting our engagement based on feedback received from previous engagement approaches on this subject.	√
5	Leadership – effective stakeholder engagement must be led from the top of the organisation. Our BAU engagement with top down NPS demonstrates our ongoing relationships with our customers, whereby we actively seek to gain their viewpoint. Reliability will be one of the topics within our RIIO T2 plans that could potentially be discussed at executive level.	✓
6	Commitment – to listen to stakeholders' views and act on or respond to them. We have been responsive to date in designing our business plans are created on the back of stakeholder feedback to date. To be checked once all evidence and engagement is complete.	✓
7	Objectivity – We aim to have open approach to obtaining stakeholders' views and to interpreting them. Our planned engagement aims to share our current plans and ask for stakeholder views with opportunity to discuss their priorities and expected main challenges in the next few years.	✓
8	Transparency – to build stakeholder trust and show that we take their views seriously. We aim to do this by sharing all views back with our stakeholders following engagement through minute taking. Through our DNO engagement we plan to revisit our DNO's following our January consultation document to play back views and share more detailed and developed business plans.	✓
9	Be inclusive : We plan to engage with a range of stakeholders on this topic and understand their views to help shape our business plans. The topic of reliability impacts different stakeholders in different ways so it is important for us to gather a range of views.	✓
10	Be aware that those who often participate - As we did not receive any engagement from energy suppliers within our consultation or workshop, this may be the case. Even if it is to confirm that a stakeholder is not	✓



	interested in this topic, we aim to engage with them to confirm this and ensure they have not just missed an opportunity to be engaged.	
11	Be accessible to all – Whilst considering who to engage with on this topic, we are also considering the most appropriate way of engaging with stakeholders.	✓
12	Use targeted approaches to tailor engagement to suit the knowledge and awareness of different groups - we will be looking to tailor our engagement based on the interest of the stakeholder e.g. DNOs have shown high levels of engagements due to the coordination and cooperation that we will be capable of having going forward with our reliability plans.	√
13	An ongoing process that is embedded across the business – not just a stand-alone business planning/price control review exercise. Whilst we want to gain stakeholder views on RIIO T2 business plans, we want to establish ongoing forms of engagement with them if this is a topic in which they would like to continue engagement.	✓
14	Evidence based – use a full range of available sources of info to identify priorities, views and challenges (e.g. operational insight, bespoke research)	\
15	Gather evidence through a range of methodologies and tools including willingness to pay, qualitative research, surveys, complaints intelligence, market data – this is planned for (see engagement approach and post engagement feedback for updates)	√
16	Be responsive – seek to adopt a flexible process to engagement, responding to the information revealed as the process progresses. We have been responsive to date (how we design material following listen phase feedback and in DNO engagement feedback) and will continue through ongoing engagement.	√
17	Demonstrate impact of engagement – ensure that the engagement design process plans for and allows evaluation of success	√
18	Innovation – trying new and innovative ways of engaging. See section 1.4 IV for planned engagement innovation including Slider tools, live feedback and online mediums.	√
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Table 1 – Principles of successful stakeholder engagement

III. What are the questions being asked from engagement? Have they been reviewed to be transparent and unbiased?

Figure 5 below gives an overview of the **topics areas** and **outputs** which we sought feedback through our engagement activities. A variety of **inputs** were used to decide stakeholder question areas. These include Ofgem framework consultations, feedback from the 'Listen' phase and stakeholder user group feedback.

Should utilities be How critical do you What do you think we incentivised to innovate think it is that we should be focussing our innovation on in the on projects that innovate to reduce our potentially deliver value carbon footprint? future? in future regulatory periods? What should be our top three innovation focus How critical do you Should utilities be areas? think it is that we incentivised to innovate continue to perform on projects that some investigations in Do you believe network potentially deliver value the area of H&S? utilities are investing within the current sufficient resource in regulatory period? innovation activities? How critical do you How critical do you think it is that we think it is that we How would you rate develop the capability continue to innovate at your understanding on to self-sustain our Deeside Centre for our T1 Innovation innovation? Innovation? mechanisms? How critical do you How critical do you How would you rate think it is that we think it is that we your understanding innovate to embed a culture of about our innovation decarbonise society innovation? proposals for RIIO-T2? and achieve Net Zero?

Figure 5 – Stakeholder question topic areas

1.3 WHAT EXISTING INSIGHT HAS BEEN UTILISED?

I. What existing insight has been drawn upon; BAU engagement, satisfaction survey insight, FES horizon scanning; output from listen phase

Due to the vast amount of change the energy industry is undergoing, there is a considerable amount of publicly available documents which have helped shape our thoughts. Most of the documents capture the views of a diverse background of stakeholders from Distribution and other Transmission Owners to consumers. The following are just some of the examples of relevant insights considered.

Publicly available insights on the future of electricity transmission

The following documents are useful in **understanding future potential operating environment** of our network to allow us to understand technology and innovation gaps. They also help **inform us of our stakeholders' views** of the future, ahead of engagement on innovation.

Distribution Network Owners & ESO



Energy Networks Association – Future Worlds

"'Future Worlds' is the output of a substantial stakeholder engagement process to map and describe a number of potential future electricity networks ("Future Worlds") capable of supporting the smart decentralised energy industry that the UK is transitioning towards." LINK TO DOCUMENT

Electricity System Operator

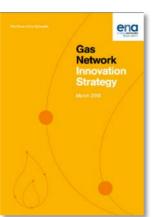


Future Energy Scenarios 2018

This is a document produced by NGESO every year that identifies a range of credible scenarios for the next 30 years and beyond. These consider how much energy we might need and where it comes from. They also look at what the changes might mean for the industry and for its customers. NGET uses these scenarios as the basis of our studies and get an idea of future investments. LINK TO DOCUMENT

DNOs, ESO, GT and GDNs



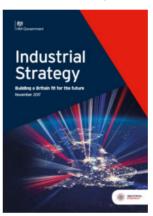


ENA Innovation Strategies

These reports, commissioned through the ENA Innovation Working Group (of which NGET is a member) are developed through information gathered from a variety of stakeholder workshops, webinars, bilaterals and online questionnaires, and set out a 3-year strategy for both the gas and electricity networks in the UK, developing a gap analysis and highlighting key priority areas for innovation. LINK TO THE ELECTRICITY DOCUMENT. LINK TO THE GAS DOCUMENT

Think Tanks

Governmental Reports



The Industrial Strategy

This white paper sets out a longterm plan to boost the productivity and earning power of people throughout the UK. <u>LINK TO</u> <u>DOCUMENT</u>



The Committee for Climate Change, Net Zero Technical Report advices on the various paths and requirements to achieve net zero through detailed analysis carried out for each sector of the economy, plus consideration of F-gas emissions and greenhouse gas removals. The purpose of this technical report is to lay out that analysis.

LINK TO DOCUMENT

We also have a wealth of business-as-usual (BAU) engagement ongoing across our organisation, which we can use to inform our approach to innovation in T2. These include:

BAU engagement

Joint Supplier Meetings

There are well established relationships between National Grid and our suppliers through regular Supplier Meetings and tendering events where innovation forms a key part. In the meetings, discussions are held around potential innovations in the pipeline that drive value and that could be implemented to the various works available on a case-by-case basis.

Outcomes: innovations developed by 3rd parties have been directly implemented into the business during T1 and new technologies that outperform the old have been embedded into our T2 plan.

Participation in trade associations

We are active members in asset management and engineering associations, which bring a wealth of

knowledge sharing and best practice information into our organisation.

These forums are used to understand new technologies, latest developments in the energy industry and views on the future of energy networks.



Outcomes include **development of whole system approaches** from the ENA open networks project and new innovations such as alternative gases through CIGRE.

Top down Net Promotor Score & Customer Satisfaction Surveys

High level insights are gained through these mediums which we can use to be poke engagement our approach. Examples include insight into electricity suppliers concerns over innovation as part of procurement processes.

Legislative and regulatory

We regularly meet with governmental and other regulatory bodies to ensure the work we meets the standards set. We recognise that good stakeholder engagement with the UK supply industry, HSE and wider industries is important for us to continually improve our and industry safety performance.

This also includes involvement in the development of security of supply standards (SQSS), to standards are updated to allow new technologies and methods of working that drive our customers to be introduced without risk.





carry out energy company



ensure value to

Our BAU stakeholder engagement activities include:

- Two innovation stakeholder workshops per year
- Sharing and collaborating through industry forums & conferences (e.g. Low Carbon Networks & Energy Networks Association https://www.smarternetworks.org/)
- Transparency and sharing of information through our 'imagining-tomorrow' website https://www.nationalgridet.com/imagining-tomorrow/innovation
- Online consultation
- Regular social media communication
- Podcasts
- Monthly meetings with our 3 Strategic Academic Partners
- Attend EPRI conferences
- Attend CIGRE meetings
- Exhibit at Utility Week Live
- ENA Innovation Forums
- Deeside TAB Meetings
- Presentations at various external conferences (See Appendix 8)
- Sharing knowledge and lessons learnt from completed NIA projects (dissemination events).

We also collected feedback from our strategic partners at the start of RIIO-T1, which is shown in the table below:

Stakeholders said	We Did
The innovation process is too long and labour intensive; there are too many steps; it takes over 5 months to get a project approved.	In 2016, we reviewed the innovation process and the structure of the innovation team. Through lean design we restructured the team and reduced the time to get a project through governance to 1 month by January 2017.
The time it takes to implement and roll-out a technology in the industry has a negative impact on the investment case into R&D in the energy sector and the creation of spin-outs and growth of SMEs.	We sought funding for the development of the Deeside Innovation Centre from Ofgem with 50% leverage from our shareholders (£14m). The aim is to develop an environment capable of reducing the time between proof-of-concept to roll-out of new technologies to 2-3 years, in line with the electronics and automobile sector.

¹ Detailed information about our stakeholder engagement in this area can be found in Appendix 1.



Organisations who innovate as part of their business have high overheads and therefore tend to fail at the time of winning tenders. Furthermore, new technologies are initially more expensive and fail to win when the weighting given in the procurement process to the upfront cost is so high.

We worked with procurement to look at how we could support the introduction of new technologies whilst at the same time delivering best value to our consumers in the short-term.

We have reviewed the tender process to include innovation in the weighting of the responses where appropriate.

We also looked at the mechanisms available to contract for innovation work. In this process we discovered the "Innovation Partnership" contractual mechanism and put our first contract in place for Gas Insulated Lines.

Direction change in 2017 to deliver new expectations

In 2016, the UK ratified the Paris Climate Agreement and also voted to leave Europe. These two events had a significant impact and changed the expectation our stakeholders had from us. We therefore modified our approach to innovation and our plan around spend to meet these needs. Below are the 5 largest changes we made to our innovation programme to align ourselves with the new direction.

Stakeholders Said	We Did
Government and regulators need to develop an	We modified our innovation strategy and re-directed
infrastructure programme and market that will enable the fulfilment of our Paris commitments whilst there is	15% of our budget to develop a programme for electrification of transport and roads, as well as the
significant uncertainty and no clear roadmap.	future energy networks. We committed 3 full-time
olgrimoant arroottainty and no oloar roadmap.	innovation engineers to this endeavour.
	We increased our attendance and involvement in
	conferences to understand and engage with the
	wider market segments.
	We became members of <u>Flexis</u> , the <u>Cheshire Energy</u>
	Hub and led the South Wales Cluster study.
The cost of electricity in the UK is higher than in other	We committed one full-time innovation engineer and
European nations such as Germany, potentially	5% of our budget to co-create a programme with
driving heavy industry out of the UK.	industry to electrify their carbon intensive processes
	and, where appropriate, develop a plan for them to
	reduce their carbon footprint.



Small and medium enterprises working in the energy sector want support to grow their business and understand how to engage with the energy sector. We developed and reached out to SMEs through Innovation Competitions (such as the Master of Innovation where we funded 12 proof of concept projects), the Low Carbon Network Innovation Conference and Social Media.

We increased our presence as speakers in UK energy related conferences.

We engaged with two incubators, <u>RocketSpace</u> and <u>The Enterprise Hub</u>, managed by the Royal Academy for Engineering.

We are now partners of <u>i3P</u>, a platform for collaboration on infrastructure innovation, and the <u>Energy Innovation Centre</u>. We have also started conversations with the Institute of Engineering and Technology, to develop a joint challenge. The EIC have launched two Innovation Calls on Power Dense Underground Transmission and Alternative Overhead Line Tower Preparation Methods the presentation days will be held on 21 November 2019 and 13 December 2019.

Academic institutions and government funding bodies expect a reduction in budget for R&D activity and want to maximise the impact they can deliver by improved alignment and collaboration.

We increased our direct engagement with government funding bodies becoming board members of the Strategic Advisory Board for UKRI and Industrial Board for the Supergen Energy Hub.

We increased our engagement with organisations such as the IET and the Royal Academy of Engineering.

Academic institutions are concerned their capability to apply for European funding will suffer and this in turn will have an impact on their international standing and capability to recruit good talent into engineering disciplines and maintain their international reputation.

We submitted a proposal to the EPSRC for a 5-year programme of work leveraging our funding, front loaded in T1 with National Grid funding to reduce uncertainty and fill the gap across regulatory periods.



Our initial engagement has provided valuable insight for our innovation, with results covered in more detail in section 2. The feedback below represents some of the wider views expressed.

'There is a need for better collaboration within the innovation space and National Grid should facilitate this.'

'National grid needs to educate the whole energy system on innovation and open dialogue to create collaborative inputs and ideas sharing.

II. What are the gaps in existing insight you wish to fill from this engagement? (Stakeholders not previously engaged or no existing insight exists)

Throughout the T1 period we have systematically increased our stakeholder engagement on innovation. This stakeholder engagement has moved from being primarily focussed on collaboration and seeking leveraged funding, to a stakeholder engagement framework where we seek stakeholder input into our strategy and innovation programme. Our stakeholders have told us that we need to engage wider and broaden our collaboration opportunities.

Our Stakeholder User Group informed us that we should expand our engagement approach beyond our traditional boundaries. Our engagement strategy therefore changed to incorporate these gaps in our previous engagement activities.

I.4 WHAT IS THE ENGAGEMENT APPROACH?

I. What insight have been gathered to inform engagement approach?

The primary purpose of engagement on this topic is to consult our stakeholders on what we need to include in our plans for RIIO-2, by sharing options (including our current/default approach where appropriate), understanding their priorities and preferences, and including any new insight in how we build our plans. In order to do this effectively, we also need to inform stakeholders. Different stakeholders have differing levels of knowledge about what we do, so informing stakeholders sufficiently at the beginning of our engagement is important to allow them to contribute in a meaningful way and provide an informed opinion.

II. Approach to engagement and why have you chosen this approach, is it: inform, consult, Involve, collaborate, empower

The approach chosen to engaging with stakeholders is both topic and stakeholder specific. Stakeholder mapping across segments (see Section 6.3 for a full list) was undertaken to establish the approach, as illustrated in Figure 6.



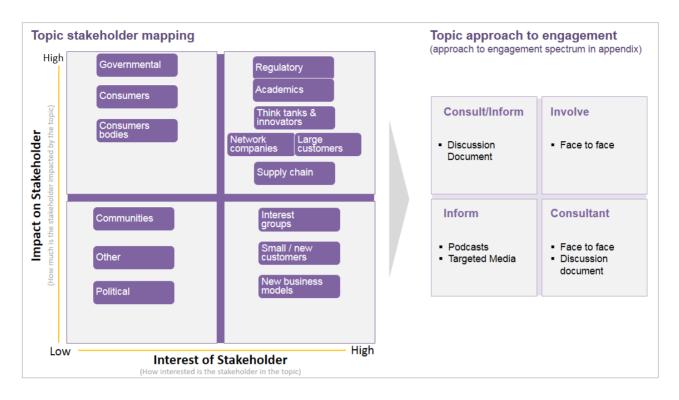


Figure 6 - Topic stakeholder mapping

We sought to understand the impact and interest of the stakeholder group to tailor engagement:

Suppliers (Academic, Research Institutes, Contractors, OEMs and SMEs)

How we want them to feel: We want them to feel we value their work and their ideas: we want them to value us as a client. We want them to value our business and feel that engaging with the discussions and conversations around the energy landscape, market and new regulatory regime is in their interests and can help them grow their market.

Present communications method(s): Conferences, workshops, podcasts, reports

Consumers

How we want them to feel: We want them to feel the work we do adds value to their lives. We want them to know we exist and understand us as a business, as well as educate them around the energy landscape. We want to know how they lie their lives and how their habits are changing so we can pre-empt any impact it might have on the work we do.

Present communications method(s):

None. We have started a programme of work with Mintel to understand their behaviours.

Customers

How we want them to feel: We want them to feel we care about their business, that we have something to add above and beyond a connection to the energy market.

Present communications method(s): Bi-lateral meetings.

Society and Government

How we want them to feel: We want them to feel we are an integral part of meeting the decarbonisation ambitions and create a better, more sustainable and environmentally friendly tomorrow. We want them to feel we would never put them at risk.



Present communications method(s): Bi-lateral meetings with government; none with society.

Investors / Shareholders

How we want them to feel: We want them to feel that us changing and innovating as a company is in their

interests, and that it does not necessarily result in a riskier investment

proposition.

Present communications method(s): Annual General Meetings

As part of this assessment, we have based our engagement decisions on the stakeholders' levels of understanding and knowledge of innovation and the industry, the essential nature of their input and how important we perceive engagement is to them. We have done this based on the following criteria:

Contribution (value): Does the stakeholder have information, counsel, or expertise on the issue that could be helpful to the company?

Legitimacy: How legitimate is the stakeholder's claim for engagement? How are they directly impacted by our innovation activity?

Willingness to engage: How willing is the stakeholder to engage?

Influence: How much influence does the stakeholder have?

Necessity of involvement: Is this someone who could derail or delegitimise the process if they were not

included in the engagement?

Consumer engagement approach

We recognise that historically consumer engagement has been a gap for us – our consumer bill impact is relatively small and we are two steps removed from the end consumer. However, consumer needs are now very much in focus for two main reasons: (1) Consumers are facing cost pressures from multiple sources, not just energy bills, and (2) In the case of the fuel poor, new technologies such as Electric Vehicles and domestic low carbon generation could push them further into fuel poverty. This was also one of **challenge areas from the Stakeholder User Group** in November 2018 in promoting **further consumer engagement** for innovation topic. This is being addressed as we are seeking to play our part in meeting consumer needs both now and in the future and are engaging directly with them to give a whole new source of insight which we will use to shape what we do.

Within our consumer engagement programme, innovation features as one of our consumer priorities.

Channel	Why	How	Scope	Use
Willingness to Pay	To generate values for different levels of products/services.	Combined with other TOs, nationally representative stated preference survey (online/in-home) Qualitative and Quantitative testing of topics and questions Triangulations of results with other published data	Domestic and business consumers	Results showed a positive willingness to pay for innovation projects, with larger projects favoured over small.
Interactive Slider Tool	To provide data, asked in a more interactive way, with a wider scope and being slightly less theoretical than our willingness to pay research.	Using the tool as the focus of a nationally representative study of domestic consumers. Beyond this, the tool will be published on our website for anyone to use, and we will update the tool on an annual basis as part of our ongoing consumer engagement programme.	Domestic consumers only.	As a further source of data to ensure our plans are within the parameters of what consumers' value.



Acceptability testing	TO UNDERSTAND WHETHER CONSUMERS FIND OUR ACTUAL PLAN ACCEPTABLE AND AFFORDABLE	via an expert third party.	All areas of our plans (post-July submission).	To understand what we need to change before our next business plan submission.
Cultural research and consumer trends data	To understand broader consumer attitudes and trends, particularly useful when looking at the needs of future consumers.	Paid-for access to third party data	Attitudes and trends, current and future.	Understand likely future trends FOR INNOVATION
Attitudinal Research	To understand consumers' attitudes and priorities. To gauge current awareness and perceptions of National Grid.	Commissioned with a third party, high volume, nationally representative survey.	Awareness and perceptions only. This is not two-way business plan engagement.	To potentially highlight areas for other research/ engagement.

III. Engagement activities, methodologies and tools (ongoing engagement, bespoke engagement, willingness to pay, qualitative research, surveys, complaints intelligence, market data) and sources from which decision will be made.

IV.		
Channel	Who	When (green= complete)
Three workshops on the Deeside Centre for Innovation	Technical experts, Network Licensees, suppliers, academics and research institute representatives	2015
Initial workshops	NGET stakeholder list invite	July 2017
Online consultation	NGET stakeholder list invite	July – August 2017
Innovation Stakeholder Workshop	NGET stakeholder list invite	July 2018
Podcasts	NGET stakeholder list and beyond	August 2018 onwards
Social Media	NGET stakeholder list and beyond	August 2018 onwards
Low Carbon and Networks Innovation Conference	LCNI attendees	October 2018
Innovation Stakeholder Workshop	NGET stakeholder list	February 2019
Utility Week Live	Attendees of utility week live	May 2019
T2 Webinars	Targeted stakeholder list	July and August 2019



Innovation Stakeholder Workshop	NGET stakeholder list	October 2019
Low Carbon and Networks Innovation Conference	LCNI attendees	October 2019

Table 3 – Engagement activities

- V. What innovative engagement methods have you considered?
 - 1. When engagement events are carried out, the incorporation of **live feedback tools** prove to be effective amongst stakeholders. It allows for all members to see the questions that others have which embraces more thoughts to be raised.
- 2. We will also make use of online mediums such as webinars, from which we have seen positive feedback (across engagement priorities) as they require less time and resource commitment from stakeholders to attend, and should help us to plug the attendance/feedback gaps we've previously experienced and reduce any engagement fatigue from our stakeholders.

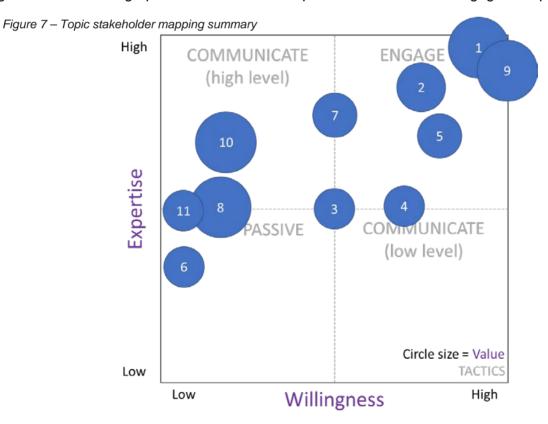


VI. Stakeholder mapping – who are key stakeholders (anyone who believes they are affected by your decisions), which segment (and why, including impact and interest of topic on stakeholder) Recognising the different threads of the public interest – stakeholders, customers, consumers, citizens, communities (geographical and interest)

The following illustration presents the detail of our stakeholder mapping, helping us to ensure we engage with the right stakeholders for the T2 period:

			RTISE	WILLINGNESS	VALUE	
Stakeholders		Contribution	Legitimacy	Willingness to Engage	Influence	Necessity of Involvement
Suppliers	1. Academic	High	High	High	High	High
	Research Institute	High	High	High	Medium	Low
	3. Contractors	High	Low	Medium: increasing	Medium	Low
	4. OEMs	High	Low	High	Medium	Low
	5. SMEs	High	High	High	Medium	High
6. Consume	rs	Low	Medium	Low	Medium	Low
7. Customer	rs .	High	High	Medium: increasing	High	Low
8. Society		Low	High	Low	High	High
9. Governme	ent	High	High	High	High	High
10. Investors	S	Medium	High	Low	High	High
11. Shareho	lders	Low	High	Low	Medium	Low

The diagram below uses a graphical method which helped us understand our engagement priorities.



The approach chosen to engaging with stakeholders is both topic and stakeholder specific. Following a review of our stakeholder engagement in 2014, we concluded that independent, personalised, interactions with all the innovation stakeholders was not realistic, given the number of parties involved. We therefore



adopted a stakeholder engagement approach that allowed us to engage most closely with a select number of organisations whilst remaining open to the broader set of stakeholders. This was organised into four parts:

- i. Strategic partnerships
 - a. For key academic institutions, suppliers and partners
- ii. ENA membership and publications of innovation project details
- iii. Sponsorship & academic support
- iv. Use of journals

More details on each of these parts is provided below.

Strategic Partnerships

We developed strategic partnerships with 9 organisations

Strategic Partnership	Reason for partnership
University of Cardiff	Academic institutions, based on the relevance to their research
University of Manchester	programme to our business as usual activities, laboratory
University of Southampton	facilities, and breath of capabilities
ABB	Our largest suppliers of HV equipment
Siemens	
GE/Alstom	
Prysmian	Major cable suppliers
ЗМ	Their reputation for managing and delivering value through the generation of intellectual property, as well as their research and development programme in the area of advanced materials
Hydro Quebec	Their research and development programme in the area of robotics

We meet monthly with these strategic partners to discuss the challenges their sector of the industry were having. This includes discussing their perception of innovation and the future of the energy sector, what was changing, and what bottlenecks they believed existed.

Publications and the Energy Networks Association

As an industry, the electricity network operators for both transmission and distribution, collaborate in the innovation space via a working group which meets once a quarter and is managed by the Energy Networks Association. Together, the members of the working group, developed a portal where we all publish details on every individual innovation project, The Smarter Networks Portal.

As an industry, we also organise an annual industry conference, the <u>Low Carbon Networks & Innovation</u> Conference.

Every year, we publish an annual summary report on innovation, detailing all our projects and our key outcomes for the year. We also collate all of these reports as well as key information on our website with a direct link from the website front page: https://www.nationalgridet.com/innovation.

In an attempt to obtain increased engagement, we have opened a Twitter and LinkedIn account which we share with National Grid Gas Transmission, around innovation. It is nevertheless fair to say, that this is an



area of continuous learning and we are not maximising the power of social media to engage with our partners.

Sponsorships and Academic Support

We sponsor an initiative for PhD students, <u>UHVNet</u>. This initiative is managed by academic institutions from across the UK and is aimed and encouraging PhD students to engage in meaningful conversations and meet, once a year, to discuss their research and share experiences. We also host on average 3 summer interns each year and support a significant number of EPSRC grants from a wide range of academic institutions.

We sit on the Industrial Advisory Board of the <u>Supergen Energy Networks</u> Hub, which was formed earlier this year. This board meets 4 times a year to discuss the strategic direction of the technological research as well as the work package on driving diversity and inclusion in the energy sector. This last point, whilst not technological innovation, is crucial for our ambition to drive a creative culture across the whole organisation and deliver high-performing teams.

Our active participation and support of academic work is driven by a variety of reasons. Until recently, academic institutions were the most supportive stakeholders in the area of innovation and led the relationships. Due to the nature of their work, they have detailed international and national insights around the direction of travel of our industry and are at the core of the UK innovation landscape. Their understanding provides us with key strategic information to help us direct our innovation strategy; and their capability to cross-fertilise our industry with expertise from other areas, makes them a key source for recruitment into the innovation team. Furthermore, the industrial boards provide us with an opportunity to share and co-create with other innovation stakeholders with a clear path for delivery. In turn, we support the work they do by informing them of our views and ways of working.

We also actively participate and sponsor the Power and Energy Award at the <u>IET Innovation Awards</u>. Involvement in awards is important for us in order to allow us to increase our profile and attract highly innovative organisations from both our sector and outside our sector to partner with us in the creation of new ideas.

Journals as a source of insights

Energy innovation is a global activity. In order to avoid any replication of work and understand the international research and innovation landscape, the innovation team at National Grid Electricity Transmission have memberships to two sources of Journals and Magazines, Science Direct and IEEE Xplore. On average the team read over 45 journal and magazine articles a month.

2. POST-ENGAGEMENT

2.1 WHAT WERE THE ENGAGEMENT OUTCOMES AND HOW HAS THIS INFLUENCED OPTIONS?

2.2 WHAT WAS THE FEEDBACK ON THE ENGAGEMENT APPROACH?

The stakeholder feedback we have received suggests we should focus on the wider societal priorities of clean energy, driving down current and future consumer costs and opportunities for digitisation as well as the integration of the whole energy system and clean energy solutions for other sectors. With this in mind, we initially developed six transformative propositions for T2, that we progressed in parallel with our business as usual innovation.



Stakeholders have also told us that we should be transparent about how we have embedded our innovation into business as usual, ensuring that savings made in T1 are baked into our plans for T2. We have highlighted in our business plan the costs of delivering innovation in T1 and the T2 consumer benefits which result from our innovation.

Having received feedback from stakeholders that we need to embed our innovation outcomes more quickly, we have changed our internal structure and processes to enable this. Our proposals are to develop new mechanisms that allow us to be more flexible with the areas where we can innovate, to allow us to expand outside our regulated remit and support our industrial partners and the development of a resilient, combined energy, transport and heat system.

As an infrastructure company, the result of what we do spans generations. We are therefore also seeking to support long and medium term initiatives to drive value to the customers of tomorrow and allow us to make technological decisions now with the future in mind.

Feedback from our stakeholders also suggests that the current governance around allowances is restrictive in nature. We therefore proposed a mechanism to allow us to become self-sustainable, with innovations and the intellectual property generated, driving value to the organisation across regulatory periods. Stakeholders also informed that work in this area should not be funded through separate innovation stimulus funds, but funded through our business as usual activities.

Feedback from our stakeholders, in particular large industrial consumers has led to our proposal to support them in helping understand how they can contribute to the decarbonisation of energy and the growing market as well as drive their bill down to allow them to remain competitive.

2.3 WHAT WERE THE INITIAL NATIONAL GRID CONCLUSIONS?

From what we have heard so far, above anything else, stakeholders want us to be innovative and play a leading role in the delivery of net zero 2050, as well as innovate around our digital capabilities, setting the foundations for technologies to improve our data management and analytics.

We will also be ambitious with our innovation strategy in order to demonstrate lower unit costs and operational performance in the T2 period.

We will commit to being transparent and increase our collaboration both at a technical level and commercial to provide clear visibility as to what we do and how we leverage innovations from other utilities as well as from the wider innovation ecosystem.

STAKEHOLDER GROUP CHALLENGE & REVIEW

3.1. WHAT POINTS OF CLARIFICATION AND INTEREST WERE RAISED?

The Stakeholder User Group reviewed our initial approach and raised the following points and challenges.

Stakeholder challenge	Our response
The approach lacks an apparent engagement	We have now developed a stakeholder strategy
strategy	and modified our governance to embed
	stakeholder feedback into our yearly plan.
	This engagement log and the innovation chapter
	in our business plan clearly set out our



	engagement strategy. We also have an Engagement Strategy and Plan.
Without a clear innovation strategy with key priorities, it will be difficult for stakeholders to comment.	We have produced an innovation strategy which is clear in the innovation chapter of our business plan.
The stakeholders identified, appeared to be a select group of the usual incumbents and the same strategic partnerships.	We identified the following key stakeholder groups to engage with: • suppliers; • customers; • other networks; • government; • energy industry; • universities; • think tanks; and • representatives from other industries. We recognise that not all stakeholders (particularly from small organisations) have the time and resource to engage with us via workshops and bilateral meetings. We therefore use a range of other channels, for example webcasts and online consultations. We recognise that there is more to do in this area if we are to broaden our innovation engagement to a wider group of stakeholders.
The information on the website suggests a minimal approach to transparency including many publications but little communication which would make it very difficult for new innovators to	We have revamped our website to be more transparent and collaborative
understand how they might contribute to NGET's energy system transition journey.	https://nationalgridet.com/imagining- tomorrow/innovation
The commentary related to the engagement and why NGET were innovating suggested the programme of innovation was to meet the needs of the stakeholders first with no link back to the business need.	We have now made it clear in our business plan document that innovation can help us meet both stakeholders and business needs.

The User Group also raised a number of specific points of clarification in relation to stakeholder engagement.

- 1. The innovation chapter within the business plan has been shaped to include as much feedback as possible from the stakeholder group.
- 2. We have shaped and modified the engagement log taking into account this feedback.
- 3. Our one to ones with the stakeholder group (June 2018) responded to any further outstanding challenges.



3.2 WHAT WAS THE OUTCOME OF THE STAKEHOLDER GROUP CHALLENGE AND REVIEW?

Broad topic	Challenge Ref No.	SG Meeting	Date	Challenge	Answer	NG Action
Engagement Plan	36	SG4	29/11/2018	ET to provide plan for the next phase of engagement.	Information on next phase of engagement provided in SG6	Draw out that stakeholder engagement has been strategic.
	37	SG4	29/11/2018	The nature of the engagement should inform how the business plan is developed	Section 3 (What our stakeholders are telling us) describes how we have used stakeholder engagement to inform our business plans, including trade-offs and how the stakeholder group has influenced our plans	
	77	SG6	22/02/2019	6.2 How do NGET intend to reach stakeholders beyond their natural borders?	In our BAU Commitments (p139) we have included commitments of how we will improve collaboration and attract 3rd parties.	
	78	SG6	22/02/2019	6.3 Out of the Box appear to be a seem to have developed a PR and Comms plan not an engagement plan. Can NGET clarify how their role fits with the wider engagement plan?	Out of the box is not being used in our plans	
	79	SG6	22/02/2019	6.4 It appears that the Innovation Team are undertaking consumer engagement. The Panel would welcome clarity as to its purpose.	Clarity has been provided through feedback on the 10th May. Consumer engagement is carried out in a coordinated manner through the ET Stakeholder Team, and not by the Innovation Team	
Strategy	52	SG6	22/02/2019	1.1 How does innovation within the regulated business fit with the wider vision and innovation activity of the National Grid Group?	We have strengthened our chapter (p135) to explain the role of NG Partners, and how this fits into the wider group. P133	We're on the right track, wording to be improved to be less passive and more forward looking.
	56	SG6	22/02/2019	1.5 How does the innovation vision fit with NG Group's wider vision and ultimately to the ambition of the business in the light of the Energy Systems Transition?	includes how the ET Strategy feeds into our innovation proposals. Further work is being carried out for December to articulate the Innovation Strategy and how this links to the vision and	



	ı	1	ı	T		
					detailed innovation	
					proposals.	
		22/8	22/09/2040	1 Thorogontinues to	Triphia foodbaals as	
		Sponsor	22/08/2019	There continues to be an absence of	Trish's feedback on the 20th September	
		Buddy		strategy and policy in	was that this was	
		Call		relation to innovation.	improved in the	
				As a consequence,	revised chapter. We	
				there is no apparent framework to hang all	have further improved this area in	
				the innovative work on.	the chapter.	
		22/8	22/08/2019	2. NGET need to be	We have described	
		Sponsor		clear about their	how we are using the	
		Buddy		approach and ambition	IDEO cultural survey	
		Call		to innovation – what will their world look like	in our chapter, we will include	
				at the end of T2?	commitments in our	
					December	
		2015	2015-1-	- 110	submission.	
		22/8 Spansor	22/08/2019	3. NGET need to make a statement about what	We have included	
		Sponsor Buddy		the culture of the	more references within the chapter to	
		Call		business is – where	show 'humility' about	
				are they now and what	our current position,	
				are they striving for?	and what we intend	
		22/8	22/08/2019	4. How will NGET	to do in T2. The chapter on page	
		Sponsor	22/00/2019	openly & continually	139 in BAU	
		Buddy		engage with the wider	innovation details	
		Call		world and stakeholders	how we will address	
				to continually improve what they do and	this area in T2.	
				what they do and widen their knowledge?		
	146	SG10	03/09/2019	NGET board to	The NGET Board	
				articulate their ambition	meeting on the 7th	
				and road map on both	November will be	
				innovation and engagement.	attended by, which will include	
				ongagomont.	Innovation.	
	147	SG10	03/09/2019	NGET to be clear on	We have committed	
				how the change in	to measuring culture	
				culture in T2 will be measured. NGET to	change using the IDEO cultural survey	
				demonstrate how	in our October draft	
				culture change would	plan. These will be	
				be made tangible and	firmed up as	
				how it would filter through to middle	commitments in our December plan.	
				management and	December plan.	
				below.		
	148	SG10	03/09/2019	NGET to articulate and	This has been made	
				provide clarity on what	clear in our October	
				they are aiming to achieve, in each of the	plan under 'NIA Proposals' p.139.	
				3 areas (i.e. delivering	. 10000010 p.100.	
				cheaper energy,		
				delivering cleaner		
				energy and delivering future energy), with		
				whom and how it would		
				deliver what it set out		
1	1			to achieve.		



DAII	E0	866	22/02/2040	2.2 How accessful ar-	We procted a T4	Nood to make
BAU	58	SG6	22/02/2019	2.2 How successful are National Grid at moving innovation into business as usual across the portfolio? And what have been the timescale for achieving this across the different projects?	We created a T1 Performance Annex, which broke down our T1 innovation spend into categories, and explains how we have turned this into consumer value within the T1 period	Need to make the BAU elements equally strong in each chapter, some are better than others
	63	SG6	22/02/2019	2.7 How are NGET planning to embed innovation into the fabric of the business through RIIO2?	We have made changes to our entire business plan, explaining Innovation clearly in each chapter. Feedback	
		22/8 Sponsor Buddy Call	22/08/2019	9. Embedding innovation within the business this is not apparent throughout the business plan.	from the Stakeholder Group is that this is now much more apparent.	
Benefit of innovation to Consumers	53	SG6	22/02/2019	1.2 How does the regulated business and ultimately energy customers and consumers, benefit from investment in innovation within the wider National Grid Group?	We have included an explanation within the chapter of how NG partners fit into the wider group.	Covered with cultural survey commitments shared at the meeting
	57	SG6	22/02/2019	2.1 What has National Grid considered in relation to the development of an innovative culture? What is the perceived value and benefits of innovation and how this links to value to customers?	We have strengthened our chapter to include more 'humility' around our innovation culture, and commitments around our cultural improvement we will make in our December plans	
	73	SG6	22/02/2019	5.2 NGET are asked to identify the value the NG customers and consumers have received, as a result of innovation going into BAU in RIIO1.	This has been made clear in our T1 Annex	
	74	SG6	22/02/2019	5.3 What are the areas or key challenges that NGET intend to invest in RIIO2 that will deliver value to the customer and consumer in RIIO3?	Our NIA proposals deliver savings beyond T2. Savings which deliver benefits within the period are included within our BAU areas.	
Collaboration	64	SG6	22/02/2019	3.1 How does National Grid systematically determine when to collaborate with other networks the ESO, which will increase value for money to the customer/consumer?	Although our external collaboration is good, we recognise that it could be better, and make commitrments in our chapter including specific actions we will carry out.	We need to message in the BP that we are 'open' to third parties



	65	SG6	22/02/2019	3.2 What % of projects	ET Innovation RIIO	
				in the current portfolio are collaborative with other network businesses?	T1 Overview Paper 0519 & Innovation Annex – T1 Performance to respond to challenges 52-80	
	67	SG6	22/02/2019	3.4 How do the GTO and ETO collaborate in innovation to reduce costs and provide greater value for money? Eg., communicating in terms of best practice, what are the synergies between the businesses eg., culture and business capability.	ET Innovation RIIO T1 Overview Paper 0519 & Innovation Annex – T1 Performance to respond to challenges 52-80	
Deeside	150	SG10	03/09/2019	NGET to ensure that there is no duplication to what is being proposed for the Deeside facility and what others are doing.	Our Deeside facility in T2 is creating the provision for innovation to deliver benefits in future periods. This is the only facility of its kind in Europe and therefore is not duplicated.	We will explain the 'roadmap' for Deeside showing T2 work and T3 benefits. This shows leadership and ambition, and open for others.
	151	SG10	03/09/2019	NGET to ensure that the Deeside facility is accessible to different industry segments or the range of industry stakeholders	We commit within our BP to making this facility available to all energy organisations	
	75	SG6	22/02/2019	5.4 What are the success factors for the Deeside Centre? How will the energy customer and consumer benefit from this investment?	ET Innovation RIIO T1 Overview Paper 0519 & Innovation Annex – T1 Performance to respond to challenges 52-80	
		22/8 Sponsor Buddy Call	22/08/2019	12. What is the Deeside facility there to do? How will NGET engage and collaborate with the rest of the wider sector and stakeholder group to ensure this facility works and supports all players in the sector to deliver improved outcomes for customers and consumers?	We spent some time in the buddy session on the 20th September discussing this in some detail. We have strengthened the chapter, with a specific section (Figure 12.4) explaining Deeside. Following the feedback on our October plan, we recognise that there is still more to do to explain the benefits of Deeside.	



Golden Thread	55	SG6	22/02/2019	1.4 How does the strategy link to the consumer outcomes?	The golden thread has been created and shared with the	None, shared again on the 1st November
				NGET are asked to provide transparency around the golden thread from activity through to consumer outcomes.	stakeholder group.	
	76	SG6	22/02/2019	6.1 How has the stakeholder engagement feedback informed the strategic priorities in the RIIO2 innovation strategy?		
T1 portfolio value	59	SG6	22/02/2019	2.3 What was in the innovation portfolio across RII01? What value was derived from the portfolio?	A T1 Performance Annex has been created	None
T1 to T2 to T3 benefits / learnings	54	SG6	22/02/2019	1.3 What happened historically in RIIO1, successes and failures. How is this being built upon in RIIO2?	The T1 Annex includes our performance annex. We have also improved the section on p135 'Learning for the T2 period'	Nothing more to do, not jumping out in the business plan
	71	SG6	22/02/2019	4.3 How is innovation to be baked into the business plan?	This is covered in the Innovation Annex 'T1 Performance'	
	72	SG6	22/02/2019	5.1 NGET are asked to illustrate to the Panel the benefits derived within RIIO1 from the innovation portfolio and how these are to be built upon in RIIO2 including the projects that have ceased – which is wholly legitimate in innovation.	This is covered in the Innovation Annex 'T1 Performance'	
		22/8 Sponsor Buddy Call	22/08/2019	6. It is still unclear how NGET have improved in T1 – what are the key learnings? where are the gaps? What do they want to improve upon in T2 and what does their world look like in T3?	We have included a summary of our key learnings from T1 into the chapter, and included an Innovation Annex 'T1 Performance' to explain this further. The chpater explains our world in 2030, and how the innovation plans we propose help achieve this	
		22/8 Sponsor Buddy Call	22/08/2019	7. What were the outcomes in T1? What financial efficiencies have been achieved through innovation that will roll into T2 and benefit consumers?	This is covered in the Innovation Annex 'T1 Performance'	

		22/8 Sponsor Buddy Call	22/08/2019	8. Priorities for T2 what are their aims, approach and aspiration for T2 which will deliver what benefit	The chapter in section 4, 'Our proposals for the T2 period' explains what we will do in T2. The	
		00/0	00/02/02 12	in T3?	NIA propositions are whole system, providing benefits beyond T2.	
		22/8 Sponsor Buddy Call	22/08/2019	11. What are the financial benefits of innovation in T1? What continued value will be delivered in T2 and what is NGET's aspiration and projections in T3.	The chapter explains that consumers have benefitted by £770m in T1 through our innovation activities. This has led to a reduction in costs of £707m in T2 as these savings are baked into our plans. We have not identified a T3 saving, as we would need a detailed T3 plan to calculate the savings.	
Benchmark/best practise	68	SG6	22/02/2019	3.5 What are the innovative initiatives undertaken in NG USA business which have been successful and what can be adopted in the UK?	We have summarised our involvement with NG Partners on page 135 of our BP	None
	62	SG6	22/02/2019	2.6 Are National Grid bench marking themselves against other companies in terms of best practice and learning from others?	We have included a reference to benchmark on p135 'Comparison to External Benchmarks' in our BP	
	66	SG6	22/02/2019	3.3 How does this compare with other transmission and distribution businesses and the ESO?	We have included a reference to benchmark on p135 'Comparison to External Benchmarks' in our BP. We have not found a direct way to compare our innovation delivery against other utilities. It is too early in the lifetime of the ESO to be able to do this.	
Other	69	SG6	22/02/2019	4.1 NGET are asked to provide transparency and visibility in relation to how innovation projects, both large and small are sanctioned and the criteria used by the sanctioning committee to demonstrate how projects are linked to the business priorities and key challenges including the Energy	We have a defined sanctioning process which we will include a description of in the December submission.	Sanctioning not clear, need to birng out in separate communication to the SUG



			,		
			System Transition		
			challenge.		
1					
60	SG6	22/02/2019	2.4 What proportion of	ET Innovation RIIO	
00	360	22/02/2019	innovation is large	T1 Overview Paper	
			scale and what is	0519 & Innovation	
			deemed smaller	Annex – T1	
			innovation and	Performance to	
			business	respond to	
			improvement?	challenges 52-80	
61	SG6	22/02/2019	2.5 What percentage of	ET Innovation RIIO	
			the portfolio is asset	T1 Overview Paper	
			focussed and what is	0519 & Innovation	
			the percentage of other	Annex – T1	
			innovation which	Performance to	
1			supports business and	respond to	
			cultural change?	challenges 52-80	
70	SG6	22/02/2019	4.2 NGET are asked to	ET Innovation RIIO	
1			provide clear data on	T1 Overview Paper	
			projects that have been	0519 & Innovation	
1			live in RIIO1 including	Annex – T1	
			costs against the NIA	Performance to	
			allowance.	respond to	
90	200	22/02/2242	G E Io NOCT	challenges 52-80	
80	SG6	22/02/2019	6.5 Is NGET running its	The main narrative	
			own research	has been modified to	
			programme for third parties? If so is this a	correct any	
			core competency of the	misunderstanding. We are not running	
			business or should it	our own research	
			be run by a third party?	programme for 3rd	
			bo run by a tima party.	parties	
SUG July	SG8	20/06/2019	This is an area of	More recent	
				foodbook (22/9/10)	
Report			concern. NGET is	1eeuback (22/6/19)	
Report				feedback (22/8/19) from the Sponsors is	
Report			taking serious steps to	from the Sponsors is	
Report			taking serious steps to move in the right		
Report			taking serious steps to	from the Sponsors is that the chapter is	
Report			taking serious steps to move in the right direction, but the strategic approach is weak. Considerable	from the Sponsors is that the chapter is much better, and tells a better 'story'. We have	
Report			taking serious steps to move in the right direction, but the strategic approach is weak. Considerable justification is required	from the Sponsors is that the chapter is much better, and tells a better 'story'. We have strengethend all	
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		1	1		T	,
				and collaboration, particularly with SMEs.		
Achieving customer Outcomes & net 0		22/8 Sponsor Buddy Call	22/08/2019	5. Moving forward how do NGET want to operate to achieve the customers outcomes? And the net zero targets?	We have explained in the chapter how we will deliver on our customers requirements	None
TOTEX Spend		22/8 Sponsor Buddy Call	22/08/2019	10. What is the future of innovation within the business how much of totex will be spent and what will the innovation incentive be used for in moving the business forward?	We have included througout the chapter how we will embed a culture of innovation. We are not asking for any additional incentive for our BAU innovation, The Totex Incentive Mechanism (TIM) creates the benefits within the T2 period. OFGEM have stated that we should not state an amount of Totex that relates to BAU Innovation	None
ODI	149	SG10	03/09/2019	NGET to ensure that there are no duplications between any associated Output Delivery Incentives and funding.	There are no duplications	None
Vulnerable customers	152	SG10	03/09/2019	NGET to be clear on what their role is (in the dialogue with other stakeholders on supporting vulnerable customers) and indicate, as part of that collaboration, where they would add the most the most value.	We have indicated on p141 how our proposals for addressing vulnerable consumers relates to our role	None



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4. CONCLUSIONS

4.1 WHAT IMPACT HAS THIS FEEDBACK HAD ON NATIONAL GRID AND THE RIIO-T2 BUSINESS PLAN?

- What changes have been made to the RIIO-T2 business plan as a result of direct feedback from the Stakeholder Group? (be explicit about outputs)

Our innovation business plan has been shaped through feedback from the stakeholder user group. We have made changes to the following areas:

- We have been clearer on strategy, and how strategy, along with stakeholder engagement, has shaped our innovation plans for T2
- We have been transparent about our performance in T1, and how we have embedded benefits into our T2 plans
- We have recognised where we need to improve our collaboration, particularly with SMEs
- We have made commitments to embed a culture of innovation throughout the business
- Our innovation proposals are now prevalent throughout the business plan, not just within the innovation chapter
- We have been clearer on the role and purpose of our Deeside Centre for Innovation, and that this is open for all organisations in T2
- We have committed to a common framework for tracking benefits, allowing transparent comparison between networks
- What changes have been made to future approach to engagement, other business processes, etc. as a result of feedback from Stakeholder Group?

How reedback from the stakeholder group imp	pacted National Grid and the RIIO-T2 business plan?
Stakeholder Group feedback	Impact on RIIO-T2 Business Plan (Outputs)
Engagement Plan	We have committed to being more open, and accessible for all parties
Strategy	We have included a summary of our Innovation Strategy within the business plan, and shared detail of our strategy with the stakeholder user group
BAU Innovation	We have made clear what T2 benefits will be derived from our BAU activities
Stakeholder Group feedback	Impact on National Grid Business / Processes
Benefit of innovation to consumers	We have created a T1 Performance Annex, which details how innovation investment in T1 has driven savings for consumers in T1, T2 and beyond
Collaboration	We have made clear our ambition to improve our external collaboration in T2, recognising that we need to do more in this area
Deeside	We have been clearer about the purpose of Deeside, and how investment in T1 and T2 will bring consumer benefits in T3 and beyond
Golden Thread	We have created an Innovation 'Golden Thread', which shows the linkage between our strategy, stakeholder engagement, innovation themes, innovation proposals and consumer benefit
T1 portfolio value	We have included a T1 performance annex, which explains our T1 investment in innovation. This has also been explained throughout the business plan
T1 to T2 to T3 benefits / learnings	We have explained in the chapter, and in the Annex how consumers benefit from embedding innovation into our baseline plans in future periods



Benchmark / best practise	We have included a section where we compare with external benchmarks, making a commitment to match this benchmark for T2
Achieving customer outcomes and net zero	We have focussed more of our proposed NIA investment in decarbonisation, and included proposals for SFIP investment in Net Zero
TOTEX Spend	We have included our BAU innovation activities within our Totex allowance, with no additional innovation stimulus funding required. Benefits will be derived from the Totex Incentive Mechanism
Vulnerable consumers	We have included proposals for how we will help vulnerable consumers



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4.2 BUSINESS PLAN OUTPUTS ALIGNED TO STAKEHOLDER ENGAGEMENT OUTCOMES.

- Insert Golden Thread diagram

DOCUMENT CHANGE CONTROL

Version	Date	Updated by	Comments
Number	Updated		
0.1	06/11/2019	Amrit Sehmbi	Submitted for internal review
0.2	08/11/2019	Gemma Pead / John Wilson	Submitted for internal review
0.3	13/11/2019	Gemma Pead / John Wilson	Submitted for internal review

5. APPENDIX

Appendix 1: Development of the Deeside Innovation Centre

PRE-ENGAGEMENT

What is the topic and why is it being engaged on?

In December 2014, after significant engagement with small and medium enterprises, as well as our supplier base, it became clear that time to market of innovative products and technologies was reducing the growth of SMEs and impacting the return on investment of research and development into high voltage, transmission technologies. We decided to attempt to remedy this through the development of a facility to accelerate the trial phase and reduce the risk of rolling out technologies.

What are the desired outcomes for engagement?

We wanted to have the information required to specify and design a capability capable of delivering the required facilities and environment to accelerate the deployment of new technologies onto the network. We wanted to make certain the output would help our stakeholders invest in the research and development of technologies for our sector.

What is the engagement approach?

We developed a two-phased approach to the development of the specifications of such a facility. Firstly, we wanted to understand what our internal concerns were the projects in the last 5 years and what level of uncertainty we would require. The second, to understand what our stakeholders would like to have and see.

What existing insight has been utilised?

A number of workshops took place with technical experts. A proforma was used as a basis for these discussions which looked to understand what challenges each technical area faced, and what testing was currently undertaken at other facilities. Attendees were asked what could not be performed with the options available at present.

Following analysis of the output from the workshops three primary challenges were identified:

- 1. Implementing new technologies and practices;
- 2. Managing existing assets;
- 3. The changing generation mix.



In addition, follow on discussions took place, where feedback was sought with regard to what would enhance the value to the customer, and what could be a more innovative approach to tackle the challenges which had been identified.

The suggestion was put forward that a decommissioned substation could be utilised to provide a testbed environment for use by the industry to enable mitigation of the challenges faced. This was explored with both strategic internal and external stakeholders, via meetings and teleconferences, and was enthusiastically received.



A decision was made to seek feedback from the wider Industry.

Stakeholder Engagement Events

Meetings took place with various stakeholders from across the industry to explore the proposal further.

In order to obtain feedback on specific aspects of the proposal we held two events for external stakeholders and invited approximately 100 representatives from across the industry. Attendees consisted of a cross section of network licensees, suppliers, academia and research institutes. An overview of the project was provided, and a facilitated workshop then took place which posed a number of questions.



What were the engagement outcomes and how has this influenced options? Feedback received against each question asked:

What do you think the technical capabilities of the off-grid substation should be?

An ability to simulate both real and abnormal system conditions to enable testing of harmonics, fault levels, currents and volts.

Have a mixture of ageing and new assets, to include an Overhead Line (OHL) section, with potential for HVDC cables, earthing, and site local area network (LAN).

Testing capabilities for emerging protection, control and automation technologies and measurement, e.g. IEC 61850.

Enable interfaces between electrical systems, such as transmission and distribution, in order to demonstrate inter-operability.

Have the ability to access individual assets for testing in isolation purposes, as required.

The capability to capture data from the various primary and secondary assets and archive as necessary.

How do you think your expertise could help us in delivering the project?

Experience of:

- · Development and manufacturing of new technologies
- Developing and operating test facilities and test protocols
- In the integration of DNO assets and systems
- · In analytics, modelling and measurement
- Managing risk

Sharing international experience, including links into EU Research Networks.

Suppliers could provide more detail on operation and maintenance for training purposes.

Multi-stakeholder partnering.

Once built, how would you use the off-grid substation, and how would this benefit your company?

As a testing facility in order to:

- Demonstrate new technology (e.g. batteries for storage)
- Develop new materials (e.g. corrosion protection materials)
- Test new equipment (e.g. monitoring sensors on primary plant)

To overcome system access issues, which in turn could reduce testing time, ensuring a quicker route to market for products, with a potential cost reduction benefit.

Be able to understand asset life cycles and integrity of plant, in order to better manage the existing asset base either via the development of new materials, or revised policies and procedures.

See how new solutions interface with existing assets in a 'real' environment.

As a facility to trial technologies without potentially risking the safety of the existing live network.

As a facility to showcase engineering in order to engage the next generation of engineers and also be able to undertake training for existing engineers.

It would facilitate the development of best practice, policy and guidelines for the industry.

How do you believe the off-grid substation could accelerate innovation for the industry?

By facilitating the development of innovative technologies more easily to enable faster deployment into business as usual.

By de-risking the process from pilot to production.

Being a platform to enable sharing capabilities amongst stakeholders to drive innovation.

Allowing potential cost reduction owing to the absence of additional costs associated with testing in other existing worldwide facilities.



What do you believe these challenges to be?

The network is becoming more dynamic and changeable owing to the changing generation mix, e.g. Photo Voltic (PV), wind etc.

There is greater focus on extending the life of assets in order to reduce costs.

Technical challenges exist in relation to the interaction between old and new technologies.

The increasing requirement to manage the transmission network to cater for the changes on the distribution network e.g. storage.

The adoption of new technical standards (based upon global experience).

The environmental challenges, such as reducing carbon and gas emissions to lessen the environmental impact.

How do you believe this substation will tackle the challenges facing the Industry?

The facility will enable testing under a range of conditions / scenarios to better understand the network, leading to increased reliability.

It will facilitate the development of testing techniques for condition assessment of ageing assets.

It will provide an environment where new technologies can be integrated and tested connecting to existing old assets.

The facility will give parties the ability to co-ordinate multiple assets in one single substation.

Innovative solutions will be trialled more easily, allowing for the adoption of new products and standards.

Evaluation of new environmental products and services can be tested for sustainability.

How else could the off-grid substation benefit the Industry?

Provide training for existing engineers, graduates and apprentices, allowing a safe environment for learning. Whilst also being a platform to showcase engineering to potential engineers.

A centre for both technical excellence and research. Enabling the sharing of best practice across industry participants both within the UK, and further afield.

Facilitate a faster route to market for new products and services, increasing UK export potential.

Foster greater collaboration across industry participants including OEM's, SME's, Academia, Transmission Owners (TO's) and Distribution Network Owners (DNOs).

Provide support to the Energy Systems Catapult.



Please provide any other comments you may have...

This is an excellent initiative which could allow improved research and understanding of High Voltage (HV) plant.

Accessibility in site selection is key. The location needs to be central with good transport links.

The governance framework is crucial to success.

Intellectual Property arrangements need to be clarified to enable innovation to drive commercial and customer value.

Great to see early stakeholder involvement. A great way to get the voice of the Industry from partners and competitors.

POST-ENGAGEMENT

Stakeholders were also given the opportunity to provide feedback via a hard copy feedback form or an online survey and a number of stakeholders took this opportunity. Following the events several meetings were held with specific stakeholders to enable more detailed feedback to be obtained.

The reception from the industry has been exceptionally positive with a number of stakeholders making the offer to provide support and assistance with this proposal.

In December 2015, we were notified that we had obtained the funding. We developed a micro-site, http://deeside.nationalgrid.co.uk to engage and provide a 1-stop repository where stakeholders could find all key information.

We also formed a Technical Advisory Board which means quarterly, composed of all other transmission and distribution network operators, our three strategic academic partners, Ofgem and HSE. The purpose of the board is to help develop the specifications for the facility as well as review and approve the innovation programme to drive maximum value for the wider industry.

Appendix 2: Innovation Stakeholder Workshop as part of T2 Engagement

In July 2018 we held a workshop. Our stakeholders told us through the listen phase that Innovation was important to them:

"They are simultaneously at the cutting edge of technology, but they can also be quite old-fashioned."

"I'm not sure that I want the organisation that is responsible for keeping the lights on to take that many chances. It may be that actually you want your network operator and transmission grid owner to be a bit innovative but not too innovative."

"I hope it realises that its future depends on very fast change or it will hold up the whole programme for the modernisation of Britain's energy. I would expect it to embrace very, very much more quickly new technology."

They recognise the importance of harnessing new ways of working and advances in technology if we are to find solutions that adequately balance considerations around energy security, sustainability and costs. Innovation has been recognised through our stakeholder priorities "Be Innovative" and this is why we have engaged on this topic.

Ofgem have stated in their Framework Decision that:

Ofgem will retain an innovation stimulus package.



- Ofgem wants to limit innovation funds to projects that will not otherwise be delivered under the core RIIO-2 framework.
- Ofgem wants to: (i) increase alignment with energy transition challenges; (ii) co-ordinate with wider public funding for innovation; and (iii) increase third party engagement with the stimulus package.

We wanted to seek guidance from stakeholders on how to take these areas forward and what options we have stakeholder support for.

PRE-ENGAGEMENT

What are the desired outcomes for engagement?

This engagement sought to understand whether our current innovation approach aligns with what stakeholders want from us, or whether we should change our plans.

The engagement sought to understand whether our current innovation approach aligns with what stakeholders want from us, or whether we should change our plans. We wanted to:

- Obtain stakeholder views on Innovation Strategy
- Establish stakeholder views on the importance of innovation within the T2 period
- Obtain stakeholder views on how network innovation should be funded (BAU versus schemes allowances vs competition)
- Explore our overall approach to innovation
- Seek their views on the future of NIC, NIA and/or their replacements

What existing insight has been utilised?

We used feedback from our Listen phase, when innovation was one of the key topics of our engagement activities. Details can be found in our <u>Listen report</u> and in the <u>write-up</u> of our 2017 workshops and online consultation.

What is the engagement approach?

Given the number of stakeholders involved and the types of issues being discussed (which lend themselves well to debate rather than bilateral conversations), we firstly ran a workshop, with stakeholders from all of the relevant groups/organisations identified and invited.

The day was structured around topic-specific sessions and involved:

- A short presentation to this, we use ongoing feedback from to provide context for all stakeholders to shape our engagement. For example, we used to be able to discuss the subject area.
- A facilitated table discussion, during which all stakeholder comments were captured to provide qualitative feedback.
- A short voting exercise, allowing us to capture quantitative feedback from our 2017 Listen workshops to improve the way we ran our 2018 workshop

From the workshop we held, there was a clear message that stakeholders wanted to see our future innovation plans and help us with them.

We used the <u>Net Promoter System</u> to collect feedback at the end of the event and received a score of +46 and an average score of 8.3 out of 10 when asked how likely attendees would be to recommend the workshop to a friend or colleague.

Stakeholders told us that:



- There is a need for us to share our business technical challenges with you.
- There is a need for better collaboration within the Innovation space and National Grid should facilitate
 this
- You need more data to be shared within the innovation community.
- Educating consumers is missing from Ofgem's priorities and is a key area to focus on.

We need to seek guidance from stakeholders on how to take these areas forward and what options we have stakeholder support for.

Channels used, including our initial Listen phase workshops, are listed below:

The following organisations were represented at the workshop with 39 attendees in total:

3M	Elemridge Cable Services Ltd	National Composites Centre		
ABB	Energy Innovation Centre	Oxford Computer Consultants		
Amazon	Fraser Nash Consultancy	PA Consulting		
Arenko Group	o Group Haesco Ltd Pricewaterhous			
Atkins Global	Highview Power	Scottish and Southern Energy		
Baker Hicks	JSM Group	Scottish Power Energy Networks		
Burns McDonnell	Lagoni	Siemens		
Capula	Megger	University of Chester		
Digital Engineering	eering Morgan Sindall University of Manchester			
EDES Ltd	Mott MacDonald University of Southampton			

And from the following stakeholder segments:

Stakeholder Group	Attendees
Supply Chain	20
Other energy industry	7
University, think tank, Research Institute	6
Energy network owner or operator	3
Other non-energy industry	2
Customer	1

ENGAGEMENT

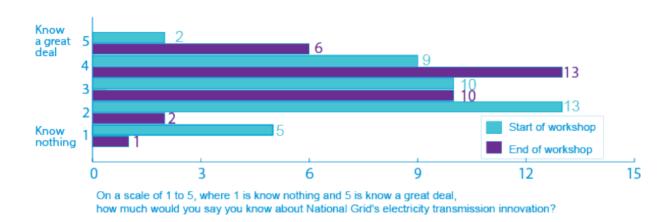
Overview of responses

At the start of the workshops, we asked stakeholders to tell us how much you knew about Electricity Transmission Innovation and we asked the same questions at the end of the day to gauge how well we explained what we do.

On a scale of 1 to 5, where 1 is know nothing and 5 is know a great deal, how much would you say you know about National Grid's electricity transmission innovation?

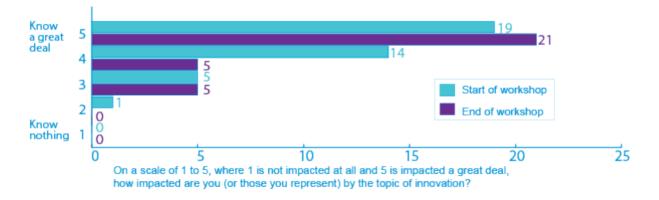


On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of innovation?



We also asked our stakeholders the following question on how impacted you are by the topic of Innovation and we asked the same question at the end of the day to gauge how well we explained impact.

On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of innovation?



In the first session we introduced stakeholders to the changing components of the energy landscape; decarbonisation, decentralisation and digitalisation. We explained that the energy landscape is undergoing significant transition and that political, economic, societal and technological trends impact the way in which we produce and consume energy.

We discussed how innovation can drive change in behaviours and shared examples of other companies who have been innovative and how society has changed their behaviours because of the innovative idea.

In the table discussions, we used the following questions to begin the conversation:

- What do you think we should be focussing our innovation on in the future?
- What should be our top 3 focus areas?



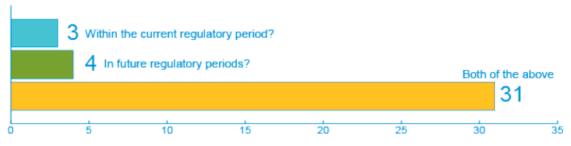
- Think long term, beyond RIIO-2 (2026)
- No limitations
- How will consumers benefit?
- And how we should be doing this?

Stakeholders then shared the table discussions with the room with their top 3 focus areas and we pulled together all of the focus areas and categorised to obtain the list below. They then voted for their priority order and this was the result

- 1. Whole System be open to more third-party involvement & incentives, consumer involvement. Better smart meters, future scenarios
- 2. Dynamic and Flexible speed of innovation, internal policy
- 3. Balance of risk incentive for others not just NGET
- 4. Disruption sharing data, analytics, better asset management technology
- 5. Environment/Carbon Impact
- 6. Storage Batteries

We then asked the following questions:

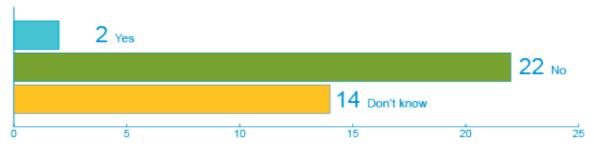
Q: Should utilities be incentivised to innovate on projects that potentially deliver value



Should utilities be incentivised to innovate on projects that potentially deliver value?

We asked

Q: Do you believe network utilities are investing sufficient resource in innovation activities?



Do you believe network utilities are investing sufficient resource in innovation activities?

We then discussed that in a truly competitive market for transmission, what do stakeholders think a network company should prioritise based on these priorities:

- 1. Delivering value to their existing customer base
- 2. Delivering short-term value to their shareholders



- 3. Developing new products and services for existing customers
- 4. Growing their customer base
- 5. Delivering long-term value to their shareholders
- 6. High-risk, disruptive innovation
- 7. Meeting government targets

Stakeholders voted and told us that the priorities should be as:

- 1. (3) Developing new products and services for existing customers.
- 2. (1) Delivering value to their existing customer base.
- 3. (7) Meeting government targets
- 4. (5) Delivering long -term value to their shareholders
- 5. (4) Growing their customer case
- 6. (6) High-risk disruptive innovation
- 7. (2) Delivering short-term value to their shareholders

We next discussed and shared with you what in our opinion what had gone well in T1 and what did not work so well against our mechanisms of Network Innovation Allowance, Network Innovation Competition and Innovation Rollout Mechanism.

We introduced he RIIO-2 framework consultation.

We shared there are 7 key innovation focus areas for RIIO-2 and it may now be appropriate to re-focus support towards larger-scale, 'whole-system' orientated projects.

- 1. Companies will share more risk The balance of risk should be more heavily weighted towards the company and not the consumer
- 2. Stronger incentives in place- There should be stronger incentives on network companies to meet the future challenges
- 3. Rewards good performance Network companies should be rewarded for great innovation performance
- 4. Demonstrate long-term value to consumers
- 5. Enabling increased third-party engagement
- 6. Drive the transition to BAU using the incentives framework Setting allowances for some activities over a longer timescale to enable greater flexibility
- 7. There is a drive to get greater co-ordination with external funding streams

As a table stakeholders discussed the following questions:

- What are your initial thoughts on these priority areas?
- Do you agree with these?
- Is there anything else you believe is missing and needs to be considered?

How would you rate these priorities and why? tables fed back to the room on the discussion on priorities, stakeholders then voted on these and decided that the priority order should be:

- 1. Companies will share more risk The balance of risk should be more heavily weighted towards the company and not the consumer
- 2. Stronger incentives in place- There should be stronger incentives on network companies to meet the future challenges



- 3. Rewards good performance Network companies should be rewarded for great innovation performance
- 4. Demonstrate long-term value to consumers
- 5. Enabling increased third-party engagement
- 6. Drive the transition to BAU using the incentives framework Setting allowances for some activities over a longer timescale to enable greater flexibility
- 7. There is a drive to get greater co-ordination with external funding streams

WHAT WAS THE FEEDBACK ON THE ENGAGEMENT APPROACH?

The workshop was well received by attendees, with a **Net Promoter** score of **+46** and an average 8.3 out of 10 when asked how likely to recommend the workshop to a friend.

"Really good and open engagement. Very willing to listen good or bad"

"Informative and interesting. A great opportunity to meet with a range of professionals and discuss ideas that may otherwise be missed"

"Good background knowledge on the TO's and Ofgem's objectives and ideal opportunity to network"

A summary report of all of the feedback was sent to all attendees on 31st August and is available on our website http://yourenergyfuture.nationalgrid.com/

I. What feedback was received from stakeholders on the engagement approach?

Delegates rated the event 8.3 out of 10

II. Has best practice been shared?

Building on learning from our 2017 workshops, and the early 2018 workshops, we deliberately chose not to use a third-party facilitator but made sure that all National Grid employees were fully briefed so as not to introduce any potential bias to the conversations. This again appears to have been well-received by attendees, with a Net Promoter² score of +46 and an average score of 8.3 out of 10 when asked how likely they would be to recommend the workshop to a friend or colleague.

POST ENGAGEMENT

We followed event with a document providing an overview of what had been discussed and the output of the conversations.

One of the main feedbacks we received was around communications. Stakeholders accepted that we produced a significant number of technical and reports which suited engineers. However, middle management upwards and did not have the time to read these reports and asked for a podcast.



strategic SMEs

Innovation Stakeholder Workshop Feb 2019

We organised a follow on Stakeholder Event for the 11th February 2019 to review our new innovation strategy, provide details of our proposed direction and obtain feedback; as well as inform our stakeholders of our T2 submission timelines and proposals.



² More details on the Net Promoter System and how it works can be found here.

On 11th February 2019 at The Studio in Birmingham, UK we held a stakeholder workshop to review our new innovation strategy, provide details of our proposed direction and obtain feedback; as well as inform our stakeholders of our T2 submission timelines and proposals.

The desired outcomes for this engagement were?

- We want them to be our advocates.
- We want to know what they want to see from the Innovation Strategy
- We want to be more specific around individual technology plans and develop an agreed view of what does the future of each area looks like.
- We want an agreed vision and roadmap for 2021, 2026, 2031 and 2050.
- Want them to feel happy, feel listened to and engaged from previous stakeholder event.
- Want to get them involved and feedback for the T2 consultation in March to defend that we need Innovation funding.

During the event we used a system called Slido to capture feedback throughout the day.

Innovation Stakeholder Workshop Oct 2019



This stakeholder event took place on 1 October 2019 at the Vox in Birmingham and was attended by 85 Innovation Stakeholders. The Net Promoter Score from this event was +56.

The agenda included an overview of our RIIO-T1 performance, our plans for RIIO-T2 and how we are prioritising the benefits of collaborative working relationship where the EIC and ip3 gave a presentation. During the afternoon stakeholders were given the opportunity to attend two innovation portfolio workshops of their choice, see details below.

Stakeholders found the event.

- Engaging
 - Interesting
- Informative
- Useful opportunity to network

The Innovation Portfolio workshops received positive feedback and actually stakeholders would have liked more time for these sessions with the opportunity to go to more than two sessions.

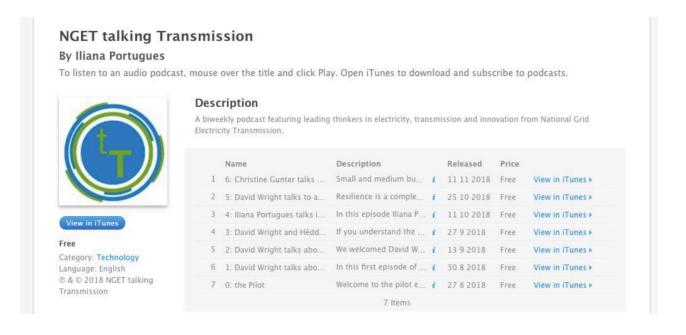
Our Innovation Portfolio workshops were on the following innovation asset areas and stakeholders had the opportunity to attend 2.

Innovation Asset Areas				
Customer and Stakeholder	Cyber Security			
Protection, Automation and Control	Wide Area Monitoring			
Overhead Lines	Transformers			
Underground Transmission	Deeside			
Decarbonisation and whole system design	SF6 Alternatives			

Appendix 3: Podcasts

On the 27th of August we launched our channel, <u>Talking Transmission</u>, where we publish bi-weekly podcasts on transmission-related subjects. To date, we obtain an average of 200 listeners per episode and have provided an overview of the present and future challenges, innovation in the current regulated environment and our approach to customer and stakeholder management.





Appendix 4: Social Media

Linked In - Innovation at National Grid

National Grid

Facebook - National Grid UK

Appendix 5: LCNI 2018 and LCNI 2019

NGET Exhibited the following projects in 2018

Digital content:

Deeside Virtual Reality

Physical assets to display:

Deeside model

Textured insulator project

Tyne Crossing

Presentations in the breakouts are

Reliability

NGET exhibited the following projects in 2019

Digital content:

Deeside Virtual Reality

Decarbonisation of Heat animation

Advanced Line Rating Analysis

Textured Insulator

Decarbonisation of South Wales

Innovation Annual Summary

Physical assets to display:

Deeside model and textured insulator

Membrane Dryer on display – how using drying protection technology to safeguard our substations. Impressed Voltage toolkit on display – showcase the IV toolkit that we have developed for measuring and improving the way we mitigate the risks from IV within high and low voltage substations



Presentations in the breakouts are

Breakout Topic	Presentation Title
Deep Dive	Cable sealing ends
Safety, Health and Environment	Silicone Oil Work
New Technologies and Smart Grids	Cyber Resilient Electric Substation Technologies (CREST)
Network Improvements and System Operability	Advanced Line Rating Analysis (ALiRA)

LCNI Programme can be found here:

http://www.lcniconference.org/assets/files/2014/2019/Programme/LCNI%20Draft%20Programme%20_2019 0815.pdf

Appendix 6: Utility Week Live 2019

On 21 and 22 May 2019 NGET Innovation Team hosted an exhibition area within the Electricity Zone at Utility Week Live 2019. This was in collaboration with Energy Innovation Centre where National Grid, SPEN, Northern Power Grid, UK Power Networks and SSEN showcased how we are innovating for the future decarbonised energy system. The Electricity Transmission Innovation team showcased its Textured Insulator project and the Deeside Innovation Centre, examples which will help facilitate innovation across the industry. Over the two days the team engaged with 26 different companies from the following stakeholder groups: Energy Industry, Non Energy Industry and Thought Leaders.

Appendix 7: T2 Webinars 2019

During July and August 2019 we asked for feedback, comments and further input on what we are proposing in our 'We will be innovative Chapter. The Innovation propositions were categorised into three proposal areas; Delivering Cleaner Energy, Delivering Cheaper Energy, Creating the Future This was an opportunity for us to explain our propositions in more detail, answer any questions and to check that our plans will deliver what our stakeholders need from us.

Delivering Cheaper Energy

How would you rate your understanding on our T1 Innovation Mechanisms?

Do you have a better understanding about innovation in RIIO T1 and T2?

How would you rate your understanding about our innovation proposals for RIIO-T2?

Digitisation - How Critical do you think it is that we innovate to digitise our data, systems and operations?

Digitisation - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Digitisation - If you do not think we are asking for the correct amount, how much do you think we should be asking for?

Responsive and Agile - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Responsive and Agile - How critical do you think it is that we continue to investigate responsive and agile solutions?

Responsive and Agile - If you do not think we are asking for the correct amount, how much do you think we should be asking for?

Vulnerable Consumers - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Vulnerable Consumers - How critical do you think it is that we develop an innovation programme around vulnerable consumers?



Delivering Cleaner Energy

Decarbonising Society - How critical do you think it is that we innovate to decarbonise society and achieve Net Zero?

Decarbonising Society - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Decarbonising Society - If you do not think we are asking for the correct amount, how much do you think we should be asking for?

Reducing our Carbon Footprint - How critical do you think it is that we innovate to reduce our carbon footprint?

Reducing our Carbon Footprint - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Deeside - how critical do you think it is that we continue to innovate at our Deeside Centre?

Deeside - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Delivering Future Energy

Health and Safety - How critical do you think it is that we continue to perform some investigations in the area of H&S?

Health and Safety - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money?

Self-sustaining Innovation - How critical do you think it is that we develop the capability to self-sustain innovation?

Self-sustaining Innovation - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money? Embedding a Culture of Innovation - How critical do you think it is that we embed a culture of innovation?

Embedding a Culture of Innovation - Given the criticality and uncertainty of the programme and the outcomes proposed, are we asking for the right amount of money

Embedding a Culture of Innovation - If you don't think we are asking for enough, how much do you think we should be asking for?

Webinar – Delivering Cleaner Energy

29th July and 5th August 2019

The two webinars were attended by 15 people to further educate stakeholders and talk them through our RIIO T2 plans. This gave us an opportunity for us to explain our propositions in details, answer any questions and check that our plans will deliver what is required from our stakeholders. Areas of discussion were:

- Decarbonising society
- Deeside centre for Innovation
- Reducing our carbon foot print

Stakeholders in Attendance:



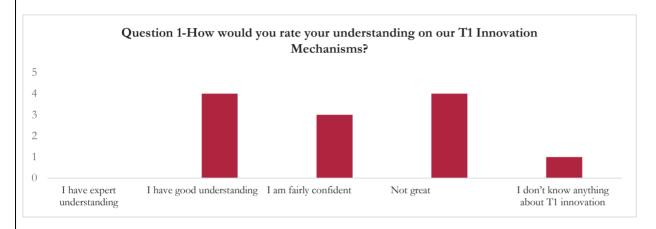
Citizens Advice Tata Steel
Mott Macdonald Siemens

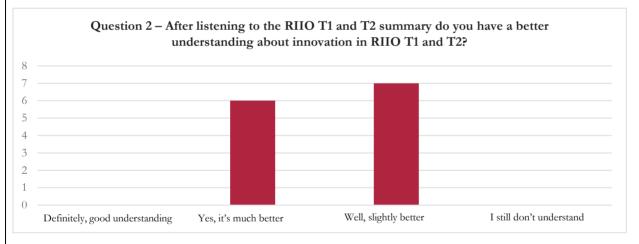
PB Design Burns McDonald Fraser Nash Morgan Sindall

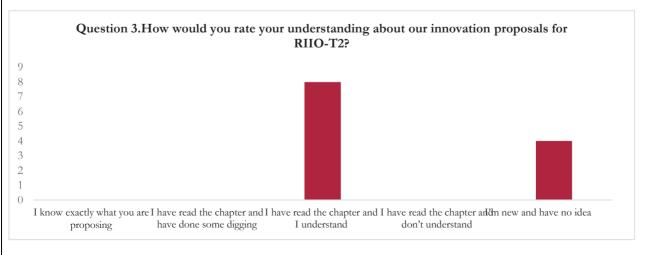
Marchwood Power CR Plus

Wipro Babcock International 3M Welsh Government

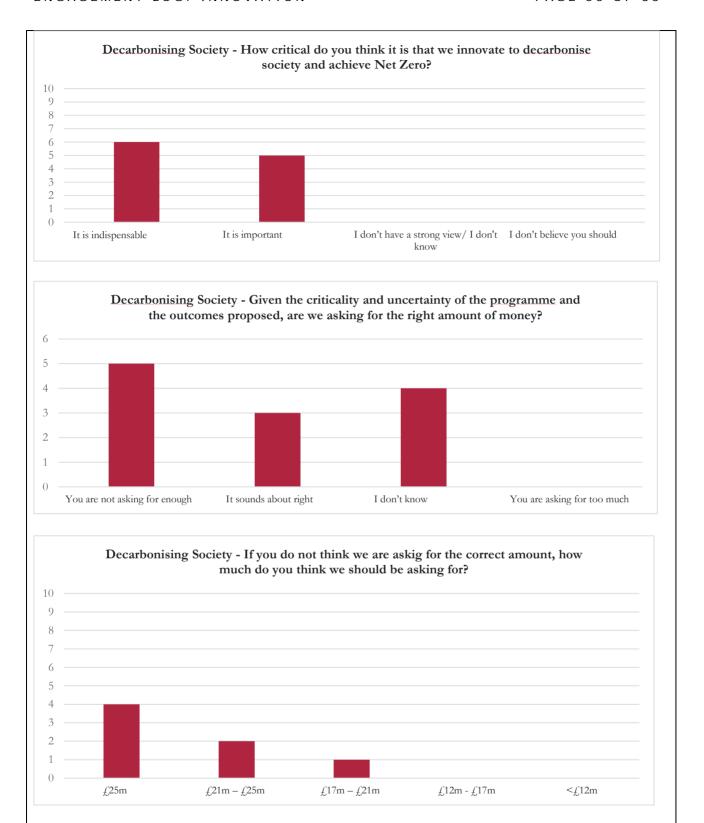
Throughout the webinar, we asked several questions. The questions and responses can be seen below.

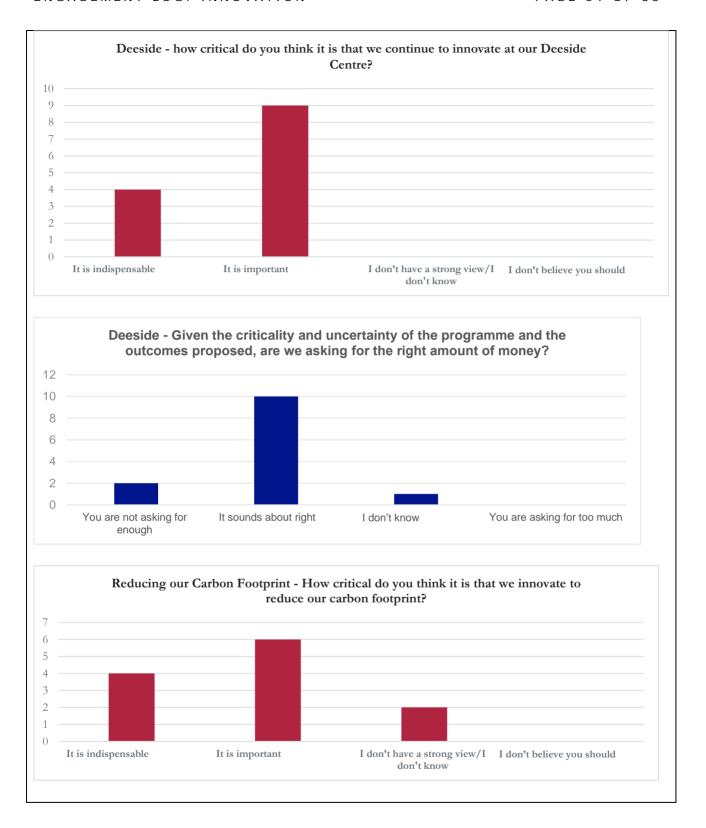


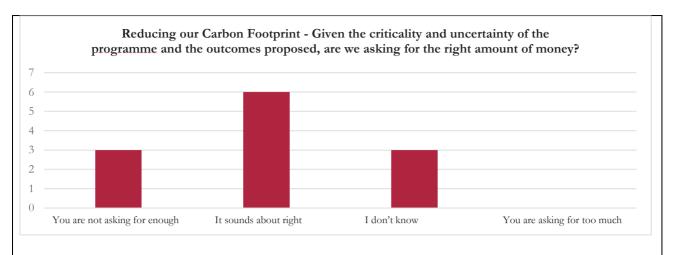












Summary of feedback

Majority of the stakeholders who attended had a good understanding and were fairly confident with the T1 mechanisms and after the webinar had a better understanding of both T1 and T2 mechanisms.

Decarbonising society – most stakeholders agreed that this was indispensable and we needed to innovate to decarbonise society and achieve Net Zero and that we were not asking for enough money to do this. They thought we should be asking for around £25m.

Deeside centre for Innovation – Stakeholders agreed that its important to continue our innovation at the Deeside centre and the amount of money we were asking for seemed appropriate.

Reducing our carbon foot print – Stakeholders agreed that innovating to reduce our carbon footprint was very important and we were asking for the right amount of money.



Webinar – Delivering Future Energy

31st July and 7th August 2019

The two webinars were attended by 12 people to further educate stakeholders and talk them through the RIIO T2 plans. This gave us an opportunity for us to explain our propositions in details, answer any questions and check that our plans will deliver what is required from our stakeholders. Areas of discussion were:

- Health and Safety
- Self-sustaining innovation
- Embedding a culture of innovation

Stakeholders in Attendance:

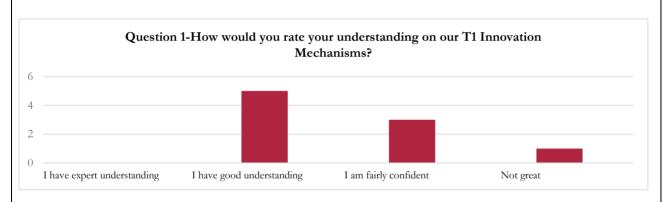
Frazer Nash 3M

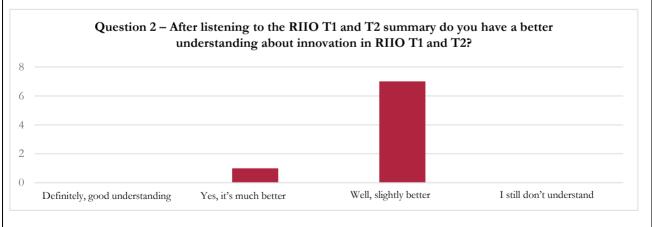
Siemens Vodafone

Wipro Southampton University
SSE Burns McDonald
Siemens Babcock International

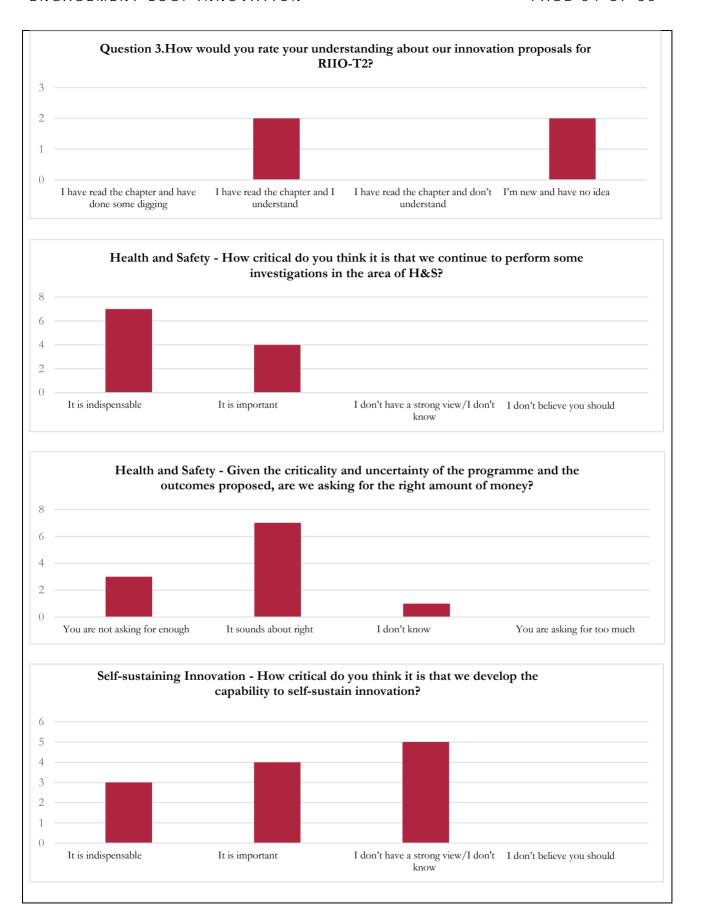
PB Design

Throughout the webinar, we asked several questions. The questions and responses can be seen below.











Majority of the stakeholders who attended had a good understanding and were fairly confident with the T1 mechanisms and after the webinar had a better understanding of both T1 and T2 mechanisms.

Health and Safety – Majority of stakeholders agreed it was indispensable that we continue to research and innovate in the area of Health and Safety. The funding we are asking for also seem about right.

Self-sustaining innovation – Stakeholders thought it was important that continue to develop the capability of self-sustaining innovation and the funding being requested seemed right.

Embedding a culture of innovation – Stakeholders agreed that embedding a culture of innovation was important and we were not asking for enough funding. We should be asking for between £7m and £10m.



Webinar - Delivering Cheaper Energy

30th July and 6th August 2019

The two webinars were attended by 14 people to further educate stakeholders and talk them through the RIIO T2 plans. This gave us an opportunity for us to explain our propositions in details, answer any questions and check that our plans will deliver what is required from our stakeholders. Points discussed were

- Digitalisation
- · Responsive and agile
- Vulnerable customers

Stakeholders in Attendance:

Fraser Nash Marchwood power

PB Design Siemens
Capgemini Natural Wales

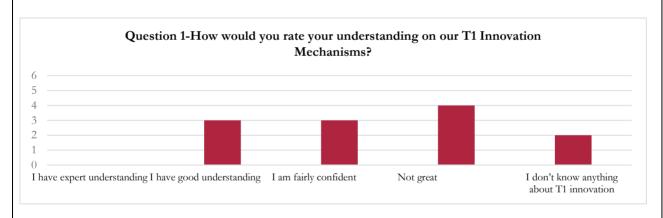
Network Rail 3M

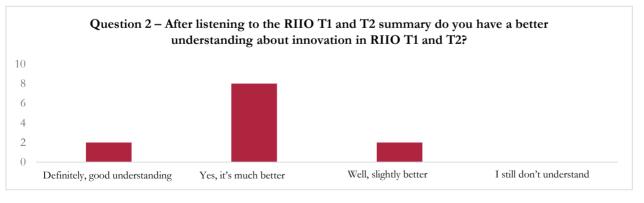
Cadent Smartia Technology

Wipro Vodafone

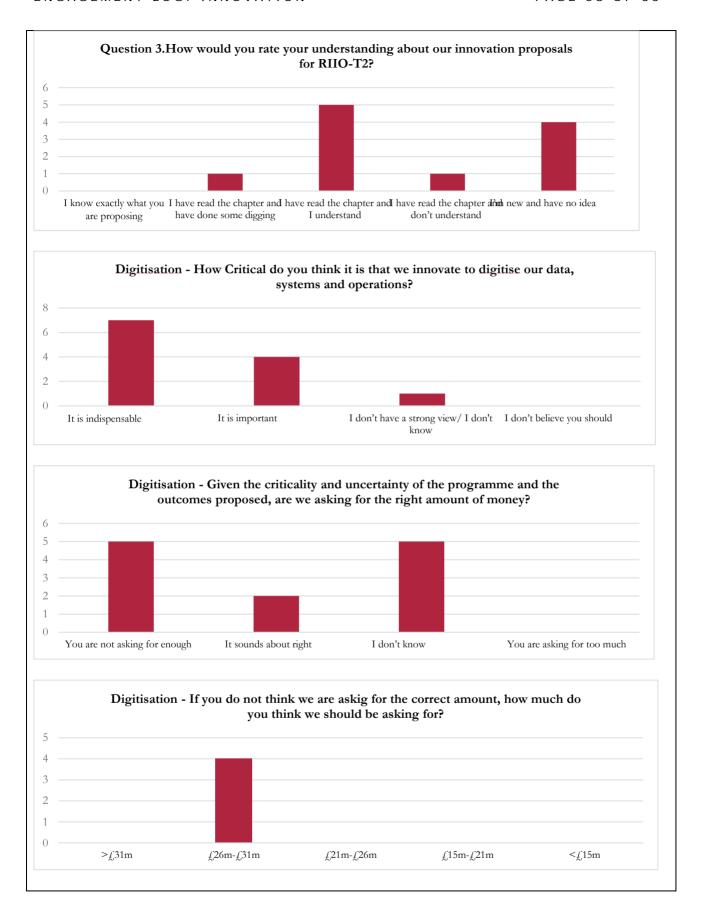
SSE

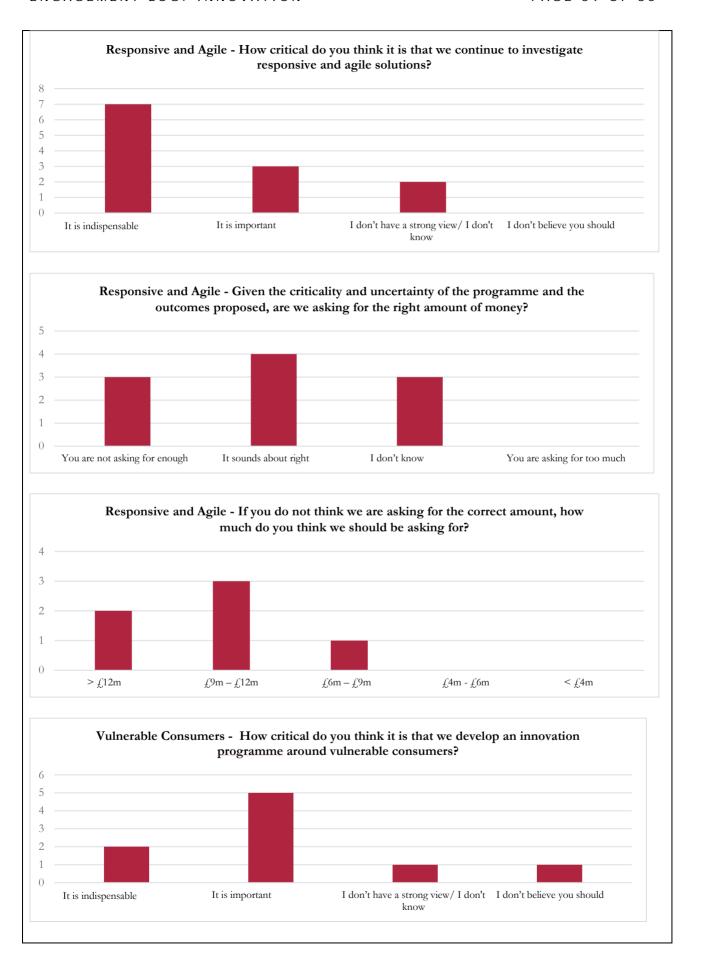
Throughout the webinar, we asked several questions. The questions and responses can be seen below.

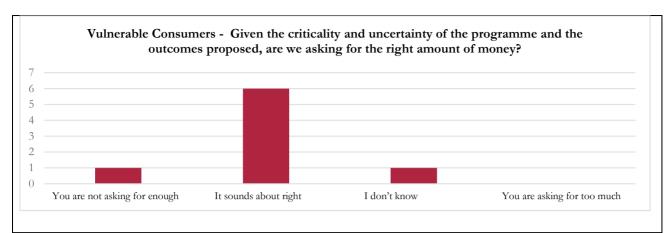












Summary of feedback

Majority of the stakeholders who attended had a good understanding and were fairly confident with the T1 mechanisms and after the webinar had a better understanding of both T1 and T2 mechanisms.

Digitalisation – Stakeholders believed innovation was required to digitalise our data, systems and operations and should be asking for between £26m and £31m.

Responsive and agile – Stakeholders agreed this is an area we should focus on. The majority of stakeholders thought we are asking for the right amount of money but many also thought we should be asking for between £9m and £12m.

Vulnerable customers – Stakeholders believe its very important to develop an innovation programme which focuses on vulnerable consumers and that the money being requested was right.

The feedback from our stakeholders during these webinars directly influenced our RIIO-T2 plans as they informed us that we should be focusing more NIA investment on decarbonisation and less on culture. We decided to remove this from our NIA propositions and commit to improving our innovation culture through our business as usual activities by committing to deliver cultural improvements measured through the IDEO cultural survey. See section 4 of the 'We will be innovative' chapter.

Our two strategic focus areas ae now:



Delivering Cleaner Energy

Reducing our carbon footprint and helping others reduce theirs. Accelerating the testing and rollout of new technologies at our Deeside Centre for Innovation.



Delivering Cheaper Energy

Through a long-term innovation programme, deliver a net-zero whole energy system solution at minimum cost.





Appendix 8: External Speaking Engagement Activity 2019

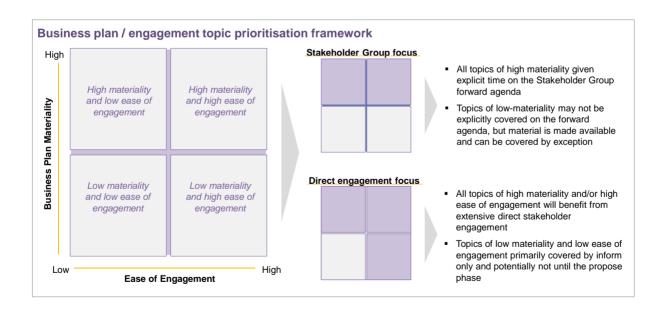
1.1			<u> </u>	5 5				
							Oct	
		Utility Week		Future of Utilities:				
	Future of Utilities Summit 2019	Procurement &		Innovation in	Autonomous Machines World Summit 2019			
	Tuesday 26 March 2019	Supply Chain		Networks	Mon 1 / Tue 2 July 2019			
	London	Leaders Forum Thursday 4 April		Wednesday 26 June 2019	Berlin			
	lliana Portugues	2019		Iliana Portugues	Iliana Portugues			
	Transforming	Birmingham		Panel discussion -	Moderate round tabel			
	transmission through innovation	lliana Portugues		implementing	session / present case			
	IIIIOVation	https://event.utilitywe		innovation; how	studies of autonomous machines in electricity			
	https://marketforcelive.c	ek.co.uk/procureme nt/		improved across the	transmission - detail tbc			
	om/future-of- utilities/events/utilities-	110		energy industry	www.autonomous-			
	summit/			https://marketforceliv e.com/future-of-	systems-world.com			
				utilities/events/innov				
				ation-networks/				
	Internet of Energy							
	Tuesday 19 / Wednesday 20 March							
	2019							
	Berlin							
	Iliana Portugues				Future of Infrastructure			
	https://ioe-				Conference			
	de.internetofbusiness.co				Thursday 18 July 2019			
	<u>m/</u>				London			
					Iliana Portugues			
					Presentation: The future of			
					green infrastructure			
					https://infrastructure.co.uk/ agenda/			

6.1 ENGAGEMENT PRINCIPLES CHECKLIST

Prin	ciple	Check
1	Define and map your stakeholders - anyone who believes they are affected by your decisions. Recognising the different threads of the public interest – stakeholders, customers, consumers, citizens, communities (geographical and interest)	√
2	Be clear what you want to achieve with "engagement" – have clear policy objectives and measures of impact; (incl. where you most need to engage)	✓
3	Understand the "spectrum of participation" and difference between each part of that spectrum: inform, consult, involve, collaborate, empower	√
4	Engage early in the process, review and improve throughout	√
5	Leadership – effective stakeholder engagement must be led from the top of the organisation	√
6	Commitment – to listen to stakeholders' views and act on or respond to them	√
7	Objectivity – an open approach to obtaining stakeholders' views and to interpreting them. Seek to understand views on a range of topics and on all aspects of the business plan, rather than predetermining their priorities or seeking to endorse your own priorities	√
8	Transparency – to build stakeholder trust and show that you take their views seriously (incl. how we've considered views, weighted and managed trade-offs)	√
9	Be inclusive: work with stakeholder groups to gather the fullest range of interests. Understand and balance the differences between different segments. Understand and balance the differences between existing and future stakeholders	✓
10	Be aware that those who often participate i.e. the "usual suspects" are not always representative	√
11	Be accessible to all (e.g. in consideration of the tasks, timelines, contact person, tech., locations, challenges of communication, etc.)	√
12	Use targeted approaches to tailor engagement to suit the knowledge and awareness of different groups	√

13	An ongoing process that is embedded across the business – not just a stand-alone business planning/price control review exercise.	√
14	Evidence based – use a full range of available sources of info to identify priorities, views and challenges (e.g. operational insight, bespoke research,	√
15	Gather evidence through a range of methodologies and tools including willingness to pay, qualitative research, surveys, complaints intelligence, market data	√
16	Be responsive – seek to adopt a flexible process to engagement, responding to the information revealed as the process progresses	√
17	Demonstrate impact of engagement – ensure that the engagement design process plans for and allows evaluation of success	√
18	Innovation – trying new and innovative ways of engaging	✓

6.2 BUSINESS PLAN / ENGAGEMENT TOPIC PRIORITISATION FRAMEWORK



	Business plan topics	To	pic prioritisation	
I want you to make it easy to connect to and use the electricity network	Customer experience Connections	High	3 Availability /ENS 4 Asset risk	1 Customer experience 7 Cyber
I want you to provide a reliable network and safe so that electricity is there whenever I need it	Availability / energy not supplied Asset risk Non-load related (NLR) investment plans Keeping people safe		5 NLR plans 11 Future of networks 2 Connections	Physical Weather Black Start Transparency Natural Environment
want the network to be protected from external threats	7 Cyber security 8 Physical security 9 Extreme weather protection 10 Black Start	Plan Materiality	12 Delivering the networks you want 13 Dealing with Uncertainty	17 Community 18 Visual Impact Provision 19 Innovation
I want you to enable the ongoing transition to the energy system of the future	Future of networks Delivering the network you want Dealing with uncertainty	Business Pla	6 Safety 20 Benchmarking	13 Business planning
want you to be transparent about your performance	14) Stakeholder-led business planning 15) Transparency of performance	ω	21 CBA	
want you to care for communities and the environment	Natural environment Community Visual Impact Provision			
	19) Innovation			

6.3 STAKEHOLDER SEGMENTS

Stakeholder Segme Segment	nts – Electricity Description	Example organisations
Political	Elected officials and advisors; Westminster + Cardiff	MPs, SpAds, Assembly Members
Governmental	Civil service and committees	BEIS, DEFRA, NIC, CCC
Regulatory	Energy and safety regulators	Ofgem, HSE
Consumers	Members of the public, commercial & industrial	Members of public and businesses
Consumers bodies	Members of the public, commercial & industrial	Citizen's Advice, NEA, Which?, MEUC, CBI
Communities	Local councils, community representatives	Greater London Authority, Anglesey County Council
Large customers	Large, often vertically integrated and international	Big 6, Drax, Orsted, Network Rail
Small / new customers	Small, often specialist organisations or non-energy	OVO Energy, Robin Hood Energy, JLR
Network companies	Other regulated energy network companies	UKPN, WPD, NPG, ENW, SPEN, SSEN
New business models	New business exploiting the '3 Ds'	Pivot Power, Limejump
Think tanks & innovators	Elected officials and advisors; Westminster + Cardiff	Energy Systems Catapult, IET, EIC
Interest groups	Groups representing special interests	Green Alliance, Sustainability First,
Academics	Energy specialists and researchers in academia	Imperial College, Exeter Uni., Newcastle Uni.
Supply chain	Developers and suppliers of network assets	Siemens, ABB, Prysmian
Other	Stakeholders not defined in other segments	Media, Consultants, EU bodies, etc.

6.4 ENGAGEMENT APPROACH - SPECTRUM

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
STAKEHOLDER ENGAGEMENT GOAL	To provide stakeholders with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	To obtain stakeholder feedback on analysis, alternatives and/or decisions	To obtain public feedback on analysis, alternatives and/or decisions	To partner with stakeholders in each aspect of the decision including development of alternatives and the identification of the preferred solution	To place final decision making in the hands of the stakeholder
PROMISE TO THE STAKEHOLDER	We will: • keep you informed	We will: Keep you informed Listen to and acknowledge concerns and aspirations Provide feedback on how you have influenced our decision Seek feedback on drafts and proposals	We will: Work with you to ensure that your concerns and aspirations are directly reflected in alternatives developed Provide feedback on how you have influenced our decisions	We will: Work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible	We will: Implement what you decide

