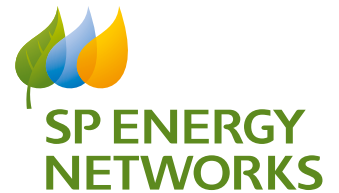


Making a Difference

Highlights of our activities and outcomes following stakeholder engagement



Ofgem Electricity Transmission Stakeholder Engagement Incentive Scheme 2017–18
Part Two



**New
£15m**
Green Economy
Fund

8.3/10
stakeholder
satisfaction,
up **20.3%**
since 2016

New digital
**Willingness
to Pay**
tool for
customers



9 new
emergency response
masts, allowing us to get
customers back on supply
quicker in worst case
scenario



Co-ordinated
and integrated
emergency plans
with stakeholders



Contents

This is **Part Two** of our submission to Ofgem’s Stakeholder Engagement Incentive for regulatory year 2017–18.

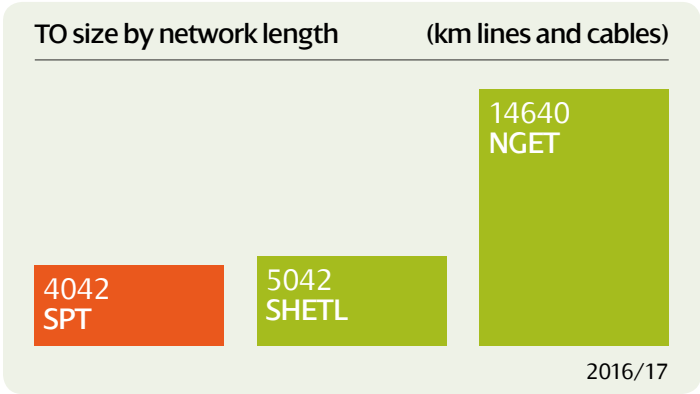
SP Energy Networks is the Transmission Operator that delivers electricity to homes and businesses in Central and Southern Scotland.

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’.

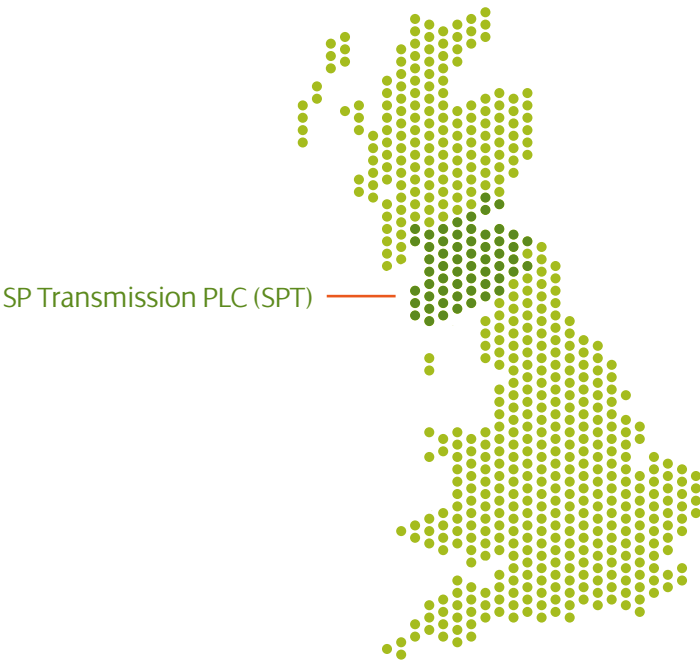
Our Transmission submission is made up of two parts:

Part 1: Our strategy for stakeholder engagement and demonstrating that we meet and exceed Ofgem’s minimum requirements.

Part 2: Highlights of our activities and outcomes following stakeholder engagement, demonstrating our strong performance improvements year on year.



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Going low carbon	03
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Company size and scale

Last year, the panel told us that they would welcome us showing the size and scale of our business in relation to the other Transmission operators, so that the submissions could be read in context with each other. As a result we have laid this out up front.

SP Transmission is third in terms of the size of our network, but not the size of our ambition, when comparing all three electricity TOs. We play a critical role in providing security of supply across GB and in facilitating the connection of new renewable energy.

Introduction



From our day to day operation to our evolution into the utility of the future, stakeholders are at the heart of every decision we make.

Their voices are heard by our board and their insights drive the overall direction of the company to deliver the services that they

want. This year, we have shaped our business activities around the key priorities identified by our stakeholders – going low carbon, a resilient network and shaping the future.

In the past year, we have strengthened the voice of our stakeholders and consumers by creating additional opportunities for future customers, domestic consumers, experts and users of the system to inform decision making and key strategies through our embedded engagement model.

We continue to innovate, finding new ways to engage and interest end consumers in the workings of the Transmission network.

Our Part 2 submission highlights some of the key outcomes we have delivered in the last 12 months through targeted engagement, going above and beyond business as usual. This represents only a very small selection of the benefits that we achieve for our customers.

Frank Mitchell, CEO

A snapshot from our Stakeholder Satisfaction survey

For the second year in a row we have seen a substantial increase in the satisfaction of our stakeholders recorded in our annual stakeholder survey.

We have implemented a relentless focus on analysing the feedback we receive and making the necessary improvements in the way we deliver projects. A drive which is transforming our reputation with our stakeholders.

Year-on-year improvement in stakeholder satisfaction



Focus on communities

Building on last year's programme, we have continued to develop **tailored community plans** for each area we impact. As a result, our satisfaction score amongst local community residents has continued to substantially rise from 8.0/10 last year, to 9.1/10 this year.

Stakeholder Type	You Said (in 2016/17 survey)...	We Did...	2017/2018 Score
Community Stakeholders	Provide more interaction/communication	1 new, innovative 'Techy bites' event – proactive meeting explaining new engineering innovations, targeting hard to reach and vulnerable stakeholders	9.1/10
	We would like to know more about the detail of a project	64 tailored community plans, leading to: 12 community consultations, 11 community liaison groups, 12 school visits, 7 rural/agricultural shows, 256 community interactions (phone, email, face to face), 55 social media/website updates	
	Provide more updates on the progress of works		
Connected Users	Provide more interaction/communication	24 interface meetings held with all 14 connected customers	8.7 /10
	Improve communication of outages	Outage forum held with System Operator	
Connections Developers	Provide more interaction/communication	57 pre-application meetings, 81 portfolio reviews, 164 developer interface meetings, 5 connections forums and 1 workshop held	7.8 /10
	Provide more information on construction projects	4 major project update reports published on website and project milestone programme introduced	
	Improve distribution/ transmission interface	Interface meeting now in place with each SPEN distribution district, to ensure consistency of information for users of system	
Suppliers	Provide more interaction/communication	1 suppliers event, 91 interface meetings, 4 newsletters, 2 health and safety forums	7.9 /10
	Regularly refresh your upcoming tender opportunities	Quarterly forward tender views published	
		Senior Managers assigned to 25 main contracts as single point of contact	
Broad Interest Stakeholders	Provide more interaction/communication	Introduced new Stakeholder Conference, in addition to Strategic Stakeholder Panels	7.8/10
		4 Sustainability working group meetings	
Overall Score			8.3/10 ↑

20.3% increase since 2017

20.3% increase since 2016

Engagement and outputs

Our robust embedded engagement model means every team in our business has responsibility to identify and engage stakeholders to understand their needs and improve our service. This approach is underpinned by a strong annual programme of core engagement that looks at the big strategic issues facing our stakeholders and legitimises top-down changes in our strategic approach. See part 1 page 5 for full details of our core engagement programme.

Strategic Stakeholder Panels

Description

We meet a varied group of independent external stakeholders to discuss the key strategic decisions we face as a business and gather valuable feedback and advice to help us strengthen our services.

Participants

61 attendees from a wide range of sectors and interests, including national government, local government, industry and the third sector. Building on our 'ditch the label' approach, our stakeholders encouraged us to hold more joint transmission and distribution panels to consider whole-energy topics and reduce stakeholder fatigue.

Objectives

- Invite real challenge, feedback, advice and support on decisions proposed by the Board of Directors.
- Provide a forum for open and in-depth discussion with a diverse group of stakeholders who become very well-informed of our business operations.
- Build relationships and identify opportunities for partnership working.

Topics covered

- Government energy strategy, future energy scenarios, sustainability, network resilience, value for money, innovation and electric vehicles.

Example Outputs

- Stakeholder feedback on future energy scenarios used to refine modelling for RIIO-T2 business plan (Page 4).
- New industry-first sustainability vision (Page 3).

Consistent approach

Last year the panel said they found it difficult to compare entries, due to inconsistent language and reporting terminology. The Transmission Operator Best Practice Working Group have been reviewing how we can move to a more consistent model to measure the impact of our activities and have been evaluating different methods, frameworks and suppliers.

NEW Stakeholder Conferences

Description

This year we introduced new stakeholder conferences to enable a more diverse cross section of our stakeholders to engage with our CEO and whole executive team on some of the biggest energy challenges of the moment.

Participants

34 attendees from a wide range of backgrounds, including consumer interest groups, academia, business and enterprise.

Objectives

- Discuss mutual future challenges and invite challenge on our business strategies for today and the future.
- Influence our decision making and alignment with stakeholder priorities.
- Strengthen relationships and shape how we continue to engage.

Topics covered

- Consumer voice, sustainability and decarbonisation of transport.

Example Outputs

- 75% of attendees said they would consider partnering with us to deliver a sustainable community project. Now working with stakeholders to form a new Sustainability Collaboration Fund (Page 4).
- 89% of attendees felt that SPEN should invest in the network today for future need, influencing our lobbying efforts (Page 4).
- 89% of attendees supported the establishment of a customer challenge forum or constructive engagement model, and feedback used to develop proposals to strengthen consumer voice (Page 9).

Transmission Operator Best Practice Working Group

Description

We are strongly committed to working together as Transmission Operators for the benefit of our stakeholders, our customers and end consumers. The Working Group meets face to face every two months with other adhoc meetings as required. Meetings are designed to be interactive and outcomes focused.

Participants

The Working Group consists of representatives of transmission owners SP Energy Networks Transmission (SPEN); Scottish and Southern Electricity Networks Transmission (SSEN) and system operators and transmission owners National Grid Electricity Transmission (NGET) and National Grid Gas Transmission (NGGT).

Objectives

- Set and deliver engagement strategy for joint TO engagement.
- Identify and facilitate outside sector best practice sharing and evidence for outcomes.
- Identify future stakeholder engagement challenges and seek solutions.
- Agree consistent messaging for stakeholders.
- Identify/agree and measure joint outcomes.
- Share learnings from relevant stakeholder engagement activities to collectively improve Transmission-level engagement.
- Respond to strategic issues which relate to all networks.
- Facilitate topic specific conversations via technical experts within TO organisations.
- Provide link with Electricity System Operator.

Topics covered

- Consumer voice, measuring the impact of stakeholder engagement, hard to reach stakeholders, RIIO-T2 engagement, Willingness to Pay.

Example Outputs

- Aligned to AA1000SE standard and reviewing common measurement approaches.
- Consistent set of terminology for submission documents.
- Collaborative stakeholder mapping exercise for hard to reach stakeholders.
- Action plan developed and agreed for hard to reach stakeholder groups.
- Agreement to work jointly on common RIIO-T2 engagement and Willingness to Pay approach.
- Joint tender exercise to recruit a common market research partner for RIIO-T2 Willingness to Pay research.
- Benchmarking conducted for updates to developers for Major projects under construction.

See more detailed information in our joint appendix document: www.spenergynetworks.co.uk/transmissionjointappendix2018



Going low carbon

Transmission network operators have a critical role to play in decarbonisation. We act as a facilitator for our customers and the wider ambitions of society. We're working closely with our stakeholders to enable a low carbon future.



- ★ Best Practice/Innovative
- 📈 Increased/Replicated
- 👥 Partnership/Collaboration
- 🤝 Hard to Reach
- 🏠 Outcomes
- ✅ Impacts

Scotland's Energy Strategy

The Scottish Government has an ambitious new energy strategy that leads the UK's drive to a low carbon economy.

They have:

- pledged to phase out the sale of new petrol and diesel cars completely by 2032.
- set out to substantially reduce the emissions from heating.
- implemented a new target for 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources by 2030.
- set the goal of a largely decarbonised energy system by 2050.

This will ultimately require a transformation in all forms of transport and the traditional heating for homes that will depend on key infrastructure and should also create new jobs and businesses across Scotland. The strategy aims to strengthen the development of local energy, protect and empower consumers, and support Scotland's climate change ambitions while tackling poor energy provision.

Decarbonisation of heat is likely to mean a heavier reliance on the electricity network and new generation technology reliant on connection to the network. Electrification of transport adds further pressure to the network. Scotland is taking a leading role in promoting electric and other low-emission vehicles.

50% of energy for heat, transport and electricity from renewables by 2030

Largely decarbonised energy system by 2050

Phase out sale of petrol and diesel cars by 2032

50% of renewable energy projects will have shared community ownership by 2020

Scottish Energy Strategy targets

You Said

- Support ambitious government carbon reduction targets and enable local communities to benefit from opportunities resulting from decarbonisation.
- Enable decarbonisation of heat, transport and electricity – building appropriate capacity within future energy planning.
- Influence government and regional policy to the benefit of all customers and stakeholders.
- Lead the way in the low carbon transition with your own ambitious targets.

We Did

- 👥 **Strategic Stakeholder Panels** – Two panel meetings specifically focused on the Scottish Energy Strategy and Transmission Future Energy Scenarios, with contributions from the Scottish Government, SGN, Citizens Advice Scotland and attendance from TESLA. Key outputs include:
 - We used stakeholder feedback on future energy scenarios to refine modelling and basis of opinion for RII0-T2 business plan preparation.
 - We agreed 6 key lobbying points with stakeholders on decarbonisation of transport.
- 👥 **Annual Stakeholder Conference** – Presentations facilitated and recorded table discussions between

stakeholders and members of our executive team, interactive voting and Q&A with directors on the subject of Decarbonisation of Transport. 89% of stakeholders said we should invest in the network now to enable future electric vehicle ownership.

- 👥 **Scottish Energy Advisory Board** – Our CEO sits on this Board, established by the First Minister to facilitate high-level, effective, open and informed engagement between ministers, industry experts, academics, public sector bodies and consumer representatives. The group works collectively to deliver Scotland's energy potential and secure Scotland's energy future.

- 👥 **Scottish Government and Transport Scotland** – Stronger links with government and transport agencies, influencing national policy for the benefit of all customers and stakeholders. Regular meetings now established with the Scottish Government Energy Unit to share our analysis and stakeholder feedback, influencing the overall strategy for Scotland.

- 👥 **Internal Electric Vehicle working group** – Set up to act on stakeholder feedback. 16 actions completed to date, including benchmarking, scenario planning, identifying opportunities for innovations and partnerships and identifying the information needed by different audiences.

- 👥 **Industry engagement** – Participated in 41 industry working groups, ensuring needs of our stakeholders are represented in GB wide policy decisions.

- 👥 **Sustainability working group** – Topic-specific group formed with subject matter experts, who can help drive development of our strategy and challenge senior management.

- 👥 **Intensive engagement** – With 104 impacted and expert organisations in sustainability, including Centre for Sustainable Practice.

- 👥 **Our own comprehensive Sustainability Strategy** – First Transmission Operator to produce a comprehensive sustainable business strategy, developed with stakeholders and released in September 2017.

- Only electricity network operator to include a detailed vision statement, which crucially lays out the key indicators of a sustainable networks business.
- New Approach section highlights the importance of collaboration, supply chain and innovation to share experience and resources.
- Aligned with wider SPEN business goals for efficient renewables connections and delivery of additional network capacity.
- Underpinned by a detailed implementation plan.

"This is a very positive announcement by SP Energy Networks which aligns well with our own £60 million Low Carbon Innovation Fund, designed to help deliver the ambitious low carbon transport and heat goals set out in Scotland's Energy Strategy. I look forward to working with SP Energy Networks to ensure that, in partnership, we can maximise the impact from our respective initiatives for Scotland."

Paul Wheelhouse, The Scottish Government's Minister for Business, Innovation and Energy



Outcomes and Impacts

We need to realise the low-carbon transition in a way that represents the best value for money.

Building too many assets would require too much investment from customers, however building too few assets would risk costing customers more money, as the cost of constraining low-carbon generators would continue to rise.

All our work with users and consumers is to make sure we get the balance right.

Support ambitious government carbon reduction targets and enable local communities to benefit from opportunities resulting from decarbonisation.

Establishment of a new innovative £15m Green Economy Fund.

- 6 **Voluntary contribution** – We will contribute up to £15m of investment over a two-year period, completely over and above existing committed expenditure to fund initiatives that will support Scotland's ambitious green energy plans and local economic growth.
- 6 **New resources** – Supported by the appointment of a new manager and team of 2 to run the Green Economy Fund.
- ✓ **Unlocking new green economic growth** – Not just supporting green projects, supporting the creation of a new green economy in Scotland.
- ✓ **Community benefit** – We estimate creating 4 times our investment, around £60m, in wider societal benefits.
- ✓ **Supply Chain impact** – New jobs will be created as funding flows through the supply chain, generating local community and societal benefits.
- 6 **Expanding access to funding** – Initiatives funded from the Green Economy Fund are targeted to those that may ordinarily struggle to access funding and may include vulnerable groups, social housing associations, start up businesses and green commercial enterprises.
- ✓ **Shared benefit** – Lessons learned from projects supported by the fund will, in turn, be shared with other communities and network operators, to ensure others can benefit across the UK.
- ✓ **Supporting local energy systems** – Increase both rural and urban community-led energy projects and help facilitate the Scottish Government's aspiration to have 50% of renewable projects community led.

Enable decarbonisation of heat, transport and electricity – building appropriate capacity within future energy planning.

- 6 **Future Energy Scenario analysis** – A new team of 6 established to ensure the views of users, stakeholders and consumers on future energy scenarios directly influence our next business plan. Analysing projections of the likely uptake of various low carbon technologies and building a plan which maps out the most efficient and effective way to realise the ambitions of our stakeholders.
- 6 **Electric vehicle modelling** – Developed new electric vehicle modelling and shared analysis with the Scottish Government and Transport Scotland.
- 6 **Knowledge sharing** – Future Energy Scenario engagement outputs, best practice and data sharing with National Grid system operator and SHE Transmission for shared Scottish perspective, leading to greatly improved network modelling.
- ✓ **Value for money** – By projecting future trends accurately, we can avoid constraints on the network. The costs of constraints are borne by GB consumers to a value of £375m in 2017/18.

Influence government and regional policy to the benefit of all customers and stakeholders.

- 6 **Lobbying** – Stakeholder-supported lobbying points in twelve key consultations, influencing national energy policy for the benefit of all customers.
- ✓ **Improved policy development** – Ensuring government and regulatory policy reflects the views of our stakeholders and that plans are integrated and coordinated in an efficient and effective manner.

Lead the way in the low carbon transition with your own ambitious targets.

- 6 **New Sustainability vision** – Industry first vision has been welcomed by WWF and Scottish Wildlife Trust. Transparency and accountability gives customers and stakeholders comfort that we are moving towards a more sustainable future.
- 6 **Sustainability Collaboration Fund** – Worked with key stakeholder groups to develop new funding, focusing on the delivery of key sustainable objectives in our strategy.
- 6 **Internal funding** – Additional internal fund, empowering staff to deliver small changes with big impacts for their local communities.
- ✓ **Customer satisfaction** – Customers benefit from the economic impact of a more diverse supply chain, stronger collaborative decision making, and the opportunity to participate in co-creating innovative solutions.
- ✓ **Knowledge transfer** – All other TOs and DNOs are using our learning and best practice in the development of their own strategies, saving them time and resource.

Going low carbon

- ★ Best Practice/Innovative
- 📈 Increased/Replicated
- 🤝 Partnership/Collaboration
- 👤 Hard to Reach
- 🏠 Outcomes
- ✅ Impacts

Getting Renewables connected to the grid

Key to enabling decarbonisation is to facilitate the connection of renewable energy to the grid. Through our engagement with users we have found new cutting edge and innovative ways to connect more renewables to the system quicker.

You Said

- Make it quicker to connect renewable energy to the network.
- Make it easier to connect renewable energy to the network.
- Ensure that strategic investment plans align with the investment plans of users.
- Reduce disruption to users of the system who are already connected.

We Did

🏠 **Annual User Summit** – Annual event for the renewable developer community, timed to coincide with the Scottish Green Energy Awards for maximum participation. Directors and Senior Managers presented to delegates about a range of topics including our investment programme, outage planning, accelerating renewables and our view of the RIIO-T2 price control. National Grid Electricity System Operator presented on their future role.

🏠 **User Forums** – Twice yearly forums specifically for developers seeking to connect in the heavily constrained areas of South West Scotland and Dumfries and Galloway.

🏠 **Cross-boundary connections engagement** – Engaged via two Distributed Generation workshops, Distributed Energy Resources forum and DNO Connections Commercial Operations Group in order to update developers and the wider industry on efforts to remove Transmission constraints and bottlenecks.

👤 **Working Together initiative** – Responding to feedback from customers by improving process and efficiency, through regular working group with National Grid Electricity system operator and other Transmission operators. In addition, new monthly call established with National Grid connections team to establish regular dialogue, improve process and put customers at heart of decision making.

🏠 **National Grid Electricity Customer Seminar** – Active participant in connection seminars run by National Grid. Our senior managers attend to engage with users on the progress of new connections and strategic network upgrades.

🏠 **Open Networks Customer Focus Group** – To ensure our improvements ultimately deliver what customers are looking for, we engaged through a customer focus group, as part of the cross-industry Open Networks project. This allowed participants to provide valuable feedback.

🏠 **Transmission Economic Connections Assessment (TECA)** – Our commitment to the facilitation of low carbon connections led to us creating a TECA Steering Group, to review and adjust our best view of the contracted generation background to 2021 and to evaluate timely delivery of reinforcement works. TECA represents a significant deployment of our resources with 9 permanent members, encompassing engineering, commercial and finance disciplines and the scope has now been widened to incorporate linkage with our new RIIO-T2 team.

Outcomes and Impacts

Make it quicker to connect renewable energy to the network

Distribution Network Operators have an obligation to notify the System Operator and Transmission Operators of any connection that may have an impact on the Transmission network. Users have, for some time, advised that the existing process is a frustrating and lengthy experience.

🏠 **Leading industry improvement** – We have developed and trialled a revised process with our distribution business, which provides visibility of the transmission impact upfront as part of their distribution offer, rather than waiting up to 12 months.

🏠 **New trial at four Grid Supply Points** – We trialled our new process across 4 key strategic sites. Each Grid Supply Point was selected on account of different issues raised by users, in order to maximise the benefit of the learning.

✅ **20 connection offers accelerated by 12 months** – The trial has, to date, enabled in excess of 20 offers to be made that would otherwise have taken up to 12 months to determine the transmission impact through the existing application process.

✅ **Impact for renewable developers** – This process provides increased certainty and control for developers.

✅ **Reduced timescales and costs** – Connections progress quicker and reduction of administration costs and invoicing issues.

✅ **Improved visibility** – Ability to provide more accurate forecast of new generation to the system operator.

✅ **Queue handling** – The revised approach has also resulted in more effective queue management with a reduction in speculative projects 'reserving capacity'.

Make it easier to connect renewable energy to the network

🏠 **Revising industry arrangements** – We have continued our work around queue management, aimed at removing blockages caused by stalled projects to the benefit of construction-ready renewables projects. Our approach seeks to ensure effective queue management and minimises contracted queues being established if projects are not advanced enough.

✅ **Process improvement and optimisation** – We have led the development of a common policy and publication of a new GB roll out plan for queue management, working with all network companies and the System Operator through the Open Networks project.

Ensure your strategic investment plans align with the investment plans of users

🏠 **More accurate forecasting** – Transmission Economic Connections Assessment (TECA) is resulting in more accurate projections of renewable development in Scotland.

✅ **Accelerated or decelerated investment plan** – The information from TECA feeds into our Transmission Business Plan on an annual basis, ensuring our investment best meets the needs of users and customers, unlocking flexibility and legitimacy year on year.

Reduce disruption to users of the system who are already connected

Accelerated renewable connections





When the Transmission network is already operating at capacity, it means new renewable developments can't connect, which can be really frustrating to users of the system. So we've been working with them to use new innovative technology which means they can connect to the network now, on the agreement that they can be switched back off if the system reaches capacity. This reduces the need for reinforcement, significantly speeds up connection and reduces costs.




You Said

Users explained that the way the system was operating was providing a 'hard trip' for them, which had the potential to damage some of their equipment.

We Did

-  **User workshop** – We invited all renewable developers that have connected, or are contracted to connect via these schemes to a workshop on how the scheme works and what we could do to improve.
-  **New approach** – A new technical paper was produced and approved, based on feedback from stakeholders which outlines a new approach to how we design the schemes. This will help minimise disruption for future managed connections.

Outcomes and Impacts

-  **Process improvement** – New process has now been adopted for the design of our accelerated renewable schemes, responding directly to stakeholder feedback.
-  **Innovation** – Provided a new facility where the developer gets a signal, to give them time to ramp down their turbines.
-  **Significant carbon reduction** – By allowing 228MW of generation to connect early so far these schemes have potential to displace approximately 1 million tonnes of CO₂ when compared to the mix of conventional generation methods.

Taking the lead on Harmonics





Harmonics can be caused by anything from your phone charger to large interconnectors – it can all contribute to the harmonic levels on our network. Harmonics could ultimately lead to equipment damage and outages for system users and customers.

Ensuring acceptable harmonic performance is becoming an increasing challenge, in part due to the increased use of underground cable in new connections. We conducted simulations, which predicted harmonic problems, and these simulations results have been verified by measurements.




You Said

Whilst harmonic compliance is the responsibility of windfarm developers, it could be better for the network operator to provide a solution.

We Did

-  **Harmonics workshop** – We held a workshop with developers, specifically on the issues of harmonics, explaining a very technical subject to stakeholders in a way to help them understand.
-  **Evaluating options** – We developed two possible technical solutions:
 - Placement of standardised harmonic filters at connection points
 - Placement of standardised harmonic filters at optimal network points

Outcomes and Impacts

-  **Technical solution developed** – Identified a technical solution with our stakeholders which is capable of dealing with the harmonics issue.
-  **Knowledge sharing** – With the other Transmission operators to enable a common GB approach.
-  **Fixing network issues** – Resolving issues on behalf of renewable generators, to the benefit of society. Quantifying the issue is really difficult. If harmonic levels are allowed to get out of hand, the impact could range from a minor annoyance to equipment damage, or anything in between. We are helping windfarms to connect with less risk, whilst also cleaning up harmonics.

A resilient network

We are a critical service provider for 80% of Scotland's population. As such, it's important we plan for every scenario and have a robust plan in place. One of the worst possible scenarios we plan for is a 'Black Start' - where the power goes out across the GB network and there's a race against time to get it back on. We know that with the changes to Scotland's energy mix and the closure of the country's last coal-powered power station, our stakeholders need to be alert to the significance that has to the projected restoration timeframes.

- ★ Best Practice/Innovative
- 📈 Increased/Replicated
- 👥 Partnership/Collaboration
- 📞 Hard to Reach
- 📁 Outcomes
- ✅ Impacts

System Resilience

By reaching out beyond our formal role, we stimulated change – and improved the national plan for our current and future customers. The closure of Scotland's last coal-powered power station, resulting in greater reliance upon renewable energy and generation in England and Wales, means that restarting Scotland's electricity system would be more challenging should Black Start occur.

You said

- Look for innovative ways to bring down the length of time it would take to get customers back on supply.
- Use local, regional and national resilience forums and groups to ensure there is a joined up planning approach.
- Work in close collaboration with industry players to influence a quicker restoration plan during a major event.
- Improve the resilience of your operations – ensuring your own employees have the equipment and training for worst case scenario events.

We Did

👥 **Strategic Stakeholder Panels** – Discussed the significance of recent changes in generation capacity and the ongoing import/export balance, potential impacts including: 'Black Start', potential for disruption during ice storms, potential length of interruption to power supplies, and the importance of forward planning. We also took the opportunity to engage on security of supply and prompted discussion related to Black Start mitigation and start-up timelines.

👥 **Regional Resilience Forums** – Proactively engaged with both the East and West of Scotland Resilience Forums, and at 5 Local Resilience Partnerships, to raise awareness of our emergency plans and seek feedback from stakeholders.

📈 **Scottish Utilities Contingency Planning Group** – Led establishment of group with Scottish Govt, SGN, Scottish Water and Telecoms for feedback on our emergency plans.

📞 **Updated engagement plans through specifically targeted engagement** – Proactively targeted key impacted stakeholders including the NHS, the Scottish Environmental Protection Agency, Transport Scotland, Network Rail and various local authorities for knowledge sharing and to provide the opportunity to influence our emergency plans.

👥 **Integrated energy planning** – Following our engagement, Network Rail shared their updated emergency plans with us for feedback.

👥 **Business Continuity Institute event** – Hosted an event at our headquarters in Glasgow, welcoming visitors from across the business community to discuss the resilience of local businesses.

👥 **BEIS Black Start Task Group** – Leading participant of this sub-group of the Energy Emergency Executive Committee, established to address issues specific to the UK's Black Start Strategy. The purpose is to facilitate dialogue between government, transmission and distribution companies, generators and Ofgem, to enable effective policy development and planning for the total failure of the electricity transmission system. We are supporting several national workstreams on the group, notably leading on the development of proposals for physical testing to provide assurance on restoration capability and the software and control room work streams. Information from our stakeholders was shared and fed into the collaborative work through this group. 8 working group actions completed to date in our workstream, including scenario planning and system resilience testing.

👥 **Scottish Government Industry Leadership Group** – The Scottish Energy Advisory Board is supported by the Industry Leadership Group, a small group of energy industry experts appointed by the Scottish Government. We are represented by Scott Mathieson, Director of Network Planning and Regulation. This group has helped develop our strategy for input to the Northern Security Study.

★ **Wind developer engagement** – The traditional approach to restoring power following a Black Start event would be to use non-intermittent sources of generation, such as pumped storage Hydro to re-start the network. Due to its nature it had generally been assumed that wind generation would not play a role in the early stages of restarting the network. We proactively invited the

biggest wind developers in our area to share our understanding of the Black Start recovery scenarios in central and southern Scotland and explore interest in providing innovative options for recovery support. This could allow us to use wind generation to speed up the restoration of the network and bring power back on to customers earlier. National Grid and SHE Transmission were involved in the discussions and developers were very keen to explore possible innovative solutions, which would allow them to play a part in restoration plans.

★ **International engagement** – Engaged with Dr Alan Finkel, who is conducting an international study into Black Start following the recent South Australian event, in order to contribute to the global review and learn lessons from world-leading experts on system resilience.



Outcomes and Impacts

Innovative ways to bring down the length of time customers could be off supply

- 6 **World-leading temporary tower system** – Discovered through global benchmarking, invested in 9 temporary masts that can be erected quickly in an emergency. If a tower was to collapse and line was to come down, we have the capability to restore at least one circuit. The system is now being stored in strategic locations.
- ✓ **Mitigation of major disruptive events** – By enhancing our ability to restart the electricity network, we could save Scottish society the estimated hundreds of millions of pounds daily impact of a Black Start event.
- ✓ **Reducing significant customer impact** – The loss of one major Transmission line during a major event could have a significant multi-day impact, hampering efforts to bring the network back to full strength and restoring power to customers. Now our temporary tower system means we have the materials and skills to get customers back on quicker.
- ✓ **Supporting the local economy** – Procuring the storage and deployment solution from an SME in our local community supports local economic growth and jobs. It also ensures fast, local response during severe weather conditions.

Improving the resilience of our operations

- 6 **Emergency supplies** – A prolonged power cut would impose unprecedented challenges in maintaining a secure food supply for the population. We have procured enough fuel tanks, food and water for essential employees for 7 days and stored in strategic Transmission locations to ensure these do not impede our ability to restore supplies to our customers.
- 6 **Training** – Completed with key strategic Transmission employees on the new Emergency Response System.
- 6 **New business continuity system** – Implemented to allow us to contact all employees quickly in an emergency, with 64% of employees responding to the first test of the system.
- ✓ **Employee productivity** – Our operations and employees are now more resilient to major emergency events as a direct result of our engagement, ensuring we can continue to work tirelessly to restore customers in a timely manner.

Joined up approach with resilience groups

- 6 **The National Risk Register** – Being updated to reflect the number of days a Black Start may now last, as a result of engagement with BEIS and Governments.
- 6 **Network Rail** – Co-ordinated and integrated emergency plans now in place.
- 6 **Protected customers** – Our 'Protected Customers' list reviewed and revised, following engagement with working groups, and each customer engaged to review their resilience to a major event.
- ✓ **Community preparedness improved** – More prepared for worst case scenario and risks analysed.
- 6 **Healthcare** – During a 'Black Start' event it is possible hospitals would have to restrict public services to essential "life and limb" services and GP facilities would shut down. As a result of our engagement, NHS Scotland have agreed to test their fleet of standby generators to review their operational capabilities.
- ✓ **Healthcare services more resilient** – Ensuring hospitals have enough fuel to run backup generation will ensure essential services will not be severely compromised.

Close collaboration with industry players

- 6 **Industry improvements** – Final report produced from the Black Start Task Group System Resilience workstream, with further recommendations. The report has been accepted by BEIS.
- 6 **Industry leading tests** – Following engagement with National Grid System Operator, we carried out a joint Voltage Reduction exercise, a test of the resilience of the network. Formal report produced following the voltage reduction test and shared with National Grid System Operator.
- ✓ **More resilience GB wide grid** – The changes we are influencing and leading will result in substantial benefits to customers across GB, increasing the resilience of our electricity system. Following our tests the System Operator is now expanding our approach and is looking to conduct similar tests with other network operators.



Shaping the future

The energy system is changing at pace and we are working with users of the system, customers and stakeholders to shape the future. We are engaging to understand their priorities for the transmission network of the future – building their feedback into our strategies, plans and policies.



- ★ Best Practice/Innovative
- 📈 Increased/Replicated
- 👥 Partnership/Collaboration
- 📞 Hard to Reach
- 🏠 Outcomes
- ✅ Impacts

Strengthening the Consumer Voice

We are strengthening and diversifying the consumer voice to legitimise future business plans. This year we kicked off our RIIO-T2 engagement.

You Said

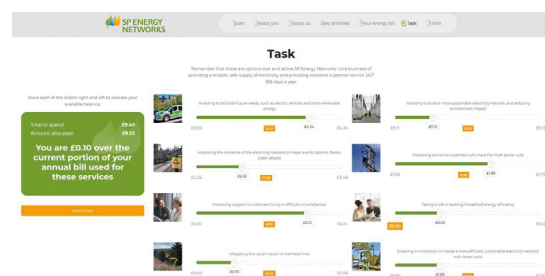
- Strengthen the role of stakeholders and consumers in setting and agreeing business plans.
- Engage appropriately with future customers, to give them an opportunity to set out their priorities.
- Innovate to find new ways of educating and informing consumers about electricity networks.

We Did

- 🏠 **Stakeholder Conference** – At our new stakeholder conferences we discussed the options for strengthening consumer voice. 89% of attendees supported the establishment of a customer challenge forum or constructive engagement model, with mixed views on the specific model.
- 🏠 **Strategic Stakeholder Panel** – Discussed value for money, the current regulatory model and pressures on network costs. The panel helped us to determine how to constructively engage current and future stakeholders in the debate and provided feedback that:
 - we need to simplify information on costs.
 - there is a need for detailed engagement with stakeholders on value for money.
- 🏠 **Strategic Challenge** – Several bilateral meetings with consumer groups encouraged us to challenge our approach to consumer engagement, and feedback from Ofgem agreed that future stakeholders are a key group who are currently underrepresented in network operator engagement.
- 🏠 **Knowledge sharing** – Engaged with Scottish Water to learn lessons from their most recent price control submission.
- 📞 **Customer focus group** – Domestic customer focus groups revealed the level of detail they would need to be able to participate in engagement on Transmission network costs and value.
- 📞 **Engagement with Citizens Advice** – Including joint Transmission operator meeting on Willingness to Pay and review of joint tender documentation. Participated in 'Consumers First - Policy and Practice in Energy, Post and Water conference'.
- 📞 **Young Energy Force panel** – We hosted ten diverse future stakeholders to understand their expectations and priorities. 100% of Young Energy Force panel members said they would like to attend again.
- 📞 **Infographic for customers** – Created an infographic to improve understanding of how we make money and where our investment goes, in a simple, improve understandable way for a broad audience.
- ★ **Political engagement** – Bilaterals with Greg Clarke (Secretary of State for Business, Energy and Industrial Strategy) and Paul Wheelhouse (Scottish Minister for Business, Innovation and Energy) to discuss RIIO-T2 strategy.
- 📞 **New Customer and Stakeholder Online Communities** – Taking best practice from social media platforms, relaunched both digital platforms, which provide a chance for people to feedback on plans and discuss key topics.

Outcomes and Impacts

- 🏠 **Digital 'Willingness to Pay' tool** – Developed an online tool to let customers prioritise the 'flexible element' of the bill, over and above the essentials we require to deliver a safe and reliable electricity supply. This has enabled 999 diverse end consumers so far to reflect their needs and preferences. It provides ongoing benchmarking information, legitimising our RIIO-T2 business plans and further enhancing the role of consumers in decision making.



- 🏠 **Joint Transmission operator approach** – All 3 Electricity Transmission operators and National Grid Gas Transmission have agreed to a joint 'Customer Insight' tender exercise, to appoint one market research company. This aligned Willingness to Pay research will be used to inform our RIIO-T2 business plans in a consistent and comparable way – improving transparency and accountability for customers.
- 🏠 **Enhanced business plan engagement** – Used stakeholder input to design new proposals for a RIIO-T2 User Group, providing challenge to our business plan approach and engagement.
- ✅ **Affordability and value for money** – Business plans will more accurately reflect what consumers are willing to pay for. Those involved in our trial chose not to reduce their bills – opting to maintain the same overall spend on networks. Consumers' top priority was to invest in innovation, to create a more efficient, sustainable electricity network. These findings will inform current and future business plan development.








Whole-system energy planning

The energy system is changing – with growing interaction across traditional boundaries, between gas, electricity, heat and transport and the entry of new system participants. This all means increasing alignment, control and system operation is required.







You Said

- Leverage the benefits of being a Transmission and Distribution System Operator to the benefit of users.
- Contribute positively to energy planning cross-system to ensure an integrated and consistent approach.

We Did

-  **Planning for a hydrogen future** – Presentation from Bright Green Hydrogen at our Strategic Stakeholder Panel, followed by plenary discussion on whole system planning. Scottish Development International facilitated engagement with a company which has a high demand for Hydrogen and who are looking at alternative options for converting to renewable electricity production.
-  **Alignment with Gas network** – Engagement with Gas Distribution Operator SGN on whole-system planning approach, informing recommendations made to regulator.
-  **BEIS Smart Systems Forum** – Participation in new group designed to implement and steer BEIS and Ofgem's Smart Systems & Flexibility Plan.
-  **Aligned approach to managing asset risk** – Taking learnings from the application of a new asset condition management system in Distribution business, we have developed a new approach for Transmission. Working closely with the other Transmission operators, we have been passionate about explaining our methodology for dealing with asset risk to stakeholders in language they will understand. Being open and transparent about how we manage risk, actively seeking influence from others and leading industry collaboration to find appropriate solutions.
-  **Global Industry Engagement** – Papers submitted and presentations delivered at 7 major global industry events, receiving feedback and learning best practice from world leaders across the energy system.

Outcomes and Impacts

-  **Whole-system energy scenarios** – Energy scenarios developed for Transmission which take into account hydrogen and gas. Off-gas grid properties have been considered for the potential uptake of heat pumps as an alternative source of heating.
-  **Campaigning to formalise a whole-system approach** – We have recommended to Ofgem a whole system assessment is undertaken in both electricity and gas for RIIO-2 and then look to combine these frameworks together, along with other sectors e.g. heat and transport in RIIO-3, allowing time to resolve any legislative constraints.
-  **A more efficient energy system** – By reaching out beyond our formal role and embracing a whole-system planning approach, we are delivering a more efficient and sustainable overall energy system for users and consumers.
-  **Common methodology** – Agreed for asset risk amongst Transmission operators.
-  **Consistent tool** – Agreed to implement the same asset risk management system as SHE Transmission, taking and sharing best practice from our distribution licence.
-  **Robust assessment of asset risk** – Agreeing common methodology and a consistent tool is helping us ensure we replace our assets at the optimum point, decided by stakeholders.

'Whole system' approach in action: Active Network Management across the Transmission – Distribution boundary

We Did

-  **Open Networks Project** – Major cross-industry initiative, re-defining how our energy networks will operate in the future. We are committed and engaged in all aspects of the project – from senior management through to delivery level.
-  **Network Options Assessment (NOA)** – We have been an active participant in the System Operator's process to ensure investments taken forward are optimised across the whole GB transmission system. Our input includes detailed analysis to identify investment options, timings and costs to improve the capability of various stressed transmission boundaries within and around our licence area.
-  **Whole-system solutions** – We are examining the applicability and benefits of extending the Distribution Network Operator role to become a Distribution System Operator (DSO), as a result of the change from traditional point source generation from large-scale plants, to the distributed renewable generation.

The adoption of the DSO model would provide different technical and market solutions that the existing framework doesn't naturally allow for. This could reduce the need to reinforce the transmission network and enable more renewable connections at a lower cost.

Outcomes and Impacts

-  **Enabling customer flexibility** – The changes will give households, businesses and communities the ability to take advantage of new energy technologies and services, which can control their energy use and lower their costs, including renewable generation, battery storage and electric vehicles.
-  **SMART Zone project** – We are seeking to lay the foundations for the DSO business model and have established the SMART Zone project in Dumfries and Galloway. The project will be undertaken over a number of years, across transmission and distribution, with completion phased from 2020 to 2023.
-  **Proposing commercial solutions** – Proposed a new, innovative £5m Generation Export Management System, backed up by commercial solutions, in Dumfries and Galloway. This is designed to facilitate the connection of new users on the Distribution and Transmission systems through Active Network Management agreements, without incurring significant reinforcement cost for the end consumer.
-  **Avoiding costly reinforcement** – To build the network capable of connecting peak generation in Dumfries and Galloway in the traditional way would cost approximately £500m. So avoiding the need for this costly reinforcement, while still providing attractive conditions for optimised renewable generation to connect, is essential.
-  **Facilitating a new commercial market** – The new solution opens up a new System Operator commercial market for curtailment that all users can participate in.



SP Energy Networks
SP House
320 St Vincent Street
Glasgow
G2 5AD

spenergynetworks.co.uk