

Part 2

The outcomes we have delivered through engaging with stakeholders

2021/22 Stakeholder Engagement and Consumer Vulnerability Incentive

Redacted Version



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Part 2

UK Power Networks is the UK’s largest electricity distributor, delivering power to 8.4 million homes and businesses across London, the east and south east of England.

Every year we take the opportunity through the Stakeholder Engagement and Consumer Vulnerability (SECV) submission to summarise how engagement with our wide range of customers and stakeholders has led to real action – showcasing how insight informs the decisions we take, how we support our vulnerable customers and how we deliver positive outcomes for our customers, stakeholders and wider society.

Supplier Forum, aligning on our vision and ambitions for Net Zero – see p.02



Innovative on-street chargers – see p. 06

Our submission is divided into three parts:

Part 1

Outlines our strategic approach to engaging and working with stakeholders as well as our strategy to support those in vulnerable circumstances.

Part 2

Demonstrates the impact we have delivered through engaging with our stakeholders across our key focus areas: empowering customers and communities to deliver Net Zero, enhancing our services, and keeping costs down through data-driven approaches.

Part 3

Explains how we understand our customers’ evolving needs and ensure that those in vulnerable circumstances receive the most impactful support.

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Some text has been redacted due to commercial sensitivity.

Putting customers and communities at the heart of our initiatives

The Climate Change Committee highlights that 40% of emissions reduction needs to come from behavioural change by consumers. This is a fundamental shift from the way reductions have been delivered over the last ten years. At a time when many customers are facing tougher choices due to the cost-of-living crisis, the challenge of enabling all our customers to take part in the Net Zero transition is complex and even more pressing.

Engagement helps us to understand the practical barriers and challenges facing our customers as well as exploring the role that we should play – either through direct action or to influence policy in collaboration with others – to make a positive difference to our customers’ lives. For instance, this year we have completely re-imagined the low carbon technology customer journey, making it quicker and easier for domestic customers and businesses to connect and participate in EV flexibility. Similarly, through engagement, we have co-developed a local area energy planning framework (a “DNO first”) to unlock network investment consistently and quickly for the 127 local authorities in our region.

Every year, we strive to get better and stronger at engagement to drive improved business performance. I can’t think of a better example of how engagement has helped to propel our business forward than to be recognised in the UK Customer Satisfaction Index in 2021. We achieved fourth place in the UK amongst the best consumer facing brands and firmly established ourselves as the frontier customer service provider in our industry.

Understanding our customers’ needs, tackling the issues that matter most to them and applying this approach systematically across our entire business has enabled us to make real progress in being a business that is open, driven, agile, and focused on delivering strong outcomes for our customers and communities.



Suleman Alli,
Director of Strategy & Customer Service



Enhancements

Synthesising our customers’ and stakeholders’ core issues from our extensive engagement activities has led to the following changes to our priority areas:

REFRESHED OUR PRIORITIES

This year we have revised our top focus areas to reflect stakeholder feedback and our evolution towards our RIIIO-ED2 ambitions.

Forging a path to Net Zero

We moved from ‘Tackling the Net Zero challenge’ to ‘Forging a path to Net Zero’, to reflect stakeholders’ expectations that we take an active and collaborative role in driving the scale and pace of change required to deliver a Net Zero future.

Meeting our customers’ and communities’ evolving needs

‘Meeting our customers’ evolving needs’ now includes our communities, to better reflect our ambition to place our customers and communities at the heart of Net Zero.

Operating at the lowest cost

Introduced a new focus area, ‘Operating at the lowest cost’, which reflects our focus on delivering the lowest possible bills while enabling a dynamic distribution system that empowers participation, innovation and low carbon generation.

Ensuring no one is left behind

Our previous ‘Ensuring no one is left behind’ focus area is now embedded as a cross-cutting theme, since our ‘inclusion by design’ approach must underpin everything we do.

WHAT TO LOOK OUT FOR

Engagement leading to considered business decisions

- This year we have evolved past a ‘you said, we did’ approach
- We have described how we have triangulated the key insights gained through engagement, research and data throughout the lifecycle of our initiatives – defining the challenge and leading to better business decisions.

Enhanced approach to measuring impact

- We have used a **range of measurement methods** to describe impact, including qualitative measures where quantification is not possible or credible
- We have identified the **benefits that drive our Social Return on Investment (SROI) analysis**, rather than including the ‘pounds and pence’ SROI figure on its own
- We have described how **evaluating social and environmental benefits has informed our actions**, rather than simply reporting the SROI analysis result
- We have identified which **customer and stakeholder groups benefit from the impact**.

Forging a path to Net Zero
Leading by example

30.9% reduction in business carbon emissions delivered since 2014/15

Significant uncertainties remain in the path to Net Zero, including policy decisions affecting the technology path, and the actual level of consumer behaviour change and uptake of new technologies.
To enable these changes, we need to understand the barriers to customers reducing their carbon footprint at home, in their communities and at work – while leading by example to reduce our own carbon footprint. This has guided our engagement on decarbonisation and is how we have structured this section to explain our work.

Leading by example to reduce our business carbon footprint



THE CHALLENGE

- To deliver on our 2028 Net Zero target for emissions directly under our control we need to take actions amidst an evolving technology and policy landscape. There were two key developments from engagement with expert stakeholders:
- We decided to include indirect supply chain emissions in our accredited science-based targets as they make up 84% of our total carbon footprint when excluding losses. Networks do not consistently do this as they typically fall below the threshold for mandatory inclusion when including losses.
 - We need to prioritise reduction in diesel consumption given that it contributes to 70% of our carbon footprint and causes poor air quality.

WHAT WE DID

- We adapted our fleet replacement strategy to invest in the right technology at the right time. Our revised approach considers technologies and fuels, how and when we use them, and the type of vehicles that we allocate to employees based on their role. Engagement with the Energy Saving Trust challenged our thinking to replace all our suitable fleet vehicles with EVs given that other better technology options could emerge, especially for larger commercial vehicles. We coupled this engagement with market research on car manufacturers’ forward plans. Combining the two enabled us to map out the next best actions towards delivering a 49% reduction in fleet emissions by 2028.
- We are trialling the replacement of diesel with hydrotreated vegetable oil (HVO) fuel, which is 90% less carbon-intensive and could result in cost savings. Engagement with our expert stakeholders informed us about the benefits and trade-offs from using alternative fuels. HVO made from waste oils, while available now, is not a perfect solution as biofuels have had a chequered history with regards to virgin palm oil entering the supply chain and pressures on deforestation. These issues have resulted in governments and supply chains implementing tougher standards. Therefore, we have adapted our procurement policy to promote purchasing sustainable, traceable HVO fuel to send a strong market signal that there is demand for responsibly sourced biofuels. In parallel, we are trialling alternative glycerine-based fuels and exploring battery storage.
- We have improved our methodology for evaluating benefits from low carbon alternative solutions. Our subject matter experts challenged us to assess

- negative externalities such as air quality and noise pollution as well as focusing on carbon reductions. Doing so has helped us to make the case to convert an initial 65 generators into “hybrids” which will be able to use HVO fuel when available and battery power charged using a green energy tariff.
- We have developed a code of conduct with our supply chain that includes commitments on carbon reduction, sustainability and adopting circular economy principles. Engagement with the Carbon Trust reinforced that reducing supply chain emissions is a particularly fertile ground for collaboration. In response we have used a range of engagement mechanisms, from interactive online tools to supplier forums, to build a coalition of the willing that will enable us to achieve a 25% reduction in supply chain emissions by 2028.

Outcomes

- 1.5 degree trajectory for our directly controlled emissions remains on track, resulting in 1,797 tonnes of carbon reduced this year, equivalent to running an oil boiler for 613 years
- 90% carbon and 30% NOx reduction unlocked in our trial of switching from diesel to HVO fuels for generator contracts, leading to a potential overall business carbon footprint reduction of 16% when scaled to all generators

Fleet decarbonisation is forecast to deliver environmental benefits valued at £6.9m over 10 years, driven by reduced carbon emissions and air quality benefits
Hybrid generators are expected to deliver a social value of £0.40 over and above every £1 spent over 10 years, driven by 342 tonnes CO2 emissions reduction and 4.2 tonnes NOx reduction per year



Shaping our approach to offsetting and maximising regional biodiversity



THE CHALLENGE

We recognise the path to Net Zero is not straightforward. Our focus will always be to target emissions reductions first, but at some point, we will need to offset the remaining difficult-to-remove emissions. Expert stakeholders told us to start preparing for offsetting now, before demand for verified schemes grows in the coming years. They encouraged us to start building relationships and identifying the types of offsets we could use and the additional benefits that could be realised such as from nature, technology, and community-based solutions.

WHAT WE DID

- Explored partnerships with Wildlife Trusts and Natural England to identify how we could create synergies between our regional biodiversity programmes and wider initiatives in the community. We found these organisations are very interested in collaborating on local, nature-based solutions that improve biodiversity potential while offering potential future pathways to offsetting.
- Enhanced biodiversity alongside our tree-cutting activities. A Wildlife Trust in our eastern region taught us about the potential of re-using dead wood and creating dense thickets to support local wildlife following tree-

- cutting. We are changing our procurement contracts to embed this practice into our business-as-usual operations.
- We are exploring how to develop ‘wildlife corridors’ that create proportionally greater biodiversity benefits than isolated sites by combining our data with Wildlife Trusts and Natural England priority sites. This will guide us to identify the next 100 sites we prioritise for biodiversity enhancements, allowing us to maximise environmental benefits through collaboration.

Outcomes

- 1st DNO to take practical steps in exploring the wider benefits offsetting activities can deliver – working to dispel the rhetoric that the only legitimate way to Net Zero is through direct carbon abatement
- Developing local value streams through building sustainable partnerships and a regional-based strategy for offsetting

THE CHALLENGE

We are just one part of the customer journey to switch to low carbon technologies (LCTs). For example, the installation process for EV chargers at home involves multiple dependencies and hand-offs between ourselves and other parties, such as suppliers, chargepoint installers and operators.

A combination of customer research, feedback from satisfaction surveys and engagement with LCT installers identified four key barriers influencing the customer experience of installation:

High costs

The capital cost of EVs and heat pumps are still seen as being out of reach by a vast majority of customers.

Low awareness

Most customers are not aware who their network company is and that they may need to upgrade their electricity supply, resulting in a more time-consuming process than expected.

High effort

LCT installations involve multiple organisations which requires customer time and effort to coordinate.

Too slow

Nearly 80% of boiler replacements tend to be a ‘distressed purchase’ when the existing one fails creating a 1-in-15-year opportunity for a customer to switch to a heat pump. Furthermore, if a home supply upgrade is needed a further delay will likely occur.

Against this backdrop, the volume of LCT applications we receive is doubling year-on-year and in March 2022 alone we saw a record number of nearly 6,000 applications. Engagement with customers and the wider LCT market in the face of an exponential increase in applications is key to avoid us being a barrier to decarbonisation. The case studies in this section explain how we have done exactly this to brilliant effect.

WHAT WE DID

1. Streamlining the customer experience

DNO First

Learning from best practice

Last year, we launched the UK’s first self-service product for domestic customers seeking an electricity supply upgrade to connect an LCT. This year we have seen a 269% increase in applications flowing through this journey. 76% of these applications are processed automatically, reducing the lead time for applications from 10 days to a matter of minutes.

We learned from digital-first organisations who apply a ‘product’ mindset to their offerings by continually enhancing features based on ongoing customer engagement. This enabled us to add features that have increased adoption, such as handling multi-device installations (a key requirement from installers), extending the application to small businesses and enhancing features to accommodate Vehicle-to-Grid chargers.

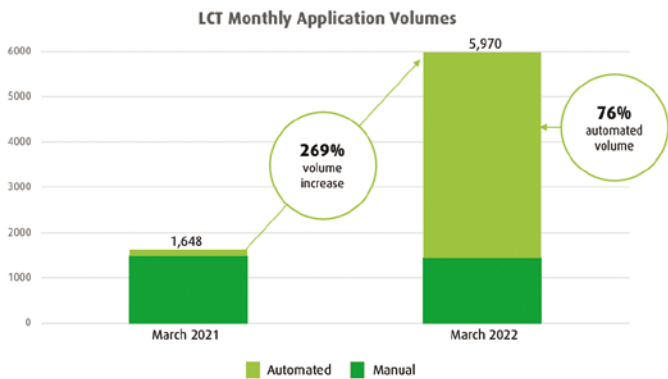
Learning from the Open Banking system, where application programming interfaces (APIs) allow third parties to access information to develop new services, we are developing an API for LCT installers. This allows them to automatically link details from their systems to ours for automatic assessment and, where applicable, gain approval to proceed to a connection. This addresses feedback from installers about the administrative burden of notifying us. It also reduces customer effort; in most cases they only need to speak to their installer to have an LCT installed.

We engaged with partners in the EV domestic chargepoint market to co-develop the API so this can be scaled to other installers. To ensure harder-to-reach smaller installers are not left behind, we made the portal accessible via mobile and desktop, reducing the administrative burden for all.

To enable those who cannot use the digital portal to benefit from instantaneous approvals, we applied learnings on Robotic Process Automation from the insurance sector to read handwritten forms and digitise them automatically.

Lastly, we have incorporated best practice from other DNOs. We are scaling SP Energy Networks’ prototype cut-out recognition pilot faster as part of our customers’ digital journey to make it simpler for customers to share technical information with installers by taking a simple photo of their fuse board and meter.

Given that we are seeing LCT volumes grow fastest in our regions, we are sharing our learning with other networks to ensure all GB customers can benefit from our leadership in this area.



Outcomes

- 96% (top DNO) customer satisfaction score for fuse upgrades
- 10,800 customers used our instant-decision self-service portal for connections in 2021/22
- 76% (4,530) of all domestic LCT upgrade volumes in March 2022 passed through our portal, saving c.1,500 labour hours (9 months’ work) by processing applications automatically
- 245 reduced installer hours forecast from interconnecting our backend systems
- Greater consistency for providers and installers nationally due to our cross-DNO collaboration

Enhancements to self-service portal expected to deliver a social value of £3.26 over and above every £1 spent over 10 years, driven by resource and time savings



2. Enabling customers to use their LCT on day one

DNO First



Collaboration

For more complex applications, we worked with installers to take a fresh look at the process from a customer perspective to make the process simpler and more streamlined – ensuring we are not a blocker to customers charging their EV or switching to a heat pump.

Building on our engagement on simpler applications, we jointly developed an innovative new approach to allow customers to start using their EV charger without having to wait for a fuse upgrade. [Partner] installs a load management device alongside the charger, decoupling us from the critical path; customers can use their EV charger safely and we can schedule the fuse upgrade at their convenience later.

To achieve a similarly frictionless customer journey to get a fuse upgrade for a heat pump installation when a gas boiler fails, we launched a project with [partner] to explore the art of the possible. We challenged our conventional roles and identified that we could empower third parties to carry out the fuse upgrade themselves, reducing the number of parties visiting a customer’s property. We are trialling a training programme to test this approach and developing a digital tool to coordinate fuse upgrades by third parties. We are engaging [partner] to do the same for installing EV chargers. Our ambition is that our supply upgrade training programme is adopted nationally by any qualified engineer to ensure that customers only need one visit to start using their LCT.

We trained domestic battery and solar installers who will carry out 25,000 installations on behalf of local authorities across Essex, Cambridgeshire, London, Kent and Sussex through the Solar Together group, supporting them to use our self-service portal and enabling them to complete installations faster and more accurately.

Customers continue to want to contact us themselves, so we worked directly with customers to develop self-service options that enable customers to apply for and book a home supply upgrade in under three minutes, reducing customer effort.

Outcomes

- Customers installing an EV charger from [partners] can use their new charger straightaway thanks to enabling third-party fuse upgrades and installing load management devices
- Instantaneous approval for third party meter operators to carry out fuse upgrades, reducing time-based barriers to customers adopting low carbon heating
- 67% reduction in the number of hand-offs during heat pump installations and 40% for EV charger installations by enabling installers to make fuse upgrades themselves, shortening the end-to-end process for customers by up to 10 days
- 25,000 residential solar and battery installs can be delivered faster as a result of our training offered to local authority appointed installers covering 58% of our regions
- Instant digital approval for 100% of third party meter operators to carry out fuse upgrades when on-site for the charger install, reducing customer effort and increasing speed for customers

3. Empowering customers with better information

Collaboration

To tackle the barrier of low awareness, we are engaging in several different ways. To nudge customers to think about their home charging when they are browsing online for an EV, we teamed up with Scottish and Southern Electricity Networks to share data with car websites and chargepoint comparison sites, to proactively identify new EV owners and provide earlier guidance on the end-to-end charger installation process.

Through our engagement with LCT installers, we learned that many have contractual relationships with dealerships, so we have enhanced our stakeholder engagement map to also include manufacturer showrooms and dealerships as specific segments to raise customer awareness of the home upgrade process.

To address the low awareness barrier for low carbon heating we have formed a Citizens’ Panel with a representative group of customers from across our regions. Through this new engagement mechanism we aim to develop customers’ understanding of low carbon heating first, allowing them to provide informed responses to help shape how we support them in the transition. We intend to use the insights from this engagement to improve our heat strategy and direct our next best actions over the coming year.

Supporting engineers to upskill in LCT installations

Our engagement with the Electrical Contractors’ Association (ECA) at their national seminar highlighted that the lack of qualified LCT installers is a key issue to address given growing demand. To support more electricians to move into the LCT industry, we collaborated with the ECA to develop LCT training materials aimed at SME electricians. We see this as a way of enhancing our own organisational resilience to deal with increasing demand and provide more choice for customers, by broadening the coalition of partners that can deliver work.



“Getting more EV chargepoint installers trained up is really important if we’re going to keep up with demand. This guide is great for installers – really clear and easy to digest. It’s exactly what the industry needs. It’s great to see UK Power Networks working with wider industry to build these skills.”

James Harding,
Director of a network of over 2,300 EV installers



“UKPN’s involvement in recent Vehicle-to-Grid and On-Street EV charging innovation projects has streamlined grid connection application processes and helped to improve connection timing. We welcome UKPN’s appetite for innovation and the positive impact they have made to these programmes.”

Dr Josey Wardle, Innovation Lead – ZEV infrastructure, Innovate UK

Supporting local area energy planning and network investment

DNO First Leadership

THE CHALLENGE

The Climate Change Committee highlights that national policy on its own will not be enough to deliver Net Zero. Local authorities have a key role to play by influencing over 80% of the UK’s carbon emissions. Many have declared climate emergencies, with two-thirds aiming to become carbon-neutral before the national Net Zero 2050 target. These stakeholders are mandated to develop robust plans to deliver their ambitions, however our engagement with them has highlighted several barriers: lack of skills and expertise, lack of resources and a need for data to model different Net Zero pathways. Collective action to tackle these barriers is crucial.

WHAT WE DID

Building on our engagement last year to share data on low carbon technology (LCT) uptake forecasts by local authority area, we collaborated with six county councils to co-develop a consistent and less resource-intensive framework to support their local area energy planning. We saw this as a win for local authorities and a win for us as it provides a robust evidence base to plan network development.

- **We used a real-world example to iron out issues with the framework.** We learned that engagement by committee was not an effective way to work through the intricacies of local planning. We worked with Essex County Council to develop the draft framework, as they had already begun data analysis on their potential decarbonisation pathways. We then shared the framework with all our regional county councils through design workshops for further refinement.
- **We could play a key role in helping local authorities to progress faster.** Based on regional authority feedback, we decided to use publicly available local area energy planning information to complete the initial assessment on their behalf, then share our assessment of potential gaps to shape the next stage. We are the only DNO to develop this kind of framework.

- **By producing a repeatable approach and establishing a team to support, we can enable efficiencies for taxpayers.** Sharing our resources and utilising our structured framework reduces the need for local authorities to spend money on modelling and data acquisition.

The next stage of our engagement will focus on taking the framework online through a digital tool and adding features to enable local authorities to assess different decarbonisation solutions.

Outcomes

- ✓ **£342k potential savings per local authority due to our simplified, evidence-based framework to assist with local area energy planning, which we will scale to 40 local authorities (5 per year) delivering £13.7m benefits**
- ✓ **13 regional planning authorities representing 93% of our total population have endorsed the process**

More resource-efficient planning process for local authorities is forecast to deliver an estimated social value of £1.52 over and above every £1 spent over 10 years

“This framework is a very positive step forward in supporting regional authorities to develop their local area energy plans, and making sure investment is planned efficiently to meet local needs. We value the opportunity to shape the approach and we really welcome the practical support UK Power Networks is making available to local authorities to help them achieve their climate action ambitions.”

Tom Day, Head of Energy and Low Carbon Programme, Essex County Council

Empowering communities to decarbonise heating

Leadership

THE CHALLENGE

Heat is the single biggest source of greenhouse gas emissions in the UK. 95% of stakeholders at our Local Authorities Forum agreed that off-gas grid customers should be the most likely early adopters of low carbon heating. Engagement with regional gas network operators validated that electrification is the clear pathway for off-gas grid customers, leading us to focus on supporting heat decarbonisation in these communities.

Transitioning an entire community in an efficient and coordinated way is complex, so last year we set out to develop the UK’s first nationally replicable blueprint for off-gas grid communities to follow, collaborating with partners in Barcombe, an off-gas grid village in East Sussex.

WHAT WE DID

- **Built an innovative ‘digital twin’ of the local energy network to model the effects of different heat decarbonisation pathways.** Working with Community Energy South, Buro Happold and Lewes Council, we engaged with over 600 (85%) individual households and businesses in Barcombe to understand their circumstances before evaluating the benefits of a locally coordinated transition. Using the digital twin, we modelled the impact of this coordinated approach against uncoordinated action to compare the costs, energy efficiency implications, disruption and carbon impact. We shared this model with the community so they could visualise how changes to their property could contribute to the overall community decarbonisation plan.
- **Developed individual decarbonisation action plans for 150 homes and for five building archetypes which could be scaled to 550 local homes.** Through our engagement with customers in Barcombe we learned communities need simple, scalable action plans that provide practical guidance on how to decarbonise their homes. By engaging with 150 households, Community Energy South and Ovesco, we were able to develop these personalised plans and devise common plans for five building types that cover all homes in Barcombe and are scalable for other

communities to use. This coordinated approach has made the work more feasible for LCT installers, accelerating the village’s transition and since engaging in the project, Lewes District Council is now looking to decarbonise the rest of its housing stock.

- **Disseminated our learnings through a combination of events, including personalising the story of Barcombe customers.** We shared our learnings with heat supply chain stakeholders and other networks at a showcase event, with first-hand accounts from customers in Barcombe, and raised awareness further through a BBC feature.

To accelerate and scale up progress, we co-developed a blueprint document to support other local authorities, community energy groups and off-gas grid communities to decarbonise their heating. We are now working with community clusters to test the methodology at scale and develop the step-by-step toolkit to support our transition approach.

Outcomes

- ✓ **Our coordinated transition approach will deliver £88m net customer savings when scaled to 242,000 (71%) of our off-gas grid customers – a £456m lower cost option than a gas alternative – and accelerate the pace of decarbonisation by 13 years**

£2.7m annual household saving from switching from oil to electric heating, avoiding £59.4m network reinforcement costs and reducing 902,845 tonnes carbon emissions per year – resulting in an estimated social value of £1.17 over and above every £1 spent over 25 years

Unlocking affordable and accessible community EV charging

Leadership

THE CHALLENGE

Around 50% of our customers do not have access to off-street parking to install their own EV charger. Our customer research found that lack of public charging and cost are key barriers to these customers switching to an EV. Effective investment in public charging is key to ensure customers without a driveway are not left behind in the EV transition. However, public chargepoints can require significant upfront investment with low utilisation, which can act as a barrier to investment.

WHAT WE DID

- **Unlocking coordinated investment** – Last year we launched collaborative trials in Cambridge, Redbridge and Norwich, taking a coordinating role with local authorities and chargepoint operators to unlock investment in on-street chargepoints where they are most needed. We have continued to develop the approach, with 90 on-street chargepoints now market tested and 69 taken forward to tender. Through this work we gained valuable insights into the costs, complexity and disruption involved in installing community charging in an urban environment, which we have shared with other DNOs and councils in our areas. To support other communities to scale the approach, we shared a practical handbook on choosing areas and coordination. Our second handbook on procurement and delivery will incorporate the learnings from our three pathfinder areas.
- Alongside practical action, we have used insights from our activities to influence national government policy in the EV Infrastructure Strategy, which recognises the practical barriers to deploying on-street charging. The Competition and Markets Authority’s review of the EV charging market cited our work as a case study, highlighting that barriers to investment create the risk of ‘charging deserts’.
- **Enabling on-street smart charging** – We want to ensure drivers charging on-street have equal access to the flexibility products and cost savings available to drivers charging off-street. We are collaborating with Trojan energy on SmartSTEP, a pioneering real-world demonstration of on-street smart charging, to open up access to these opportunities.

- **Enabling faster installation** – We engaged with the largest providers in the public EV chargepoint market to understand wider industry challenges. Installers highlighted that legal constraints around leases were slowing down charger installations at motorway service areas, so we developed a new, faster approach which we modified from our learnings in the largescale solar generation market. This has shortened the asset lease agreement process from over three months to five days.
- **Supporting greater confidence in public charging** – We engaged with chargepoint operators to share our planned outage data so charger availability can be displayed accurately on their systems, avoiding customers travelling to offline chargers. Working with [partner], we are now expanding this approach to include data on unplanned outages by integrating our live power cut map with their charger availability systems through a new API, which will also share the estimated time when power will be restored to the chargepoint. Data sharing has enabled [partner] customers to plan 3,288 charging sessions with confidence.

Outcomes

- ✓ **Over 200 new charging forecourts unlocked by removing the barrier around asset lease agreements**
- ✓ **150 STEP chargepoints installed, majority of which are smart, and 150 trial participants signed up, of which 27% are trialling smart charging**

6,822 tonnes forecast CO2 reduction, improved air quality and network savings due to coordinated planning of public charging – resulting in a social value of £0.54 over and above every £1 spent over 10 years

Accelerating the business fleet transition

DNO First Leadership

THE CHALLENGE

Commercial fleets are electrifying earlier given higher vehicle turnover and legislative and economic drivers. A growing number of vehicles are on the road for commercial purposes such as deliveries or mobility as a service. We wanted to understand how and where fleet drivers want and need to charge, including the 2.3 million Small and Medium Enterprises (SMEs) in our areas. Through our engagement with businesses we learned that fleet operators have limited understanding of the energy sector.

Furthermore, several years ago we launched the world’s largest trial of commercial EVs, developing solutions to support fleet electrification across different operating models and charging needs, from Uber to Royal Mail. Since launching our self-serve site planning tool to help depot-based fleets plan for site electrification, we have supported business customers via ‘Ask the Expert’ surgeries, but have learned that customers would also benefit from learning from peers who have already transitioned.

WHAT WE DID

- **Sharing learning to help customers optimise their fleet charging.** To help fleet managers assess their electrification options we are in discussions with DPD, Amazon Logistics and LeasePlan to scale and incorporate learnings from our charging solutions for Royal Mail’s fleet. We presented the site planning tool to independent connection providers and independent DNOs and ran demo sessions for four other UK DNOs to share the nationally available tool.
- **We launched an EV Business Hub on our website, providing targeted information based on businesses’ charging needs and a**

clear roadmap to guide SMEs through the steps. We beta tested the website and ran focus groups with the Federation of Small Businesses and its members to enhance the hub content and usability. We continue to engage with SMEs to understand where they research and procure EVs and chargepoint infrastructure, enabling us to build a market intelligence framework and develop a deeper understanding of the SME customer journey to inform future engagement.

Outcomes

- ✓ **Reduced the time for fleet managers to assess electrification options from 25 days to under 4 hours when using our self-serve site planning tool**
- ✓ **67% reduction in the number of speculative connection applications per site, increasing the efficiency of planning engineers’ time and reducing the time to quote by 50 times**
- ✓ **Enabled the UK’s first rapid charging hub for fleet vehicles, with 22 chargers in a first-of-its-kind underground Hyde Park car park as part of a strategic partnership between BP Pulse and Uber**

£70m deferred network reinforcement and 1.35m tonnes reduced CO2 emissions through supporting commercial fleets to optimise their transition to EVs, resulting in an estimated social value of £6.28 over and above every £1 spent over 10 years

The impact of power cuts on day-to-day life has been greater while more customers have been working from home, so we challenged ourselves to minimise the impact of power cuts and maximise support. We also engaged with partners to minimise disruption and environmental impact on communities during works.

Evolving our service to deliver excellent customer experience



THE CHALLENGE

With customers' expectations ever-growing, last year we benchmarked our performance via the national cross-sector Institute of Customer Service UK Customer Satisfaction Index (UKCSI). We learned that the very best companies scored higher on customer effort and emotional connection, including trust. Using this learning and analysing our own customer satisfaction data we found that the accuracy and usefulness of information are key to an excellent customer experience, so this year set ourselves the challenge to enhance these aspects of service, particularly across planned and unplanned interruptions.

WHAT WE DID

Providing more accurate Estimated Time of Restoration information during unplanned interruptions

- We improved the accuracy of our first Estimated Time of Restoration (ETR) message. Quantitative feedback from Rant & Rave told us customers want more accurate ETR information during unplanned power cuts so they can better plan their day.
- We developed a new approach to generate a more accurate ETR first-time.
- We embedded the approach through training our field teams and measuring performance. This was essential to change the culture and understanding of what a good ETR looks like from the customer's perspective and enable dialogue to identify potential improvements.
- We developed a real-time outage dashboard to support management during live incidents. This supports decisions on prioritising actions and tailoring care, whilst providing insight into how we can improve customer experience in the future.

The changes we made contributed to us rising up the UKCSI rankings from 14th in our sector to 4th across all service organisations by January 2022, competing with companies such as Amazon, John Lewis and Apple.

Outcomes

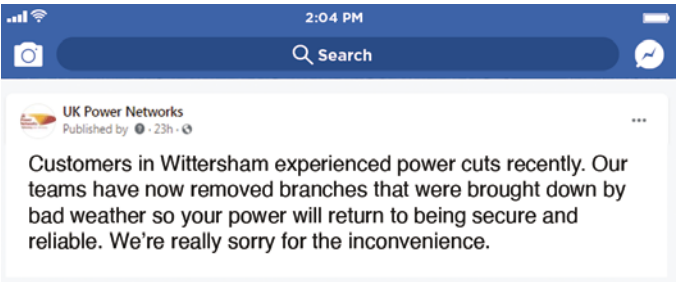
- ✓ Ranked #4 nationally in the UK Customer Satisfaction Index in January 2022 and the only organisation ranked in the top 10 for all five customer satisfaction dimensions
- ✓ Accuracy of information customer satisfaction scored 92, a 2-point improvement

Innovating to keep customers updated ahead of planned interruptions

- We trialled geo-targeted Facebook posts to update local communities on works in their area and the benefits they would deliver. After learning about the process from Anglian Water, we trialled five use cases, including planned power outages and network upgrade projects. We found at an average cost of just £10 per day, we could reach 1,000-3,000 customers with between 29-84 engagements (like, comment or share). Each post received positive feedback and informed our decision to scale the approach across our regions.
- We used anonymised mobile phone movement data to maximise the number of affected customers we can engage ahead of planned power cuts. We partnered with O2 to source data to predict whether visitors and commuters are likely to be affected by planned power cuts, as well as residents and business owners. We used this insight to send geo-targeted Facebook and LinkedIn posts to customers who do not live in the affected postcode but typically travel there, to reach more customers likely to be affected by the works. Our trial reached 3.9k customers at a cost of £57. We used feedback from Facebook posts to refine our approach as we scaled up, for example by referencing the outage notification letter local customers had already received.

Outcomes

- ✓ 2.1-point improvement in customer experience in areas where we trialled geo-targeted social media updates – from 94.4 to 96.5
- ✓ 27,400 users reached through our geo-targeted communications



UKCSI dimensions of customer satisfaction - Our UK ranking

| EXPERIENCE | Pets at home | First Direct | Saga Insurance | Amazon.co.uk | Skoda | UKPN (6 th) |
|----------------------|-------------------------|--------------|-------------------------|-------------------------|---------------|-------------------------|
| COMPLAINT HANDLING | UKPN (1 st) | Trivago | Apple | Northumbrian Water | Cross Country | M&S Energy |
| CUSTOMER ETHOS | Pets at home | Timpson | UKPN (3 rd) | Saga Insurance | First Direct | M&S Energy |
| EMOTIONAL CONNECTION | Pets at home | Timpson | John Lewis | UKPN (4 th) | Green Flag | First Direct |
| ETHICS | UKPN (1 st) | John Lewis | First Direct | M&S (food) | Timpson | Pets at home |



"Stable power is critical to maintain supplies of water and wastewater services to households and businesses. We really value how UKPN have worked with us to better understand the essential service we provide, including proactively involving us in prioritising sites for reconnection to minimise the impact on customers."

Justin Camis, Energy Engineering Project Manager, Thames Water

Enhancing whole system resilience through joint analysis with water companies



THE CHALLENGE

Through engagement as part of our organisational resilience approach, Thames Water told us about a number of remote sites where an operative would need to travel to the site to reset a wastewater pump after a power outage. In some cases, a delay could lead to a sewerage escape.

WHAT WE DID

We collaborated with Thames Water to understand where outages could cause an environmental impact. Through a new data-sharing approach, we compared more than 10,000 data sets from our businesses' systems to jointly analyse where high impact outages were occurring and their root causes.

We added high-impact sites to our critical business priority register. Key wastewater sites are often small and remote and have the attributes of single customer sites from our perspective. While a momentary interruption to a home might only cause a flicker of the lights, we learned that a 10-second interruption at a waste pumping site can affect the system for the whole area for several hours. These sites are a small part of the network but have a high impact on our shared customers. Understanding this allowed us to better understand areas of risk in the

network and identify additional sites to add to our critical business priority register. We are holding six-monthly reviews with Thames Water to monitor the impact of this change, including changes to our tree-cutting schedule around these sites.

We extended the approach to other regional water companies in our area, building on the relationships fostered through our Priority Services Register data-sharing initiative to reduce disruption for customers.

Outcomes

- ✓ 7,835 high-impact pumping sites reprioritised for faster restoration in the event of a power cut
- ✓ Strengthened operational response in water pumping station locations with lower network resilience, including enhanced tree cutting programmes

Minimising the impact of street-works on our communities through cross-sector collaboration



THE CHALLENGE

Our customers and stakeholders made it clear we should coordinate street-works with other utilities and share road space to reduce the disruption, duration and cost of works. Working with the Greater London Authority and gas networks enabled us to measure the benefits of collaboration and make the case for extending the approach. We identified that cross-utility coordination on smaller projects would also benefit communities, but no guidance or process existed to support this.

WHAT WE DID

We developed and trialled practical approaches to embed coordination into smaller projects to minimise disruption to local communities and reduce costs. We updated our day-to-day processes to ask customers such as developers about upcoming works and used the One.network tool to gain better visibility of works planned by other utilities.

We learned that communication and relationship-building is key to coordination. We built working-level relationships across our regional gas, water and utilities companies, the Highways Agency and leveraged relationships with local authorities. We have seen a real cultural shift in operational managers' appetite to collaborate.

We worked with the South East Highways and Utilities Committee to share these approaches as best practice guidance. Following national

consultation, the finalised guidance has been published by the Highways and Utilities Committee (HAUC) England, and will become part of the Coordination Code of Practice, unlocking the benefits of cross-sector collaboration nationally. We have been invited to share our leading practice on collaboration at the HAUC UK conference in May 2022.

Outcomes

- ✓ 98.5% average customer satisfaction for collaborative trial area works, saving on average £1,000-1,500 per job from collaboration
- ✓ 462 collaborative jobs over the last year, avoiding 357 days of disruption
- ✓ 11.3% jobs completed collaboratively in trial areas, compared to 4.1% average elsewhere

Delivered over £766,000 savings so far in RIIO-ED1 through collaboration with the Greater London Authority and gas networks. We estimate c.£12m of social value by 2028 from taking a coordinated approach in London alone.



Case study: Wigmore Road, Medway Towns

"When we were preparing to carry out a mains extension for two new properties, we agreed a plan to coordinate our works with Southern Gas Networks (SGN) from day 3 and South East Water (SEW) from day 5. This required plenty of negotiation and logistical coordination, which was possible thanks to the strong working-level relationships between myself and my opposite numbers at the other companies.

I agreed the Traffic Management layout with the local authority, and then led the subsequent site meetings with other utilities without any local authority representation. This is unusual and gave me a unique level of ownership and accountability.

As a result, all three utilities completed works earlier than scheduled. This made a real difference to the local community since Wigmore Road is a feeder road to the M2.

Reinstatement was shared between SGN and SEW, so we refunded the customer for elements of the reinstatement work that we had quoted. The local authority was really pleased that we minimised disruption to one occupation over the course of one week, rather than three separate occupations over three weeks."



Steve Saunders, Supervisor, UK Power Networks

The Carbon Trust and Imperial College estimate that a smart, flexible energy system could deliver up to £16.7bn of benefits by 2050 in Great Britain. However, there is no existing playbook we can apply to realise this value. Engagement is therefore key. Collaborations that spark innovation, bring down barriers and disrupt outdated practices are crucial to accelerate the energy transition and unlock greater whole system value for customers.

Unlocking whole system benefits and customer participation

DNO First  Leadership 

THE CHALLENGE

Based on deliberative engagement with market participants, we are leading by example to establish the world’s first independent and legally separate Distribution System Operator, signalling transparency and independent investment decision making. This will deliver cost savings, formalise a ‘whole system’ mindset and facilitate an open marketplace for flexibility services. We estimate that this bold approach could deliver between £780m-£2.6bn of whole system benefits for our regions up to 2040.

We envision a dynamic distribution system that prioritises market-based flexibility solutions to deliver capacity at the lowest cost and enables faster and cheaper access for LCTs. Realising this vision requires strong engagement with the full range of actors in this highly complex and interconnected system to ensure we understand their needs and the barriers we must address to allow them to connect and participate.

WHAT WE DID

Collaborated with the ESO to unlock earlier access and greater value for distributed energy resources (DER) customers

We are pioneers in introducing flexible connections in the UK market, enabling customers to connect faster and cheaper in return for curtailing activities on the network at limited times of the year. Nearly 5GW of capacity (equivalent to 1.5 Hinkley Point Cs) has been contracted in our regions since this concept first originated as an innovation project.

Despite this accelerated access to distribution networks, our ongoing engagement highlighted that storage developers were facing lead times of 5+ years to connect at distribution level due to upstream transmission network constraints. Analysing connection enquiries revealed that the success rate for battery storage connections was five times lower than for gas-powered generators, despite storage being a critical Net Zero enabler. We therefore focused our engagement to address this issue and accelerate storage connections.

We are targeting an additional 1.7GW of storage capacity and have developed a solution to accelerate 400MW to connect five years faster so far by working through the issues at an operational level through workshops and bilateral engagements. We achieved this by:

- **Challenging outdated planning assumptions about storage** – Engagement led to storage providers sharing their actual operating profiles and business models, enabling us to collectively work out how they could be accommodated within network constraints
- **Proactively sharing this information with the ESO and NG Transmission** – Enabling them to develop more accurate models, updating current conservative assumptions to reflect real-life market behaviour.

We have demonstrated how engagement on the most complex issues can lead to a win-win situation for all.

Helping DERs access new markets

We are scaling up our reactive power marketplace capability, targeting customer savings of at least £100m by 2050 whilst enabling more renewable generation to connect. In 2020, we piloted a world-first reactive power marketplace to manage transmission voltage constraints, supporting system stability whilst reducing curtailment of renewable generation. Engagement with the DER market and ESO helped us tackle the practical issues and develop the market rules needed to balance commercial and technical constraints in real-time. We are now embedding reactive power capabilities in our Distributed Energy Resource Management System and implementing signals with customers receiving new flexible connections to enable reactive power capability in readiness for when the ESO rolls out the service.

Unlocking greater customer participation in EV flexibility


Using findings from our smart charging trial with Octopus Energy we co-developed a simpler process to enable providers to value how much customers should be rewarded for their EV flexibility. Flexibility provided by EVs could reduce costs to our customers by £250m by 2028. By engaging with aggregators and suppliers who will provide this service, we learned that the ability to measure how much consumers shift their electricity in response to a price signal is crucial to be able to remunerate consumers and unlock participation. However, the current industry approach, developed to manage large power stations, was not suitable for EV flexibility.

Our new approach provides aggregators with a simpler process to value this flexibility. We are delighted that Octopus Energy is embedding this as the basis of their Time of Use tariffs and advocating its use to other DNOs to benefit all GB customers.

Outcomes

- ✓ Enabling 400MW battery storage to connect 5 years earlier through a fast-track approach, unlocking up to 16,100 tonnes CO2e reduction per year
- ✓ 71% of our awarded flexibility contracts were met by EV and home battery users, unlocking £22m of value for these domestic customers
- ✓ Over £100m potential customer savings by 2050 thanks to our reactive power marketplace while generating additional DER revenue, unlocking the potential for 1.5GW additional clean generation in the South East

£155m cumulative savings delivered for customers with existing flexible connections due to avoided reinforcement costs – with potential to achieve £326m customer savings by the end of RIIO-ED1





“Open energy data is a relatively new and challenging area for the open data community. The sector has a lot to gain from adopting open data principles, ultimately leading to greener and more sustainable communities.”
Roza Vasileva, PhD, Sustainable Infrastructure Advisory, International Finance Corporation, World Bank Group

Shaping our Open Data approach and portal to meet stakeholder needs



THE CHALLENGE

Open energy data is a key enabler of Net Zero by supporting more LCTs to connect and increasing energy market competition by facilitating open innovation. Opening up data has required a cultural shift within our business to be more comfortable with sharing data by default unless there is good reason not to. We wanted to build on our existing Open Data portal and DSO dashboard to maximise the stakeholder benefits of allowing greater access to the data we hold.

WHAT WE DID

We shaped our Open Data strategy based on stakeholder needs. We held an Open Data event with 198 interested stakeholders, such as technology providers, universities and local authorities, to understand which datasets they want and how they want to access them. We learned that:

- Digital competency varies widely across stakeholder groups. E.g. smaller businesses lack advanced analysis capabilities and want information they can easily use and interpret
- Stakeholders want to access data in a range of formats depending on what they are most comfortable working with
- Stakeholders want to be involved in co-designing a data portal.

We launched a new Open Data Portal. We prioritised datasets for publication based on stakeholder feedback, providing data in a range of formats, including geospatial and visual options, to allow stakeholders to view data in the way that suits them. The portal brings together our own datasets with thousands of other data sources, providing unparalleled access to one of the biggest datasets on the UK’s electricity network. In designing the portal we applied learnings from French utility Enedis via the International Utility Working Group, and co-designed standards and processes with our stakeholders to ensure it meets their needs. To provide

transparency, we partnered with Open Innovations to develop an enhanced data triage approach to guide what data can and cannot be opened up, and shared our assessments on the portal.

We are applying best practice to deepen our expertise in Open Data. We are the first DNO to become a full member of the Open Data Institute, who we partnered with to develop a Data Literacy development plan to deepen our maturity in managing data. We engaged Open Data Manchester and the World Bank Group to ensure our industry-first Open Data Principles would reflect best practice from beyond our sector.

Our data is already driving value:

- We are supporting key flexibility market platforms such as NODES, who use our Open Data to operate their sustainable energy marketplace service. NODES has shared how easy it is to set up links between their service and our portal
- Building on our DSO dashboard, we published flexibility datasets and information on previous bids, which can be combined with our other datasets to identify flexibility opportunities and inform pricing.

Outcomes

- ✓ First GB DNO to publish our datasets via a portal covered by an internationally recognised open data licence – “Truly Open” meaning anyone can use the datasets, including for commercial purposes
- ✓ 34 datasets made available in six formats, including graphical representations, prioritised based on the needs of stakeholders
- ✓ 2,600 downloads and 914,000+ API calls (5,000 on average per day) since launching the Open Data Portal

Digitising asset data faster and at lower cost

DNO First  Learning from best practice 

THE CHALLENGE

Digitised and vectorised maps are a fundamental enabler of enhanced customer service, unlocking better data quality, better forecasting and modelling, a more accurate understanding of network assets and faster fault-fixing. Customers and colleagues asked for urgent access to key asset data sets, but traditional vectorisation is limited, takes several years and costs millions. We wanted to think beyond the traditional approach to deliver benefits faster and at lower cost.

WHAT WE DID

Through horizon scanning of artificial intelligence (AI) advancements in other sectors, our analytics team spotted the opportunity to use image recognition and advanced analytics to automate significant parts of the vectorisation process. Instead of humans retracing and copying data to a digital system, this new approach uses AI to extract images and data from our raster maps at a fraction of the time and cost of traditional vectorisation, without human error.

We teamed up with [partner] to run a proof of concept and saw a 10% improvement in data quality through identifying more assets and improving geolocation accuracy, which will help customers and stakeholders connect to our network faster, more easily and more safely.

We have now extended this approach into a full scale collaboration with [partner], which recognises innovation for the greater good, to industrialise and scale the process. If successful, this repeatable technique could be applied to quickly digitise the records of any utility globally.

Outcomes

- ✓ Delivered an added benefit of 10% data quality improvement in our regional trial
- ✓ Estimated ROI of £15 for every £1 spent and bringing forward customer and business benefits by c.3 years



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