



Electric Vehicle Strategy

March 2020



Scottish & Southern
Electricity Networks



Foreword

Driving the change

As a Distribution Network Operator (DNO), Scottish and Southern Electricity Networks' (SSEN's) role in decarbonising transport is fundamental. Our actions will allow the transition to proceed at the pace that the UK's net zero commitment demands. We don't have all the answers, but this strategy sets out the principles that will guide our journey and some of the knowledge that will allow us to build a roadmap to get there.

Our network, from the highlands and islands of northern Scotland to the busy streets of west London, serves customers with a wide range of needs, all of which we must get right. We will put our customers at the heart of this strategy, whether they are domestic, commercial or local authority bodies. We want to take prompt action to ensure that their experience is smooth and that carefully planned infrastructure is in place when, and where they need it. We are working to break the chicken and egg problem with electric vehicles (EVs), where drivers fear the lack of charge points and charger installers fear the lack of demand.

Our EV Strategy builds on its sister documents, the [Digital Strategy](#), which sets out our vision for digital excellence in the future energy ecosystem, and the [Delivering DSO report](#), which navigates a smarter, flexible and secure energy system that will be fundamental to delivering the UK's climate change objectives.

These three strategies will help us coordinate work in a fast changing energy sector, drawing on our innovation projects to deliver the best outcome for customers.

We have engaged closely with stakeholders to develop our thinking so far and we know that cross-industry collaboration is essential. We have already built and shared the learnings from a range of innovation projects during the current price control period. With publication of this strategy, we are embarking on the next stage of engagement with customers and stakeholders and I invite everyone with an interest in this transition to get in touch. There are ten questions at the end of this document that can help you to shape our approach to electrifying transport. I look forward to working with you.

With the right measures in place the UK could have the most extensive EV charging network in the world by 2025.

Andrew Roper

Distribution System Operations Director
SSEN Distribution



SSEN Today

Across our two licenced electricity distribution network areas, **Scottish Hydro Electric Power Distribution (SHEPD)** and **Southern Electric Power Distribution (SEPD)**, we operate and invest in an essential part of the UK's electricity system, delivering power to over 3.8m homes and businesses.

- Our **core purpose** is to deliver electricity that **powers communities in a safe and reliable way**. This is achieved through responsible stewardship of our networks, helping to keep the lights on and investing efficiently in new and existing network infrastructure for the benefit of our customers.
- Our **vision** is to **play a leading role in enabling the transition to a low carbon world that delivers for all customers**. Our foundation as a progressive, innovative and customer-focused organisation will help us be at the forefront of this transition, helping to support delivery of the UK's net zero emission targets.

Delivering for customers and communities

At SSEN, we play an active and positive role in the communities in which we serve and seek to provide a service to our customers that recognises their changing needs and preferences. We are proud of:

- Recognition by the UK Customer Satisfaction Index business benchmarking survey as the leading energy networks organisation for customer service in 2018/19.
- Providing a leading social media and online customer service offering, providing contact through our website, Facebook, WhatsApp, Twitter, and the PowerTrack app.
- The creation of a Resilient Communities Fund, which has delivered over £2.4m in grants to local not-for-profit community projects since 2015.

Key facts

- **Over 727,000** households are registered for free extra help via our Priority Services Register
- **15,000** PowerTrack app downloads
- **34m** reach across social media
- **1.2m** engagements with customers through digital channels
- **94%** online customer satisfaction score

SHEPD

780,000 customers' homes and businesses served

50,000 km of overhead lines and underground/subsea cables

SEPD

3,100,000 customers' homes and businesses served

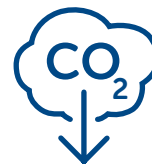
78,000 km of overhead lines and underground/subsea cables



A leading role in a leading group

SSEN is part of Scottish and Southern Energy plc (SSE), a UK-listed company that operates across the energy sector and whose activities and investments contribute around £9bn to the UK economy every year. We are Fair Tax Mark and Living Wage accredited, showing our commitment to pay the right level of tax at the right time and to ensure fair pay through our supply chain.

SSE has set out four Sustainability Goals to achieve by 2030, which SSEN will play a significant part in delivering.



Cut our carbon intensity by 50%

Reduce carbon intensity of electricity generated by 50% by 2030, compared to 2018 levels, to around 150gCO₂/kWh



Help accommodate 10m electric vehicles

Build electricity network flexibility and infrastructure that helps accommodate 10m electric vehicles in GB by 2030.



Treble renewable energy output

Develop and build by 2030 more renewable energy to contribute renewable output of 30TWh a year



Champion Fair Tax and a real wage

Be the leading company in the UK and Ireland championing Fair Tax and a real Living Wage

Our role

To provide a **safe, secure and reliable supply** of electricity to nearly 3.8 million customers who connect to our networks, we need to have the systems, processes and people in place to manage the changes which will come with this transition.

To deliver a network that meets **Government ambitions** and **aspirations of our customers**, in a **smart, cost-effective** and **timely** manner.

To deliver the whole system transition **cost-effectively** and **equitably** whilst **maintaining a positive experience** for all our customers.

To be prepared to **meet even the fastest level of uptake**. This is a major challenge we face - but our stakeholders expect us to meet this head on, and so we are investing in making sure we can do this.

To build on our strong track record of being informed by stakeholders' feedback by continuing to innovate and improve, **listening to and acting on your views** to ensure our strategy meets your expectations.

Context

EV uptake is growing across the country, with the number of ultra low emission vehicles increasing year on year.

UK target:
2035 ban sales of new petrol, diesel and hybrid vehicles

Scotland target: 2032 phase out sales of new petrol, diesel and hybrid vehicles

Driving this change and shaping the expected future of transport and mobility are a range of policies, targets and forecasts from both government and industry.

Over
230,000
EVs in UK¹

Over
40,000
EVs in SSEN areas²

12m
EVs by 2030 in UK³

3.4m
EVs by 2030 in SSEN areas⁴

Optimising investment & flexibility

Up to £30bn⁵ distribution network reinforcement by 2030

We must make the best use of our electricity networks, data and emerging technology to deliver a smarter, flexible and secure energy system which can facilitate EV uptake at maximum pace and minimal cost to customers.

RIIO ED2
2023-2028

EV Energy Taskforce

DNO to DSO transition

Net zero emissions by 2050 and 2045 in Scotland

Notes:

1 & 2 By end of 2019 (www.gov.uk/government/collections/vehicles-statistics)

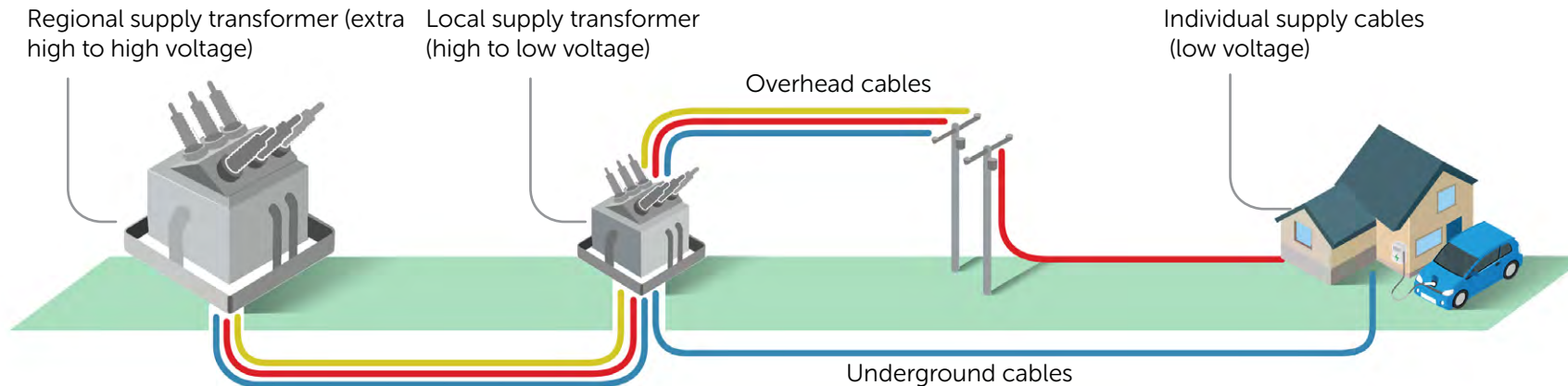
3 Community Renewables scenario, National Grid Future Energy Scenarios (FES) 2019

4 [Regen Regional Future Energy Scenarios studies](#)

5 [NIC Smart Power report](#)

Impacts and solutions

Demand from EV charging could place a strain on network assets. Here we look at some options we can use now and some smarter options we are developing



Regional supply transformer

Traditional:

Replace transformer

Smart:

- Constraint Managed Zones
- Active Network Management

Local supply transformer

Traditional:

Replace transformer

Smart:

- Constraint Managed Zones
- Active Network Management
- Market-sourced flexibility (smart charging)

Underground cables

Traditional:

Dig up and replace cable

Smart:

- Market-sourced flexibility (smart charging)
- Dynamic phase balancing
- Enhanced visibility (monitoring)

Individual supply cables

Traditional:

Dig up and upgrade customer supply cable

Smart:

- Market-sourced flexibility (e.g. smart charging)

Did you know?

Charging an EV with a 7kW charge point can at times double the peak energy use of a home?

Normal peak use



Peak use with EV



Our vision of the future

Networks are an **enabler** of the transition to electric vehicles.

Customers and businesses have the confidence to switch to an EV thanks to readily-available information and open data – it will be simple, efficient and fast.

The customer experience is consistent across the country as a result of our collaboration with other parties.

Through a combination of targeted investment, smart solutions and information, customers have belief in the readiness of the networks to accommodate 10m EVs in Great Britain by 2030.

Our stakeholders' future experience



Domestic customer experience

In an EV-ready future, our domestic customers will enjoy the following:

EV ready check

Advance knowledge prior to getting an EV, of current and potential charging speed that they can obtain at their home, thanks to quick and easy checks either online or via a third party.

Digital automation

Comfort of knowing that they can connect a charge point with minimal effort, thanks to a digitalised and automated process.

Flexibility services

The ability to offer their services as a flexibility provider to their supplier, National Grid or SSEN, and to be rewarded by responding to market signals issued at a national, regional or local level.

Protection measures

Peace of mind, knowing transport vulnerability is a key focus for SSEN. Customers have messaging ahead of storms and SSEN facilitates temporary mobile charging hubs where needed, to ensure drivers can still charge in the event of a power cut.

Range comfort

Enough data provided to third parties ensures networks help reduce range anxiety, as real time data shows the availability of charge points across the country.



Our stakeholders' future experience



Commercial customer experience

In an EV-ready future, our commercial customers will enjoy the following:

Self-service

Use of an SSEN self-service connection budget estimate tool to understand where they can install new charge points and the associated costs. Customers will be able to test as many combinations as they wish before submitting an application.

Flexibility services

Ability to offer and be rewarded for their fleet's flexibility services, trading with their supplier, National Grid or SSEN, responding to market signals issued at a national, regional or local level.

Fleet planning

Planning their fleet's transition to EV is made easier by using the fleet electrification toolkit SSEN provides, with expert advice from Connections staff to support its use.



Our stakeholders' future experience



Local Authority experience

In an EV-ready future, Local Authorities in our areas will enjoy the following:

Self service tools

Self-service connection tools allow budget estimates to be easily and quickly produced, helping rapidly progress internal business plans as well as supporting third parties creating proposals to meet Local Authority tenders.

Whole system planning

Ability to understand the impact any proposed strategies will have from a whole system perspective before implementing them, thanks to the whole system modelling tool SSEN offers.

Infrastructure planning

Collaboration with SSEN to agree a public charging infrastructure plan with confidence that the infrastructure necessary to service the agreed plan will be put in place by the agreed deadline. This could form part of a Local Area Energy Plan (LAEP), including heat zoning to assist low carbon heat uptake.



Our stakeholders' future experience



Charge point operator/infrastructure provider experience

In an EV-ready future, charge point operator/infrastructure providers will enjoy the following:

Self service

Use of the SSEN heat maps which highlight the location and available capacity of any substation adjacent to parking spaces as well as the SSEN self-service connection budget estimate tool to create proposals and business cases that stimulate the creation of public charge points.

Digital automation

Knowledge that they can connect charge points with minimal effort thanks to the process being digitalised and automated.

Business case data

Use of SSEN's substation monitoring data in near real time to know when to provide smart charging services that keep the network stable.

Supported customer service

Ability to provide their domestic customers with a seamless installation experience thanks to the provision of data on cut-outs and looped services, with proactive surveys carried out by SSEN in advance of any installation/deliveries.



Our strategic approach

How we will facilitate EV uptake and make sure SSEN remains 'EV Ready'.

We have identified five principles which will be key to successfully supporting the move to electrified transport



1

Using data and analytics to anticipate issues, support decision making and make sure our networks are ready for EV uptake



2

Having a suite of tools available to support widespread EV uptake



3

Using Local Development Plans inform and establish strategic investment programmes



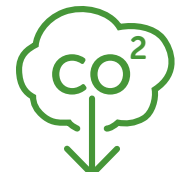
4

Using innovation, digitalisation, new skill sets and operational capabilities to meet the forecast growth



5

Supporting stakeholder and customer ambitions to decarbonise



What about us?

We are determined to lead by example, which is why we (as part of SSE Group) joined The Climate Group's EV100 initiative.



SSE Group currently operates the seventh largest fleet in the UK, and the largest in Scotland, and our commitment as part of the EV100 initiative is to switch 3,500 of our businesses' vehicles to electric, as well as installing additional charging points for staff to use in SSE locations such as our offices and depots.

We have already installed EV charging points in many of our sites from Aberdeen to Portsmouth, and work to address demand in our Reading office will mean that once complete it will have more charging points than in the centre of Reading itself.

Our rollout of operational vehicles has started with six Nissan e-NV200 vans, and by the start of 2020, 132 staff had a fully electric or hybrid EV, with a new all electric minibus soon to be deployed at our Perth HQ to provide an additional sustainable mode of transport for colleagues and visitors to the site.



7th
largest
fleet in UK

3,500
EVs by
2030

Actions to accomplish each principle

These are essential to delivering the strategy and giving stakeholders the experience they expect both now and in future. Some have already been progressed with work we have undertaken, while others are areas of focus moving forwards

1 Principle #1: Using data and analytics to anticipate issues and make sure our networks can cope



Build full connectivity model

It will be essential to know which property is connected to which phase of which cable across our network, so that we can accurately support the use of flexibility markets, peer to peer trading of energy, heat maps and predictive fault analytics.

We have begun building a full digital connectivity model of our entire network in GE's Electric Office, allowing teams from across the business as well as stakeholders to view the network topology and trace where a section of network is supplied from, helping to inform connection requests and queries.

[Digital Strategy link](#)

Collation, automation and visualisation

Pooling key datasets into a central location to allow other systems access, coupled with automation, will support EV connection and design requests. Visualisation of data is a focus area as heat maps showing areas with capacity on our network have been a common request from stakeholders.

[Digital Strategy link](#)

Detailed forecasting

Forecasting uptake of EVs and heat pumps is key to anticipating where and when networks will need investment to support further uptake. Energy experts, Regen, are carrying out detailed EV and heat pump forecasts to allow us to predict uptake down to the low voltage (LV) networks that typically supply residential neighbourhoods. In addition, our Regional Energy System Optimisation Planning

(RESOP) project will model the impact of local strategies on the energy system to ensure communities' ambitions can be accommodated and economic growth delivered in a sustainable manner.

[DSO Strategy link](#)

Roll out substation monitoring

We have pioneered the use of low cost substation monitoring equipment, and are deploying it to networks which have high levels of EV uptake.

Moving forward, we will focus on bringing the data into our Control Rooms to support responses to outages and use of Operational Technology such as automation.

[DSO Strategy link](#)

Over **3,000** low voltage cables to be monitored by 2021

97% of stakeholders want EV heat maps

Case study: low cost LV substation monitoring

Visibility of power consumption, generation and asset health is crucial to supporting the growing numbers of EVs, heat pumps and small-scale generation that customers are installing on our low voltage (LV) networks.

Determined to make substation monitoring scalable, we asked the market to produce a low-cost, high-quality product. After two years of testing we proved that the physical products, data visualisation and analytics from Eneida and Lucy Electric GridKey met our requirements.

Procuring over 350 monitors, we started rolling them out to networks where high levels of electricity demand and EV uptake have been detected to help us manage those networks before any issues materialise.

So far they have helped us to support customer connection queries, network upgrades and maintenance activities, and with the data being made available to every team in SSEN they will support many other activities moving forward.

ENEIDA.IO



Cost reduction of over **65%**

Key data and insights provided by LV monitoring



Phase current

Capacity

Power quality

Fault alerts

Imbalance

Power factor

Actions to accomplish each principle

1 Principle #1: Using data and analytics to anticipate issues and make sure our networks can cope

Data sharing

One of the challenges we face is not being notified of installations of EV charge points. Recognising the value of this visibility, we worked with the ENA and other DNOs to establish data sharing agreements with bodies such as the Office for Low Emission Vehicles (OLEV) and the Department for Transport (DfT). For us to be able to use data and analytics effectively we need to maintain these agreements as well as establish new ones with parties across industries.

We will also make our data available and transparent as outlined in our Digital Strategy, especially substation monitoring data which can support Local Authorities, customers, suppliers, flexibility service providers, ICPs and IDNOs.

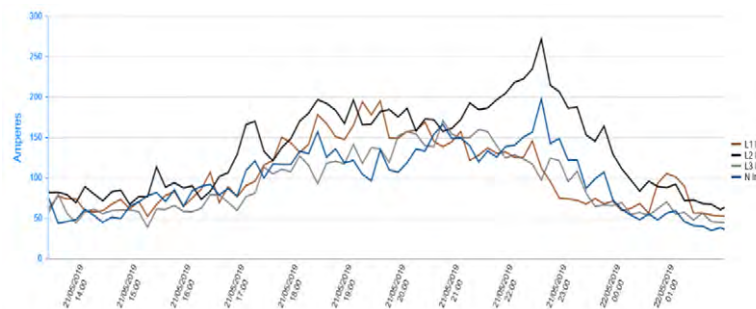
Digital Strategy link

Determine current and future constraints

We will use data analytics to determine both current and future network constraints on our networks, and use this to inform stakeholder connections as well as planning the optimum investment to resolve a constraint.

This will include using substation monitoring data to inform near real-time decisions on network operation, such as fault prediction and the need for flexibility to address load imbalance.

Digital Strategy link



Give decisions in real time

You said

Stakeholders have told us they want to see detailed capacity information for assets, and a key part of our future role will be facilitating a neutral market. To do this we need to have the capability to give go/no-go decisions in real time as we interface with market platforms. Our innovation project **TRANSITION** will develop a Neutral Market Facilitator platform and demonstrate how this would work in the DSO future.

DSO Strategy link

Power flow analysis

As more data is brought into systems, more intelligence about the flow of electricity through the networks is required, and so we will look to establish semi-automated power flow analysis capabilities on the low voltage network.

Digital Strategy link



Actions to accomplish each principle

2

Principle #2: Having a suite of tools available to support widespread EV uptake



Using markets to carry out smart charging

We have committed to “flexibility first” so we will be establishing the capability to request and use market-based flexibility to help manage and optimise network operation. Crucially, it has to be able to provide smart charging services at an individual street level.

We are currently supporting other DNOs with their projects investigating the best ways to use market flexibility to manage low voltage networks, and we will adopt the tools and learning from these once they are ready.

[Digital Strategy link](#)

E Tourism

Understanding how increased EV uptake and tourist patterns will impact seasonal peak demand is important. Our E Tourism innovation project will highlight tourist hotspots where there may be network vulnerabilities and then identify and trial suitable local flexible solutions to manage this risk and provide resilience to local communities.

[DSO Strategy link](#)

DSO market and fleet facilitators

We will utilise tools from innovation projects such as [Project LEO](#) for facilitating DSO markets necessary to use flexibility, and the [Optimise Prime](#) project for facilitating fleet electrification. In addition, we have our business as usual flexibility services, Constraint Managed Zones (CMZ), to provide network solutions in real time.

[DSO Strategy link](#)

Flexible connections

We have developed a suite of flexible solutions such as Active Network Management (ANM) to both alleviate constraints and help customers connect to our networks. These are being used extensively, and our focus is on wider rollouts and allowing companies and community groups to benefit from flexible connections.

[DSO Strategy link](#)

Over
200
flexible
connection
schemes will
be in place
by 2022

Over 1GW flexible connections
planned in 2020/21

We have reduced the cost of ANM
connections by more than 70%

Case study: Project LEO

Innovating for the DSO transition

Project LEO will accelerate the delivery of the energy system of the future in Oxfordshire, providing a testbed whereby SSEN and project partners will seek to answer some of the most difficult questions associated with [delivering DSO](#).

Project LEO is one of the most wide-ranging, innovative, and holistic smart grid trials ever conducted in the UK. It explores how the growth in small-scale renewables, EVs, battery storage and demand side response can be supported by a local, flexible, and responsive electricity grid, ensuring value for consumers, and opportunities for communities and market providers. By creating an innovative ecosystem that financially rewards participants to enable the deployment of clean generation across a constrained network in the most cost-effective manner, SSEN is testing today to better understand the electricity network of the future.

The £40 million project, supported by £13.8 million of funding from the UK Government's Industrial Strategy Fund, brings together significant local, academic and industry experience. It is a glimpse of the future and puts us at the forefront of the UK's preparations for a decentralised energy system capable of accommodating a dramatic increase in EVs.

The decarbonisation of heat and transport is a large part of the vision enabling Oxfordshire to realise its net zero ambitions, with EV partner Nuvve, a global green energy technology company providing vehicle-to-grid infrastructure (V2G) and aggregation platforms to participate in the trials.

In addition, local enterprise The Oxford Bus Company is using a solar panel and battery combination to optimise the charging of the electric bus fleet while also providing system services, and the councils are carrying out trials to enable the electrification of their fleet of transport.



LEO's findings will be shared collaboratively across industry, academia and with policy makers and regulators, helping to plot the route to an energy system that supports the UK's net zero ambitions.

Actions to accomplish each principle

3 Principle #3: Using Local Development Plans to establish strategic investment programmes



Investing strategically

You said

Having a clear plan agreed with Ofgem for strategic investment, focusing on acting before the customer experience is affected, is imperative to facilitate mass EV uptake. The majority of our stakeholders have so far indicated they would want us to invest ahead of a network experiencing an issue, with one survey showing 54% wanted investment 'far in advance of any issues' and 29% wanting it 'just in time to avoid an issue'.

DSO Strategy link

Strategic partnerships

We are part of the strategic EV Partnership with the Scottish Government, among others, which is driving forward coordinated investment in charging infrastructure and the wider network, and the benefits of this approach show it is a concept we should be replicating with other organisations across our areas to ensure timely and appropriate investment lays the foundation for EV adoption. There is an opportunity to apply this to Local Development Plans and wider energy planning.

Combining asset health with EV forecasts

Analytics and forecasts can determine when networks need investment. This creates a least-regrets investment plan, incorporating age and condition of assets into decision making. By identifying areas where a high certainty of near-term EV demand growth overlaps with assets due to be replaced because of their condition, we will be able to make sure investment is targeted appropriately to meet the expected EV growth.

Digital Strategy link

Proactive asset replacement

One of the challenges some customers face when installing a charge point is that their property has a shared service cable, or their cut-out (fuse) needs upgrading. To make it easier and quicker, we propose proactively replacing cut-outs and shared service cables to make properties EV-ready.



Case study: Scottish EV Partnership

One million EVs are expected in Scotland by 2030 which will require the development of critical infrastructure to accommodate the significant increase. That is why we are proud to be part of the £7.5m strategic EV partnership agreed between the Scottish Government, Transport Scotland, SSEN and Scottish Power Energy Networks (SPEN).

Launched by First Minister Nicola Sturgeon the partnership is an important example of how government and industry can work hand in hand to ensure coordinated investment in both EV charging infrastructure and electricity networks, to deliver a smooth transition to a low carbon transport system for Scotland in an inclusive, timely and affordable manner. This blueprint could also be applied across the UK.

Our initial role is supporting the first-of-its-kind [Electric A9 project](#), ensuring the main route north through Scotland is EV ready. We will also be piloting how we deal with the increased demand for EVs on the Scottish tourism trail through our E Tourism project, as the population of Scottish rural communities soar in the summer months.



Actions to accomplish each principle

4

Principle #4: Using innovation, digitalisation, new skill sets and operational capabilities to meet the forecast growth



Resourcing

We will establish appropriate resources to deal with impacts from increasing EV uptake expected on queries, quotations and site visits. Digitalisation will increase efficiency and capacity, while our teams, supply chain and contractors will be upskilled to support these changes in requests from customers and operational needs.

Open data will allow others to provide some of these services.

[DSO Strategy link](#)

Operational fleet capabilities

Electrifying our own fleet is pivotal, supported by strategically located charge points to support reaching remote areas in the event of widespread outages. We will look to mitigate risks for us dealing with outages, for example by having hybrid/hydrogen contingencies.

Improved IT/OT systems and use

We will look to create a local network function in our Control Rooms to manage demands, as well as a dedicated low voltage flexibility procurement/dispatch team to manage the growing need for requests for flexibility at this level. These will allow us to secure and utilise contracts for services such as smart charging and vehicle to grid (V2G) from customers either via third parties or directly.

[Digital Strategy link](#)

Contingencies

In storm or outage scenarios, it will be necessary to prioritise the needs of customers who become vulnerable when their ability to charge their EV is hampered. We will consider how we can protect these customers and their need to charge in the same way we protect other vulnerable customers.

We may also need to carry out pre-storm network reconfiguration, so we will be focusing on implementing more automation and smart network controls.



Actions to accomplish each principle

5 Principle #5: Supporting stakeholder and customer ambitions to decarbonise



Giving visibility of network capability

Instant property checks

Providing every customer with the ability to check the status of their property and its ability to support vehicle charging is a key action to support EV uptake, and stakeholders have told us that they would welcome the ability to easily check their status.

Collaboration with other DNOs to ensure consistency is essential, and this has been highlighted as a requirement by stakeholders.

You said

Highlighting capacity

Providing visibility of every location where capacity for charging exists based on local infrastructure is a top priority for stakeholders. We will look to provide heat maps which specifically highlight the location and available capacity of any network.

Digital Strategy link

You said

Automated connections

Automation of responses to notifications/ applications for EV charge point connections, helping to ensure faster and more efficient processes, and facilitating self-service connections.

Digital Strategy link

You said

Local Authority modelling tool

Providing Local Authorities with a whole system modelling service (our RESOP project) to help them and us understand the impact any strategies they are considering will have, from a whole system perspective. Stakeholders have asked us to focus on helping authorities with their policy and planning activities.

You said

Actions to accomplish each principle

5 Principle #5: Supporting stakeholder and customer ambitions to decarbonise



Communicating with customers and stakeholders

Pre-storm advice

Storms create a greater risk of network outages, and so it will be important to establish appropriate messaging for customers so we can alert them to an incoming storm, the potential impact to charging, and what steps they should take to minimise any impact to their ability to use their EV.

Highlight alternatives

It will be important to give customers peace of mind that in advance of, or during a storm or power outage, they will be able to easily identify alternative means of charging their EV. We will look at using digital technology to make it easy for customers to quickly find alternative charging points.

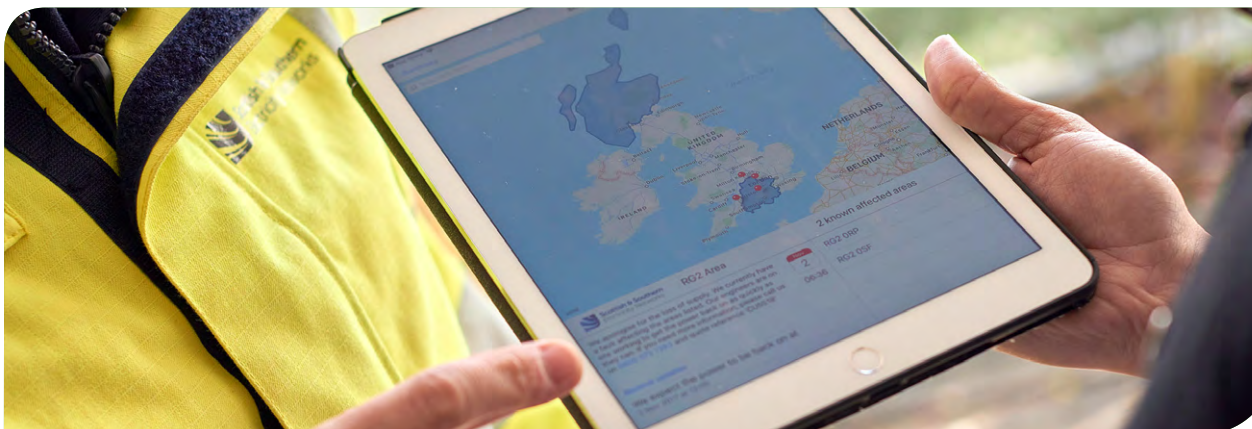
Open data

Providing open data to third parties will enable them to provide enhanced services to customers.

Policies and procedures

Keeping our policies and procedures updated to keep pace with changes to markets is essential, as stakeholder feedback regularly requests this. We will forge closer ties with other industries to support government ambitions, growing trends such as vehicle to grid (V2G) charging, and use of smart solutions on new developments to aid in lowering costs for connections.

We have just updated our low voltage planning standards to improve the diversity factors to support greater numbers of charge points on new developments.



You said

Case study: Customer experience today

A key part of the customer experience is connecting an EV charge point to our network, so we have worked hard to ensure it is more efficient with support available for all aspects.

Following customer feedback we created a dedicated EV section on our website, holding the key information customers expect to see. You can visit it here www.ssen.co.uk/Connections/EVconnections

We also have an EV guide which was created using stakeholder feedback and is a useful first step for a lot of customers starting their transition to EVs. The guide is available here www.ssen.co.uk/EVguide

We recommend customers speak with us as soon as possible so we can help firm up requirements before submitting an application. Not all customers know what they need to apply for, so as well as being able to get in touch via our Connections page (www.ssen.co.uk/Connections) we offer support and advice through a range of measures, including:

- Dedicated Account Managers
- Pre-application meetings (ability to informally discuss and refine your plans)
- Virtual meetings
- Local connection surgeries (giving customers one-to-one time with our network designers and experts who can discuss available options and help to find the right solution for them)

Details can be found at www.ssen.co.uk/stakeholderevent/basicsearch/



Actions to accomplish each principle

5 Principle #5: Supporting stakeholder and customer ambitions to decarbonise



Protecting vulnerable customers

Update vulnerability definitions

You said

We currently provide additional support measures for vulnerable customers as part of the Priority Services Register scheme. We will revisit the definitions of vulnerability to take into account customers for whom an inability to use transport when needed would make them vulnerable, giving them the extra support and protections they need.

We are also working with the Centre for Sustainable Energy (CSE) as part of the 'Smart and Fair?' project. This project will allow us to classify customers based on their ability to participate in the smart grid of the future, looking at which ones are likely to be able to 'keep up' with smart energy offers and which get left behind (and why). It will allow us to move from avoiding customers being left behind in a changing energy system, to helping them actively participate.

Prioritise essential services

The ability of essential services staff to carry out their duties, and in turn protect vulnerable customers, should not be impacted by requests for flexibility or constraints. This requires the creation of a new category in our systems which results in reduced impact from any EV charge management actions to enable them to reach their destinations or carry out their duties without fail.

Safeguards in services

Incorporating vulnerability safeguards into any flexibility service provided by third parties is vital. To ensure vulnerable customers will be protected, we will establish a set of principles for the use of third-party services to ensure they meet our expectations for supporting vulnerable customer EV charging.



Over to you

Your feedback is essential to make sure our EV strategy meets your expectations, and so to help us refine it and keep it relevant and reflective of your needs moving forwards please let us know your views.

Engagement Events



We'll be engaging on our Electric Vehicle Strategy soon. For more info, visit: www.ssen.co.uk/events/

- ① Do you agree with our key principles for supporting the transition to EVs?
- ② What information would you like to see made available to help you as a stakeholder?
- ③ How much do you value unrestricted EV charging as opposed to off-peak (smart) charging?
- ④ What is your preferred location for charging? And would you want to be able to charge at both home and non-home charging locations?
- ⑤ Knowing data about customer behaviour is useful in planning network preparations. What information would you be prepared to share to support this?
- ⑥ When are you expecting to move to using an EV or plug-in hybrid?
- ⑦ When do you believe your street will move to EVs?
- ⑧ How long do you think is reasonable to wait to install your charge point(s)?"
- ⑨ What else could we do to support EV uptake?
- ⑩ Where do you think we should focus our efforts?



Please share your answers here
www.ssen.co.uk/EVfeedback/

We look forward to working with you to evolve the strategy throughout 2020 and beyond.

Glossary and more information

Term	Definition
ANM	Active Network Management connects separate components of a smart grid such as smaller energy generators, renewable generation or storage devices by implementing software to monitor and control the operation of these devices.
CMZ	Constraint Managed Zone is a geographic region served by an existing network where peak electrical demand requirements are met through the use of demand reducing or demand shifting techniques.
Distribution Network Operator (DNO)	The owner and operator of a distribution system comprising of a network of wires and associated infrastructure, transporting electricity from the transmission system or distribution connected generation to domestic, commercial and industrial electricity consumers.
Distribution System Operator (DSO)	Distribution System Operation (DSO) is the secure, active operation of a distribution system comprising of network and flexible distributed energy resources. It encompasses the neutral facilitation of open and accessible markets to deliver security, sustainability, affordability and whole system optimisation.
ED1	Also known as RIIO-ED1, this is the regulatory period known as the price control for the electricity distribution network. The price control runs for eight years, from 2015-2023.
ED2	Also known as RIIO-ED2, this is the next regulatory period, starting in 2023. The price control runs for five years, from 2023-2028.
EV	Electric vehicle, usually taken to mean plug-in hybrids and fully electric.
IT	Information technology
Net zero (emissions)	The target to bring all greenhouse gas emissions to net zero compared with the previous target of at least 80% reduction from 1990 levels. The UK Government has committed to achieving net zero emissions by 2050. The Scottish Government has committed to the same by 2045.
OT	Operational Technology
Peak use	The period of each day when most electricity is used. This typically refers to the hours from 4pm – 8pm.
Smart Charging	The ability to increase or reduce the rate of charge an EV receives from a charge point, or shift the time when charging occurs.

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For any queries or to request further information, please contact us on:

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