Part 1

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The outcomes we have delivered through engaging with stakeholders

2022-23

Contents

Who we are

At Northern Powergrid we are proud to provide an essential service to eight million people in our region, covering an area of 25,000 square kilometres.

We take that responsibility seriously and believe that our customers should get a service that is second to none – so we provide reliable, affordable and sustainable energy solutions.

In short, our aim is to be the best at what we do.

Overview of 2022-23 submission

Part 1

Part 1 sets out our strategic approach to stakeholder engagement and consumer vulnerability and how we measure our impact.

Part 2

Part 2 sets out details of our engagement principles and strategy in action and demonstrates the impact on our business activities and outputs for our customers and stakeholders.

Part 3

Part 3 demonstrates how we support vulnerable and fuel poor customers and builds out how we are applying "no-one left behind".

Meet the Local Area Energy Planning team

See page 3 for more information

Derek Fairbairn
Local Area Energy Systems Manager

Lizzie Boyes
Local Systems Planning Engineer

Conner Edwards
Local Systems Planning Engineer

Director's message

Part 2

The energy industry is going through a period of unprecedented change, impacting the day-to-day lives of our customers and the priorities and challenges of our regional stakeholders preparing for Net Zero.

It has never been more important that we work closely with our stakeholders and customers to understand their needs and find joint solutions to the significant challenges we are facing, from the increasing frequency of weather events to the cost-of-living crisis.

Bringing my commercial experience in leading large-scale Net Zero developments provides critical insight in how to adapt our role and collaborate with local, regional, and national stakeholders to find sustainable pathways.

Working closely with and listening to our stakeholders we have established our new DSO unit ahead of the regulatory schedule, including a dedicated Local Area Energy Planning team. This is game changing engagement that allows for a rapid uptake of LCT for local authorities and partners. Engaging our stakeholders with ESO colleagues to make collaborative commitments to remove the obstacles of network constraints.

Our BPEG engagement programme provides systematic improvements across our business from customer service to network resilience. It enables dynamic stakeholder influence within our initiatives throughout their project lifecycle whilst remaining continually responsive to external factors like the energy crisis or concerns about the UK's energy resilience.

Paul Glendinning
Director of Policy and Markets

Customer and stakeholder priorities in 2022-23

Our focus areas for this year reflect stakeholders' and customers' priorities under our key strategic business areas, each led by a senior executive. Part 2 sets out our actions to respond to stakeholders and customers grouped as set out below to illustrate how we are meeting key challenges.

Maturing our response to severe weather

- Using our experience during Storm Arwen to make long-term improvements
- Response to Storm Otto – 17 February 2023

Resilience

Enhancing whole-system resilience
- Understanding effects of power cuts on different stakeholders
- Micro-resilience
- Climate and flood resilience

Community-focused resilience
- Maximising the social impact of our investment programme
- Workforce resilience

Energy Futures

Empowering communities to Net Zero
- Evolving our approach to Local Area Energy Planning and Network Investment
- Accelerating the adoption of heat pumps in our region
- Increasing the adoption of EVs in our region
- Enabling our communities to decarbonise

Facilitating our transition to DSO
- Delivering whole-system benefits through engagement and innovation
- Improving our Flexibility First approach to deliver decarbonisation

Leading the way with our own action
- Leading with our own environmental action
- Leadership role with other organisations

Meeting the Needs of Customers

Delivering quicker, easier and more efficient connections
- Self serve platform for connections
- Changes to the low-carbon applications process
- Contact channel changes

Enhancing support for customers during outages
- Improving our onsite response
- Evolving our telephony platform in collaboration with UKPN

Our People, Our Communities

Our People, Our Communities has been introduced this year to reflect the stakeholder view that we should play a greater collaborative role with customers, partners and local groups in the different communities in our region. It is an area which is integrated into our key priority areas.

Refreshing our approach

Many of the issues we are tackling are complex, requiring longer-term ongoing engagement with multiple parties to achieve policy outcomes. Therefore a linear approach (stakeholders told us, so we did) is less applicable to many of the issues we face and we have adopted a more strategic approach, reflecting our changing role and the broader energy sector challenges which have longer horizons.

Our stakeholders are also evolving in that in many instances they are coming to us with the expectation that we will co-create solutions with them, particularly our Net Zero stakeholders. We have included a 'Way Forward' section in Part 2 to indicate how our engagement and action will continue to develop and enhance moving into ED2.

As outlined in Part 1, we have evolved to a multi-layered approach to measuring impact on our stakeholders. SROI remains relevant because it provides a quantified benefit to some of our responses which enables us to evaluate their impact. Customer feedback is also key to measuring our impact as well as other techniques such as long-term research and setting our own KPIs to measure our performance. We have highlighted attributes that our initiatives deliver against. Look out for these badges in the report to help you navigate through sections, identify and group initiatives.

VULNERABILITY | COLLABORATION | SCALING UP | INNOVATION | DATA AND DIGITALISATION (D&D) | OUR PEOPLE, OUR COMMUNITIES (OPOC) | ADOPTING INITIATIVES FROM OTHER DNOS (AID)

Maturing our response to severe weather

Part 2

It is key that we meet customers' expectations of restoration times and provide communications to them during storm events. We have put in place changes and tested them with stakeholders and customers to ensure that customers receive the highest standards of service they have a right to expect during storm events.

Using our experience during severe weather events to make long-term improvements

SCALING UP VULNERABILITY

The 2022-23 context

As we experience more extreme weather events, we have increased our engagement to understand how to best meet customer needs. This learning has shaped our ongoing improvement in services that we deliver to customers.

— We meet with MPs across our region to understand the views from their constituents around our performance on resilience and severe weather events. The main issue for MPs was communication. Almost all raised the issue of estimated restoration times during severe weather events causing uncertainty and customers staying in their homes for longer periods.

— Our stakeholders told us we needed to build stronger relationships with resilience forums and improve our communications. Our engagement with local community groups highlighted that local communities were unsure on how to develop resilience plans with appropriate solutions in line with the national Net Zero 2050 target.

Our response and outputs

Meeting customer needs for communications

Response to the BEIS & Ofgem Reports

— **We set up new ways of working with our Operational Frontline staff to** deliver the BEIS & Ofgem actions and landmark business plan changes. We have completed 61 report deliverables identified, the remaining 6 actions are on track and are being progressed at an industry level.

Our own initiatives

— **We improved telephony capacity to enable more customer communication during storm events:** we can now receive up to 3,000 concurrent calls, up from 240 (the previous maximum number of concurrent calls received was 500).

— **We increased website capacity and integrated a new power cut logger.** The new tool has been tested with up to 30,000 concurrent users processing 12,000 transactions per minute (this is roughly four times what we experienced at the peak of Storm Arwen).

— **We have increased our contact centre resources,** improving power cut communications for vulnerable customers, and now operate longer to include evenings/weekends.

— **We have increased our number of generators, so we have capability** to restore the supply to single premises, significantly reducing the number of worst affected customers during a major incident.

— **Over 300 overhead line operatives are now available to restore power during a major incident** through working with our contractors.

— We now have capability to **keep track of outbound calls to PSM customers and the support they are receiving.**

— Communication with customers in advance of events, via emails, texts, calls, has helped us build trust and receive positive direct feedback from customers on social media and in our contact centres.

— **If customers are disadvantaged during a storm event we now have** automatic payments and a streamlined online process.

See further details of our improvements in the Energy Futures (pages 3-6) and Resilience sections (pages 7-8).

Response to recent severe weather events

VULNERABILITY

The region has experienced six storms (including Storm Otto and Larissa) and unexpected summer heat events in 2022-23. We are continuously learning from these events and are working to constantly improve our responses.

Continuously improving our storm response

— Storm Larissa took place on Friday 10 March 2023 with around 33,000 customers affected, experiencing power cuts.

— Our preparations started on Wednesday 8 March where we mobilised, regularly updating our customers and stakeholders on our preparations and where we anticipated the storm would impact.

— Due to our effective preparations and team mobilisation, from over 33,000 customers impacted, our last customer without power had it restored by 18:00 on Friday 10 March (the day of the storm).

— Customers surveyed following the storm gave a satisfaction score of **85.5%**.

Views from our customers

— Social media: "@Northpowergrid just want to say what a brilliant service you give. Power off for a couple of hours late last night, kept up to date with texts. Easy to use website to check area for power cuts. Thankyou!"

Response to Storm Otto

— During this storm, our approach ensured that we were able to successfully restore power to almost **22,000 customers within 24 hours.**

— **We successfully answered 1,700 customer calls.**

— **We engaged with 1.3 million customers overall.**

— **Customers responded with positive feedback** across all channels on the support we had put in place and the improved communications.

— Customers surveyed on the day of Storm Otto gave a combined score of 86.1%. **Of those 49 customers surveyed, 30 customers scored us either a 9 or a 10 out of 10.**

Views from our customers

— "I don't think they could have done anything better. I thought they done a great job!"

— "It came on earlier than they said, so I was happy with that. Ten overall! It was a lot better than they had done in the past."

While ensuring we make improvements in our own environmental performance, we have transformed our role in terms of the services we provide to enable stakeholders and customers to achieve their Net Zero ambitions.

We are working with them to meet their needs by making the network smarter, more flexible and as efficient as possible while supporting decarbonisation.

Evolving our approach to Local Area Energy Planning and Network Investment

D&D INNOVATION

The 2022-23 context

More than 80% of local authorities in the UK have declared a climate emergency, with most targeting Net Zero before 2050. However, in building out effective local area energy plans (LAEPs), they often struggle with technical expertise and limited access to network data.

Our response and outputs

We built an engagement tracking tool, with an activity heat map and probability/maturity score to:

A) Track stakeholders and their concerns, for example, housing associations, local authorities and transport bodies, enabling us to tailor solutions and proactively engage with them. ***The output*** *is bespoke solutions to customer needs, and the ability to identify what additional organisational skills and training we need to support our customers with their decarbonisation plans.*

B) Communicate decarbonisation planning among LAs and other stakeholders in the regions. ***The output*** *is sharing best practice.*

C) Leverage our engagement on LAEPs to identify areas for LV monitoring to improve the efficiency of our investment plans. For example, we identified LAs/housing associations' LCT sites and deployed LV monitoring at 20+ sites in the north east and Yorkshire providing us with real time data on the network before and after LCT installation. ***The output*** *is based on analysis of the data which can be used to make efficient decisions on any further network interventions.*

D) ***Ultimately improve our*** *DFES accuracy and help us challenge our design assumptions.*

We developed a prototype for an automatic assessment tool for LCT applications that accesses multiple databases to calculate a score based on the applicant's data.

The tool enables us to address customer needs:

A) Provides easier processes for LAs and housing associations with large connection needs and therefore facilitates their applications in a more timely way. ***Our turnround*** *time for applications has reduced from up to 45 days to a day or less.*

B) Allows us to review our design policy based on the improved data sets we receive from our stakeholders. ***The output*** *is a further increase in LCTs connected in a shorter period, without the immediate need for traditional network reinforcement.*

We created a decarbonisation guide. ***The output*** *is a tool to help local authorities and other stakeholders understand what an electricity network looks like, why we decide what and how things can connect and explain the meaning of the data we provide.*

We assembled a new LAEP team within the new DSO business unit set up last year, with new capability and capacity. Building on the data and advice we have provided in previous years, the dedicated LAEP team is meeting stakeholders' increasing need for access to data, including LV mapping, and advice for more efficient process applications.

Way forward

— Grow our LAEP team to facilitate the rollout of connections to meet customer demand. For example, this will meet demand for EV charging points; the connection need will grow over time in line with demand for charging points.

— Evolve our tools. For example, our AutoDesign tool that supports our local authorities to create more data visualisations to improve understanding of whole-system relations and their Net Zero plans.

Accelerating the adoption of heat pumps in our region

SCALING UP D&D INNOVATION NO-ONE LEFT BEHIND

The 2022-23 context

With the heating of buildings responsible for around 20% of the UK's carbon emissions and 87% of all households still heating their homes with fossil-fuelled gas boilers, local authorities are under significant pressure to decarbonise building stock. We have built on support provided in previous years by engaging with local authorities and experts to develop more sophisticated methodology to support their objectives.

Our response and outputs

Established an innovative approach for the rollout of high-density clusters of heat pump installations to support LAs. We collaborated with three local authorities in our region, and their commercial partners, to identify suitable premises for heat pump installation as part of the National Heat Pump Ready project. We complemented the existing tools available on our website with substation demand and localised mapping data. ***The outputs*** *were used to identify optimum connection locations with spare capacity and avoid potential long delays for substation reinforcement. This process is being published by BEIS (now DESNZ) and will be rolled out to other DNOs and local authorities.*

We developed a new model to understand how widespread heat pump installation may affect electrical demand across our region. Partnering with WSP, we proactively developed more advanced heat pump modelling. Using six representative property types and the recommended type of heat pump, we can forecast how widespread adoption could affect demand across the region. ***This will*** *link up with our existing tools, like AutoDesign and our network design policies, to further aid decarbonisation planning and prioritisation by local authorities.*

Way forward

— Based on successful projects, we are creating an exemplary standard for future Heat Pump Ready projects.

— Findings from the initiatives are being developed into a second innovation project exploring the flexibility of heat. This will further guide our understanding on the nature of heat pump demand and how it will impact our network.

Accelerating the adoption of EVs in our region

D&D INNOVATION SCALING UP

The 2022-23 context

As the north east has only 3.1% of the UK's charging points, compared to 42.5% in London and the south east, there is significant need for us to enable the rollout of EV infrastructure. Stakeholders in our region have been challenged to forecast the scale of the Net Zero transition required due to uncertainty about the locations, cost and rate of technology uptake.

Our response and outputs

Enabled informed EV charging point (EVCP) location selection in County Durham. We supported Durham County Council (DCC) with their data needs on the £1.25m Local Electric Vehicle Infrastructure (LEVI) Pilot Scheme, to create EV charging infrastructure for residents. ***We provided*** *support through our AutoDesign tool, which enabled DCC to decide where to install the 100 allocated EVCPs.*

Supporting motorway service areas electrification plans. Following engagement with the government, we have reviewed where additional capacity is needed for Washington Services electrification plans. ***We invested £1.3m*** *(via Green Recovery Scheme) to facilitate the stakeholders' electrification plans to install three 11kV circuits from Birtley Grove primary substation to the vicinity of Washington northbound.*

Unlocking more accurate demand projection through coordinated data sharing. We shared DFES data with Transport for the North (TfN) and expanded the data set to include running cost estimates and substation capacity requirements. ***There are*** *two key outputs for customers:*

1) *TfN can make better and more accurate predictions on the geographic distribution of required EV chargers to meet customer needs;*
2) *Our ability to access TfN data enhances our network management capability. This enables us to better manage the increase in energy demand on the network with the acceleration of EV charging infrastructure.*

Enabling better planning with reliable EV adoption forecasts and statistics. We are collaborating with Experian to increase our understanding of demographic profiles likely to make the switch to EVs and domestic charging. Coupled with knowledge of their location we can identify substations impacted by high EV adoption. ***The output*** *is that we can deliver timely information on current EV adoption within our operating regions; locations of households that have a driveway and capacity for a domestic charging point, a breakdown of adoption curves and a dynamic dashboard to convey the information to stakeholders.*

Way forward

- **Leverage our learning** from the DCC EVCP project to enable other stakeholders in the region to implement efficient EVCP rollout schemes. We will assist DDC with a further rollout based on additional funding of £7.4m and will use the DCC project to create an exemplary standard for other EVCP projects to support other stakeholders in the region.
- Delivering on £21.8m of Green Recovery Schemes facilitating EV charging take up in region.
- Working with the rapid charging fund.

Enabling our communities to decarbonise

OPOC D&D SCALING UP

The 2022-23 context

Stakeholders want to share decarbonisation plans and exchange relevant data with us to understand where capacity is available for low-carbon projects. Local authorities have sought opportunities for more regular, strategic discussions and in particular they want us involved in their plans from the outset to gain an early insight into what is feasible. Our response was to initiate collaborations with communities, councils, housing associations and rural unions to enable B2B and B2C decarbonisation planning.

Our response and outputs

Partnering with Regen we developed a Community Energy Engagement Strategy informed by the feedback received from 17 community energy representatives. Community-led renewable energy programmes are key to achieving Net Zero. ***Our strategy*** *provides:*

1) *our communities with funds and training to build the capacity and knowledge of community energy organisations; and*
2) *opportunities for peer-to-peer networking within the sector with our 'Put your community on the map!' campaign.*

Housing association decarbonisation. We have collaborated with Newcastle City Council and Kirklees Council to enable timely retrofit installs and align strategic planning for deployment. Through data sharing, the councils were informed on how the properties connected to the distribution network and where there was existing network capacity for LCTs. ***The output*** *is that timescales for LCT connections have been reduced, by selecting locations which require no reinforcement.*

Enabling rural decarbonisation. The National Farmers' Union sought to understand the impact of decarbonisation on the agricultural sector to ensure any barriers could be identified and mitigated. ***The output*** *is a project to identify the potential LCTs and business models likely to be adopted in rural communities and how these will impact the distribution networks.*

Increasing off-grid connections. Northumberland County Council (NCC) faced the challenge of prioritising connection of their off-grid properties as part of their decarbonisation plans. ***The output*** *was the application of data sharing and analysis to support NCC to make optimal decisions on connecting off-grid properties (230 out of 430 potential). A similar approach was also used to support the Ministry of Defence (MOD) to provide connections to 15 MOD off-grid properties.*

Way forward

- Continue to support community energy stakeholders by evolving our Community Engagement Strategy for 2023-25 in response to their feedback.
- Expanding data analysis and sharing to support off-gird connections.
- Increasing our B2C engagement through hiring 4 full time energy advisers.

Decarbonisation is increasing the complexity of power flows on our network. Flexibility services are needed to provide optionality in generation and consumption. Engagement with our stakeholders is vital to help us most effectively support flexibility, and collaboration with customers and expert partners is key to unlocking innovations that deliver the network of the future.

Delivering whole-system benefits through engagement and innovation

OPOC | COLLABORATION | D&D

The 2022-23 context

We are experiencing congestion and capacity issues in the transmission system nationally due to the increase in LCT connections. Both generation and storage developers face significant delays to connect. We adopted a whole-system approach, collaborating with the ESO and applicants, and developed tailored solutions for customers where possible.

Our response and outputs

We are developing whole-system solutions for transmission system congestion. We are collaborating with the ESO, NGET and NPg connectees around the connections process and communicating congestion issues. ***To respond*** *to applicants facing delays, we are undertaking analysis of network conditions at each grid supply point and identifying other ways of connecting people more efficiently.*

We are facilitating local communities who own LCT or other flexible or distributed energy assets to coordinate to maximise benefits. The aim is a community DSO in collaboration with local communities and delivery partners. We plan to use our expertise and integration services to trial concepts that reduce communities' exposure to risks in the energy market, such as price rises. ***The outputs*** *will be identification of direct financial and energy performance benefits for customers and to potentially unlock new network capacity.*

We are developing a data-driven approach to assessing network capacity. Traditionally, NGET have treated connection requests on a cumulative nameplate basis.

In our engagement with customers, we received numerous complaints that reasonable generation requests were being held up. ***The output*** *is a data based, innovative approach to identify actual existing and potential available capacity on the network, enabling faster connections for customers.*

DSO business unit established in December 2022. The DSO business unit is ahead of Ofgem's schedule, driven by customer needs for this service. ***The output*** *is the consolidation of several customer interfaces into one unit, enabling more efficient delivery and consolidated thinking to meet customer needs.*

Way forward

— Issues with the transmission system are ongoing. In 2022, we helped connectees understand the issues around transmission congestion. In 2023, we are working to find solutions by working with the ESO on a 5-step plan at distribution level.

— We will continue with the community DSO project in 2023 and expect to publish the results for the benefit of other DNOs and local communities.

— We are committed to improving communication with our connection customers and providing visibility on the transmission constraints.

Improving our Flexibility First approach to deliver decarbonisation

D&D

The 2022-23 context

We estimate net benefits of up to £156m by implementation of flexibility over 2023-28, reducing the need for reinforcement. We leveraged best practice from other DNOs and listened to stakeholders to develop our Flexibility First approach, involving energy efficiency; dispatchable generation; and demand turn-down. Our first flexibility market tender in 2022 is being evolved based on stakeholder feedback.

Our response and outputs

We developed our approach to flexibility by encouraging new market participants and improving the procurement process. Following our first round of flexibility tenders, in-depth engagement with stakeholders, including a survey and extensive discussions, told us we needed to introduce more transparency and standardised flexibility products to stimulate market participation. ***The output*** *was four focused improvement areas which we have delivered on in 2023 to remove barriers to customers' participation:*

1. ***Simplified bidding process and reduced the minimum threshold for flexibility from 50kW to 30kW in line with stakeholders' requests.***
2. ***We collaborated with third-parties to publish information on how flexibility from EV charging would be baselined to provide clarity sought by stakeholders in advance of the next tender.***
3. ***We changed the tender process to make it more suitable for aggregator providers and domestic customers by not requiring the use of the Open Networks project's common contract for flexibility services.***
4. ***We challenged our method of checking flexibility zones and developed a new approach to generate more accurate results by encouraging potential bidders to send us their site details as soon as possible so we could carry out the check before they submit a bid.***

Way forward

— We are continuing to evolve the process through engagement with stakeholders to improve market participation.

Further lines of improvement include:

— Looking at the potential to use existing market platforms which customers have experience with;

— Reviewing a wider range of flexibility projects and investigating the potential of additional stakeholders to enter flexibility through further standardisation and collaboration.

Leading with our own environmental action

OPOC | SCALING UP | INNOVATION

The 2022-23 context

Our stakeholders and customers expect us to deliver improved environmental performance while keeping costs low for customers. In response we increased our environmental performance ambition and set new targets in 2022-23. These include reducing our controllable business carbon footprint by 20% in line with the government's 2035 target and becoming a carbon neutral business by 2040. Stakeholders also encourage us to involve customers in our environmental improvements where possible to increase their sense of ownership.

Our response and outputs

We adapted our environmental action plan to harness innovative solutions, like perfluorocarbon tracer (PFT2) technology, to achieve outcomes whilst reducing costs. Fluid lost to ground is a key stakeholder concern which we further addressed in 2022-23. ***The output*** *has been the enhanced use of PFT2, allowing us to locate leaks up to five times quicker than previously used techniques, whilst saving £8.2m per annum in cable replacement. Innovatively, we are also conducting live trials of self-healing cable fluid on our network.*

We have implemented new management processes to tackle sulphur hexafluoride (SF_6) emissions. Stakeholders are concerned about the impact that SF_6 has on the environment. Despite having the second lowest SF_6 loss amongst UK DNOs, we didn't hit our emissions target last year due to SF_6. To reduce SF_6 loss as quickly and efficiently as possible, we have set up working groups across our environmental and operational teams and have defined SF_6 trigger levels at which leaking switchgear must be reduced, linked to SLAs. ***The output*** *is increased accountability and ensures we maintain downward pressure on gas loss while working to identify long-term alternatives to SF_6.*

We have adapted our biodiversity plan to place customers in a central role, building their sense of ownership in our assets and environmental action. Our consumers told us that they wanted to be more involved in our biodiversity initiatives. ***The output*** *is a biodiversity programme which incorporates direct interaction with our customers where possible. For example, the location of tree and wildflower planting and where our 200 planned biodiversity sites will be located.*

We have benchmarked our environmental performance with the Joseph Rowntree Foundation's Leeds Anchor Network. We are a major regional employer, investing hundreds of millions of pounds per year through our supply chain, and we can make a positive impact in the communities we serve by taking the lead and demonstrating good environmental practices. We have engaged with external experts to assess our organisation against the Anchor Organisation Progression Framework. ***The output*** *is that our environmental action is benchmarked, and we can use the results to prioritise future actions*

Using SROI to prioritise our environmental initiatives

- We identified the following benefits from supporting PFT2 technology: A net benefit of £1.87m over 5 years and an estimated £38.3m in avoided network reinforcement costs. This equates to an estimated social value (financial value) of £0.05 over and above every £1 spent over 5 years.
- We identified the following benefits from reducing SF_6: Reduced SF_6 emissions leads to reduced environmental degradation and avoids the cost of SF_6 gas lost during operations. These benefits contribute to an estimated social benefit of £116,000 over 10 years and the equivalent of 1,551 tonnes of reduced CO_2 emissions.

Leadership role with other organisations

COLLABORATION | INNOVATION

The 2022-23 context

As an anchor organisation, we wanted to understand how we can help local businesses meet their Net Zero target. The Federation of Small Businesses (FSB) told us that SMEs (90% of all UK businesses) are interested in reducing their carbon emissions but are unsure on where to start and how and where to get help. Additionally, SMEs are having to put the financial viability of their enterprises at the heart of their decisions to cut carbon. This cross-cutting partnership is managed by Broadway Initiative.

Our response and outputs

We initiated and developed partnerships with FSB and others, including DNOs (NGED and ENW) to develop a one-stop informative service tool for SMEs. ***The outputs*** *include:*

1) *Tailored content and tools for use by SMEs on the zero-carbon business platform or for those that are starting their Net Zero journey; and*
2) *Extension of the tool to other stakeholders including BEIS (now DESNZ), Bankers for Net Zero, NatWest and British Infrastructure Bank.*

Way forward

- We will support the development of the one-stop shop national portal, through formulation of a GB engagement and Net Zero marketing campaign to raise the profile of the resource to UK businesses, while monitoring adoption and utilisation.
- We will look for further stakeholders and utility partners to support the programme.

Priorities research by the Citizens Panel found that network resilience should be our most important priority. We understood the call to reduce the impact of power cuts and increase support to our customers in an event of a power cut.

We also collaborated with organisations in our region to develop climate, flood and workforce resilience while maximising our social impact through our investment.

Understanding effects of power cuts on different stakeholders

VULNERABILITY COLLABORATION AID

The 2022-23 context

We engage with a broad set of stakeholders to better understand whole-system resilience. For example, as a result of potential gas shortages leading to the possibility of ESO-driven emergency power cuts over winter, we engaged with stakeholders, particularly critical infrastructure operators and vulnerable customers, to improve our understanding of the interdependencies that exist.

Our response and outputs

We collaborated with other utilities in our region to understand the impact that power cuts can have on their operations. With Northern Gas Networks (NGN), Yorkshire Water and Northumbrian Water we launched a forum for ongoing knowledge sharing and coordination. We shared our NGN joint action plan with the other utilities. Engagement with Yorkshire Water alerted us to the impact of sub-three second power outages, during which back-up generators do not start. ***The output*** *was shared plans for mutual aid and collective deployment of resources, and availability of GIS and vegetation data sharing. We are currently broadening the research to the impact on energy intensive industries.*

We identified care homes in our region to support in the event of an unplanned power cut. Senior leadership engagement with regional stakeholders identified that care homes were not on the list of institutions that have power maintained in a power cut. ***The output*** *was proactive engagement with the care homes in our region, so that they would understand the best course of action in the event of a power cut.*

The most vulnerable members of our community will be known and located in the event of a national energy emergency. We developed plans with our civil contingency partners, like local authorities and emergency services, who lead and coordinate regional emergency responses. ***The output*** *is that in a national energy emergency our partners know where our vulnerable customers are located and we can co-ordinate actions to support them.*

Advice to vulnerable customers, particularly those who are medically dependent on electricity. In collaboration with other DNOs, we examined the sector's approach to 3hr rolling power cuts, to understand the needs of vulnerable customers impacted. We took best practice communications material from SSEN as the basis, and produced our own approach, tested it through a series of webinars with key stakeholders, and sent out the communications. The webinars were recorded and publicised, and FAQs were developed. ***The output*** *is a joint resilience plan and back-up arrangements for vulnerable customers and their equipment if their power is affected.*

Way forward

— We contacted 1,734 care homes across our regions to ask them to review their resilience measures and to recruit their residents to the PSM.

— We are focusing on resilience in telecommunications infrastructure. We are working with broadband and telecoms providers to discuss feedback from our community resilience pilot where they identified this as a remaining issue during a prolonged power cut.

Customer-led future network operation

D&D INNOVATION SCALING UP

The 2022-23 context

Stakeholders told us that they wanted ambitious innovation to support decarbonisation. In response to this feedback, we are piloting the rollout of micro-resilience innovation projects into business as usual, to gain insight on the blueprint for next-generation energy systems. Micro-resilience has the capability to bring together energy storage systems and innovative communications technology to maintain power supplies for critical infrastructure and isolated communities.

Our response and outputs

We partnered with Smarter Grid Solutions and Turbo Power Systems and piloted a micro-resilience programme in a remote village in Northumberland, Byrness. In Byrness, the homes are powered by a vulnerable single overhead power line, meaning high winds and storms frequently threaten the power supply of the village. We installed a 200kWh back-up battery as part of the project, to help keep essential devices on during the event of a power cut. ***The output*** *is a trial which will be tested for its technical benefits and disadvantages and will inform our future micro-resilience programme.*

Collaboration with the Boston Spa community to support their decarbonisation plans. We are trialling the £1.3m BEET project to use smart meter data in near real time to dynamically optimise the high voltage (HV) and low voltage (LV) network and improve customer energy efficiency. Stakeholders have told us that the environmental benefits and reduction in losses are important to customers in addition to financial savings. ***The output*** *is that we adapted and reframed our communications materials to communicate the environmental benefits of the project to improve the recruitment of people for the trial.*

— We know that the SROI for micro-resilience is not good, but stakeholders have said having it helps them understand the importance of community energy. It reflects a broader shift in focus, communities are becoming more important as part of the whole-system approach and this is significant for ED2.

Way forward

— Subject to successful Boston Spa trials, we will rapidly ramp up deployment to target rollout of the technology and capability to 165 primary substations, serving 1.2m customers over the 2023-28 period. Beyond 2028, we will complete the rollout to a further 273 substations, delivering benefits to 3.1m customers over the project lifecycle at a cost of £11m. Nationally, the technology could cut UK energy bills by up to £500m and save up to 2 million tonnes of CO_2.

Benefits and SROI

— The benefits identified from the micro-resilience projects include: Avoided network reinforcement costs and the value of the circumvented lost load (the value lost when an extended power cut period occurs) estimated to provide a net benefit of £19m over 25 years. Estimated social value of £0.96 and £3.28 over and above every £1 spent.

Maximising the social impact of our investment programme

OPOC

The 2022-23 context

During ED1 we have delivered tailored social impact programmes across our major investment schemes, providing bespoke support for our communities' needs, enabling them to gain from benefits above and beyond our investment programme and being a force for good in the communities we serve.

Our response and outputs

In Bradford, we are working to minimize disruption while we replace seven of the major circuits that supply electricity to over two thirds of Bradford's homes and businesses, equivalent to replacing 155km of cable length. We have closely collaborated with local councillors to explore new opportunities to support community programmes in areas of the city we were directly impacting. As a result, we have planted more than 3,000 trees to help offset our carbon, funded six local students to train as teachers through our partnership with the Teach First initiative, supported two local women's charities, WomenZone and The Millan Centre, and provided energy saving and benefit maximisation advice through our partners, Green Doctors, engaging with communities where 58 different languages are spoken to ensure our community engagement was effective.

In Darlington, we are complementing our network investment with community outreach, helping residents stay warm and well. We have delivered two series of Green Doctor drop-ins in partnership with Darlington Council, providing energy advice at food banks. We are working with the council's communication team to provide monthly advertisements and editorials in One Darlington, the council's magazine and conducted several interviews with BBC local radio to raise awareness.

We have delivered social impact schemes in Hull, Epworth, Billingham and Leeds engaging stakeholders and customers to help choose impact initiatives relevant to their local area including sustainable transport, energy efficiency advice, careers advice and guidance for engineering University undergraduates considering a career in energy.

***The output** is that stakeholders/customers can influence investment priorities and shape their targeted social impact programme, for example; where they are delivered, the sequence of delivery and the type of support for their particular community.*

Way forward

- Increase tailored social impact programmes to 50% of our major investment schemes by end ED2.
- Working with existing communities, we will take their learning and develop an enhanced blueprint for social impact delivery and planning for ED2.

Climate and flood resilience

SCALING UP COLLABORATION

The 2022-23 context

Stakeholders asked us to plan for the worst by collaborating with other infrastructure and regional organisations to prevent siloed working and to share knowledge and data.

Our response and outputs

We engaged with Yorkshire Water, Northumbrian Water, Northern Gas Networks and Openreach to improve our joint response. We improved our approach to data sharing, identified areas for collaborative projects and enhanced our understanding of interdependencies. ***The output** is that we are now working together on sustainable, preventative measures rather than simply using our own engineering solutions.*

We improved our flood defence schemes to ensure we are not the barrier to power provision for our utility partners.

We shared data with infrastructure providers on local-level resilience and identified local dependencies. ***The output** is that we identified potential ED2 flood schemes with input from stakeholders.*

We are leading the way with our ETR138 compliant flood mitigation programme. We will have completed works on all our 271 sites deemed to be at risk by the end of the 2015-23 period. ***The output** is that the 271 at-risk sites that supply approximately 7.5 million people will be flood defended.*

Way forward

- We plan to be fully compliant with ETR138 and will monitor to ensure that any substations that move into the at-risk category are flood defended as soon as possible.

Workforce resilience

OPOC SCALING UP

The 2022-23 context

Engagement with the community has shaped how we have taken steps to shape our future workforce and attract people from diverse backgrounds.

Our response and outputs

We created the Northern Powergrid Net Zero school programme and are expanding it to local businesses. A five-year engagement programme with schools, aimed at increasing awareness, interest and understanding of STEM skills and careers, Net Zero and decarbonisation. Following engagement with local businesses, we are widening the programme to allow them to play their part in creating a more inclusive society.

We established the Energy Heroes free primary school programme. ***The output** is a learning resource for primary schools, designed to improve numeracy and science skills by exploring local data about energy and climate change.*

Recruiting a diverse range of people onto our Ofsted outstanding-rated apprenticeship programme. ***The output** is our commitment and ability to deliver high-quality apprenticeships and training for the people who will work on our network.*

In November 2022, 700 colleagues took part in our first Diversity, Equality and Inclusion survey. ***The output** is our actions in response to the findings of this survey to create a more inclusive and engaging work culture.*

Way forward

- We are building a more diverse workforce, representative of the communities we serve by creating more than 1,000 new job opportunities over the next five years.
- We are expanding our partnerships with universities to encourage STEM careers and provide structured work experience and placement opportunities.

Benefits and SROI

- The societal benefit of students receiving additional technical education and the avoided cost of paying for an apprenticeship programme is forecast to deliver a net benefit of £6.9m and an estimated social value of £0.34 over and above every £1 spent over 5 years.

Meeting the Needs of Customers

Delivering quicker, easier and more efficient connections

Part 2

It is crucial to limit the effects of power cuts on our customers and offer the highest level of service given constantly rising consumer expectations and the increased number of customers who work from home. After Storm Arwen, stakeholders said it should be a priority to improve and extend our interaction channels. In response, through customer engagement, we have improved, developed and innovated our communication, interaction and response channels.

Self-serve platform for connections

D&D SCALING UP

The 2022-23 context

Our weekly customer satisfaction survey provides feedback that allows us to prioritise our services requiring most improvements. The key feedback in 2022-23 was customers were dissatisfied with the cost and complexities of some of our services. They wanted more self-services and improved communication between us and them. We have set ourselves a challenge of improving those aspects of our services to reflect our customer feedback. We engage with the Executive team through a weekly reporting pack and quarterly sessions to ensure that there is an organisational commitment to offering excellent customer service.

Our response and outputs

We developed and built an online self-service platform for connections and made changes to our payment approach from a 12-day ahead payment to a payment on acceptance approach. ***The output*** *is increased customer satisfaction and a reduction in speculative enquiries.*

We improved the accuracy of our quotations, driven by cable route drawing and material generation. ***The output*** *is that our customers benefit from receiving a more accurate quote estimate for their home visit.*

We integrated Oracle CRM onto our self-service system to drive improved customer communication and messaging. ***The output*** *is that real-time information is relayed to our customers by our technicians.*

Way forward

— We are evolving the self-service system and will use the learning to inform the connection process that will feed into the systems being developed for EVs and heat pumps.

Benefits and SROI

— We identified that the self-serve platform provides the following benefit: Reduced costs through saving of 3 FTEs is forecast to deliver a net benefit of £170,000 over 5 years and an estimated social value of £1.55 over and above every £1 spent over 5 years.

Changes to the low-carbon applications process

D&D INNOVATION

The 2022-23 context

We worked with installers to take a fresh look at the process for installing EV charging points and heat pumps from a customer perspective to ensure that the connection process is as smooth as possible. We learned that our application process is complex and rigid. In response to this feedback, we made changes to our application system.

Our response and outputs

We made changes to how customers can notify us of new connections to the grid. The system was developed with informed customers who were involved in the decision-making during each stage. ***The output*** *is an automated process, reducing the wait time for customer applications.*

We are working with stakeholders and customers to understand their LCT connections journey to offer bespoke services. Actions include developing a stakeholder "heat map" by:
1) tracking our stakeholders' goals; and
2) what funding they have access to, enabling us to develop a likely view of where connection priorities will occur.
The output *is an efficient and effective connection deployment to meet customer needs.*

We advised customers on how they could avoid network upgrades when possible. When customers approached us with multi-site applications, we worked with them to identify and advise how they could avoid network upgrades and minimise our involvement in their scheme where possible. ***The output*** *is unnecessary network reinforcement, new infrastructure for the network and delays to customer applications can be avoided.*

Way forward

— As the adoption of LCTs increases, our application process will need to be continually updated to deliver the support our customers require. We will continue to review our process from a customer perspective and incorporate feedback to support the move to Net Zero.

Contact channel changes

D&D COLLABORATION AID

The 2022-23 context

Stakeholders told us that expanding and enhancing our contact channels should be a priority, especially before and during extreme weather events. Additionally, customer engagement found that customers wanted better communication alternatives and increased service hours.

Our response and outputs

Through stakeholder engagement and specific post service feedback surveys, **we evaluated our service experience, including new channels and operating hours.**

We also engaged with UKPN to acquire details on best practice ***The output*** *is improved contact channels for customers including the implementation and running of WhatsApp, what3words and reply text messaging to prepare and plan for the transition.*

Way forward

— We have opened dialogue with Content Guru on the potential of adding WhatsApp, what3words, reply text messaging and video messaging. A plan has been created to complete a staggered launch.

Improving our onsite response

VULNERABILITY SCALING UP

The 2022-23 context

Customers have a right to expect minimal impact from power cuts and maximum support, particularly as more customers work from home. Our customers and stakeholders told us that they are not interested in automated restoration time messages, and that they want us to become more proactive by sending an onsite team and providing more personalised services in the event of an unplanned power cut or storm event. Taking on this feedback alongside our ongoing commitment to excellent customer service, we changed our ways of responding to unplanned power cuts and embedded new practices.

Our response and outputs

We carried out focused engagement with customers of unplanned power cuts to understand their communication expectations. ***The output*** *is a pilot programme to change our approach on how we communicate with our customers.*

We established a dedicated team of resources for customers and vulnerable customers who experience unplanned power cuts lasting more than six hours. Throughout the first 10 weeks of deployment, the initiative supported 871 PSM customers and 4,481 total customers with assistance onsite during a power cut. Additionally in this period, our teams have been deployed to 171 different customer locations to resolve extended outages that have lasted over 6 hours. ***The output*** *is personalised onsite practical support which addresses feedback from customers who wanted an Onsite team sent in the event of a power cut.*

We partnered with the National Caterers Association to provide onsite food and drinks to our customers and vulnerable customers in the event of an extended power cut. ***The output*** *is extending our reach to customers who may have not already been contacted by our services. We have also streamlined our compensation process, making it quicker for our customers to claim compensation.*

We are identifying new ways of preparing customers for potential unplanned power cuts. ***The output*** *is that we have increased our capacity to support our customers by embedding four teams spread across six regions as the foundations of our onsite response.*

Way forward

— We are continuously looking to ways to improve our support for customers during outages.

Benefits and SROI

— We identified the benefits of providing onsite care to customers to be: Increased wellbeing for customers through personal interaction, guidance, winter warmer packs, food and drinks in times of power cuts. These benefits coupled with team deployment for power cuts are forecast to deliver a net benefit of £3m over 5 years and an estimated social value of £2.24m over and above every £1 spent over 5 years.

Evolving our telephony platform in collaboration with UKPN

D&D COLLABORATION AID

The 2022-23 context

During recent storm events, it was clear that we didn't have enough capacity on our IVR or telephony systems. One of the key issues with our systems was that they could only take a maximum capacity of 249 customer calls at any given time.

Our response and outputs

We incorporated a call-back assist into our IVR system based on best practices from UKPN. ***The output*** *is that our customers can opt for a call back without losing their place in the queue and automatically get an outbound call from us when it gets to their turn. This has contributed to a 15% increase in percentage of calls accepted (PCA).*

We are applying best practices from UKPN to drive operational improvements. We learnt that UKPN uses a single view KPI tracker to analyse the data from a storm. We have now incorporated this best practice into our system, incorporating metrics such as productivity, average handling times, average hold times, number of calls taken by an agent or by the team, etc. ***The output*** *is improved efficiency and customer services as it has made it easier for our operational managers and team leaders to analyse our performance.*

We engaged with UKPN and learned that they prioritise inbound calls according to their advisors' area of speciality. We took this information and developed a similar system where inbound calls are routed to advisors based on their area of speciality and the customers' needs. Unplanned PCA rose by 8.7% from 91% in June 2022 to 98.9% in February 2023, while connections PCA rose by 34% from 65% in June 2022 to 90% in February 2023. ***The output*** *is a marked improvement in our PCA in certain areas, which meant our customers were being answered faster and were being provided with bespoke information by qualified and appropriate advisors.*

We launched an automatic text option for storms and developed a new power cut logging application where colleagues can log their power cut online.

To support colleagues during a storm, we developed a 'user friendly' back-office power cut logging application called Rapid Logger which can take up to 10,000 concurrent users (previous system could take up to 3,000) to allow our colleagues to log power cuts on behalf of the customer when they contact us. We also developed a power cut logging resilience mode, a light version of the main application that can handle 30,000 concurrent users. ***The output*** *is the reduced number of inbound calls that we receive and improved daily PCA. The system can also automatically switch over to resilient mode if the BAU application shows any sign of stress or loses the feed from the outage management system.*

Way forward

— We are continually training our team to use the power cut logging application; 300 colleagues so far have been trained in the use of back-office application.

— We are constantly searching for ways to enhance the assistance we provide to customers during disruptions and will continue to collaborate with other DNOs to innovate, develop better systems and improve our PCA.

Benefits and SROI

— We identified the benefits of increasing PCA: Increases wellbeing value of customers as they will have a point of contact in times of need. The value associated with the increased PCA and the societal benefit of having trained employees in power cut logging are forecast to deliver a net benefit of £3.1m over 5 years and an estimated social value of £2.51 over and above every £1 spent over 5 years.