



**FIRST DNO TO HAVE A FIVE STAR
TRUSTPILOT RATING**

Receiving over 20x the reviews
of any other network operator

Part

2

Our strategies for stakeholder engagement and consumer vulnerability

2019/20 Stakeholder Engagement and
Consumer Vulnerability Incentive





Part 2

UK Power Networks is the country's largest electricity distributor, making sure the lights stay on for more than eight million homes and businesses across London, the South East and the East of England.

Every year we take the opportunity through the Stakeholder Engagement and Consumer Vulnerability (SECV) Incentive to summarise how we engage with our wide range of stakeholders and address key consumer vulnerability issues. This suite of reports aims to demonstrate how we embrace wider social and environmental objectives through our engagement activities while ensuring the ongoing delivery of an efficient network.

Our submission is divided into three parts:

Part 1 Outlines our strategic approach to engaging and working with stakeholders and supporting our most vulnerable customers

Part 2 Highlights some of our key achievements and the benefits we have delivered through engaging with our stakeholders

Part 3 Focuses on the initiatives and impact we have delivered to support our most vulnerable customers

This is **Part 2** of our 2019/20 SECV Submission.

This year we have included personal examples from our staff and stakeholders bringing to life the work that we have delivered.

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Director of Strategy & Customer Services' introduction

Customer and stakeholder engagement is the responsibility of everyone at UK Power Networks, ensuring our business strategy is developed, continuously tested and adapted based on comprehensive and ongoing conversations.



This is a unique period of transition; the urgency to address climate change will not stop, nor will our focus on embracing the wider changes in the energy system. Meanwhile, we have the responsibility to continue to provide an essential service whilst keeping our employees and customers safe during the Covid-19 pandemic.

This year we have held over 500 stakeholder events, helping to provide the insight we need to inform and improve our services. Creative, innovative and personal engagement is behind all our strategies and this year three things have really made a difference:

1. Embracing our role to enable net zero, from issuing the first DNO heat strategy to co-creating affordable solutions with the EV industry;

2. Data and transparent decision making is top of the agenda for our stakeholders. Our industry-first data portal demonstrates our openness to satisfy the increasing appetite to consume data, whilst respecting the need to share it responsibly;

3. The social, health and economic impacts from Covid-19 have provided the ultimate test as to whether organisations that espouse public purpose rhetoric, actually act in accordance with their words by caring for their employees and society. Our sector has a role to play to mitigate the economic burden from this crisis, that is why we are working to develop a £40m hardship fund to provide relief from network charges to households and small businesses in financial stress.

Based on your feedback, we have continued to avoid providing long lists of activities. Instead we have focused on stories of how engagement has led to positive outcomes for our communities, including how we adapt our approach when things do not go as planned.

Suleman Alli
Director of Strategy & Customer Service

Summary of our initiatives

The intention of our stakeholder approach is to demonstrate high impact initiatives that are embedded in our business as a result of quality engagement. These showcase real innovation and have delivered measurable benefits to our customers, including those that are hardest to reach in our communities.

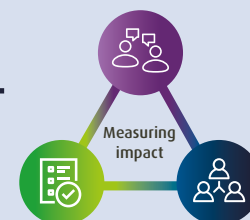
■ Reached over 4.75m stakeholders

■ Engaged using over 20 engagement mechanisms

■ 352 outcomes for our stakeholders, delivering real benefits

	Initiative name	Page No.	Embedded	New this year	Innovative approach	Hard to reach	Replicable beyond UKPN
1 Tackling the net zero challenge	Using science to achieve carbon reduction targets	03		✓	✓		✓
	Leading by example with our supply chain	03			✓		✓
	Transitioning to a Distribution System Operator (DSO) faster	04				✓	
	Developing value and services deeper into the network	04			✓	✓	✓
	Delivering whole system benefits through collaboration	04	✓			✓	
	Facilitating electric vehicle (EV) uptake: co-designing a framework of collaboration	05	✓				
	Building EV range confidence – supporting local authorities to provide public charging	05		✓	✓		✓
	Improving service for domestic customers wanting an electric car	06		✓	✓		✓
	Working with industry to offer EV charging at the lowest possible cost	06		✓	✓		✓
	Supporting EV hubs	06		✓			✓
	Developing the first DNO Heat Strategy with stakeholders	07	✓		✓		✓
	Minimising our own environmental impact	07	✓		✓		✓
2 Meeting our customers' evolving needs	Engaging with our stakeholders on Distribution Future Energy Scenarios (DFES)	08		✓	✓		✓
	Open Data – underpinning the future Smart energy system	08		✓	✓		✓
	Utility Survey Exchange (USx) – crowd sourcing better network data	08		✓	✓		✓
	Using AI and machine learning to deliver a more efficient service to customers	09		✓	✓		✓
	Tailoring our engagement – WhatsApp (Verified status), two-way text messages and what3words	09		✓	✓		✓
	Unlocking customer value – our Smart Meter support service	09	✓		✓	✓	✓
3 Ensuring no one is left behind	Making SMEs and micro-businesses a priority	10				✓	✓
	Helping community facilities become more energy efficient	10	✓		✓	✓	✓
	Ensuring no one is left behind – continued in Part 3						

Measuring overall impact



Our approach to measuring social value set out in Part 1 detailed how we triangulate informative stakeholder feedback, quantitative and qualitative willingness to pay research and social impact valuation results to inform our decisions and measure overall impact. This section demonstrates how we use our approach in practice aligned to Part 2 initiatives.

The feedback we receive from our stakeholders is critical in shaping the way we operate and the actions we deliver. Triangulating this feedback with willingness to pay (WTP) research and social valuation provides us confidence that the initiatives we prioritise, before delivery, are the

most appropriate in terms of overall impact they will provide.

The table below provides a summary of 14 initiatives tested with customers related to Part 2; how much we spent to deliver the associated outcomes; the

indirect net benefit generated for customers (based on what customers value through WTP research); the financial savings to our customers (where these can be calculated); and the social impact we delivered.

UK Power Networks strategic priority area	Initiatives tested with customers	WTP Value	Cost to deliver our initiatives	Indirect net benefits to customers	Direct financial benefits to customers	SROI (Net benefit per £ spent)
Meeting our customers' evolving needs	Customer Support (3 initiatives tested)	£6.86 (per customer)	£21,470,974 (total) £2.59 (per customer)	£35,467,026 (total) £4.27 (per customer)	£8,300,000 (total) £1.00 (per customer)	£8.12 (per year)
Tackling the net zero challenge	Smart Networks (4 initiatives tested)	£2.84 (per customer)	£2,656,794 (total) 32p (per customer)	£20,915,206 (total) £2.52 (per customer)	£138,900,000 (total) £16.73 (per customer)	£13.89 (per year)
Ensuring no one is left behind	Sustainability (4 initiatives tested)	£4.99 (per customer)	£7,331,520 (total) 88p (per customer)	£34,085,480 (total) £4.11 (per customer)	£70,269,880 (total) £8.47 (per customer)	£3.83 (per year)
	Resilience (3 initiatives tested)	£4.32 (per customer)	£168,400 (total) 2p (per customer)	£35,687,600 (total) £4.30 (per customer)	£86,480 (total) 1p (per customer)	£0.60 (per year)

In some instances, our holistic valuation determines that acting on feedback alone may not be in the best interest of our customers and society, and we should instead proceed with alternative actions to deliver the best outcomes. Rather than give you a long table of initiatives and numbers that may seem abstract, we have instead highlighted notable examples below which demonstrate the trade-offs that we assessed using this measurement framework.

For example, our initiatives tested with customers relating to **Smart Networks**, such as accelerating the roll-out of more flexible services to customers, revealed a relatively low WTP valuation compared to others (e.g. 2.5x lower value than Customer Support initiatives tested). Investigating further through qualitative research revealed there is a genuine appetite from customers to understand more about smart networks. The challenge is that as this is a new concept that is not fully understood, most customers find it difficult to value. Evaluating with Social Return on Investment (SROI) demonstrated that our initiatives in this area,

such as **Active Network Management (ANM) roll-out**, deliver high value to customers and society relative to costs. SROI analysis revealed that for every £1 we invest per year, £13.89 value is delivered to customers and society in excess of that £1. Bringing these results together provided evidence that we should proceed with these activities while highlighting the importance of continuing to work with customers to explain the many benefits that flow from ANM.

Our SROI approach models costs and benefits over a one year and five year time horizon, ensuring we consider value created in the near term and future when making decisions. The usefulness of this approach is demonstrated in our assessment of **Enhanced services to SMEs** where the 1 year SROI is low due to upfront costs but increases over 5 years as benefits accumulate and enablement costs reduce. Triangulation revealed that despite the low value placed by our customers on certain **Resilience** actions such as providing support to small businesses beyond power cuts (£0.41 per customer), we will deliver strong social benefits as we ramp up activity in this area. With this in mind, we are

focusing on engagement and understanding this stakeholder group, working with the Federation of Small Business and other industry bodies. We are currently developing our strategies with these organisations to refine the actions we can take to support them to ensure we deliver maximum value.

Using this measurement approach and analysis, we have triangulated results to prioritise actions and assess overall impact. This process has informed our decisions, ensuring we are taking actions that customers value, while also delivering the greatest possible financial and societal benefits relative to cost.

This year, we sought external assurance of our **SROI valuations** to ensure that our decision-making process was fully transparent and independently audited by SIA Partners.

1 Tackling the net zero challenge

✓ 60 outcomes
£209.2m direct benefits to customer

2 Meeting our customers' evolving needs

✓ 83 outcomes
£8.3m direct benefits to customer

3 Ensuring no one is left behind

✓ 74 outcomes
£86.5m direct benefits to customer

Direct benefits to customers are the financial savings realised for our customers this year. Part 2 covers three of the four focus areas accounting for 217 of the total 352 outcomes this year.

Tackling the net zero challenge

Our Critical Friends and CEO Panels continue to inform and help shape our strategies to protect the environment.

✓ **753,800 MWh**

of additional renewable generation enabled by ANM

✓ **20.5%**

reduction of our emissions from our 2014/15 baseline

✓ **3,320**

electric black cabs enabled, resulting in 66m low carbon miles

✓ **1st DNO**

to achieve the Carbon Trust Standard for Carbon

Using science to achieve carbon reduction targets

We have already reduced our CO₂ emissions by 15,887 tonnes – a 20.5% reduction from 2014/15 and surpassing our initial stakeholder target of 2% each year.

Stakeholders said:

Our Critical Friends and CEO Panels both state a net zero target must come with measurable milestones and a roadmap to achieve it; ambitious targets without robust plans are meaningless.

What we did:

- We engaged with leading companies such as Tesco and Skanska to learn and set an achievable plan to reduce operational carbon emissions.
- Working with the Carbon Trust ensures our targets are independently assessed, expertly developed and in line with the scale of carbon reduction required to keep global temperature

increases below a 2°C rise from pre-industrial levels.

- We have identified long-term goals with a carbon budget of 210,000 tonnes for the next regulatory period.

Stakeholder Outcomes

- ✓ The first DNO to achieve the Carbon Trust Standard for Carbon, enabling stakeholders to be confident in the integrity of our carbon saving outcomes.
- ✓ The Science Based Targets Initiative ensures we have robust carbon budgets aligned to our regulatory price control periods. These are supported by 5-year plans that we can test with our stakeholders to bring them on this journey with us.

“We are delighted to certify the real reductions that UKPN has achieved over the past two years and look forward to continuing to work with the company to benchmark its progress as it implements its Green Action Plan”

John Newton, Associate Director, The Carbon Trust



Leading by example with our supply chain

Stakeholders said:

As part of the wider discourse in society, and reflected in our Critical Friends Panels (CFPs) and willingness to pay research, tackling climate change is a priority. Our customers value our efforts to reduce our environmental impact at a balanced cost. They would like us to lead by example and reduce our supply chain's carbon footprint.

What we did:

- Building on our Green Action Plan (GAP) in 2018/19, we are focusing on waste and pollution in our supply chain.
- We worked with the Carbon Trust to analyse the carbon embedded in our supply chain to define the biggest impact.
- We recognised the impact we could have given our supply chain of 1800 suppliers across 23 countries. So we amended our procurement processes to include sustainability marking criteria within our tenders to seek sustainable products and services.
- We collaborated with Northern Powergrid and installed 54 innovative high efficiency amorphous steel transformers across our network.
- We assessed our supply chain transportation journeys. For example, certain transformers are manufactured in Portugal. A UK based subcontractor traditionally shipped out a component the size of a fridge/freezer to be added to the transformer and then returned it to the UK. We changed our processes so this is now fitted on-site in the UK.

- Building upon last year's success of reducing plastic bottles by 33%, by introducing 200k reusable bottles, this year we replaced the remaining 660k virgin plastic bottles with 100% recycled plastic.

- We also examined the lifecycle of products within our supply chain:

- Replaced polluting two-stroke petrol-powered chainsaws, which emit 299 times the pollutants of a pick-up truck, with battery equivalents.



- Reduced emissions from our stationery supplier by 11% in the last year by optimising their deliveries.



- Changed the power tools for our operational teams, generally supplied in single-use hard plastic cases, to cardboard cases.



- Our property estate is now supplied on a contract using 100% renewable electricity.



**GREEN
ACTION
PLAN**



Our Green Action Plan guides us to achieve net zero

Stakeholder Outcomes

- ✓ Saving 2,000 tonnes of carbon by deploying the new amorphous steel transformers at scale
- ✓ 3,600 miles saved per year by reducing inefficiencies in the supply chain
- ✓ Reduced the plastic incorporated in water bottles by half and greenhouse gases associated with manufacturing by 70%, saving 41,000+ litres of fuel oil in the manufacturing process
- ✓ The battery chainsaws will help improve work conditions for 200 people for 9,400+ hours a year, by reducing harmful emissions and fuel wastage
- ✓ Eliminated 290 hard cases for our power tools – equivalent to 150,000 plastic bags.
- ✓ 6,000 tonnes of carbon saved annually by purchasing 100% renewable energy

The reduction in CO₂ as a result of replacing water bottles is expected to deliver £19,475 social value over the next 5 years

Enabling net zero through new Distribution System Operator capabilities

The role of low carbon technologies and markets to tackle the net zero challenge is increasing and stakeholder input has driven our approach to becoming a DSO with this in mind: 1) Transition to a DSO faster; 2) Develop value and services deeper into the network; 3) Deliver whole system benefits through collaboration.

(1) Transition to a DSO faster

Stakeholders said:

As a result of our engagement with connection customers through our regular forums, they asked us to focus on:

- Faster connection quotes and delivery
- Cheaper connections
- More transparency about available options

What we did:

We accelerated development of our flexible connections product delivering it in 2019, four years earlier than we had planned because customers told us it was a priority. It has resulted in the fastest roll-out of such an innovative product anywhere in the world. **This gives Distributed Energy Resource (DER) customers cheaper and faster connections**


using the latest digital technology and innovative commercial contracts.

We improved user experience by modifying our flexible connections customer journey:

- Removed the £2,500 feasibility study fee.
- We halved the time it takes to receive an ANM quote through developing new tools and capability.
- Became the only UK network operator to integrate Active Network Management (ANM) into the heart of our control room. Functioning like the operating system on your smart phone, it enables us to offer a large range of new products and financial opportunity for connected energy resources.

Stakeholder Outcomes

- ✓ Distributed generation customers can now connect to the network an average of six months, or 115 working days, quicker thanks to ANM – that's 60% faster than in 2018
- ✓ ANM quotes save customers on average 50% to 75% of the traditional connection cost, saving £72.5m and facilitating 250MW+ renewables through flexible connections since 2015

 £13.89 social value estimated in excess of every £1 spent over 5 years (SR01)

(2) Develop value and services deeper into the network

Stakeholders said:

Three prevailing priorities emerged across over 40 separate stakeholder events in 2019/20. Customers wanted greater **accessibility** into the market and **transparency** and **certainty** on long-term prospects.

What we did:

- **Accessibility:** We significantly expanded the market by making £24m available to buy 300MW of flexibility from energy resources and offering it across 115 network areas, opening revenue opportunities to more people. We were the **first network operator to offer flexibility at the low voltage level**, and the only one to offer contracts for as little as 10kW (equivalent to four homes), helping to unlock residential access and participation in flexibility markets.

- **Transparency:** Through weekly surgeries we met over 900 people – proactively approaching potential market participants. We co-created a newsletter with 'hot topics' subscribed to by approx. 300 stakeholders. We led a national effort for standardised flexibility products across networks by chairing the ENA's Open Networks Flexibility workstream and we launched a new online Flexibility hub, putting all publicly available documentation about flexibility in one place.

- **Certainty:** We changed our contract length from four to seven years. With 95% of all signed contracts with assets in development, as opposed to existing connected assets, we are providing confidence and enabling a new market to flourish.

Stakeholder Outcomes

- ✓ More than 2m customers across 766,744 homes and businesses have lower bills as a result of our 300MW of flexibility products
- ✓ Enabled £7.5m of infrastructure investment to be deferred as a result of procured flexibility
- ✓ Grew our flexibility market by 200%, signing commercial contracts with resources from water companies to hard to reach domestic customers using batteries and solar – demonstrating the breadth of value from our DSO services

"We are excited to be working with UKPN to help residential customers unlock the full potential of their solar-battery systems, and further drive down their energy costs."



Stephen Day,
CTO at Social Energy

1st
to Market
Flexibility

1st
Online
Marketplace

1st
LV Flexibility
Market

(3) Delivering whole system benefits through collaboration

Stakeholders said:

Look beyond our DNO remit and collaborate with the full energy system chain to deliver better outcomes for all our customers.

What we did:

- In 2019 we **produced the first ever blueprint for a transmission-distribution coordination framework** which will enable National Grid ESO to save £1 billion in infrastructure spending on the south coast, an approach to be replicated across the UK by better managing whole system capacity.
- Proactively led the industry by working hand-in-hand with National Grid to improve grid stability, communicating to distributed generators to upgrade protection settings, ensuring they stay connected for longer and resulting in reduced system costs for all customers.
- Collaborating with the ESO, we **launched a world-first initiative to enable DER customers to provide reactive power services** to manage

transmission voltage in the south east region – creating new revenue streams for our smaller-scale energy resources and helping National Grid save customers' money it would otherwise have had to invest.

- Working with Cadent, Tower Hamlets, the Greater London Authority (GLA) and the Energy Systems Catapult to create an optimised infrastructure plan to support the growth of 30,000 homes whilst meeting net zero objectives through our Isle of Dogs local energy plan.
- Partnering with Princeton University and New York utility, Con Edison, we developed a world-first technology: Mobile Asset Assessment Vehicle to scan urban cable networks for faults discharging into the ground and causing energy losses. In 2019/20 we loaned the vehicle to SSEN and ENWL to carry out trials on their networks due to the success we had achieved.

Stakeholder Outcomes

- ✓ Working with 330 renewables customers to save a total of £10m a year in whole system costs across the transmission and distribution networks by better capacity management
- ✓ Unlocked 1.7 GW of capacity without the need to build infrastructure as a result of our Regional Development Programme with National Grid – enough capacity to power both the Surrey and Sussex counties
- ✓ £400m+ of potential benefits to customers as a result of a UK reactive power market roll-out
- ✓ Our overarching losses management programme prevented over 10,000 MWh of lost energy, enough to power 3,000 homes for a year

Enabling net zero by facilitating Electric Vehicle (EV) uptake

Electrification of the UK's transport sector is critical to meet decarbonisation commitments. Electricity networks are at the centre of facilitating this journey, with 3.6 million EVs forecasted to connect to our network by 2030. Transport remains the largest source of pollution in the UK, accounting for 28% of all greenhouse gas emissions. The pace of EV uptake is accelerating, yet the UK remains behind the curve in the phase-out of diesel and petrol vehicles to meet net zero by 2050. We are supporting the timely and cost-effective roll-out of EV infrastructure, making sure that no customers are left behind.

(1) Co-designing a framework of collaboration

Stakeholders said:

It is important that there is visible and accessible public charging infrastructure to encourage the uptake of electric vehicles across our communities. Through both our CEO Panel with senior EV industry leaders and the responses from our EV readiness consultation, we received a clear message that two EV charging segments faced particular challenges. It was understood that uncertainty over the pace of the EV roll-out and hence charging revenue and connection costs were causing the deployment of on-street and public charging infrastructure to stall.



EV local authorities workshop

What we did:

We are working constructively with government, installers and industry leaders to address the barriers to the roll-out of EV charging infrastructure. Together, with a leading economic consultancy, we developed a bespoke framework to assess how the barriers impact each of the key EV charging market segments. This research allowed us to identify that publicly used charge points faced the biggest challenge and there was added social value in us intervening in these markets. Consequently, **we co-developed a framework on how DNOs can work with public and private bodies to support investment in public charging infrastructure** where the market is failing to develop. We tested our recommendations for a joint planning approach delivered by the market with a range of stakeholders who supported our proposal and we will be trialling this approach subject to government and Ofgem approval.

We are also using our previous experience to help reduce connection costs via improved co-ordination and planning. Building on our work with Transport for London on electrifying the London bus fleet, **we worked with BEIS to identify the most cost-effective approach to roll-out ultra-fast public charging at motorway service stations** to alleviate range anxiety. This co-ordinated and collaborative effort has identified savings of £40m across 19 motorway service stations.

Stakeholder Outcomes

- ✓ Delivered £40m savings to motorway service station operators by taking a coordinated and collaborative approach
- ✓ Developed new partnerships to deliver innovative solutions such as the first bespoke EV charging hub at Braintree in Essex
- ✓ A progressive evidence-based approach and plan to address market failures, delivering charging infrastructure to communities so they can charge when and where they need
- ✓ Proactively influencing public policy and regulation regarding network charges, in partnership with a broad range of stakeholders needed to make change happen

(2) Building EV range confidence – supporting local authorities to provide public charging

The 152 local authorities across our licence areas play a critical role in ensuring residents and visitors have access to public charging infrastructure. They have diverse needs, different levels of technical and commercial understanding and need bespoke support to help them meet their goals for electrification. In London, four out of five cars are parked on the street, and unable to run a cable across the pavement into their home to charge their vehicle.

Stakeholders said:

Councils want to provide on-street charging infrastructure in the right places at the right time to encourage uptake of electric vehicles and making best use of their limited funds and available grants. They are concerned they don't have the insight into their residents' behaviour or the technical knowledge to make informed decisions.

What we did:

Listening to our council partners it became clear that the core challenge was one of data and insight. We partnered with Element Energy to combine our network knowledge with their world-class forecasting modelling to build a bottom-up model based on local authority geographic areas. **By combining data sets we produced very granular forecasts of local EV uptake to 2050 down to as little as a group of 400 homes.** We then developed dynamic forecast maps that officers can share with councillors and constituents alike to drive their climate emergency plans.

In tandem we produced EV 'heat maps' for local authorities to influence charging locations. We have run over twelve workshops with local authorities and Local Enterprise Partnerships to help councillors and officers interpret their local data.

"I found this very useful in identifying the optimum time to engage with UKPN and the various options available regarding getting power to EVs"

Stewart Tough, Peterborough Council

We also **ran EV surgeries at county, borough and district level assessing hundreds of charge point locations to save councils making formal applications.** We worked with London Councils to develop a Community Charging Hub model to install more chargers, cost-effectively into local authority car parks. Furthermore, our ongoing partnership with TfL has enabled 200+ rapid charging posts, and has led the development of [online EV capacity maps](#) for every distribution substation across our licences.

Building upon our business-as-usual support to electrify local bus garages, we joined a partnership with 15 organisations under the Mayor of London's EV Taskforce to ensure London has the required charging infrastructure to support local black cabs and other service trade vehicles through developing a wider rapid charging network.

Stakeholder Outcomes

- ✓ 72% increase in public charge points across London
- ✓ 4,749 public on-street charging points available to customers in the UK Power Networks area, more than 74% of the total chargers in the UK today
- ✓ Improved the climate emergency plans of local authorities by sharing with them bespoke EV forecasts
- ✓ Over £100,000 in feasibility costs saved by local authorities from our EV surgeries that identified over 400 lower cost charge point locations
- ✓ There are now over 42,000 children benefiting from cleaner air as a result of 285 electrified buses in our network

£4.54 social value created for local authorities in excess of every £1 we spent (SR01)

"We really felt a collaborative approach will be taken so we couldn't be more grateful"

Tim Middleton, Kent County Council

(3) Improving service for domestic customers wanting an electric car

Stakeholders said:

Our engagement with Charge Point Installers (CPIs) and feedback from our market research revealed that the public don't understand why the process to install a domestic EV charger is longer and more complicated than they expect. Given the majority of vehicles (up to 40%) will be charged at home, it is essential we make this process simple and avoid it being a barrier to uptake.



ev.energy, our project Shift partner, demonstrating their intelligent smart charging platform

What we did:

We recognised that customers may have to coordinate several companies, requiring multiple visits across a number of weeks for their home EV charger installation.

Our analysis of customer feedback highlighted CPIs are best-placed to give advice about charging at home and should be the main customer contact point. We identified the need to build strong partnerships with CPIs to make it as simple as possible for them to help their customers. Therefore we **instigated a team of EV experts** whose primary role is to liaise with CPIs and input from this helped redesign our EV website, making it easier to find necessary information. Additionally, **we dramatically cut time to process applications for domestic EV chargers to just two days - the industry norm is 8 days**; and went further by supplying a free 80-100A fuse upgrade to domestic customers requiring greater capacity for their EV.

Although we simplified and accelerated the process, feedback from installers was that many of the 1,100 home visits we made last year were unnecessary as properties were already EV compliant. The wasted effort and time delay for customers to charge their

EVs was a cause for concern. We identified an innovative solution, using artificial intelligence and photo-recognition technology to allow charge point installers to self-check EV-readiness – bypassing the need to engage us altogether. Consequently, we are investigating this solution in partnership with charge point installers and AI technology providers.

Stakeholder Outcomes

- ✓ 91.5% average customer service score for EV service upgrades
- ✓ 75% faster EV charger installation process through dedicated EV expert support service
- ✓ Clear and accessible information, in one place, delivered through our class-leading EV website
- ✓ Reduced dependency on installation assessments by using an AI supported app developed with CPIs and technology providers
- ✓ Led the development of a consistent and simpler Vehicle to Grid application process for residential customers across GB

(4) Working with industry to offer EV charging at the lowest possible cost

Stakeholders said:

Stakeholders noted the £17-40 bn opportunity a smart flexible energy system could save by 2050 as estimated by Imperial College London. Consumer behaviour and willingness to participate is key in unlocking this value. Hence, they advised us to consider a market led approach to smart charging as opposed to DNO controlled charging.

What we did:

The EV transition is best delivered through collaboration and thus we partnered with customer-centric energy companies to test how EV drivers respond to market-led smart charging. Working with Octopus Energy, intelligent energy platform Kaluza, and EV charging platform provider ev.energy, we have offered over 900 EV owners a range of different

financial incentives to measure impact on consumer charging behaviour. Feedback was provided to Ofgem to inform their Access Significant Code Review, **influencing policy through behavioural analysis of consumers**, and this has also led to new business-as-usual supplier tariffs such as Octopus Go Faster, to support customers.

We have also **partnered with 20+ organisations including suppliers, technology providers and academics to develop a vast initiative on Vehicle to Grid (V2G)**. This technology allows customers to transfer stored electricity from their vehicle's battery back into the grid at peak times, lowering bills for customers, while supporting the network.

Stakeholder Outcomes

- ✓ Early results show about 50% of charging consumption shifted away from high cost peaks, demonstrating potential to avoid expensive reinforcement
- ✓ Accelerating deployment of three new smart charging products in the market that deliver savings to customers
- ✓ 72% of customers Distribution Use of System (DUoS) costs offset by incentives they received from participating in the UK's first smart charging marketplace.
- ✓ Created the V2G Hub with Innovate UK, showcasing 67 pioneering V2G projects across 17 countries for a total of 5300+ chargers

(5) Supporting EV Hubs

Over 3,000 petrol and diesel forecourts reliant on fossil fuels in our area will have an important role to play in providing high-powered EV charging infrastructure. These rapid charging hubs are an emerging market that requires as much electricity capacity as a city skyscraper, yet in a much smaller footprint.

Stakeholders said:

By engaging with top executives leading on forecourt EV charging roll-outs, we learnt they have the ambition to provide an 'always on' charging service but don't understand the infrastructure challenges. Our challenge is to meet their needs at the lowest cost.



Design of the first EV hub in UK Power Networks' area

What we did:

We built on the strategic approach we used with bus operators and **set up tailored surgeries with petrol forecourt operators** such as Shell, BP, Tesco and ESSO who account for 47% of the market. We needed to help them assess the most cost-effective solutions to transition their premises into electric vehicle hubs. **Partnering with the Association for Petroleum & Explosives Administration (APEA)**, we revised the standards for electrical infrastructure on petrol forecourts, reducing the space requirements for forecourts by 50% enabling even small sites the opportunity to install EV charging infrastructure.

We used what we learned with UPS on smart charging and applied it to petrol forecourts. Working with BP, we developed a new initiative combining Active Network Management (ANM) with behind-the-meter technology and battery storage to optimise chargers on a site.

"UKPN have been highly supportive and attentive in listening to the technical challenges that BP face in the roll-out of high-powered charging at fuel forecourts. They have been proactive in suggesting ways forward and very supportive in the general connection application process."
Matthew Hobbs, BP Advanced Mobility Unit

Stakeholder Outcomes

- ✓ Reduced time and cost for forecourt operators by proactively assessing over 350 sites
- ✓ Dedicated support for 47% of forecourt operators in the UK through tailored engagement
- ✓ 1st ANM solution applied to an EV hub that could save up to 80% of the cost of the electrical connection

Enabling net zero: Developing the first DNO Heat Strategy with stakeholders

Stakeholders said:

Two thirds of our stakeholders are considering low carbon heating in their next development and DNOs should understand the impact on networks to support different heating pathways through collaborative discussions and education initiatives.

“Decarbonising heat is essential if we are to reach net zero carbon emissions... the scale of the challenge means that no single organisation or sector has all the answers, which is why the consultation on the document is so important.”

Dr Joanne Wade OBE, Deputy Director of the ADE



Panel debate during our Net Zero Forum

What we did:

We co-developed the first DNO Heat Strategy to determine clear actions to support heat decarbonisation. Given the various skills needed to address this challenge, e.g. knowledge on housing development, energy efficiency, gas, etc., we worked with the GLA, the Association for Decentralised Energy (ADE) and the Carbon Trust.

We produced detailed regional forecasts, sharing the network impact that decarbonised heating initiatives could have.

Our heat strategy seeks feedback throughout. We launched this consultation at our Net Zero Forum in March 2020, where 80% of our stakeholders supported networks taking a proactive role in getting low carbon technologies into new housing developments and 95% of them agreed we should coordinate energy efficiency measures with electrification of heat. Our strategy aims to deliver three core objectives:

1. Inform heat decarbonisation policy through provision of data and evidence
2. Deliver a great service experience to customers wishing to connect low carbon heating solutions
3. Undertake least regret actions to ensure network readiness

As a result, we now have a clear steer on areas where we need to focus, starting with providing advice and guidance to local authorities, community groups and customers.

Stakeholder Outcomes

- ✓ We launched a number of trials (Firefly, Cold Start, Core4Grid, and Home Response) to inform heat policy through evidence, looking at energy efficiency benefits and focusing on shifting demand away from peak times.
- ✓ Clear action plan and partners to work with on defining network solutions for decarbonising heat as a result of being the first DNO to launch a Heat Strategy

Our New Heat Electrification Strategy

Live now on our website



First DNO heat readiness strategy and consultation

Minimising our own environmental impact

Stakeholders said:

Our Green Action Plan identifies every area where our work impacts on the environment, sets targets and continually seeks to improve how we deal with them. Our stakeholders agree that it's important we set clear targets covering carbon, energy, waste, water, noise, pollution and biodiversity.

What we did:

■ Biodiversity

The State of Nature report found that 15% of the UK's native species are under extinction threat and 53% are in decline. We have many substations with large, fenced-off pockets of land – relatively untouched for many years – providing valuable, scarce habitats. Following a sustainability workshop with the wildlife trusts in our region, e.g., Natural England and the Bumblebee Conservation Trust, **we identified 100 substations with the greatest biodiversity potential**. We are on a journey to increase the biodiversity potential of each site by up to 30% by installing bat bricks, creating bug homes, and planting wild flowers and hedgerows to turn them into thriving habitats for bumblebees and other wildlife. We also produced a video for all staff to ensure they know what to look for when working in the field to take the appropriate, wildlife-friendly, actions.

■ Generators

We are taking a dual approach to reduce the impact of our diesel generators. First, we are trialling the modification or replacement of our generators to incorporate glycerine fuels after learning about the technology used in Formula E to charge their race cars. Glycerine, a by-product of biodiesel, is carbon neutral and massively reduces pollutants released into the atmosphere compared to diesel. Secondly, to offset the

emissions from diesel generation we asked **Trees for Cities to plant 2,669 trees on our behalf**.

■ Water Savings

We are on track to save one million litres of water each year as a result of our GAP water reduction plans, installing push taps and cistern hippos across our offices.

“Like our stakeholders, we take our environmental and sustainability responsibilities very seriously and want to ensure we are adopting absolute best practice in our future planning and target setting. We are working with acknowledged experts in the field, to take a scientific approach to our carbon target setting, to develop a date to achieve net zero as a company, and to help us develop a robust roadmap as to how we get there.”



Mark Adolphus, Director of Health, Safety, Sustainability and Connections

Stakeholder Outcomes

- ✓ Delivering on our Green Action Plan commitments, including a 20% carbon reduction; 10% buildings energy reduction; 15% water usage reduction; diverting 90% of waste from landfill and 30% reduction in air pollution from vehicles and generators
- ✓ Contributing to the survival of UK native species by providing habitats in fenced off substations
- ✓ 2,669 trees planted on our behalf by Trees for Cities, offsetting 127 tonnes of nitrous oxide, the main component of air pollution in cities and cultivating lasting change in neighbourhoods by creating healthier environments
- ✓ First UK DNO to achieve Carbon Trust Carbon Standard



Green Action Plan workshop with the Wildlife Trusts, English Nature amongst others

Meeting our customers' evolving needs

To ensure we are at the forefront and keeping pace with our customers' evolving needs, we continuously scan the horizon to anticipate developments and innovate to offer new and improved services based upon customer feedback.

✓ **90.7%**
EV customer satisfaction

✓ **95.9%**
Distributed Generation customer satisfaction

✓ **Five-star**
Trustpilot Rating "Excellent"
★★★★★

✓ **Only DNO**
in the UK Customer Satisfaction Index

Producing Distribution Future Energy Scenarios (DFES) for local communities

Stakeholders said:

To date, 71% of the local authorities we serve have declared climate emergencies. A number of these stakeholders do not have the capability to undertake analysis to understand how carbon targets will influence their strategies, for example the EV uptake in their regions.

What we did:

- We developed DFES, enabling us to explore a range of technology pathways to achieve net zero. The challenge was to provide the results in a way that enabled regional stakeholders to understand the impacts in their specific geographical area. Learning from previous EV forecasting projects such as Recharge the

Future, we aimed for granularity. To better align with local authority boundaries, we **developed an approach that separated our data to areas that cover, on average, 1,200 households – the lowest level of scenario disaggregation provided by a DNO.**

- We held five regional stakeholder workshops with the GLA, New Anglia Local Enterprise Partnership (LEP), Coast to Capital LEP (West Sussex CC in attendance), South East Midlands LEP, Cambridgeshire and Peterborough Combined Authority and the Greater South East Energy Hub to test the assumptions and the proposed geographic approach, resulting in unanimous support. We made this replicable

and innovative approach of forecasting publicly available through our open data portal, with several regional authorities utilising the data to help develop their own climate plans.

Stakeholder Outcomes

- ✓ 11,000 bespoke regional forecasts published on our data portal as part of our DFES
- ✓ 116 local authorities given access to local forecasts
- ✓ Embedded Lower Super Output Area level of granularity into our DFES, to make it easier to use for our local authorities

Open Data – Underpinning the future Smart energy system

Stakeholders said:

70% of the companies consulted through our data strategy advised we should focus on making our data more accessible to unlock opportunities to keep costs down for our customers.

"The challenge of net zero will only be delivered through collaboration. Sharing and opening up data is crucial to our common mission. No-one can do this alone, so it is great to see UKPN launching their Open Data platform, and look forward to more data available into the future!"

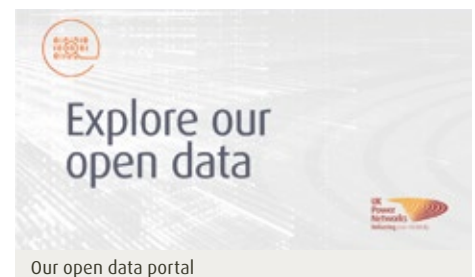
Laura Sandys CBE, Chair of the Energy Data Taskforce

What we did:

- Taking on board Energy Data Task Force recommendations, we **launched an industry first Open Data crowdsourcing portal**, giving unprecedented access to our data sources and asking users to help redefine our data-sharing culture. We have learned from the Open Innovation space, enabling users to request the data and format they want.
- We engaged with leading data companies such as Amazon, Octopus Energy and the UK Space Agency and co-created our Digitisation Strategy whilst consulting publicly on our position.
- Developed an open data competition, launching in May 2020, inviting industry stakeholders to combine open source data with ours to identify future Electric Vehicle charging facilities, helping prepare for net zero.

Stakeholder Outcomes

- ✓ 24% website traffic increase (largest in 3 years) as a result of key data published
- ✓ 1,578 reviews of our data portal within three weeks of launch



Utility Survey Exchange (USx) – Crowd sourcing better network data

Stakeholders said:

Stakeholders at our safety-focused Critical Friends Panel advised us to work on improving our asset records and the data accuracy supplied in our dig packs.

What we did:

- Drawing on learnings from the government's Geospatial Commission, we launched a first-of-a-kind initiative with TfL, Cadent, SGN and Thames Water called USx. The project connects disparate surveyors' data to coordinate and collect a more accurate and holistic view of all underground assets within London.

- Similarly, we are working with the GLA to **create a digital twin map of pipes and cables** which run underneath London to enable coordination and reduce the disruption caused when they are mistakenly struck. Staff can now access this on their phones or tablets before commencing a dig.

£1.53 social value created in excess of every £1 spent this year (\$ROI)

Stakeholder Outcomes

- ✓ £13,000/year third party savings through coordinated street works and reduced service disruptions
- ✓ £100,000/year third party savings from increased accuracy of dig packs
- ✓ Reduced risk of utility strikes, reducing the total cost of accidental strikes – currently costing £1.2bn/year

Using AI and machine learning to deliver a more efficient service to customers

Stakeholders said:

Our customer service focused Critical Friends Panel reinforced feedback from our digital strategy on how we should learn from the use of Artificial Intelligence (AI) benefiting customers in other sectors.

What we did:

- We constantly seek to bring innovative thinking from outside the sector. Our newly formed analytics team took machine learning experience gleaned from technology disruptors, like Netflix and Amazon, to develop an

advanced machine learning tool for customer connections. Taking three years of customer feedback combined with our own internal performance data we **created a predictive algorithm to proactively flag up potential dissatisfaction in each unique customer's journey**. We demonstrated that the algorithm could achieve a 91% accuracy level and it continues to learn and improve as more data is added to it.

This tool was provided to our customer service teams and displays daily prioritised recommendations to support early interventions and anticipate problems before they arise. This not only improved productivity of our customer facing teams but, moreover, shapes the

conversation our staff have with our customers, providing each customer with a more tailored and empathetic service.

Stakeholder Outcomes

- ✓ 2,500 additional hours freed up to spend on customer work in just 6 months of deploying the tool
- ✓ Last year 48% of customers scored us less than 10/10. We can now predict who those customers are likely to be and take early action to maximise the chances of giving all our customers a 10/10 service
- ✓ Achieved 90% satisfaction score for connections – our highest ever!

Tailoring engagement – WhatsApp (Verified status), two-way text messages and 'what3words'

Stakeholders said:

Stakeholders want a greater choice when communicating with us, and an easier experience when doing so. From our willingness to pay research we understand that more valuable digital communication channels is a particular area of importance across all DNOs.

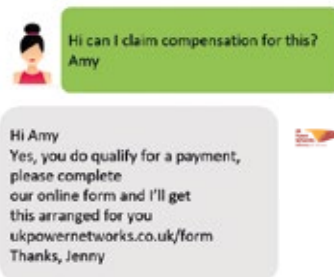
What we did:

- In March 2019 we had 27 communication channels, however, to keep evolving we **took learning from TfL and DPD who are driving forward innovative communication tools**, and launched three new channels – what3words, WhatsApp and two-way texting.

- As the first utility to use what3words, we can accurately determine the location of any safety incident our customers report, such as an electricity pole that has fallen in a field. Using this app, our customers can provide operational staff with three words that have been automatically assigned to their geo-location. These words can then be used by our teams to identify the exact location, helping them respond faster and more efficiently. In extreme events this app is used by the UN to determine locations for emergency aid and similarly, we used this added function during the storms Ciara and Dennis with great success.

"Dear Joseph,
I felt compelled to write and tell you just how incredibly amazing your team of people were...that initial information gathering and location of which pole the cable had become detached from, was made all together easier as I had the what3words app and UKPN uses this."
UKPN customer

Before launching, we tested these initiatives with our customer panels to assess their value. Customers liked that we were extending our channels to suit their diverse circumstances; for example, WhatsApp is particularly useful for someone only able to communicate through Wi-Fi: *'I have 3-year-old twins so it's much easier for me to WhatsApp than dedicate time for a phone call'*.



Stakeholder Outcomes

- ✓ 11% increase in ways customers communicate with us
- ✓ 1,300 customer communication exchanges on WhatsApp
- ✓ We are able to isolate power supplies remotely for safety reasons in 40 seconds as opposed to several minutes by using what3words, as a result of better location information
- ✓ 66% improvement in time to locate a customer incident in a hard to reach location using what3words
- ✓ 91.3% customer satisfaction across our new range of tailored communication tools

£2.40 social value created in excess of every £1 spent over 5 years (SROI)

Unlocking customer value – Smart Meter support service

Stakeholders said:

Smart meters and half-hourly settlement are a key enabler to unlocking the value of the energy transition, allowing customers to monitor and manage their energy consumption more efficiently.

Network operators can play a pivotal role in helping energy retailers meet their smart meter roll-out target (now 85% of homes by 2024). Engaging with energy suppliers to understand how we could better support resulted in three clear requests: 1) set clear service level agreements; 2) reduce volume of customer handoffs; 3) foster consistency across network operators.

What we did:

- We created bespoke supplier and customer satisfaction frameworks specifically for smart meter interventions so that we can measure and monitor our service.
- To enable remote clarification of specifications prior to engineer attendance, we are developing a user-friendly weblink shortcut allowing customers to upload meter box photographs in order to reduce handoffs and visits.
- To foster smart metering consistency across networks, we have offered our Smart Meter Manager to chair the ENA Service Termination Issues Group, consisting of representatives from all DNOs.

Stakeholder Outcomes

- ✓ Improved customer satisfaction score of 94% for customers having a smart meter as a result of reduced hand-offs
- ✓ Improved electricity supplier business to business satisfaction score to 84%, up from 74% the previous regulatory year

"UKPN, the only DNO actively communicating and seeking co-operation, delivers very good service"
Utility Warehouse

Ensuring no one is left behind

As we move towards an increasingly complex energy landscape we must constantly test and re-test our services to ensure no-one is excluded. We strive to go beyond our regulatory role, ultimately aiming to be recognised as a force for good for our highly diverse communities.

✓ **8,514**

sites on our Extra Care Register

✓ **Over 10,000**

small businesses reached to understand their future electricity requirements

✓ **Highest ranked network**

in Inclusive Top 50 UK employers

Ensuring no one is left behind in the changing world of energy

This year we conducted a mapping exercise with the National Energy Action (NEA) to understand which customers are most at risk as a result of changing energy systems and why they could be left behind. We identified eight areas: finance, education, language and culture, health and disability, technology, geography, capabilities and skills, housing tenure. This section highlights some of the initiatives around energy efficiency and supporting microbusinesses. See Part 3 to learn about our other initiatives to ensure no one is left behind.

Making SMEs and microbusinesses a priority

Stakeholders said:

■ Historically, our engagement with businesses had been through a direct one-to-one relationship. This year we worked with stakeholders at our SME Critical Friends Panel to develop a broader understanding of the priorities of SMEs and microbusinesses.

■ We also tested what domestic customers thought of us developing initiatives to support this segment. Through willingness to pay research, it was clear that customers did not place strong value on us helping such organisations become more resilient.

What we did:

■ There are 1.9 million micro and small businesses in our network area and indications from our Social Return on Investment (SROI) tools suggested a negative benefit from initiatives to support this sector. However, we learnt a trade-off could be

struck – if we target support across a longer period, it was possible to return a positive SROI.

■ **Partnering with the Federation of Small Businesses (FSB), we co-developed a quantitative survey with over 10,000 members** from their London Regional Group as a first phase. We supplemented this with deliberative focus groups to understand any nuances in the feedback. This dual approach enabled us to develop a rich understanding of the key baseline priorities for this hard to reach key customer group, with particular insight gleaned from connection customers and care organisations.

■ **Connections SMEs** told us they want to engage and take advantage of the energy transition, but generally suffer from a lack of time and expertise. They would benefit from simple and easily available information about our processes. We are now engaging with SMEs

and microbusinesses to co-develop tailored information, including our first-in-class LV flexibility contract tenders and electric vehicle support guides.

■ SMEs in the care sector such as private care homes and nurseries told us they were concerned about safeguarding their services to residents and children during power outages. In response, **we introduced our Extra Care Register**, like a Priority Services Register, but designed for small business. With carefully targeted promotion in our areas, we've registered 8,514 care organisations this year alone and provided tailored resilience advice about power cuts.

Helping community facilities become more energy efficient

Stakeholders said:

In July 2019, the UK's energy networks backed calls from the BEIS Select Committee to make energy efficiency a national infrastructure priority, matched with stronger action. We know village halls and

charity premises are the heart of many communities. They are where many communities gather, meet or pop in, and those visits can be crucial to their residents' welfare, particularly in rural and isolated locations.

What we did:

■ We delivered a programme of nine replicable energy efficiency initiatives across our community buildings, five examples of which we share below.



Holy Trinity Church, Lambeth

A 'safe space' used by the community, installed energy efficient lighting, **saving up to 80% on energy use**. Savings to be spent towards ongoing work with elderly, young offenders and debt advice



Tenterden Social Hub, Tenterden

Victorian community centre providing a lifeline for people in vulnerable circumstances; installing new LED lighting, loft insulation and double glazing to make the building warm. **Saving £4,296**



Smarden (community store), Kent

Community store to benefit from installing **solar panels, extra insulation** and the community's **first publicly available EV charging point**



Citizens Advice North East Suffolk (for a Lowestoft charity)

Transforming a poorly heated, uninsulated Victorian building for visitors to access welfare advice services, including families, the disabled and those with long-term health conditions. **Saving over £13,000 over five years**



Weeley Village Hall, Clacton

Upgrade the community building's lighting to energy efficient LED – **reducing energy bills for the communities** that use it for multiple activities including health benefits such as keep fit and Tai Chi

"Since the project has been completed, we have been able to access more of our building knowing that all members can use spaces that were previously cold, draughty, dark and underused. The community room can now naturally link to our sunroom with the knowledge that we have warmer and brighter spaces for those suffering from Dementia and our Dementia group has risen from 25 to 40 members per week"

Spencer Goddard, CEO, Tenterden Social Hub

Several communities, living in the areas we cover, now benefit from greater community engagement and cohesion influenced by our energy efficiency support such as installing loft insulation and double glazing.



www.ukpowernetworks.co.uk