

Making a Difference

Highlights of our activities and outcomes following stakeholder engagement

Ofgem Electricity Transmission Stakeholder Engagement Incentive Scheme 2018/19
Part Two



WINNER



SP ENERGY NETWORKS

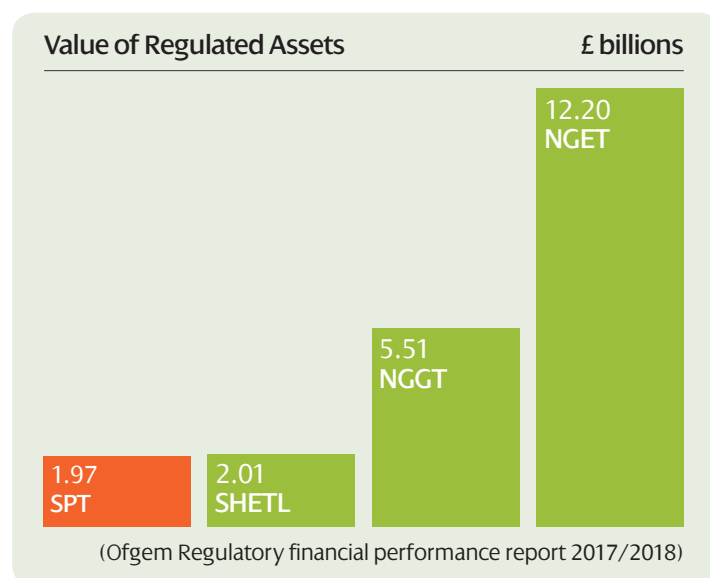
Contents

This is Part Two of our submission to Ofgem's Stakeholder Engagement Incentive for regulatory year 2018/2019.

SP Energy Networks takes electricity generated from power stations, windfarms and various other utilities and transports it through our vast transmission network in Central and Southern Scotland.

Ofgem's annual Stakeholder Engagement Incentive encourages Transmission Network Operators (TOs) to 'engage proactively with stakeholders in order to anticipate their needs and deliver a consumer focused, socially responsible and sustainable energy service'.

Introduction	01
Our Enhanced Stakeholder Engagement Strategy	02
Measuring benefits – a ground breaking approach	03
BETTER – A Sustainable Network	04
FUTURE – A Resilient Network	06
QUICKER – An Innovative Network	08
Examples of Other Engagement	10



Company size and scale

SP Transmission is fourth in terms of current worth of our regulated assets, but not in terms of our ambition, when comparing all four Transmission Operators. We play a critical role in providing security of supply across GB and in facilitating the connection of new renewable energy.

Introduction

Stakeholder engagement has never been as valuable as we transform our business to help the UK meet its climate change goals.

It is my personal goal that the culture of stakeholder engagement across SPEN is focused on delivering the business change that is necessary to future proof the network.

Our enhanced strategy and tools have allowed us to engage with more stakeholders in more tailored and effective ways this year. To complement better engagement we have ensured that feedback is heard, escalated to the appropriate division, tracked, acted and followed up on.

We have engaged heavily in our local communities, seeking to support their low-carbon ambitions and the establishment of a new green economy.

We are also leading by example, investing in new globally-leading innovations which reduce environmental impact, improve stability, reduce the footprint of our assets and provide better service to users of the network.

I am extremely proud of my team and their ongoing commitment to stakeholder engagement and for ensuring we implement the feedback that makes the difference to our plans and activities.

Our Part 2 submission highlights some of the key outcomes we have delivered in the past 12 months through targeted engagement, going above and beyond business as usual.

Frank Mitchell, CEO, SP Energy Networks



The UK's leading Network Operator

Awarded 'Network of the Year' at The Network Awards 2019.



£15m investment made to date to accelerate innovative low-carbon community projects to benefit society and local economic growth.



We're delivering a £100 million innovation programme, the biggest in the industry, as we work to transform our system to a dynamically managed active network.



We have 30% of GB's renewables connected to our system – against 14% of GB demand, facilitating access to Scotland's 10GW of clean, renewable power for customers across the UK.



World's first utility company to achieve the BSI Kitemark for Customer Service.



How do we know we are focused on the right topics?

Key engagement themes

In 2018, we carried out customer research, engaging with a diverse range of consumers via discussion groups to ensure we were focusing on the right topics.

We wanted to understand what our customers wanted from a network operator and the key values they expect us to hold. (See Part 1, Page 2).

Based on the feedback we received, we have structured our engagement approach on the following three strategic themes – Better, Future, Quicker.

Embedded in the business

We operate with one business wide engagement plan, divided into 11 clear topics under our three key themes. Each topic is owned by a senior manager, responsible for engagement across the whole of the business including executive team, senior management, centralised departments and local teams. Across the business we now have 62 trained users on our Tractivity stakeholder engagement management system, ensuring clear tracking of engagement, feedback and actions right across the business. The feedback and actions seen throughout this document demonstrate the success of our approach.

BETTER A SUSTAINABLE NETWORK

Last year we stated that as a transmission operator we had a critical role to play in decarbonisation. We believe that our role remains, as we see an increase in renewable generation connections and the decarbonisation of heat and transport, all of which our stakeholders have told us is of utmost importance. Therefore we present how we are striving to lead the way in sustainability, creating a better future for all. This can be seen in one of our case studies; reducing our SF6 footprint by using the alternative g3.

FUTURE A RESILIENT NETWORK

The change in Scotland's energy mix has been necessary in order to provide a better, more sustainable future for all. With this change brings greater responsibility to ensure that our stakeholders are aware of the importance of a resilient network. To allow our communities to thrive under this new energy mix, maintaining a focus on resilience is imperative to provide a safe supply to our customers. This was demonstrated during the outage flexibility project, where one of our stakeholders was able to buy an enhanced service off a Transmission owner, resulting in a reduced outage timeframe and a substantially lower loss of turnover.

QUICKER AN INNOVATIVE NETWORK

When our stakeholders tell us what they would like the future of the industry to look like, our goal is to be the main facilitator for this. We ask to collaborate in order to help innovate and seek ways to make our network and service to users as efficient and as cutting edge as possible. Providing that better future they wish for, quicker. An example of this is sharing best practices across the industry to deliver an efficient and effective future for our customers and stakeholders.

Our Enhanced Stakeholder Engagement Strategy

Our new and improved stakeholder engagement strategy has been built to ensure each engagement is planned, reviewed and closed using the same process, ensuring consistency in all of our engagements.

As part of this evolution, we integrated feedback from our external stakeholders at our Strategic Stakeholder Panels. We have also looked for expert guidance to signpost our improvement efforts, directly

integrating feedback from Ofgem, AccountAbility's AA1000SES audit, and an independent gap analysis by Sia Partners, a recognised expert in the area.

Below is a short summary of key steps of our strategy, as well as the supporting tools and processes, with full details explained in Part 1 of our submission.

Feedback from AccountAbility AA1000SES Audit 2017/2018

To allow for greater clarity in terms of utilising the different engagement tools and realising the business value of diligently monitoring post-engagement outcomes and actions, SPEN have established a more formalised stakeholder engagement process and guidelines. Consider the development and expansion of business-wide, outcome-oriented metrics to help monitor the aggregate performance of stakeholder engagement.

Key Steps of Our Strategy

- 1 DEFINE THE PURPOSE** With a clearly defined objective, we can tailor our engagement to deliver the best results. This maximises the value of our efforts, and minimises costs by applying the most effective solution – focusing on value for money.
- 2 IDENTIFY IDEAL STAKEHOLDER** Depending on the purpose of the engagement, different individuals will be best placed to offer the insight required. We need to understand a) who are the relevant stakeholders and b) what is their level of knowledge on the specific topic.
- 3 TAILOR THE ENGAGEMENT** To ensure the maximum value is gained from the event, we tailor three distinct aspects of its engagement: Content, method of engagement and communications.
- 4 ENGAGE** The result of our planning phase is an inclusive, tailored and value for money engagement event, ready to be delivered.
- 5 CAPTURE FEEDBACK** Feedback remains crucial in designing and delivering services that are right for those affected by any area of our business. This year, we have built on the foundation of our approach to data and the suggested content of feedback to collect, and the means with which our users can record it.
- 6 DETERMINE WANTS AND NEEDS** Analysing aim to provide value for money – a principle that lies at the heart of everything the business delivers. Demonstrating value rests on our ability to measure potential outputs and prioritise accordingly.
- 7 DEVELOP PRIORITIES AND ACTIONS** We aim to provide value for money – a principle that lies at the heart of everything the business delivers. Demonstrating value rests on our ability to measure potential outputs and prioritise accordingly.
- 8 ACT** Each step, from capturing feedback, determining wants and needs, and developing actions that will make the services we offer better.
- 9 CLOSE FEEDBACK LOOP** With our engagement complete, our feedback collected, and our actions taken, the final step of approach is to close the feedback loop. This step consists measuring the success of actions taken, identifying how we can improve our engagement approach and providing progress reports to our stakeholders.

Feedback from Internal SPEN Teams

"Recording feedback can be too time consuming."

"Sometimes unclear what headings to use when uploading data."

"Consistency across the business to ensure all stakeholder reporting is done."

Embedding the new strategy through our Tools and Processes

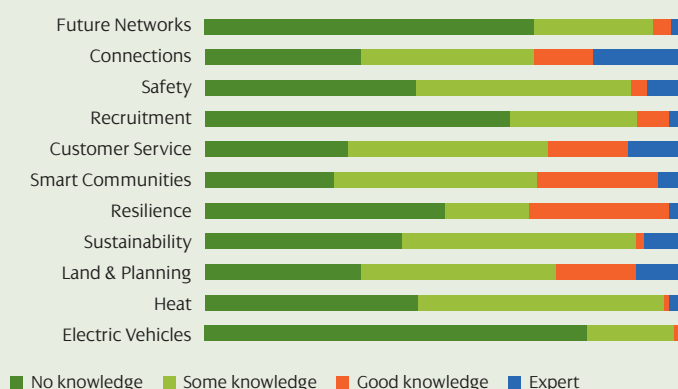
Tractivity®

Feedback from stakeholders led to us making fundamental improvements, particularly to our tools and processes. We have built on the strength of our stakeholder engagement management system, Tractivity.

- Number of system users increased to 62
- Engagement activities are split into 11 strategic topics, across our three key themes. Each owned by a senior manager, responsible for engagement efforts across the business. This approach provides a central view of all engagement.
- Developed a quick-entry tab allowing users to enter multiple pieces of feedback, actions in one screen in minutes. Outcomes are recorded against a piece of feedback and the event it was recorded at.
- Stakeholders are now segmented by knowledge level, allowing us to identify gaps in knowledge across each strategic topic.

For example, we have been able to identify a gap in stakeholders with expert knowledge of electric vehicles, which is now a target for improvement.

SPEN Stakeholders' Level of Knowledge



"This year SPEN has developed tools, such as Tractivity, which is well integrated into the business and used by over 60 colleagues. The purpose is clearly articulated in key strategies and reports which connects stakeholder engagement to improved business performance. The creation of case study examples by the central stakeholder engagement team showcasing the impact of partnerships meant that real life examples of benefits for participants could be shared."

AccountAbility – Stakeholder Engagement Healthcheck 2018/19

Measuring benefits – a ground breaking approach

We never lose sight of the fact that everything we do as a business and the services and benefits we provide are funded by our customers. As explained in Part 1, page 10, we have developed a ground-breaking new measurement tool. This tool models the financial costs and benefits used in a traditional Cost Benefit Analysis but also includes the estimated financial value of qualitative 'social' benefits we've delivered.

How will we use this tool?

We will use the tool in two ways.

1. **Before starting a project** to compare the value of the service with alternatives that are under consideration, allowing us to proceed with the most efficient service.
2. **Afterwards** to understand the actual value generated from the initiative, informing our decision on how our work should evolve; whether to scale up, change, or discontinue services so as to continually deliver the most value for money possible.

Ultimately, using this tool will allow us to consistently identify which services are most efficient at creating value for our customers and will support our decisions on how we act on stakeholder feedback. Furthermore, this allows us to provide a clear justification of our actions to both our regulator and customers.

Example case studies

To demonstrate the effectiveness of our new measurement tool, we have applied it to six of the case studies within our submission document. These results reveal the societal impact of our investments over a 10 year period.

G3 PILOT
£1 cost
£11.68 benefit

TECCY BITES
£1 cost
£4.64 benefit

OUTAGE FLEXIBILITY
£1 cost
£2.96 benefit

PHOENIX
£1 cost
£4.58 benefit

DIGITAL SUBSTATIONS
£1 cost
£2.74 benefit

QUICKER CONNECTIONS
£1 cost
£2.68 benefit

An example: Switching from SF6 to g3

In this case study, we have used the measurement tool to calculate the Social Return on Investment for the innovative approach of switching from SF6 to g3 (page 5).

Inputs to the tool

We started by gathering together the required inputs for the tool:

- The number of stakeholders impacted
- Duration of the project
- Cost of labour and materials
- Financial benefits

Societal benefits

Next, we insert qualitative descriptions of the societal benefits we expect to see from this project.

Financial proxies

For the next step, we find financial proxy values associated with each of the benefits. We use publically available information, or our own market research – including the joint DNO willingness to pay values from Accent.

Estimating benefits

Finally, we insert the financial proxies to the tool and then improve the robustness of the calculation by assessing:

- How much of each benefit can be attributed to SPEN.
- How much the benefit 'drops off' year on year.
- The % likelihood of the benefit being successfully achieved.
- The number of people impacted by each societal benefit.

Social Return on Investment figure

All of this work then returns in a simple calculation of the social return on investment of the project – expressed over 1 year, 5 years, 10 years or 15 years. For the purposes of an easy to understand, comparable figure – we are using a 10 year calculation in this submission.

OUTPUT OF THE TOOL FOR G3 PILOT

Social return on investment
(£ value per £1 spent)

1 year	5 years	10 years	15 years
£3.36	£7.87	£11.78	£11.78

Focusing on initiatives that deliver the best value for customers

We can also use the tool to compare different investment options – providing an unprecedented level of maturity in deciding where to direct our resources.

For example, we used the tool to measure the societal benefits associated with our community initiative 'Teccy Bites', which involves people from across the business sharing knowledge with those in the communities we serve. We considered doing a similar programme in schools, however this demonstrated a social return on investment of £0.23.

We therefore decided to focus this initiative on the elderly at this time.



BETTER – A Sustainable Network

"We play a critical role in meeting the UK's ambitious climate change targets and in enabling the transition to a low carbon economy. While we do this, it's key that our business reduces its own environmental impacts and delivers sustainable value for current and future customers."

Colin Taylor, Director,
Process & Technologies



Highlights of our Sustainability Engagement

2,427
Stakeholders
Engaged

95
Engagement
Events

NOTABLE ACHIEVEMENTS

Global engagement – Playing a leading role in Project MIGRATE, the only UK network operator on an EU transmission operator project to find innovative solutions for future technological challenges.

Award Winning Project at the prestigious Royal Town Planning Institute Awards – Our Beaulieu-Denny visual mitigation project won the award for 'excellence in planning for the natural environment'



Dumyat Hill and Cocksburn Reservoir Paths.

for the Dumyat Hill and Cocksburn Reservoir Paths due to the high degree of innovation in our approach to working with the local community.

Supporting the establishment of a new local green economy



Round One Award Ceremony.

Feedback which inspired this initiative

"This is a once in a generation opportunity to re-think the system".
Strategic Stakeholder Panel, Glasgow 2018

Our Transmission license has committed to voluntarily contribute up to £20m over a two year period to support initiatives that will benefit the people of Scotland and support Scotland's ambitious green energy plans and local economic growth.

The fund is focusing on helping our communities invest in low-carbon heating and transport technology, building the infrastructure and the learnings needed for the changes in heating and transport expected over the next decade. This is in line with supporting the Scottish Government's ambitious energy strategy and the UK's drive to a low carbon economy.

SPEN is making great efforts to make the Green Economy fund as inclusive as possible, as long as the priorities of the fund were being met. These priorities include; renewable and low carbon innovative solutions, promoting the uptake and infrastructure of Electric Vehicles or other low carbon solutions, provision of affordable energy for consumers to address fuel poverty, creation of local energy solutions, learning and data to assess future impact of low carbon economy, low carbon job creation. This initiative isn't just about green projects; this is about creating and accelerating a green economy.

Engagement and Project Lead
Jillian Violaris, Green Economy Fund Manager

Actions we achieved this year

- ✓ **NEW: £15m funding secured** – across 34 low carbon projects by local innovative projects, which have been able to demonstrate a positive contribution to the establishment of a new green economy.
- ✓ **NEW: 99 expression of interest received for Round 2** – three times more than the first round, through partnership working with organisations like Chamber of Commerce, which helps extend awareness to hard to reach start ups.
- ✓ **NEW: Independent panel formed** – chaired by Andy Kerr, Director of Europe's largest public-private partnership focused on climate innovation, who review and recommend projects to receive funding, which is fed back to SPEN's internal board.
- ✓ **NEW: Investment aligned to transmission hot spots** – Targeting local communities where we are making big infrastructure changes.



The benefit this delivers to customers and stakeholders

- Installed a Micro-Hydro scheme in one of Edinburgh's premier heritage parks, which will provide long term energy security for the local area and stimulate economic activity.
- Funded The Energy Skills Partnership, in collaboration with The Scottish Government, to develop renewable technology training centres for students, industry and the public sector, increasing our stakeholders skills and knowledge levels which will aid employment.
- Implemented a community led active network management system in Ettrick and Yarrow which will gather current and likely future demand to assess for match with potential new generation.
- Delivered the Clyde Gateway Community Project, which has provided local residents energy supply at a cost, addressing the impact of fuel poverty.

Innovative Approach to Dealing with Greenhouse Gas Leakage

Feedback which inspired this initiative

"More ambition, in terms of rolling out initiatives to a more ambitious scale."
Stakeholder Conference 2018

Although SF6 is widely used in the electricity industry, it is the greenhouse gas with the largest global warming potential (GWP) – 22,800 times more than CO2. One tonne of SF6 released into the atmosphere creates the same levels of CO2 emissions as 266,670 flights from Glasgow to London. Therefore, as governments are looking to limit climate change, viable alternatives to SF6 are required.

Our Strategic Stakeholder Panels and Sustainability working group have co-created ambitious targets for sustainability, notably a target of a 15% reduction in SF6 by 2023. They continue to challenge and monitor our performance.

This has instrumental in piloting the replacement of SF6 with g3. This offers similar technical performance, with around a 99% reduction in environmental impact.

Engagement and Project Lead
Kevin Butter, Lead Engineer

Actions we achieved this year

- ✓ **NEW: Launched innovative training on SF6 awareness** – which 412 members of staff have completed so far.
- ✓ **NEW: Classroom training on Managing Environmental Risk** – Completed by 131 of our key Senior Project Managers, Engineers and Site Managers.
- ✓ **NEW: Identified three suppliers of equipment with alternatives to SF6** – ensuring supply chain can meet future demand.
- ✓ **NEW: Extra labelling for new equipment** – detailing the CO2 equivalent mass and global warming potential of gas to protect our staff, due to our number one priority being safety.

- ✓ **NEW: Risk Governance Meetings** – Internal transmission risk meetings on a monthly basis.
- ✓ **NEW: Tender process has changed to reduce future utilisation of SF6** – requesting alternative gases in two most recent tender exercises.
- ✓ **NEW: Shared best practice with industry** – presented our UK-first initiative at the international CIGRE 2018 conference for sharing of global best practice.
- ✓ **NEW: Second pilot with National Grid launched** – following our initial pilot, working in partnership to trial 132kV GIS substation in Liverpool using g3 gas.
- ✓ **NEW: Completed additional trial with vacuum interrupter technology for insulation** – replacing existing SF6 circuit breakers.

The benefit this delivers to customers and stakeholders

- Over the lifetime of the pilot substation, g3 will reduce our CO2 equivalent emissions by 6,296 tonnes – equivalent to taking 1,340 cars off the road for one year.
- The Global Warming Value of g3 gas is 99% lower than SF6 and has no impact on ozone depletion.
- g3 equipment is similar in size to the SF6 equivalent, meaning that the carbon footprint reduction realised by using this new gas is not diminished by considerably larger civil requirements.

Expected societal benefits over 10 years for g3 Pilot
£1 cost / £11.68 benefit

Supporting local communities when undertaking major investment

Feedback which inspired this initiative

"SPEN should take a central role in information sharing and communication of the opportunities available, to drive fairness by educating those with less knowledge of benefits." Stakeholder Conference 2018

We are continuing to implement our community engagement strategy within areas that are being effected by our transmission projects. Along with this strategy, the four policy levels of impact are still ingrained within the business to ensure we tailor our plans to local needs.

There was a demand to educate and increase our community engagement with our stakeholders. Over the past year, we have invested hundreds of man hours to reach and support our local communities. An example of this was working in partnership on the impressive Beaulieu to Denny landscape mitigation project. This encouraged local communities to shape and frame their priorities for local projects and resulted in this brand new hill path

receiving UK level recognition due to collective working and community engagement.

In addition, we recognised an opportunity to create local community advocates, whilst tackling important societal issues. This resulted in a new project called 'Teccy Bites' being established, where we attended a lunch club for the elderly – an opportunity to explain the electricity network operates and how the electricity travels from source of generation to turning the lights on at home. We brought along representatives from across our business along with a number of visual aids and interactive activities. The virtual reality headsets were enjoyed by the club members who really appreciated the visit.

Engagement and Project Lead,
Cathie Hill, Programme Development Manager

Actions we achieved this year

- ✓ **NEW: 'Teccy Bites' pilot completed** – with employees from across the business and future outings have been planned.
- ✓ **NEW: Stronger local communities** – Confidence and capacity within communities to engage in planning and drive outcomes of key local issues.

Expected societal benefits over 10 years for Teccy Bites
£1 cost / £4.64 benefit

The benefit this delivers to customers and stakeholders

- £5million invested directly in to the local community surrounding the mitigation project, allowing the local stakeholders to input how they would like this spent.
- Increased mental stimulation and education through learning amongst peers and experts in the field through 'Teccy Bites'.
- Knowledge levels and awareness increased giving stakeholders a better understanding of projects going on in their area.

"The roadshow was well organised. It was a very professional and thought out process."

Grant Halliday, ROAR – Paisley



FUTURE – A Resilient Network

"As our world moves to a more sustainable future, with the decarbonisation of transport and heat, along with the change in how our energy is generated, we are focusing on maintaining and improving our already resilient network for the future."



Pearse Murray
Director, SP Transmission

Highlights of our Resilience Engagement

729
Stakeholders
Engaged

140
Engagement
Events



NOTABLE ACHIEVEMENTS

Challenging convention – Bringing industry together and championing change to system restoration plans which will transform the use of the network, to the benefit of all users.

Continuing to lead the industry in preparing a comprehensive worst case System Restoration plan

Feedback which inspired this initiative

"Wind farm operators wish to trial new technologies that may be able to support restoration in future."
DER workshop 2018

To recap from our case study last year, 'Black Start' is the procedure used to restore power in the highly unlikely event of a total or partial shutdown of the electricity system. Traditionally, large power stations would have been used to restore the system. However, as the UK moves to cleaner, greener energy generation, new options must be developed.

The conventional approach to a system restoration involves using predictable forms of generation, such as thermal and large hydro to bring the system back into operation. In order to achieve the quickest possible system restoration, we have been engaging with the owners of smaller, intermittent sources of generation, typically windfarms to see if we can find a way for them to provide Black Start.

Having secured a partnership with National Grid ESO we held several meetings and workshops with generators, technology providers and others, ultimately securing NIC funding for an innovation project. A number of generators have shown interest in being involved in trials, as well as helping to shape and guide the project through various forms of stakeholder engagement.

The enormous growth in low carbon generation presents an opportunity to develop a radically different approach to Black Start. However, there are significant technical, commercial, regulatory and organisational challenges, which our engagement efforts aim to address.

Engagement and Project Lead
Colin Foote, System Analysis Manager

Actions we achieved this year

- ✓ **NEW:** New dedicated roles created – providing system restoration through DER means new roles and responsibilities for us. Successful and widespread implementation will require significant organisational changes.
- ✓ **NEW:** Project success criteria agreed to ensure clear benefits to users of the system – including new commercial arrangements, as well as innovative technical solutions.
- ✓ **NEW:** Embedded in DSO transition plan to enable whole system planning – this project is an important part of the wider changes to our business as we support our sister Distribution Network Operator in the transition to a Distribution System Operator.

The benefit this delivers to customers and stakeholders

- Total benefits of the project are estimated to total £115m by 2050, due to increased competition and reduced costs associated with the readiness of larger generators. This would be passed on to GB consumers through reduced balancing use of system costs incurred by transmission users.
- The project is expected to deliver 0.81 million metric tonnes reduction by 2050, equivalent to 79,567,780 gallons of diesel consumed by vehicles.
- Enabling new and alternative providers of Black Start services will widen the pool of providers, helping to increase competition and enhancing flexibility and resilience in this essential aspect of system security.



A flexible approach to outages

Feedback which inspired this initiative

"Transmission owners should offer flexibility to ensure connected customers can retain returns during modernisation".
Outage Planning Forum, 2017

Engagement and Project Lead
Kendal Adams,
General Manager,
Customer & Social Delivery

Our OC2 forum continues to be a vehicle to facilitate a closer working relationship between the SO, Scottish TO's and our stakeholders.

At this, a connected windfarm raised concerns with us during one of our regular outage forums over possible disruption due to an upcoming major transmission upgrade to one of our largest substations. This would have required the windfarm to shut down for a period of five months to allow modernisation on our network.

We were informed that this would have a multi-million pound impact on the windfarm's turnover in that calendar year, and agreed that we needed

to work to find a solution to reduce outage times for the windfarm. Through discussion with the windfarm it became clear that it was imperative for us to have the windfarm in operation throughout vital winter months, as this would mean a higher risk of bad weather with less electricity on the grid.

We agreed to investigate this possibility and over the last two years have developed a working trial using existing industry processes. We developed the mechanism for a connected transmission stakeholder to buy an enhanced service from us. The stakeholder will pay for the extra costs we will incur to deliver the project in ten weeks, rather than five months.

Actions we achieved this year

- ✓ **NEW: Industry monitoring process implemented** – with the view that this type of enhanced service could be applicable across all Transmission owners networks going forward.

Expected societal benefits over 10 years for Outage Flexibility
£1 cost / £2.96 benefit

- ✓ **NEW: Internal Transmission & Distribution outage planning process created** – to operate alongside the existing industry process documentation.

The benefit this delivers to customers and stakeholders

- New flexible approach to outages ensures users of the system have a say in co-creating innovative solutions.
- Our stakeholder will save an estimated £7.5M through reduced loss of turnover. The windfarm will now be available during the key winter months in 2020/21 and in turn be available in the Balancing Market during that time hopefully keeping system operating costs down.
- The end consumer is not being financially disadvantaged as the extra costs associated with the project design change is borne by the stakeholder.

Leading the Industry, using New Technology to Improve Stability

Feedback which inspired this initiative

"Security and safety of supply must remain untouched, and of high priority, throughout all of the changes the energy industry is facing." Stakeholder Panel 2019

Changes to the UK's energy mix, including the closure of coal power stations, influences our security of supply, as renewable generation relies on unpredictable factors, such as weather.

Our Strategic Stakeholder Panels have discussed system resilience during the energy transition. We continue to engage heavily through Regional Resilience Forums, Scottish Utilities Contingency Planning Group and Scottish Government Industry Leadership Group.

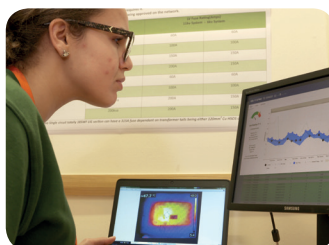
We have played a fundamental role in connecting renewable generation in Scotland, with our world-class engineers ensuring stability at all times, relieving fears over security of supply.

Phoenix, a NIC funded project, will roll-out Hybrid-Synchronous Condensers to help create stability in the grid. They will react when extra power is needed and provide more control over voltage. However, there are a range of technical, commercial and engineering issues that have to be addressed first.

Engagement and Project Lead
James Yu, Future Networks Manager

Actions we achieved this year

- ✓ **NEW: Analysis conducted** – in collaboration with system operator, which enables future installations and essential network services to be provided.
- ✓ **NEW: Opened a training centre at test substation site** – to share the projects journey through interactive screens, and 3D models.



The benefit this delivers to customers and stakeholders

- Enhance system stability, helping to reduce power cuts.
- Reduced operating costs, financially benefiting customers. The net present value of Phoenix has been estimated at £42m by 2030.
- Release an additional 662MW of capacity to the network – equivalent to around 220 extra wind turbines.
- Saving 62k tonnes of carbon, equivalent to the electricity use of over 6,000 homes by 2030.
- Enable further development of commercial mechanisms available to incentivise the roll out of this new technology.
- Aid the transition to a future GB transmission network that can benefit from clean energy resources without compromising the security and quality of supply to the customers.
- Phoenix will enable the optimised deployment of renewable energy, build confidence in the security of supply and offer an economical replacement for the stability and security offered by large conventional fossil fuel generators.

Expected societal benefits over 10 years for Phoenix
£1 cost / £4.58 benefit

QUICKER – An Innovative Network

"Innovation is at the heart of what we do to make sure we keep your lights on. We know that standing still is not an option, and we need to explore a myriad of ways of delivering a cleaner, greener, better future, quicker for us all."



We're delivering a £100 million innovation programme which puts us at the forefront of the energy transition in a global context.

All of our innovation efforts are striving for that better future, quicker for our customers, whilst engaging with our stakeholders using tailored methods, for assurance and challenge on our plans."

Scott Mathieson
Director, Network Planning & Regulation

Highlights of our Innovative network engagement

3,965
Stakeholders
Engaged

75
Engagement
Events

NOTABLE ACHIEVEMENTS

Challenging industry process – We are helping to facilitate even quicker connections by streamlining the application process between parties – reducing the time it takes between ourselves and the System Operator to complete Appendix 9.

Innovative approaches – We used a webinar for the first time to engage with stakeholders on our Innovation Strategy. This is currently being 'audio described' in line with our website accessibility policy to make our engagements as inclusive as possible.



Engaging across borders – We have been sharing best practice regarding innovation at five major conferences in Europe, including SEGRID DCSP and IT smart grid forums. We've also presented internally at our roadshow conferences.

Researching and sharing findings for the future

Feedback which inspired this initiative

"You have a role to play – that is to increase stakeholder's knowledge levels."
Strategic Stakeholder Panel, 2019

Our future investment plans will seek to accommodate all supply and demand customers, help facilitate overarching decarbonisation objectives, and target investments only where needed to keep costs low for end-users.

To establish these plans, we proactively developed planning scenarios specific to our users' needs and use these to undertake analysis to help understand the future evolution of energy supply and demand on our network. Our scenarios give a view out to 2040, which allows us to ensure the transmission network is technically prepared for changes in load that may come long into the future.

We engaged a number of stakeholders throughout the production of our planning scenarios, including Transmission users, academics, consumer groups and government. We held a webinar and launched an online consultation. Prior to this, we produced a Historical Energy Trends document, which helped to inform our Future Energy Scenarios.

Engagement and Project Lead
Suzanne Taylor
RIIO Stakeholder Engagement Manager

Actions we achieved this year

- ✓ **NEW: Improved management of future investment options in transmission** – by considering the pace of change and user habits over a robust period of time. This means that expenditure is being used accurately to facilitate the future.
- ✓ **NEW: Study shared across the business to better understand the network** – allowing better judgement on investments and next steps for various projects.

The benefit this delivers to customers and stakeholders

- The trends document informs stakeholders and interested parties about the trends in electricity consumption and the pace of change in the way electricity is being used.
- The study allows us to facilitate the needs of transmission users confidently.
- The study has been shared with other transmission operators, spreading knowledge across the industry in order for operators to prepare accordingly for the future.



A new innovative approach to get Green Energy connected quickly

Feedback which inspired this initiative

"Demands have changed over the last 10-15 years and the current capacity is no longer fit for purpose." Transmission survey 2018/19

We have developed a ground-breaking new export management scheme. This is an innovative non-build solution, saving money for customers, whilst maximising and speeding up the generation connected to the system.

Currently, only larger generators are able to take part in the national electricity balancing market. However, under this new innovation, an evolution from our existing load management schemes, smaller developers will also take part in the balancing mechanism by agreeing for their systems to ramp up or down to help balance the network when required.

The scheme is enabling more efficient utilisation of the energy network in the South of Scotland, reducing the need for new overhead line build, which reduces the use of concrete, steel, aluminium, copper and plastics. Not only does this reduce costs but also visual intrusion and construction impacts.

Engagement and Project Lead
Gareth Hislop, Transmission Commercial Manager

Actions we achieved this year

- ✓ **NEW:** Agreed a number of complex workstreams with the system operator – in order to deliver the Generation Export Management Scheme.
- ✓ **NEW:** Whole system planning across transmission and distribution – alongside the system operator, to define how the new technology will interact with the proposed roll-out of our innovative active network management system across the Distribution network post 2020.

The benefit this delivers to customers and stakeholders

- Generators of all sizes being able to connect means that smaller enterprises will be able to access new markets, increasing the potential for greater local benefit from local renewables resources.
- Enabling renewable generation to connect sooner, and access to the additional revenue from selling balancing services has the potential to make a greater number of renewables projects viable, helping to increase the overall proportion of renewable generation in Scotland.

Expected societal benefits over 10 years for Quicker Connections
£1 cost / £2.68 benefit

Ground-breaking Digital Substations

Feedback which inspired this initiative

Stakeholders asked us to explore innovative options to keep costs low for consumers, while enhancing safety and maintaining high network availability – Industry engagement.

We are leading a £100m innovation programme, the largest in the industry, and are using this opportunity to engage with a global audience and share best practice.

One of the clearest examples of this is our digital substation project – delivering faster deployment, greater availability, improved safety and greater controllability, with lower cost substation design. Digital substations will also reduce the overall carbon footprint of substations through reductions in the use of copper, concrete and steel.

This represents a significant shift from the manner in which we currently design, build, install and commission substations. We have engaged on a global scale, sharing best practice, training, facilitating visits to site, publishing papers and speaking at international conferences to spread the word to other network operators, academics and wider industry about what can be achieved.

Engagement and Project Lead
Priyanka Mohapatra
Transmission Innovation Lead

Actions we achieved this year

- ✓ **NEW:** Successfully commissioned first trial – completed by July 2018.
- ✓ **NEW:** Sharing Best Practice with industry – Organised workshops and site visits at test site for our stakeholders, hosting Ofgem, SSEN, Elia Belgium, Vattenfall Sweden, independent consultants, and our senior global management, demonstrating application of RIIO NIC innovation funding in practical implementations and our commitment to drive innovation to business as usual.
- ✓ **NEW:** Embedded digitalisation approach in RIIO-T2 business plan – ensuring roll-out of digital substations into 'business-as-usual' across our transmission programme.



The benefit this delivers to customers and stakeholders

- Outage time and constraints reduced, along with improved safety and a reduced environmental impact.
- 10% reduction of substation new-build and replacement costs, significantly benefiting end customers.
- 60% savings in operational costs of the secondary systems
- Increased network availability and reduction of constraint payments through reduced outage requirement.
- Carbon savings through reduced use of materials in substations.
- Greater operational flexibility leading to more efficient use of assets.
- Reducing operating costs above allows savings to be filtered back into consumers pockets as system costs decrease.

Expected societal benefits over 10 years for Digital Substations
£1 cost / £2.74 benefit

Examples of Other Engagement

Given our space restriction, we can't tell you about everything we are working on, so here is a snapshot of what else we have been delivering this year.

	Engagement Methods	Number of Events	Example Feedback from Events	Example Actions	Example Benefits Delivered
Better	Dialogue e.g. face to face meetings, panels, partnerships	26	<i>Users of the sector want to connect quicker and easier – Stakeholder Panel 2018</i>	Agreed a number of complex work streams with the system operator in order to roll out our innovative active network management systems.	Generators of all sizes being able to connect, means that smaller enterprises will be able to access new markets which will increase the potential for greater local benefit from local renewables resources.
	Consultation e.g. workshops, public meetings, consultations	38	<i>"In order to draw up future business plans, need to understand how much consumers are willing to pay" – TO Best Practice Group 2018</i>	Worked with Explain, NERA Economic Consulting and the other three TOs to carry out focus groups. Feedback from these groups were used to build the Willingness To Pay survey.	The survey instrument performed well, providing a base estimate for the TOs' societal valuations to inform RII0-T2 business planning decisions. Research found that domestic gas and electricity customers are, on average, willing to pay for improvements in all attributes which were presented to them.
	Information Gathering e.g. Focus groups, customer research	2	<i>"We would like an area on your website where stakeholders can find all documents relating to applying for a transmission connection" – Transmission survey 2018/19</i>	We now have a much more visible area on the website dedicated to this. Our transmission connection applications have doubled in the past year, therefore we want to make the process as accessible as possible.	Transmission connection customers have a dedicated space which describes the roles of parties involved in transmission connections as well as all applications needed to begin the process.
	Information Giving e.g. face to face, awards, conference	29	<i>You could take a lead in sharing information with local communities to increase knowledge levels and awareness – Community events</i>	Shared our updated Sustainability Strategy and Sustainability Business plan with stakeholders who represent local communities.	Local communities now have increased knowledge to explain the rationale behind new developments and how SPEN are working towards sustainability goals.
Future	Dialogue e.g. face to face meetings, panels, partnerships	39	<i>Security and safety of supply must remain stable and a high priority within the energy industry – Strategic Stakeholder Panel</i>	We now hold weekly governance calls on the topic of security and safety of supply.	The calls keep the topic at the forefront of participants mind and allow us to share updates and ideas with each other.
	Consultation e.g. workshops, public meetings, consultations	12	<i>More awareness of planned outages to be given to generation and demand stakeholders – Outage Forum 2018</i>	Over 40 one to one stakeholder engagement sessions with major generation and demand stakeholders briefing them on outages on the network that will impact them.	Stakeholders benefits of these sessions were; they felt were more informed about system security risks, the ability to plan the upcoming year due to outages awareness and gave them the opportunity to raise any operational concerns.
	Information Gathering e.g. Focus groups, customer research	4	<i>Engage more with young people and promote engineering careers to girls – Young Energy Force Group (Future Bill Payers) 2018</i>	Now sponsor Women's Scotland Ruby Team and Men's Under 18s. Utilised recognised hashtag #notjustforboys to reach a broader audience.	Alignment with encouraging girls to sport of Rugby and taking up STEM subjects and engineering careers. Increased awareness, safety messaging and promotion of STEM subjects through community engagement.
	Information Giving e.g. face to face, awards, conference	85	<i>Partnerships and trust were considered critical by panel members, who felt that SP Energy Networks need to be seen as a trusted and independent partner – Transmission Survey</i>	We have worked with Scottish Young Farmers to educate future and current land owners on how to stay safe.	This increased awareness amongst farmers on what number to call in a power emergency along with key safety messages around overhead power lines.
Quicker	Dialogue e.g. face to face meetings, panels, partnerships	17	<i>The use of new and emerging technologies is critical – Strategic Stakeholder Panel 2018</i>	Launched "Year of Innovation" campaign based on benchmarking outside industry, with Barclays "Digital Eagles", Cisco and Telefonica.	To promote an innovation culture within the company, paving the way for more flexible management of the network.
	Consultation e.g. workshops, public meetings, consultations	16	<i>The water industry has used co-creation workshops with customers to develop messaging for future business plans – Utilities best practice session 2018</i>	We decided to hold an independently-run customer workshop with a wide-range of representative customers to co-create how we describe who we are, what we do and how we make money.	The workshop resulted in 13 recommendations for future customer communications in transmission, which will be fully implemented.
	Information Gathering e.g. Focus groups, customer research	1	<i>Prioritise jobs and employment opportunities for young people ensuring a skilled workforce for the future – Young Energy Force Group 2018</i>	Partnerships were formed with Heriot Watt University to develop the SP Energy Networks engineering scholarship to inspire the electrical engineers of the future.	Students are supported financially through their studies and offered mentoring by somebody in the business to inspire and give them real insights. They complete a 10 week summer placement, working across different departments.
	Information Giving e.g. face to face, awards, conference	41	<i>SPEN should promote their ambition and share best practice to demonstrate the benefits for customers and stakeholders – Energy Innovation Centre</i>	We have used the Low Carbon Networks & Innovation (LCNI) conference to showcase our projects and the benefits we deliver to customers and stakeholders. It is also an opportunity to share best practice with out industry colleagues.	Other network operators have adopted our innovations as business as usual, for example aerial surveys, cloud processing and machine learning to develop a complete 3D model of the overhead power network.



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