SSEN Digital Strategy

December 2020

Scottish & Southern Electricity Networks

Foreword

Shaping our digital future

Electricity distribution networks have a key role in helping deliver net zero emissions; we recognise that strong digital capabilities and data sharing are paramount to agile and efficient delivery, enabling whole system solutions and wider societal benefits.

As an industry we are on the journey of maturing our individual and collective digital capability, whether through further automation of our network assets, development of market platforms or in the way we serve our customers. Digitalisation means being smarter in how we access, use and analyse data and align our organisation for a digital world.

In 2020 SSEN has further built upon its strong digital foundations with support and constructive challenge from our Board of Directors of SSE Distribution Group. To complement our Board's commitment, the Directors of SSE Networks have adopted day to day accountabilities for delivering our Digital Strategy. We continue to lead the industry on the digital service we provide to our 3.8m customers and have made significant steps to drive network innovation through the use of digital solutions. It is also helping create efficiencies within our business and improve levels of transparency.

We are delighted to share our latest Digital Strategy that evolves our vision of a digitally enabled future and describes the role we expect to play as our industry continues to serve our customers, wider energy consumers and society as a whole. This version is an evolution from our 2019 Digital Strategy, and is supported by our first Digital Action Plan that details the digital products and services that combine to meet the needs of our customers and broader stakeholders.

We believe it is imperative that our customers, colleagues and stakeholders better understand the value digital brings to their lives and the wider impact of digitalisation on their communities. As a business, meaningful stakeholder engagement is critical and we are working to ensure we navigate this journey together. We are doing this in an inclusive manner, led by you. We are adopting customer centric design tools and methods that help us understand behaviour, preference and needs and these will play a major role in our investments in digital.

As we work towards the submission of our RIIO-ED2 business plan in 2021, I have every confidence that, with your feedback, this strategy will help us meet our future digital ambitions for ED2 and net zero and deliver real benefits in the current price control. I welcome your views both in the formal ED2 stakeholder engagement and directly in response to this strategy.

Andrew Roper

Distribution System Operations Director, SSEN Distribution

Executive summary

Our Digital Vision

Our digital vision is to be a progressive network owner, using digital to enhance social and economic value, deliver a leading experience for our customers and to enable the energy system to support net zero carbon emissions.

In this strategy we set out our position across six areas. Firstly, we explore what digital excellence and best practice looks like and set out our vision of the future energy ecosystem, where digital will be the thread connecting all network users and enabling progress towards wider ecosystem goals.

Secondly, we describe our approach to deepen our insight into the needs and behaviours across the spectrum of our customers and stakeholders, and how through this learning will help refine our strategy and our actions.

The third part of our strategy shares our view on the future needs of our customers and stakeholders. We also describe how digital and data can deliver value to our customers, partners and the energy system, and the role digital will play will play in making our business more efficient and reliable.

Part four describes our digital foundations so far and our intent to develop digital capabilities to realise our vision. Our supporting Digital Action Plan details both our current and future products and services that address the needs of customers and stakeholders.

Penultimately, we present our data strategy, outlining our objectives and investments to enable Open Data and become a data driven organisation.

Finally, and most importantly, we are looking for your input and views on this strategy and our Digital Action Plan as we shape our plans for the ED2 regulatory period of 2023-2028.

We believe this strategy provides a blueprint of where we and the industry need to get to, but it is only a step in the journey and we need your feedback to further shape and improve it.

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Note: For the purposes of this document, the terms digital and digitalisation are interchangeable for ease of reading. Definitions are provided in the Glossary.

1

SSEN in the Digital World

SSEN Today

Through our two licensed electricity distribution network areas, Scottish Hydro Electric Power Distribution and Southern Electric Power Distribution, 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 the delivery of the UK's net zero emission targets through a strong focus in developing our RIIO-ED2 plan.
- Our **aim** is to facilitate the **digitalisation of the energy system** and beyond through enabling **digital services** and making data available to **drive innovation** and benefits across the **wider digital ecosystem.**

SHEPD

782,536 customers'
homes and businesses served

49,405km
of overhead lines and underground/subsea cables

SEPD

3,092,275 customers'
homes and businesses served

77,998km
of overhead lines and underground cables

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.

- Recognition by the UK Customer Satisfaction Index business benchmarking survey as the leading energy networks organisation for customer service in 2018/19 and 2019/20.
- Providing a leading social media and online customer service offering, providing contact through our website, Facebook, Whatsapp, Twitter, and the Power Track app.
- The creation of a Resilient Communities Fund, which has delivered over £2.8 million in grants to local not-for-profit community projects since 2015.

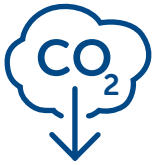
Key facts (as per Nov 2020)

- **Over 759,000** households are registered for free extra help via our Priority Services Register
- **Nearly 91,000** Power Track app downloads
- **Over 330,000** incoming messages on social media since December 2019
- **Over 3.8m** webpage views since December 2019
- **92% -** Our online customer satisfaction score

A leading role in a leading group

SSEN is part of SSE, a UK-listed company that operates across the energy sector and its 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 Sustainable Goals to achieve by 2030, of which SSEN will play a significant part in achieving.

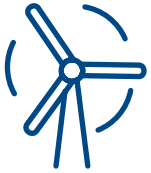


Cut our carbon intensity by 50%

Reduce carbon intensity of electricity generated by 50% by 2030, compared to 2018 levels, to around 150gCO_2/KWH

Help accommodate 10m electric vehicles

Build electricity network flexibility and infrastructure that helps accommodate 10 million 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 in a decarbonised, smart, flexible, energy system

If the UK is to deliver its Net zero emissions targets, the energy industry needs to embrace fundamental change in order to decarbonise transport and heat at a pace not seen to date. For this transition to be successful it requires:

- More holistic, **strategic planning** across electricity, gas, heat and transport sectors as part of a wider ecosystem;
- Greater **utilisation of flexible energy resources**, across electricity, heat and transport;
- A clear **understanding of the value flexible resources can provide** at any one time; and
- Greater **real time co-ordination** in energy system operation to ensure that flexible resources can be 'optimised' across the energy system as a whole.

Distribution networks are at the heart of this change. By transitioning to Distribution System Operators (DSOs) they need to facilitate the rapid connection of new technologies such as electric vehicles, heat pumps, storage, and small scale renewable generation and ensure that that there is access to the network to provide wider system services.

Delivering DSO

In our DSO progress update, published in November 2019, we introduced the three building blocks that are at the heart of SSEN plans for our transition from Distribution Network Operator (DNO) to DSO. They build on our established principles set out in 2017.

The building blocks include ensuring we retain the current high level of network reliability at lowest cost, minimising any increases to customer bills, protecting fuel poor customers and providing opportunities for all customers to reduce their bills through providing system services.

We are actively building towards this future energy system, acting as a leading voice working in collaboration with our customers and stakeholders, peers and innovators through the Open Networks project and our own Project LEO (Local Energy Oxfordshire).

Maintaining a safe, reliable and secure grid

Enabling the equitable low-carbon transition

Identifying cost effective solutions for energy customers

Digitalisation and Data will be a key catalyst

The move to a flexible, decentralised system represents a fundamental shift for network operators and one that would not be possible without increasing digitalisation of systems and processes, underpinned by rich, local and accessible data.

- Open Data can be a catalyst to the change, empowering customers and service providers and enabling economic whole system decision making across the energy ecosystem and beyond.
- Digitalisation is crucial to providing data in the right channels and format to empower this ecosystem, foster new partnerships and the collaborations required to deliver system-wide change and support the wider economy.
- We see a future where system planning, customer choice and, most critically, system reliability are improved by open access to the data that exists across transmission, distribution and the system operator. Over time we see this data set being further enriched with infrastructure planning data and input from other utilities.
- Early to realise the value of insight from our data, we continue to mature an in-house analytics capability. We are using this to drive our work in realising flexibility markets across Oxford through our LEO and Transition projects.

The Digital World

Outside of the energy sector the world is being transformed by heightening customer expectations, innovative digital technologies and new business models.

In understanding the digital world, we use Baringa's leading Twelve Shifts of Digital framework. This brings together industry best practices across four areas.

To better meet the evolving needs of customers and strengthen our core Networks business, we have built our digital strategy considering twelve fundamental shifts in the digital era.

These shifts span our entire operating model because, at SSEN, we believe the influence of digital extends far beyond technology enabled change.

A Business Model and Ecosystem

Today, organisations are using digital to fundamentally disrupt traditional business models. They are reaching a new set of customers and better serving their existing consumer base. This helps digital organisations to play a bigger role in the value chain and supports new entrants to bring further innovation and strengthen competition.

1 Business Model

Traditional income streams *to* new digital business models

2 Ecosystem

Isolated offerings *to* partnerships, alliances and ecosystems

B Customer Experience

Today, customers expect the same experience as when using Netflix or Uber; extreme convenience, immediacy, simplicity and hyper-personalisation.

For customers who are less digitally engaged, they still expect high quality and personalised experiences delivered through traditional channels.

3 Customer

Experience as industry specific *to* experience as industry agnostic

4 Proposition

Commoditised products *to* intelligent services

5 Channel

Digitised and transactional *to* digital and human

C Platforms and Data

Today, organisations seek to differentiate through their platforms and data.

Data driven organisations expose data to collaborate with trusted partners securely, extract insight through analytics, Machine Learning and Artificial Intelligence and automate processes to improve customer experience and efficiency.

6 Architecture

Monolithic and point-to-point *to* API-based and cloud enabled

7 Insight

Reactive analytics *to* predictive insight and intelligent automation

8 Process

Disjointed manual processes and departments *to* connected, smart enterprise

D Organisational Alignment

Today, organisations are having to adapt their leadership behaviours, culture and decision making to increase speed to market.

Instead of following traditional requirements gathering, they embrace "test and learn" and succeed through experimentation and continuous improvement in smaller, multi-functional teams.

9 Organisation and Talent

Large, siloed departments *to* small, multidisciplinary teams

10 Culture

Governance with perceived certainty *to* servant leadership and digital mindsets

11 Method

Working Groups and documentation *to* testing and learning

12 Risk and Resilience

Isolated controls policing and afterthought *to* building advocacy and trust proactively

We are looking externally to help inspire and shape our Digital Strategy

The leading companies in the digital era are adapting their business end-to-end; from changing their business model to everyday ways of working. We want to adopt best practice from digital leaders as this helps to unlock a range of new opportunities for our customers and communities.

SSEN has already applied learning from leaders in digital and customer experience

Learning from amazon

We actively champion the power of brilliant UX design and digital inclusion. We have the highest rank for website accessibility across DNOs[1] and are evolving it to make it even more customer focused.

Learning from NETFLIX

We firmly believe in acting quickly on customer feedback and utilising their insights to continuously refine our operations. We are establishing external customer focus groups who will provide direct customer feedback to improve our outage and general enquiries experience.

Learning from conEdison

We understand the importance of actively engaging and listening to current and potential customers on social media platforms such as our Facebook Community Groups. This steers our continuous improvement and our future business planning.

[1]Source: Sitemorse Website Index

A Business Model and Ecosystem

Rolls Royce shifted from selling engines to charging for outcomes ('power by the hour'). The customer buys the power the engine delivers and Rolls Royce provides all of the support (including maintenance) to ensure that the aero engines can continue to deliver power.

For SSEN this could mean, we move to an outcome based model in helping Distributed Energy Resource (DER) owners and aggregators develop investment cases over network planning horizons. As we get better at sharing data, we could help Local Authorities define their energy pathway and infrastructure needs.

B Customer Experience

Metro Bank is rapidly growing a network of banking "stores" with leading customer experience, underpinned by digital tools. They offer an app that leverages AI to help customers better manage their money by analysing their spending habits in real time. Customers can replace cards in 3 minutes and open an account in 15 minutes.

For SSEN this could mean, that during power cuts and interruptions we provide an experience similar to online food delivery. Our customers could get real-time, specific fault information, and real-time updates on time to restore faults and the likelihood of whether power will be cut-off in their area again.

C Platforms and Data

From **Amazon's** most well-known online shopping platform to the evolution of Amazon Web Service (AWS) and extension into more niche platforms (e.g. Amazon Connect, Amazon for Business), the underlying principle has remained the same. That is, all their platforms must be open source and loosely coupled so data is re-useable and searchable without dependency on any one team.

For SSEN this could mean, we openly share our data with authenticated partners and innovators that enables them to explore, learn from our data and provide our customers with more innovative services. This would help inform their offerings back into the market and help SSEN identify and deliver efficiencies.

D Organisational Alignment

ING was early in recognising that customer needs are being shaped by digital leaders in other industries and moved to becoming more agile. It has benefited from a quicker time to market, stronger employee experience and higher efficiency. Key to this was commercial and IT staff being co-located and working in multi-functional teams. Leaders were at the forefront of this change by visibly role modelling a customer first and agile culture.

For SSEN this could mean, we structure teams to include more cross-functional, multi-skilled talent in areas such as Connections. In doing this, we help embed and drive knowledge transfer across the organisation, increase our agility to respond to customers and support succession planning and workforce renewal.

The UK Banking industry offers a useful parallel to the journey we are on

Open Banking has been introduced to the UK Banking Industry in response to regulatory changes. Industry and customer account data has become more open, increasing competition, innovation and creating greater value for customers. We have focused on the best aspects from the UK Open Banking experience to help inspire our digital strategy. We're actively contributing to Icebreaker One's MEDA work exploring the requirements for data sharing between the industries.

1 Key drivers of Open Banking

Change in Regulation

Competition and Markets Authority Order: Access to bank service and account data to compare providers

Payment Services Directive 2 (PSD2): Being able to initiate payments through a third party

- Customers owning their data
- Driving competition and innovation

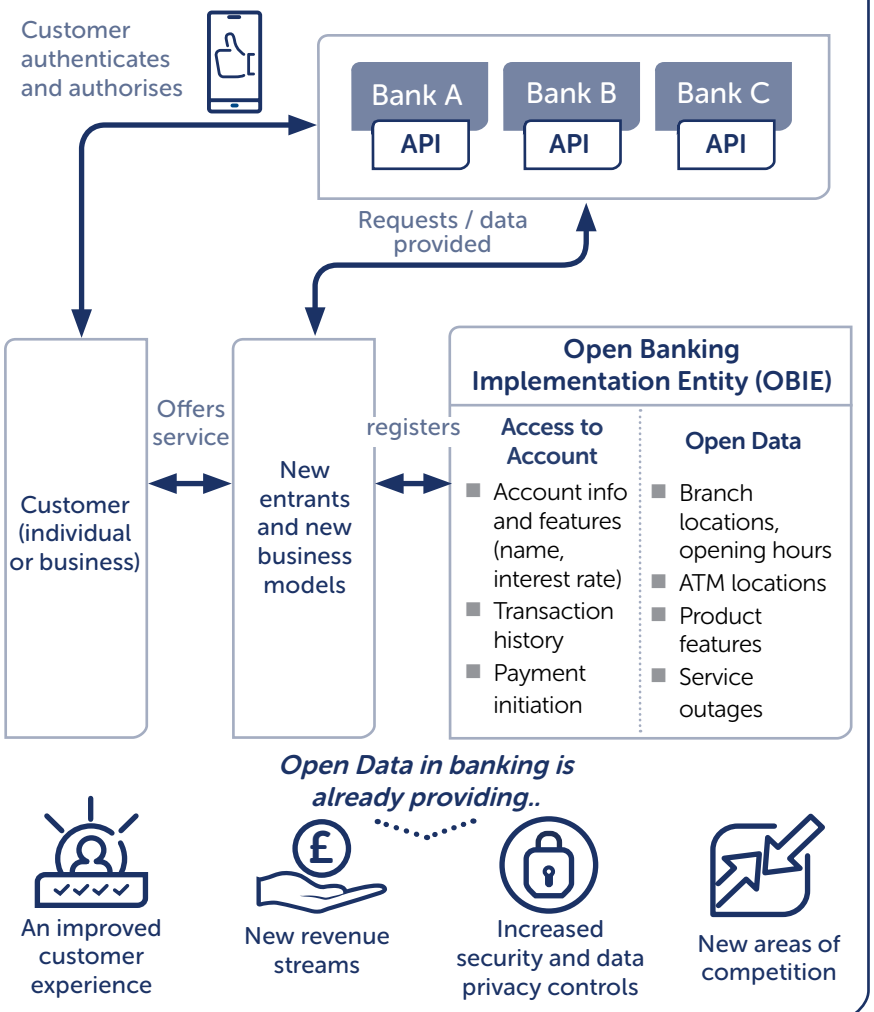
Evolving Customer Expectations

- Why shouldn't your banking experience feel the same as ordering an Uber, booking an AirBnB or trawling through Netflix?
- Customers increasingly expect intelligent, contextual services and not commoditised products

Advancements in Technology

- Open APIs allow organisations to quickly design, test and launch new propositions services by leveraging both internal and third party APIs

1 High level enabling architecture



3 What has this meant for UK Banking?

Pre Open Data
Banks can transform their part of the customer journey, but not much further

Under Open Data
The entire journey can be transformed – especially the parts banks don't currently control

Banks have a clear role in their ecosystem – their customer banks with them

A broader ecosystem brings innovative services to customers

Available data is limited to the power of a bank's enterprise systems

The power lies in the data that resides in systems across banks

Our Vision of the Future Energy Ecosystem

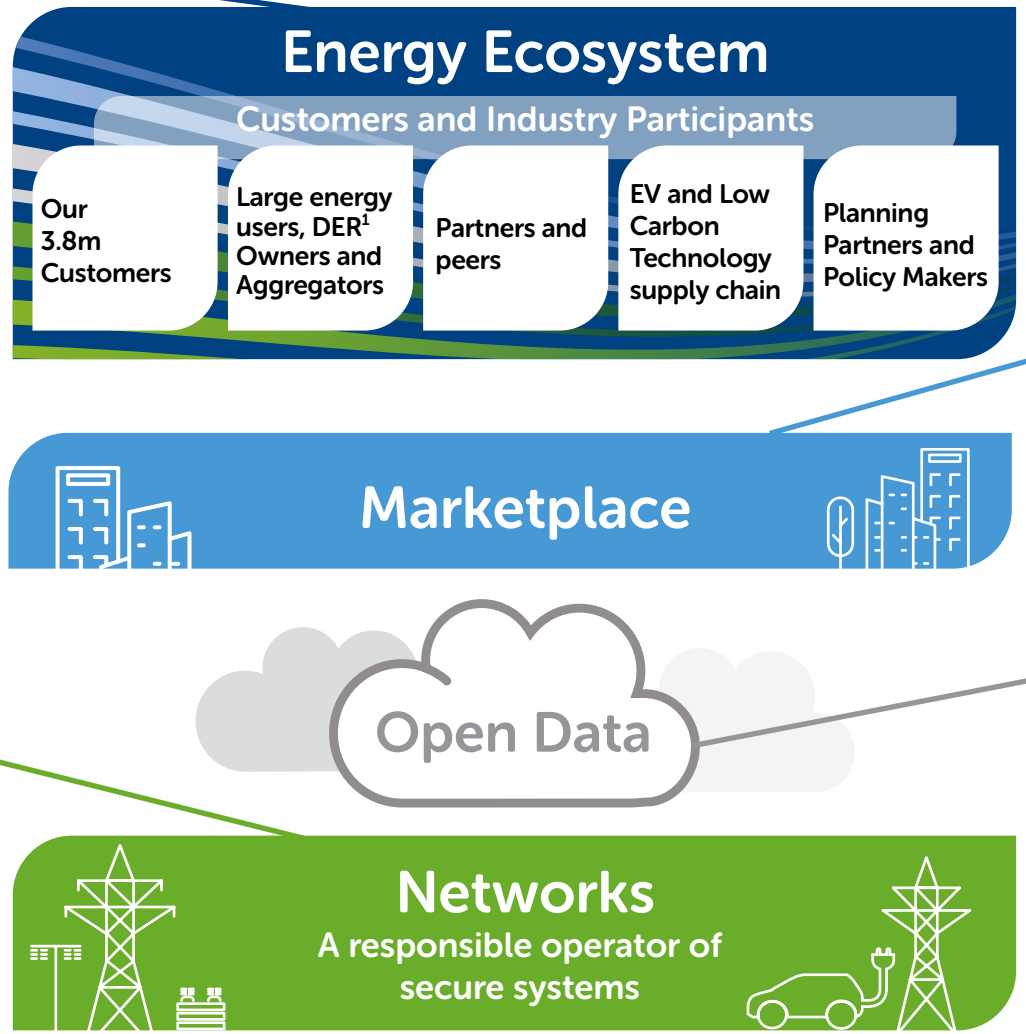
In the future, the role for an energy network will be one characterised by being much closer to consumers and other network users. Through our role as a leading network operator we will continue to create value for customers and society, encouraging competition and innovation and enabling the energy transition. We will interact more closely with the Electricity System Operator, Local Authorities, Electricity Transmission Owners, Flexibility Providers and Market Platforms.

1 Expanding Energy Ecosystem

- The future energy system will become increasingly open and distributed – enabling innovation and competition.
- As the energy transition progresses the industry will serve a greater variety of customers in new and different ways, and connect new sources of production and innovative storage solutions.
- Innovative third parties will enter the industry enabled by Open Data, forming new relationships and creating new sources of value for customers and for society.

2 Future Networks

- Energy networks in the future will be more resilient and more flexible. Richer, real-time data will allow assets to be better utilised and managed.
- New sources of production and consumption will be planned, connected and managed more intelligently and with far greater levels of automation.
- The outcome for customers will be greater security of supply, easier and faster access to the network for Electric Vehicles and other Low Carbon Technologies (LCT).



Marketplace 3

- With richer sources of data available, new entrants will join the energy system, creating a marketplace for innovative new energy and non-energy services.
- This will encourage competition, innovation, improve efficiency and better inform investments. New services will be tailored for consumers and businesses across the system, helping to accelerate the energy transition.
- DSOs will support this marketplace by providing essential information about their networks and operations, with trusted partners able to enrich and utilise this information to benefit consumers.

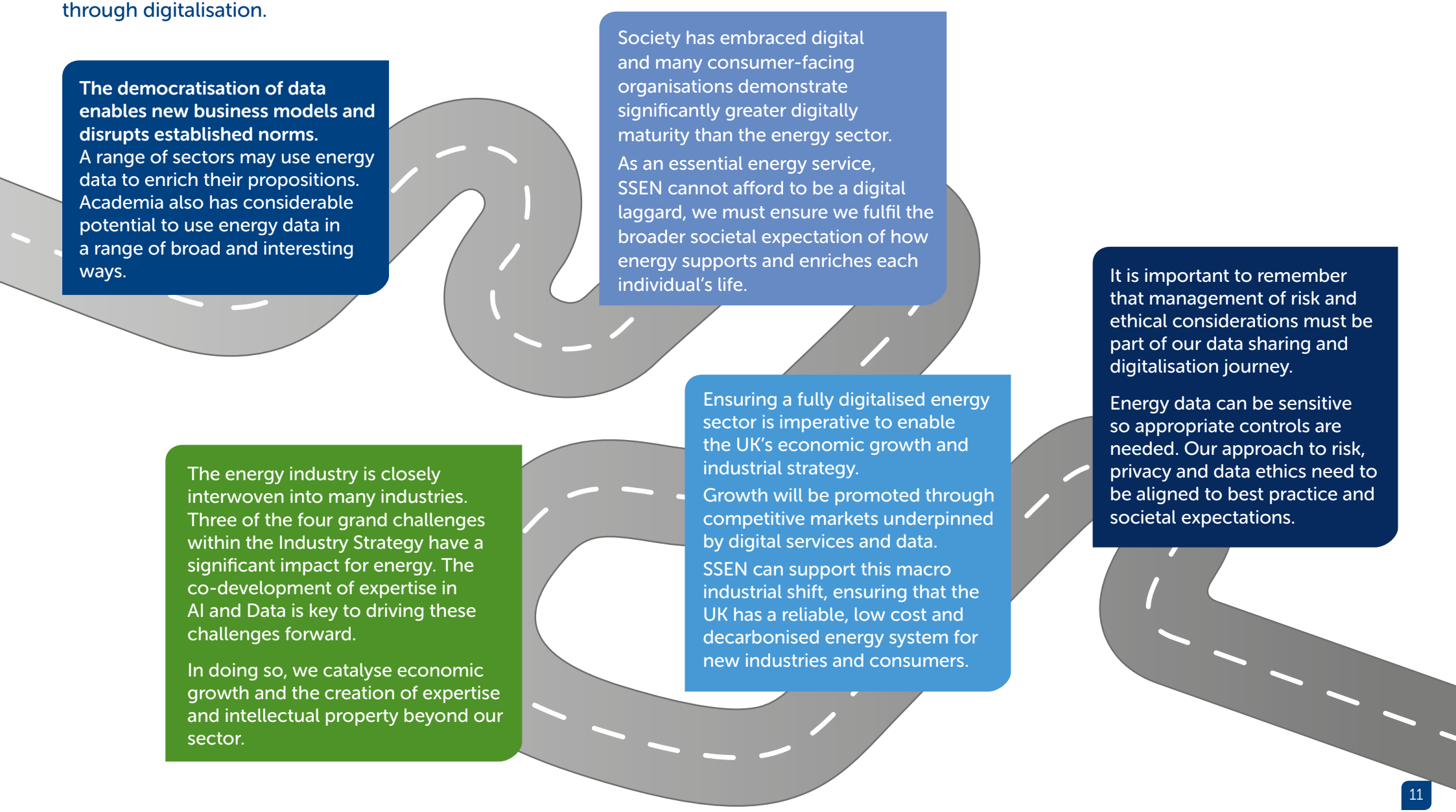
Open Data 4

- Building on the work of the Energy Data Taskforce, and learning lessons from Open Banking, essential data will be available in a discoverable and useable way, whilst adhering to data privacy best practice.
- Data that combines information about assets with the flow of energy through the future system will be openly available to accredited partners.
- Regulatory changes, and engagement across industry participants will encourage competition and innovation across the energy system.

1. **Distributed Energy Resources (DER)** - Any resource on the distribution system that produces or stores electricity or reduces consumption.

In delivering our digital strategy we support a much bigger journey

As the digitalisation of the energy ecosystem takes place there are opportunities to create value beyond the energy sector. Through collaboration with Government and other parties we are better understanding how we can help contribute real societal and economic benefits through digitalisation.



The democratisation of data enables new business models and disrupts established norms.
A range of sectors may use energy data to enrich their propositions. Academia also has considerable potential to use energy data in a range of broad and interesting ways.

Society has embraced digital and many consumer-facing organisations demonstrate significantly greater digitally maturity than the energy sector.

As an essential energy service, SSEN cannot afford to be a digital laggard, we must ensure we fulfil the broader societal expectation of how energy supports and enriches each individual's life.

It is important to remember that management of risk and ethical considerations must be part of our data sharing and digitalisation journey.

Energy data can be sensitive so appropriate controls are needed. Our approach to risk, privacy and data ethics need to be aligned to best practice and societal expectations.

Ensuring a fully digitalised energy sector is imperative to enable the UK's economic growth and industrial strategy.

Growth will be promoted through competitive markets underpinned by digital services and data.

SSEN can support this macro industrial shift, ensuring that the UK has a reliable, low cost and decarbonised energy system for new industries and consumers.

The energy industry is closely interwoven into many industries. Three of the four grand challenges within the Industry Strategy have a significant impact for energy. The co-development of expertise in AI and Data is key to driving these challenges forward.

In doing so, we catalyse economic growth and the creation of expertise and intellectual property beyond our sector.

2

How we are developing an understanding of our customers' digital needs

How we will better understand our customers' digital needs

We are on a journey to deepen our understanding of our customers' and stakeholders' specific needs, behaviours and priorities that will enable us to prioritise our digital investments and create new products and services for our customers and employees.

We are on journey to transforming our digital capability

Understanding our customers' digital needs

Using our understanding of our key customer groups, we have developed a number of consensus-based persona profiles which are used as an internal design tool. We are in the first stage of persona development, where we are using segment profiles to understand our key customers' characteristics, priorities and their digital needs.

Identifying customers' and stakeholders' requirements and relative priorities to develop digital capabilities across the business

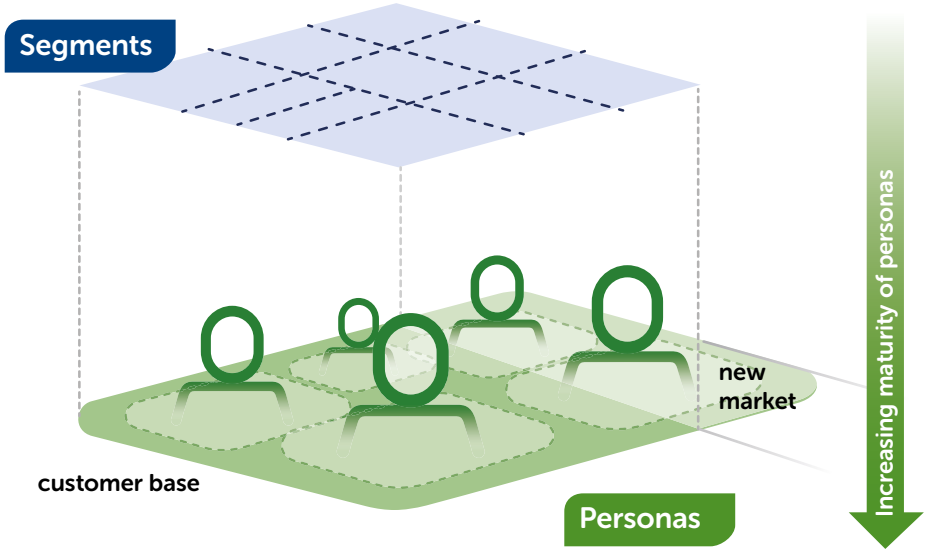
In this process, we have identified broader opportunities to mature our capability from this current set of consensus-based segments (used to support the design of specific SSEN initiatives) towards creating a research and data-driven persona framework (reusable across a range of business functions) in the near future.

Embedding continuous improvement of customer journeys as part of our transforming digital capability

We recognise that understanding our customers is a central and ongoing component of a Service Design-led organisation. This process will facilitate continuous improvement of our services, strengthen specific parts of the business and target customer journeys, to create delightful end-to-end experiences and valuable digital propositions, products and services for our customers, stakeholders and employees.

From Segments

We understand our customer and stakeholder segments, such as domestic consumers, business customers, flexibility service providers and others that help to identify the main markets that we serve.



To Personas

Through further research, we are obtaining deeper insights on our customers' and stakeholders' specific needs, attitudes and behaviours. To build on our segments, we will be developing data-led **personas** as an internal design tool to drive improvements in our products, services and experiences for our customers, stakeholders and employees.

Our journey to create customer insight and design new digital propositions

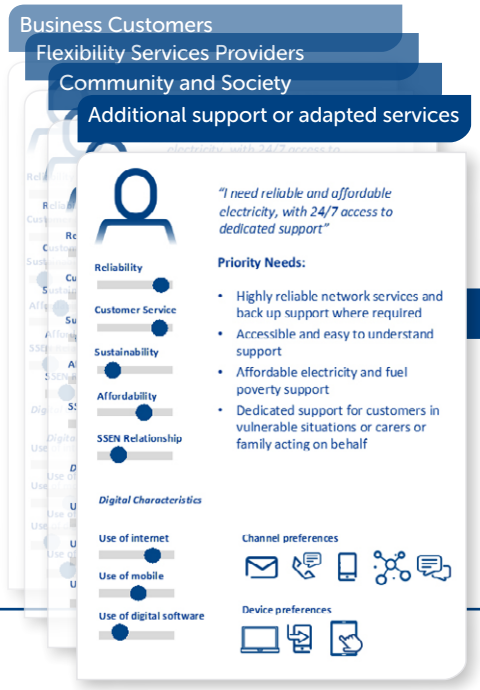
We will validate and mature our personas through further customer research and data, and use this as an input to a customer-centric design approach.

Our work so far

Using the data and research from our Stakeholder Engagement and touchpoints we have with our customers every day, we have created a rich set of insights on each of our segments.

We are now building out a set of personas across these segments that capture our customers' and stakeholders' digital needs.

We have developed the foundations to continually evolve these personas and use them in the design and delivery of targeted products and services.



Our ambition in the next 18 months and beyond

We will develop a more detailed and robust set of Personas, making greater use of data and research to support and tailor our product, and services and refine our strategy.

We will engage customers and stakeholders using a range of approaches to validate our understanding to capture how our customers' and stakeholders' needs evolve over the next one, three and five year periods.

We will continue to develop our Personas representing customers and employees to help support delivery of our digital strategy.

We are developing a customer-led service-design capability to embed customer insights into every proposition, product and service that we provide to external customers, and stakeholders and our internal colleagues.

Q4 2020

Consensus-based Personas

Shared in our 2020 Digital Strategy

Q4 2021

Data driven Personas

To inform our ED2 Plan, priority business areas and Digital Strategy Action Plan Update

Q4 2023

In-depth reusable Persona framework

Supporting a wide range of business activities including our Digital Action Plan

Q4 2025

In-depth reusable Persona framework

An essential tool as we realise the intent described in our Digital Strategy

We have already captured our insight within draft personas

We have created a backlog for further customer engagement and research that will inform where we will validate our insight and prioritise the capabilities we need to invest in.

Our Customers and Stakeholders

Domestic Consumers

"I need reliable and affordable electricity to keep my home running and convenient access to critical information"

Priority Needs:

- Reliable electricity and affordable service
- Convenient and easy digitally supported services
- Timely information and updates on critical network services
- Tailored support to address specific needs, interactions and queries

Developers and Local Authorities

"We need easy access and secure exchange of data to get innovative services to market quickly"

Priority Needs:

- Expert guidance on connection and sustainability opportunities to meet specific needs
- Streamlined coordination of services across distribution, transmission and utility networks
- Network data that is understandable and searchable
- Tailored engagement when applying to connect new technology or developments

Additional support or adapted services

"I need reliable and affordable electricity, with 24/7 access to dedicated support"

Priority Needs:

- Highly reliable network services and back-up support where required
- Accessible and easy to understand support
- Affordable electricity and fuel poverty support
- Dedicated support for customers in vulnerable situations or carers or family members acting on their behalf

Flexibility Service Providers

"I want flexible services to reduce my bills and maximise income, whilst reducing carbon emissions"

Priority Needs:

- Manage bills and/or plan efficient investments to maximise income
- Increase energy efficiency and reduce carbon emissions through open data and information
- Reliable connectivity to the network to efficiently manage flexibility

Business Customers

"We need to invest in the right technologies to ensure we are relevant to our customers in the future"

Priority Needs:

- Understand the potential of opportunities in flexibility services and sustainability
- High quality tailored services to meet specific needs
- Timely information to reduce business disruption
- Easy on-boarding and optimisation of assets
- Support from a DSO and dedicated channels

Planning Partners

"We need an easy way to share data and to jointly collaborate on strategic plans"

Priority Needs:

- Easy access to network data and future plans for development
- A simple way to upload short-term and longer-term development plan data for joint planning
- Clear visibility and understanding of the network's capacity to support development plans

SME Businesses

"I need reliable electricity to keep my business running and quick support if anything goes wrong"

Priority Needs:

- Reliable electricity and affordable service
- Convenient and easy digitally supported services
- Quick resolution to network queries or issues
- Conveniently understand the potential and location of flexibility opportunities
- Guidance on scope to scale business operations

Communities and Society

"I have wider interests in SSENs projects and initiatives and need to be well-informed"

Priority Needs:

- Awareness and education of the wider role SSEN plays in communities and society across all regions
- Visibility and engagement with initiatives in green investments, safety and customer care
- Reliable and affordable electricity services for all members of society

Our Employees

3

The value of Digital to our Customers, Partners and the Energy System

As the industry evolves, we will serve a broader set of needs and customer types

Based on what we currently understand from persona needs, we will develop products and services incrementally in the near term, building towards our future vision.

Our 3.8m Customers

"I want reliable access to electricity to keep my home running and easy access to information"

Our focus to support our customers:

- A high quality and reliable service.
- Convenience and ease of access.
- A service that is affordable.
- Meeting each individual's needs, particularly for Vulnerable Consumers.

Propositions that could improve their digital experience:

- Convenience through choice of channels (e.g. home assistants, wearables) during an outage and the option to self-serve.
- Immediate and real-time outcomes (e.g. faster EV connection quotations).
- Affordability through personalised propositions and service for Vulnerable Consumers or other segments.

Large Energy Users, DER Owners and Aggregators

"We need to invest in the right technologies to ensure we are relevant to our customers in the future"

Our focus to support our customers:

- Conveniently understand the potential and location of flexibility opportunities.
- Easy on-boarding and optimisation of assets.
- Continued support from a DSO and dedicated channels.

Propositions that could improve their digital experience:

- Tailored network insights.
- Enable and build confidence in flexibility markets.
- Provide network and market insight to continuously improve propositions.

Partners and Peers

"We need to easily and securely exchange data to get innovative services to market quicker"

Our focus to support our customers:

- Easy to establish and manage supplier-buyer relationships.
- Availability of data that is understandable and searchable.
- Minimal low value hand-offs but also expert support.
- Enabling innovation and co-creation

Propositions that could improve their digital experience:

- Context to data and is easily discoverable.
- Provide greater intelligence from sophisticated data tools.
- Automate core processes to lower cost and save customer time.

EV and Low Carbon Technology supply chain

"I need a simple way to exchange data for EV planning and more clarity on network constraints and costs"

Our focus to support our customers:

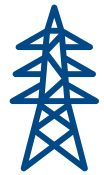
- Interoperability of hardware and standardisation of data to enable EV charging.
- Knowledge of current and future network constraints and costs.
- Plan efficient investment to enable electrification of heat.

Propositions that could improve their digital experience:

- Self-serve that show EV sales, charging infrastructure and forward network growth.
- Rapidly informing optimal location of charging infrastructure and assessment of EV charging points.

Planning Partners and Policy Makers

(Other DSOs and IDNOs, ESOs, TOs, GDNs, Local Authorities, ICPs, Policy Maker, Regulator)



"I need effortless co-ordination across many parties and a single, data driven view of investment potential"

Our focus to support our customers:

- Discoverable data and openness to data sharing on a regular basis.
- Unified and informed basis for investment planning.
- Co-ordination of strategic whole system planning across Distribution and Transmission networks.

Propositions that could improve their digital experience:

- Provide the platform and tools to jointly create an optimal investment plan across the energy system.
- Provide coordination of processes so it is easier for other utilities to more closely co-ordinate plans.

Scottish & Southern Electricity Networks

Serving the needs of our 3.8m customers

In a digitally enabled future our consumers will expect their needs to be anticipated, that their services will be affordable and of a high quality, while experiencing a reliable, convenient, personalised and efficient experience from SSEN.

- Today, we have over 759,000 households registered on our Priority Services Register – these include consumers who have identified themselves as vulnerable. Whilst we serve many more as part of our consumers segment they all have the common denominator that they rely on us to transport energy to their homes that is affordable and reliable.
- Today, energy networks have contact with our customers at two main points of need – when they need to be connected to the network and when a power cut happens. In the future, we plan to support them to ensure they can charge their electric vehicles and lower their energy bills through energy efficiency and smart control in a way that no one is left behind supported by using smart meter data.

In a digitally enabled future energy system our customers will have....

Convenience and ease of access

We understand our customers want a quick and easy-to-use service, including accessible information and clear, simple communication. We will meet these needs through enhancing our digital tools, including;

Multi-channel experiences - Customers will be able to contact us through their channel of choice (digital and non-digital) for connections, interruptions and power cut notifications.

Data Driven Segmentation – We will advise the customer on the most appropriate type of communication and next best action. We will also provide a single view of the customers for front line teams (e.g. Connections, Outages, General Enquiries and EV Connection applications). This capability has the potential to evolve into full vulnerability propensity modelling.

Affordable energy

We understand that our customers want affordable electricity which is heightened by the transition to electrification of transport and heat. We strive to make our operations more efficient using digital propositions, including;

Intelligent sensors – Customers will be able to manage their energy needs using insight derived from sensors on the low voltage (LV) network to inform home energy systems to automatically adjust consumption. This helps make services as affordable as ever.

Data insights – We will use more granular data to monitor network performance, and make the grid more efficient and keep energy affordable

Advances in renewable technologies and energy marketplaces – This will make it easier for consumers to understand potential ways to earn money by providing flexibility services.

High quality and consistent service

We recognise that our customers already expect a high level of measurement, prediction and automation on our network and expect near 100% service levels. We will achieve this using;

High quality internal data – Exposing service outages and planned maintenance to trusted partners that will help coordinate real-time responses with other customers and stakeholders such as charities and community groups.

Predictive analytics – This will enable pro-active notification to individuals and groups of customers for potential supply or service issues. We will make decisions about how best to plan interruptions to minimise impacts based on the consumer with input from those directly affected.

Access to all – Ensuring our services are tailored to customer needs so no one is left behind.

Facilitate new markets for large energy users, DER owners and Aggregators

A digitally enabled future supports the opportunity to move towards decentralised and decarbonised energy. This uptake of Low Carbon Technologies will support consumers, drive benefit from new markets and play an active role in moving towards net zero greenhouse gas emissions.

- The use of Distributed Energy Resources (DER) to support flexibility markets and provide services into our energy system gives revenue opportunities to consumers, but also introduces markets that can support new business models, competition and innovation that contributes to a more democratised energy system that delivers better and more efficient outcomes for customers.

In a digitally enabled future energy system our large energy users, DER Owners and Aggregators will have...

Informed tailored network insights

We understand our customers need relevant and up-to-date network information. We will provide a holistic real-time view of our own network and connected market through:

Combined network understanding – Using knowledge from existing third party connected assets and the broader flexibility market, we will present tailored information that provides a near and long-term business case to a flexibility provider.

Digital channels – Consumers will have real-time access to underlying network information for their own use and interact with SSEN to quickly resolve questions. For this, we may need to provide network capacity requirements, product structures, network forecasts and price expectations through a digital platform.

Confidence in our flexibility markets

We will provide our customers with the long-term need and the real-time value of flexibility markets in a standardised and discoverable way through:

Market platforms – We will provide essential pricing and asset usage data plus specific digital services. This will enable markets to create benefits for customers and competition between accredited third parties such as Aggregators.

Digital processes – Digitalising the decision making of network investments combined with a digital platform will provide information on auctions enabling confidence and transparency in flexibility markets. A digitalised end-to-end process will enable sharing of information in a digestible way for customers and the regulator.

Analytics to continuously improve propositions

Through digitalisation and data we will understand the full end-to-end journey to continuously improve customer experiences:

End to End digitalisation – This allows SSEN to demonstrate security of commercially sensitive information and confidence in payment alongside a high quality customer experience. We will then use analytics to improve and create new propositions and supplementary services that help support a greater uptake of DER.

Digital System Map - We will use of a standard asset registration process that will be coordinated across all networks and uses our digital platform to integrate into a Digital System Map.

Drive greater collaboration across industry partners and peers and enable competition

The rate of change in technology provides a huge opportunity to improve the service we provide to our customers and optimise our long term investments in the energy system. Planning the best use of new technologies and the customer propositions they enable will need to be a collaborative process.

- As the energy market becomes more open and as new business models emerge, there will be increased choice for customers in key areas such as connections, flexibility products and EV charging services. It is essential that the we enable competition alongside transparent activities and decision making. To do this, we will share our data so that trusted partners can provide services to us and our customers.
- Building strong relationships with peers and service partners ensures we can learn the lessons from similar companies, other sectors, and experts in areas such as Artificial Intelligence and analytics and apply these for the benefit of our customers.

In a digitally enabled future energy system our partners and peers will have...

Discoverable and searchable data

We will provide accessible and standardised data with a consistent experience across the industry that is easily searchable by other parties to help inform decisions including:

Analytical tools – We will provide the most requested asset and network data in a structured and discoverable way. This will be underpinned by responsible data practices to ensure ethical use going beyond legislation and doing the right thing by customers whilst ensuring cyber security and privacy standards are met.

Data provision services – We will continuously develop the scope of data that we provide access to and use our expertise of the network to develop additional services that are valuable to third parties.

Greater intelligence from sophisticated data tools

We will provide tools and platforms to enable parties to find information on customer connectivity, regional and whole network load forecasts:

Digital System Map – This will bring together network data in the Common Information Model (CIM) standard to improve information exchange across our system and external parties.

Analytics and AI – We can use these to address the gaps and quality issues in our data. This can be delivered in a value focused way by ensuring we understand the needs of those that request this information. We can also work with those accessing our data to understand issues and potentially solve them collaboratively.

Automation to improve time and quality of data exchange

We will speed up the development and innovation of ideas and reduce hand offs between parties through automating the exchange of data:

Automation – We will provide faster responses to customer requests through the automation of core processes and enabling cross party process automation, such as applications under Competition in Connections.

Data Exchange – We will reduce the time it takes to connect customers when they choose Independent Connection Providers (ICP) through real-time data exchanges. This can help plan their transition to an EV fleet or coordinate energy system investment across different parties.

Supporting growth across the EV and Low Carbon Technology (LCT) supply chain

Uptake of Electric Vehicles (EVs), Heat Pumps and LCTs is accelerating in many markets globally. In a digitally enabled future, we will need to consider the type and scale of these technologies, timing of investments and the business models that enable them to plan our network investment and best serve customers.

- There is increasing evidence that deployment of rapid or ultra-fast charging infrastructure is an important element in enabling EV uptake and reducing the concern of drivers around their ability to travel for longer journeys.
- In order to clearly plan the type and scale of charging infrastructure to support the uptake of EVs and how potential drivers will use the infrastructure, it is important to share capacity and load growth data across our network with the wider EV supply chain.

In a digitally enabled future energy system the EV and Low Carbon Technology supply chain will have...

Self-serve platforms that offer a seamless experience

We understand our customers and stakeholders need a seamless experience and we will deliver this in our exchange of EV data and information:

Self-serve platforms – Through a data sharing platform, we will provide a service that informs a customer's ability to charge at home and provide Vehicle-to-Grid (V2G) services without network upgrades and automate the registration process of their charging infrastructure.

Third party collaboration – By expanding our relationships to EV sales show rooms, DVLA, local authorities and charge point operators, and understanding required outcomes and data for each party, we will tailor our platforms and data to offer specific propositions that will help increase the number of EVs on the roads.

Plan efficient investment to support EV uptake

We will encourage EV uptake through the combination of Internet of Things (IoT) technologies with our network data to drive AI solutions:

Network Monitoring –Through lower cost IoT solutions we are increasing the level of monitoring of our Low Voltage network augmented by smart metering to enable a faster transition to low carbon transport

Real time data – Using this real-time data we will offer EV specific flexibility products that provide value to customers and avoid expensive reinforcement in our LV network.

Engaging third parties – Working with Local Authorities, Electricity System Operators (ESO) and Charge Point Operators we will tailor our future investment plan to deliver the network capacity at the right time to maximise the benefits to our customers and stakeholders.

Optimal location of charging infrastructure

Our end-to-end digital process will bring together real-time awareness of demand and capacity set against our Digital System Map. We will use AI to advise on opportunities for optimal charging locations for future infrastructure development:

Information sharing – By sharing our network data, the Digital System Map will provide analysis and recommendations on the optimal location of charging infrastructure to reduce network upgrade costs. This can be used by hardware providers to plan their investment strategy.

Hot and Cold Spot Heatmaps – We will provide EV owning consumers or charge point providers with real-time network Hot and Cold Spots (real-time constraints tailored to EV owners) so that charging can be better planned, coordinated and appropriately priced.

Enhancing whole system and local planning across a community of partners

The electrification of transport, heat and the targets of net zero emissions cannot be achieved by any individual player in the energy system. We will use our role as a leading network operator to enable collaboration across a community of partners to benefit our customers and society more broadly.

- Greater collaboration across whole system, local planning partners and policy makers will ensure that investments can be better co-ordinated at an improved cost. This will also help flexibility markets become sustainable and provide the best outcomes for customers.

In a digitally enabled future energy system Planning Partners and Policy Makers will have...

Open Data enabled Planning Partnerships

We will facilitate planning partnerships by actively sharing data to drive collaboration across the utilities ecosystem:

Platforms and data sharing – Fostering an ecosystem across utilities to provide a basis for planning partnerships for electricity, gas, water, heat, telecommunications and transport. This can be underpinned through the use of platforms and an agreed catalogue of data that serves the needs of each party. We are already doing this by working with the Greater London Authority on the London Underground Asset Register (LUAR) Project.

Joint planning – Enables utilities to co-ordinate around local authority/local government decarbonisation strategies to develop a joined up plan that will reduce the time taken to complete large scale multi-utility whole system developments.

Optimal investment plans across the energy system

We will provide our planning partners and policy makers with a single digital platform to share and align assumptions, plans and desired outcomes to drive consistent planning decisions:

Innovation – We will collaborate with a wider range of innovative investment solutions across the energy system, to reduce costs for customers. For example, where the gas network has capacity to take hydrogen injection, created using local electricity generation, which would otherwise have been constrained.

Artificial intelligence – We will use AI to identify which solutions are most effective in specific planning scenarios leading to greater efficiency in energy related investments. Exposing this data to external service providers enables greater competition and innovation across the whole sector.

Closer co-ordination in operations across utilities

We understand our partners want a coordinated approach, so we will provide a single register of all flexible energy assets to identify opportunities for more co-ordinated operations across utilities:

Planned asset replacement – We will bring forward this initiative to coordinate with water companies who are already digging in our asset locations. This can make the work cheaper and reduces the disruption faced by the public.

Co-ordination – We will work with utilities to ensure that the total energy delivery capacity in an area is optimal and to identify opportunities to co-ordinate works.

Regulation – We will enable consistent sharing of data outlining our plans and share regulatory information a timely way.

Digital will drive value

We can use digital to improve the efficiency of our day-to-day operations and our long term investments. We also recognise the power of digital to enhance our employee experience and enable ever safer ways of working. Ultimately, this will deliver the most resilient and best value network.

SSEN: As a leading network operator

"Our priorities are decarbonising the network to deliver net zero whilst enabling competition and innovation to help increase efficiency. In all our activities we focus on protecting, and delivering value to our consumers, especially the most vulnerable"

Key Enablers

To support the value creation outlined above, we are developing key enabling capabilities to facilitate this change. This includes an increase in data analytics capability, addressing our core data with deployment of better data governance, creating a framework for our Common Network Model and introducing agile teams to support digitalisation.

- Network operators are already delivering aspects of their DSO role. As this maturity continues and the demand placed on the network by DER becomes more complex, there will be a greater need to optimise the services that flexibility customers provide.
- To do this requires a step change in the use of analytics to produce accurate forecasts of scenarios that then inform investment planning and real-time decisions on how to optimise the network. The insights generated will be assessed on its impact to service levels and the value to the end consumer, and new decision making tools will be able to co-ordinate the outputs across other partners including the ESO and other utilities.

In a digitally enabled future energy system, a leading network operator will have:

Data-driven decision making

Our operational and investment decisions are informed by analytics from a single source of truth. Customer impacts, asset condition and network usage data can be utilised to develop investment scenarios, and optimise the deployment of our field teams and their decisions in the field. We will deliver these using:

Fault prediction – These models will be used to create inspection and maintenance schedules to mitigate the risk of network failure.

Artificial Intelligence – We will use decision support tools for asset investment and inform fix versus replace decisions whilst field workers are on site.

Digital System Map - We will be able to understand the customer impact and benefit of investment decisions at a local level (hundreds of customers rather than tens of thousands).

A sharper customer focus

Our role in carrying out distributed system operations role and a changing, more competitive energy sector widens the range of customer types and needs that SSEN will need to fulfil. To exceed customers expectations, we will further research what our customers most value across holistic customer journeys and refine our approach to targeting improvements to experiences, products and services for our customers' and stakeholders.

Customer value stream - Organising our asset, operations and customer teams around key customer value streams gives us great agility in the workforce to focus on the customer outcomes and goals and not be wedded to historic processes and approaches.

Value-oriented teams - Working in agile teams focused on customer value provides our workforce a clear sense of purpose and a deep appreciation for the value provided to customers through day-to-day and broader responsibilities

Technology enabled working practices

Targeted field inspections informed by predictive maintenance will be completed with safety checks embedded in the process, with mobile technology leveraged to ensure that critical steps cannot be missed. Based on a user's known skill set, in the moment guidance can be provided using digital based training and remote support.

Tools will include;

AI insight - AI powered maintenance and inspections schedules based on predictive insight.

Remote support - Access to virtual / remote engineering support from the field.

Real time updates - Secure and real time visibility of operational status of flexibility assets.

Digital tools - allowing for more efficient organisation and routing of work.

4

Our Digital Journey

Our Digital Journey

We aspire to be at the forefront of the future energy system. To do so, digital will continue to play an important role in realising our aspiration. We are several years into our digital journey and are now seeing the benefits of our strategic investments in digital capabilities.

Our Digital vision	To be a progressive network owner that uses digital to: i. Enhance social and economic value; ii. Provide a leading experience across all our customer types; iii. Enable the energy system to reach net zero carbon emissions; and iv. Drive internal efficiencies, reducing cost to serve	What we have achieved so far...
Continue to build the digital foundations	■ Continue to build the critical capabilities to not just meet but exceed our obligations as a leading network operator. This is the right thing to do for our customers, and the communities we serve and the energy system. ■ This will strengthen our current network and Distribution System Operations, delighting our customers, employees and leading the UK's transition to a low carbon world.	■ Leadership from executive level both at SSE Group and networks levels ■ Mature digital governance and delivery framework ■ Expanded data team and established agile teamsto deliver digital change across the organisation
Building an Open Data future in the wider digital ecosystem	■ We will intimately understand the current and evolving needs of our various customer types by building customer centric propositions. ■ In parallel, we will champion the value of Open Data in building customer centric propositions. This includes defining and iterating data standards in collaboration with other DNOs, ESO and TOs. ■ To help progress the Open Data agenda we will pilot the secure sharing of data with trusted partners to test and learn.	■ Started deploying customer focused design principles through the use of personas and stakeholder engagement ■ Ramped up our external engagement with key programs of work focused on Open Data ■ Actively involved in NUAR, Flexr and MEDA projects
Enabling the future whole energy system and competition	■ Enable a competitive marketplace underpinned by Open Data. This provides a platform for trusted partners to provide new services for our consumers and build innovative business models. ■ We will focus on ensuring our customers understand the value of these new services such as vehicle-to-grid and have access to them.	■ Created the concept of Data Partnerships to drive forward progress ■ Continued stakeholder engagement and embedding for digitalisation throughout our ED2 plan

Our Digital Implementation

We have established four key pillars of development to focus our Digital Journey and allow for an efficient and coordinated deployment of key capabilities and customer services.

	Our intent is to develop our business across four areas	This will create a range of benefits
Customer and Ecosystem	■ Customer experiences that are relevant, simple, effortless and personal ■ Partnerships across the ecosystem to source capabilities and innovative ideas	■ Customer satisfaction will increase being able to easily find the information and services they require ■ Collaborative sharing of knowledge to accelerate progress
Platforms	■ Platform capabilities to optimise investment decisions. ■ Platforms based on Open Data across the energy system and wider with appropriate governance and standardisation.	■ A focal point to drive internal and external consistency and efficiency ■ Broader understanding of Open Data and well implemented and understood data governance
Insights and Automation	■ Automation of key end-to-end processes. ■ Data-driven decision making that uses AI. ■ Strong cyber security and data privacy standards. ■ Data exchange and value focused services for our strategic partners.	■ Reduction in time, resources and errors ■ Greater insight which is more quickly established ■ A reduction of risk and less complex mitigation ■ More relevant data which is highly beneficial
Organisational Alignment	■ Empowered and agile multi-functional teams. ■ Digital and data skills and capabilities ■ Customer facing teams organised around a clear customer need / purpose.	■ More efficient and effective deployment of digitalisation ■ Significant increase in customer service

What success will look like

- **We demonstrate a genuine understanding of our customers' and stakeholders' needs**
- **Our existing products and services are valued by those that use them**
- **We deliver our action plan of products and services for our customers and stakeholders**
- **We demonstrate a bold and leading ambition within our strategy and for our products and services**
- **We realise the longer term value of digitalisation for us and the wider ecosystem**
- **We collaborate within and outside of the energy sector to realise efficiencies, foster innovation and accelerate delivery of our digital strategy, sector and national ambitions for digitalisation and net zero**

Customer and Ecosystem

We are determined to continue to be the industry benchmark for digital services. Our leadership position is based on a deep empathy of current and evolving customer needs. We will pull in compelling ideas and key capabilities from external partners to better serve these changing needs.

Listening to our customers and increasing awareness is a large part of our success. We have established the initiatives below to ensure we continue to act on customer feedback and educate customers to highlight the benefits of digital

Feedback loop

At SSEN, we believe compelling customer experiences and propositions should be anchored on a deep, primary understanding of the current and evolving needs of our 3.8m customers, whilst working towards a long term goal of Net zero greenhouse gases in partnership with many other customers and stakeholders.

Our current investments

SSEN is:

- Delivering the Local Energy Oxfordshire (LEO) initiative which creates an innovative ecosystem that financially rewards a diverse range of participants as they deploy LCT in the most cost effective manner.
- Improving electric vehicle services for customers through a single online EV connection application form and embedding data in our Power Track app to show nearest operational charge points during outages.
- Upgrading our SSEN website to deliver enhanced customer experience on all devices.

Our strategic intent to develop Customer and Ecosystem capabilities

SSEN will:

- Continue to build a leading customer experience in connections, flexibility services and interruptions by relentlessly focusing on the needs of consumers and customers to make propositions relevant, simple, effortless and personal.
- Build a flexible set of integrated digital channels recognising some customers may want non-digital, in-person interaction, then use feedback to drive real-time improvements.
- Design customer journeys that integrate with other parties such as ICPs and EV providers and provide expert guidance at key moments along those journeys.
- Address the holistic needs of customers, for example "I want to charge my EV at home" and not "Complete a LCT notification form".
- Harness Open Data to enable an ecosystem of partners to bring more innovation, leading external insight into our data to drive better asset performance and deliver optimised investment plans across Local Authorities, Transmission Owners, ESO and DSOs.

Where this will create value for our business

Provide access to our in-house analytics capability

SSEN could use its in-house analytics to provide services to help DER owners and aggregators develop their investment case over different network planning horizons, or help local authorities define their energy pathways. This could be a highly personalised offering, or be provided by a self-service platform.

Deeper engagement with innovation partners

SSEN has an opportunity to reinvent the engagement model with innovation partners by providing access to its data and working together to create valuable insight e.g. a fault prediction solution developed by a trusted third party using SSEN's asset data. We see potential for a more open procurement model that can be accessed by wider range of providers.

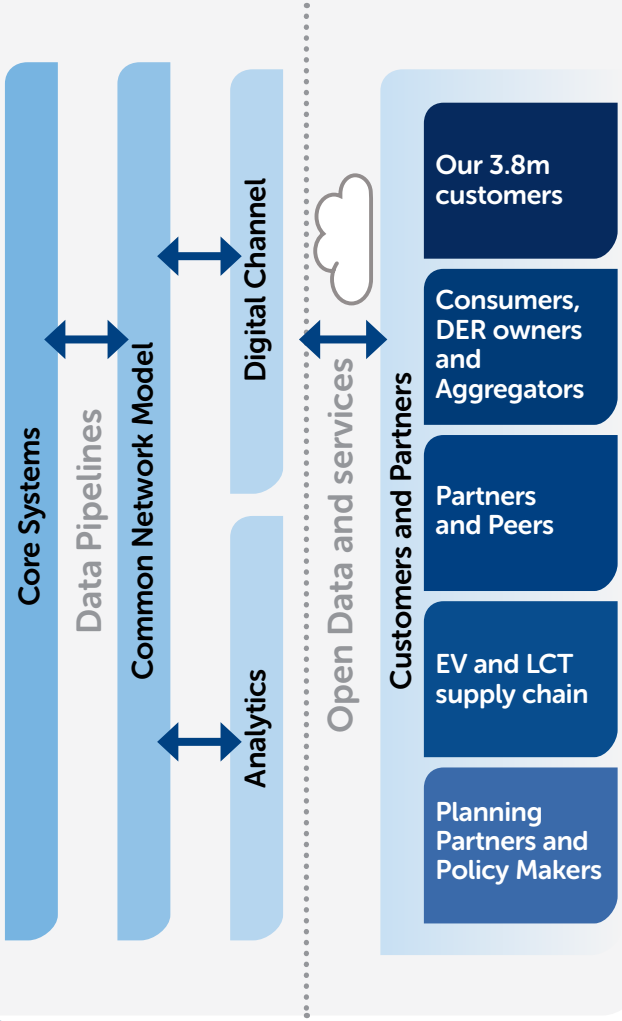
Potential to develop innovative propositions for new customers

SSEN can serve a broader set of customers using a wider range of propositions. This will include services to local authorities as they plan their energy infrastructure, new entrants who can build platforms based on our data and services and the EV supply chain to support the transition to EVs.

Platforms

We see IT and Operational Technology (OT) systems across two lenses: Firstly, to ensure reliability, availability and resilience as the usage of the network evolves. Secondly, as an enabler for data to be extracted and analsyed. Both these roles help to deliver flexibility services and supports EV and LCT uptake.

To realise the potential benefits of Open Data SSEN will securely open up selected platforms to harness the expertise of others



SSEN believes that platforms and a digital architecture are key to delivering the service our customers most value and our energy system needs. Further investment in unified platforms will help address the challenge of fragmented data sets. As SSEN simplifies and modernises its technology estate, we expect to be become a more efficient business by reducing the cost and time to deliver incremental change.

Our current investments

SSEN is:

- Developing platform capability to value flexibility from different generation and demand sources, helping a range of new customers participate in flexibility and ancillary service markets.
- Establishing a range of core platforms and system integration to better manage and share our data internally and externally.
- Upgrading asset and geospatial data to build our connectivity model. This will enable self-serve online connection analysis and a quotation tool for customers and improves external visibility of network challenges.

Our strategic intent to develop platform capabilities

SSEN will:

- Use our GIS connectivity platform to apply data triage and analytics to improve data access and quality to securely expose data across third parties.
- Build platform capabilities to enable Open Data across the energy system. We will lead the development of an industry standard and over time look to expose more of our data.
- Build platforms to optimise network investments. This will be driven by analytics and AI that combine SSEN and external data sets (e.g. EV uptake and location) to create the most likely and most efficient investment plans.
- Develop external platforms to better coordinate the Long-Term Development Statement and whole system planning activities.
- Enhance cyber security controls in line with the Network and Information Systems Directive. Build internal platform capabilities in a way that can work alongside industry wide Co-ordination of Asset Registration (CAR).

Where this will create value for our business

Customer Connectivity Model

Building our Connectivity Model using GE's Electric Office solution alongside our Common Network Model will allow us combine our assets and those owned by customers into a single model. This will provide us with a Digital System Map that we can use to share data with trusted partners and will support a single asset register for the industry.

Asset Optimisation through IoT Technology

We plan to increase monitoring equipment on our LV network. This will provide real-time insight on how the network is coping with the changing usage patterns of Distributed Energy Resources, and provide the data to forecast future demand scenarios at a local level. This data will be incorporated into a Digital System Map.

Transition enabling Platform

Active Network Management Centralisation gives a scalable capability to manage large volumes of flexible connection and dispatch "time critical" flexibility in a economic manner i.e. best value for the network and our customers.

Note: Platforms in this context refers to IT and Operational Technology systems and not multi-sided / market platforms.

Insight and Automation

Computing power is constantly increasing, available data sets are expanding and the number of connected devices is proliferating. There is no doubt of the significant potential for SSEN to drive further value for money for current and future customers through improved collection, sharing and analysis of data.

As SSEN continues to mature its Insight and Automation capabilities, it can unlock new benefits for its customers, shareholders and enhance the employee experience across the below five areas:

	Illustrative examples	
Artificial Intelligence	Pre-fault identification changes that inform network decisions	Identifying malicious intent in markets on our network
Analytics	Continued data quality assurance through analytics	Producing a real-time health index of our assets
Reporting and Visualisation	Improved root cause analysis of customer satisfaction	Capacity heat maps enriched with GIS data for external use
Data Management	Robust data triage tools	Formalised data ownership and support for open data sets
Data Integration	Single source of truth for customer connectivity	APIs for consumer services to enable 'data on demand'

At SSEN we see managing, governing, improving and sharing data as a core competence and a way to drive a differentiating level of value for our consumers. To better serve evolving new customer groups and continue to maintain a reliable and environmentally sustainable network, data will need to become further democratised, enriched with more diverse insights and used to deliver smarter decision making by default.

Current investments

SSEN is:

- Consolidating planning and operational data sets and re-aligning how core systems share data. This data is being integrated to become part of our Digital System Map.
- Upgrading the control system to increase the level of cyber security.
- Finalising system investment that provides us with the platform to share aspects of our Digital System Map with third parties.
- Mobilising a central Data Hub to improve data quality through analytics and provides tools to apply data triage principles.

Our strategic intent to develop Insight and Automation capabilities

SSEN will:

- Build the core data and integration infrastructure in preparation for sharing data in future as the energy system moves towards an Open Data framework.
- Commit to end-to-end process digitalisation that improves customer experience and reduces cost-to-serve. This benefit is then shared with our consumers.
- Make high quality metadata and a data catalogue available and we will work with other DNOs and partners to do this in a co-ordinated way.
- Extract insight from raw data using analytics, machine learning and AI capability. We will base our future business plan on this output and further optimise as we deliver on that plan.
- Champion and advocate the value of open data by defining and iterating data standards, trial the sharing of data and pro-actively engage in regulatory conversations.
- Hold itself to best practice data privacy standards to embed responsible data practices and avoid unintended and socially harmful consequences.

Where this will create value for our business

AI driven guided actions and decision making

AI will automate and guide actions for operational and contact centre staff (i.e. provide 'next best action') to better identify and serve vulnerable consumers, assist our engineers to be more efficient, reduce our cost-to-serve and promote greater safety in engineering field work.

Business intelligence as an external value add service

Externalising business intelligence capabilities to answer questions like 'what might happen to the network in future?', 'where would I best connect by EV chargers?' to provide whole system insights to water, gas and telecommunications companies as well those looking to deliver energy infrastructure.

Apply robotics to automate the simpler core processes

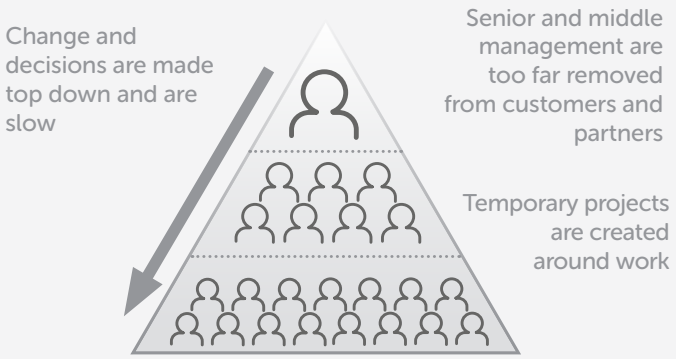
Applying robotics on top of existing platforms to automate low value, repeated processes, decreasing the administrative burden on our people and renewing their focus on value-add tasks. In turn this enables improved data quality, greater focus on our consumers, improves safety and enables us to attract the best talent to our business.

Organisational Alignment

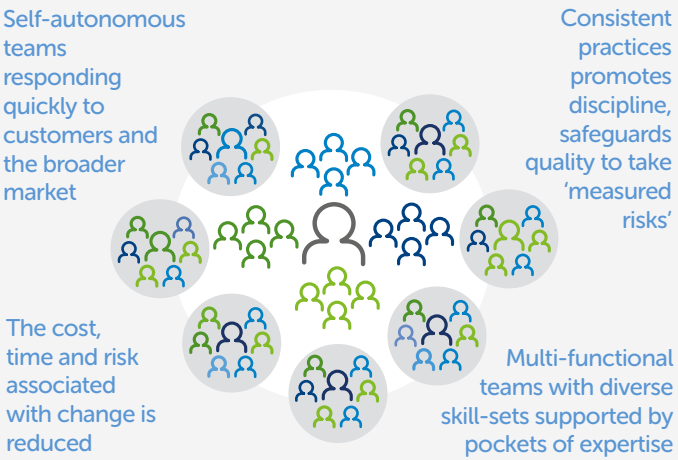
As we prepare ourselves to play a leading role in the future energy system and a world which is increasingly more digital, we are also starting to make strategic investments in our organisation – to evolve our ways of working to be more responsive to our customers and to be more agile in the way we work.

Agile organisations are more responsive, more customer centric with empowered people helping to de-risk the core business

From Top Down Hierarchical...



...To an Agile Organisation



At SSEN we believe that investing in technology is not enough to digitalise the core business. Our people, culture, how we collaborate and ways of working are also fundamental to the success of our digital strategy. We operate in an increasingly uncertain environment with an uncertain path to realise the UK's net zero greenhouse gas ambitions. It is this uncertainty that makes SSEN committed to change its ways of working to promote agility and speed to market whilst maintaining our pedigree of safety and reliability.

Our current investments

SSEN is:

- Making use of customer working groups that bring together people from across our business to improve the customer experience.
- Revising our operating model to be more customer centric and optimised through use of technology.
- Recognising the benefit of organising around small, multi-functional teams and demonstrating agile delivery with mobile field apps and data automation projects.
- Building our workforce resilience strategy and cultural transition plans.

Our strategic intent to develop Organisational Alignment capabilities and an Agile culture

SSEN will:

- Embrace agile ways of working and continue to invest in the digital skills of our people (including digital tooling) and attract leading digital talent.
- Organise around high-priority customer value streams (our customers' journeys with us) so that work is brought to teams rather than building teams around work.
- Prioritise speed to market by building and quickly testing minimum viable propositions in the market and with our people and adapting as needed.
- Empower our people through role modelling new ways of working to create a compelling employee proposition, attract new talent and enable workforce renewal.
- Commit to expanding our use of multi-functional teams to allow for closer collaboration and increase the pace of responding to customer needs and generating new ideas.
- Flatten hierarchies to increase proximity to our customers and ecosystem partners and increase the speed of decision making.

Where this will create value for our business

Multidisciplinary teams

A multi-functional connections team (customer contact, planning engineer, commercial, charging, legal, network solutions) could help a community based generator with a quick, tailored and quality connection by having a single point of customer contact and minimising hand-offs.

Empowered workforce

Leaders across SSEN could empower innovation by providing their people with the space and licence to experiment and the tools (e.g. agile training) to develop compelling ideas to improve the customer experience, identify efficiencies and enhance safety.

Digitisation of learning & accreditations

SSEN could digitalise learning, training and accreditation through gamification helping to develop a culture of continuous improvement. Learning and accreditation consumed digitally helps to initiate and reinforce positive behavioural change.

Introducing our Digital Action Plan

Our Digital Action Plan brings to life a key aspect of our Digital Strategy, summarising the products and services within our 'Customer and Ecosystem' strategic commitments

We believe that compelling customer experiences should be anchored in a deep understanding of both the current and future needs of our 3.8m customers as well our other consumers and stakeholders. As we identify and address needs in the near term we must always be working towards the long term goal of net zero carbon emissions in partnership with our wider ecosystem, helping to realise broader societal benefit through our investments.

To evolve our Digital Strategy and produce our first Action Plan, we have engaged a wide range of customers, stakeholders and experts, and developed draft personas to capture their needs, priorities and expectations from digitalisation.

Our Digital Strategy and the propositions it includes guide us in the development and delivery of the products and services outlined in this Action Plan. It also provides a guide towards those products that may be needed in future. For all products and services, we evaluate who will benefit, when they will be available and how we will measure success.

We also provide an overview of the significant work underway internally to develop our digital and data capabilities, laying the foundations that will deliver on our ED2 commitments and broader role in realising net zero emissions.

Recognising that digital transformation is a journey of evolving knowledge, innovation and collaboration, we will update our Digital Action Plan every six months to report progress against goals, adding new products and services as informed by stakeholder engagement. We also intend to iteratively improve this document through feedback with an aspiration to move the content to an interactive digital format online by Summer 2021, allowing us to better demonstrate the benefits and seek feedback on products and services for each customer and stakeholder group.

1 Our actions are shaped by our customers

- Our 3.8m customers
- Customers in Vulnerable Situations
- DER owners and Aggregators
- Partners and Peers
- Planning Partners and Policy Makers

2 Based on their needs we have defined a set of propositions

- Immediate and real-time outcomes
- Ability to engage through a preferred channel
- Tailored services for those in vulnerable situations
- Tailored insight as part of new flexibility propositions
- Information that builds confidence in flexibility markets
- Contextual data that is easily discoverable
- Self-serve platforms sharing network growth and capacity information
- Joint platforms for co-creating and maintaining investment plans across energy vectors on a regional basis
- Clear demonstration where customers can support in managing our network
- Value adding intelligence from sophisticated data tools
- Collaboration with communities and support organisations

3 And are delivering a set of products and services

- Developing the Flexr service to share Distributed Energy Resource asset information
- Improved ICP and 3rd party access to network records and asset information
- Enhancing our SSEN website and range of digital channels
- Updating Power Track to show EV charging points during a power cut
- Enhancing our Power Track app to support customers during outages

4 All aligned to our ED2 Strategic priorities

- Accelerating progress towards a net zero world
- Providing valued and trusted customer service
- Delivering a safe and resilient network

5

Our Data Strategy

Data is central to our digital strategy

We have laid down our data foundations to support growth into a digitally mature organisation

£ Our data will drive consumer and business benefits

Our Data Governance and Culture

Led by the Director of ED2 to maximise the sustainability and effectiveness of our approach to managing data, a data group organisation has been created to provide oversight for all data activities. We will use our data governance group to focus investment into the areas with the most pressing use cases and reusability across industry sectors to drive towards net zero.

To enable the data culture to be embedded throughout SSEN, we plan to demonstrate its value though training and newly appointed data specialists across all our teams while being driven forward by the ED2 Director.

Our approach to data quality

The quality of our key data is measured, managed and improved upon to ensure that it is fit for the successful execution of critical business processes, meets the needs of customers and stakeholders and enables digital transformation.

Our performance metrics are actively monitored and measured for: completeness, accuracy, consistency, validity, uniqueness and timeliness

Data Quality Management is a continuous improvement activity and is seen as an essential part of running an effective modern business.

Our Data Cataloguing and Data Model

We will make data accessible and understandable by maintaining an inventory of key data.

All key data will be catalogued using our approved data catalogue toolset and referencing industry standard data models.

To enable this we will:

- maintain our technical metadata,
- build business glossary terms,
- create and maintain data models,
- maintain our data lineage,
- ensure our data is democratised

Our approach to Data Triage, privacy and enabling Open Data

To ensure that system security and personal data risks associated with data are managed, we are developing a data triage approach which aligns with emerging Common Data Triage process being developed at the ENA Data Working Sub Group.

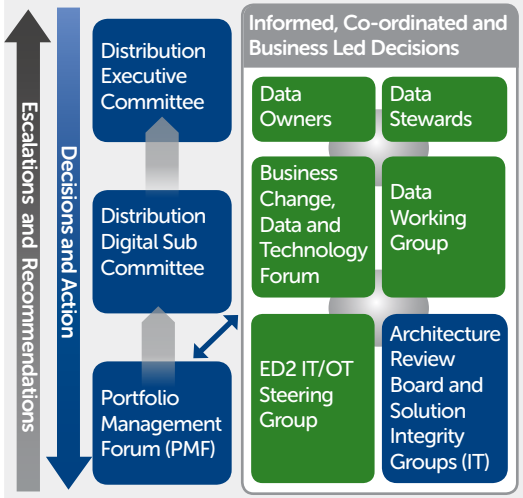
Key considerations: legal right to share, does it contain personal data, is there a security risk, is there a commercial impact, is there a negative impact on consumers, a view on data quality. Appropriate mitigations are applied and published under open, shared or closed rules.

Our approach to creating value from data

Improving our capability to make data driven decisions through making data available through our organisation supported by our centralised data analytics platform and capability. Sophisticated data analytics is supported by the central team with the platform enabling self serve data analytics.

This is supported by a data architecture ensuring that the source data is actively piped to the platform in a format aligned with our data model.

Our data governance structure



Key
New
Existing

Our data governance organisation is accountable to the Managing Director for SSEN and will also report progress to the SSE Group Executive.

Deployment of Axon data Governance and Enterprise Data Catalogue

STORES METADATA	END TO END LINEAGE
GO TO ONE LOCATION	DATA RELATIONSHIPS
LINKS BUSINESS AND TECHNICAL UNDERSTANDING	AI POWERED AUTOMATION
TRUSTED SOURCE	COLLABORATION
AIDS COMPLIANCE AND REGULATION	AUTO IDENTIFICATION

Deployment of our Common Network Model

Assets	Work	Digital Twin
Locations	Cost and Volumes	SCADA Data
Outages and Faults	Connections	Load Forecasts
Capacity and Constrants	Smart Meter Data	Settlements
Employees	Customers	Value-add Insights

Eastablished data road map

Team for insight and prioritise focus areas

Near Term Value Creation

- Insight into Unit Cost
- Dash-boards on Work Completion
- Provide KPIs where they are needed
- Consoli-dation of Customer Insight

Framework for Data Governance

Start to establish Data Governance

- Establish Priority Governance and Owners
- Define Data Quality for ED2
- Define privacy process and policy

Discoveries into production

Create foundational and reusable capabilities that enable immediate change and enduring value creation

Define our agile delivery approach and architectural blueprint

How our data capabilities will support delivery of our digital strategy

Our underlying data capabilities and embedded activities allows us to deliver value and benefits to consumers and the business

	Our key data capabilities		Our key data activities		Key benefits		Our future aspirations
Artificial Intelligence	Central team with Artificial Intelligence (AI) and Machine Learning (ML) expertise		Ensuring that our datasets are easy to convert into AI and ML training datasets and testing datasets		Enable rapid development of new AI and ML algorithms	Understand complex systems and unpredictable outcomes	Deploy more complex and near real time AI and ML algorithms
Analytics	Demonstration of value from analytics	Close working between business and data experts	Integrating core systems datasets to analytics platform	Proactively addressing data quality issues and fixing core issues	Accessible and personalised insight to build expertise for the rest of SSEN	Can support external facing analytical requirements	Democratised data and analytics for business and externally
Reporting and Visualisation	Timely, easily constructed data reports and visualisations	Tooling and skills to share data insights	Ongoing understanding of datasets of reports	Capturing data to drive personas forward	Complex insights easily understood with customisation	Holistic understanding of data throughout	Detailed report and visualisations supporting all decision making
Data Management	Effective data quality identification and correction	Embedding best practice within SSEN	Deployment of data management system	Establishing metadata and a data catalogue	Ongoing trust of data and insights	Actively managed and shareable metadata	Data is valued and respected by all
Data Integration	Integration back to the analytics platform	Established data architecture	Understanding our customers' data needs	Actively setting up datasets and their ongoing changes	Interoperable and timely data internally and externally	Facilitated external data sharing and coordination	Effortless ingest and surfacing of datasets

Key Enablers
Development of new data roles across the SSEN and training for existing roles to increase their data maturity
Alignment and support from SSE group on data governance and management capabilities
Ongoing stakeholder engagement and use of customer centric design to develop relevant customer propositions
An understanding of value of data and data culture embedded throughout the organisation

6

Open to you


Scottish & Southern Electricity Networks
Get extra support during power cuts. Register for Priority Services.
STRATA
Scottish & Southern Electricity Networks

Your role in measuring our success

As we deliver our strategy and on our action plan we want you to help us ensure our digitalisation journey is a success

How we are measuring success internally	Accountability for delivery of our strategy and action plan sits at Director level and our internal governance ensures we have clear measures of success that are regularly reviewed. Our digital strategy investments are supported by a benefits case and success criteria that ensure we deliver our digital strategy in a cost efficient, and timely way.
Your role in measuring the success of our digital strategy	We also want to provide a clear method for our customers and stakeholders to evaluate our success. To enable this we have defined success measures that will be evaluated by our Customer Engagement Group (CEG), alongside customers and stakeholders on an annual basis, with the results being provided within the updates to our digital strategy. **We will measures the success of our digital strategy in the following ways:**
1	**We demonstrate a genuine understanding of our customers' and stakeholders' needs**, that are derived through engagement. We will demonstrate our success by sharing our understanding of our customers' and stakeholders' needs in each Digital Strategy and Action Plan (DSAP) update and the steps we have taken to validate our understanding.
2	**Our existing products and services are valued by those that use them**. We will agree and share a set of meaningful success measures for each product and service and for our longer term strategic intentions. Stakeholder feedback will provide the means to evaluate our progress.
3	**We deliver our action plan of products and services for our customers and stakeholders.** We deliver through the collaborative and customer led design approach described in our DSAP. Through stakeholder feedback and delivering to our planned dates, we can ensure we continue the progress we have made to date.
4	**We demonstrate a bold and leading ambition within our strategy and for our products and services.** We will do this through the use of benchmarks, feedback of our CEG and other external groups and by engaging with the leading experts in digitalisation and product development relevant for our business.
5	**We realise the longer term value of digitalisation for us and the wider ecosystem.** Through delivering our strategy we realise the benefits that digital provides to increase our efficiency, and enable a faster journey to net zero. We have committed to sharing our analysis of the benefits created through delivering our Action Plan, and alongside this as we develop our ED2 business plan for the period 2023-2028, we will communicate the value digitalisation will bring to our customers, the energy sector, and the UK as we transition to net zero.
6	**We collaborate within and outside of the energy sector to realise efficiencies, foster innovation and accelerate delivery of our digital strategy, sector and national ambitions for digitalisation and net zero.** Our action plan will continue to detail the areas in which we are collaborating and through engagement with customers and stakeholders, we will determine further opportunities to work with others.

Open to you

We use stakeholder feedback to improve our business and your views will make a real difference to our digital future, so please let us have your opinions.

Through our ED2 stakeholder engagement, digitalisation is a core theme that cuts across all our activities and impacts the wide range of customer and consumer groups we highlighted in this document. Therefore, digitalisation will be a consideration in all of our ED2 engagements. If you would like to know more and are not already registered as an SSEN stakeholder, please register here:

www.ssen.co.uk/StakeholderEngagement/HaveYourSay

We have a detailed technical questionnaire on how we are delivering digitalisation, please contribute here:

www.ssen.co.uk/dsap

We are also carrying out small groups of expert stakeholder engagement on the delivery of Digitalisation, if you are keen to feedback in one of these sessions please get in touch here:

futurenetworks@sse.com

1. **To what extent do you agree with the content of our strategy and action plan? Please let us know where you think SSEN could improve.**
2. **To what extent has this document increased your understanding of the opportunities enabled by digital for SSEN? Please let us know where clarity can be improved.**
3. **To what extent has this document increased your understanding of the potential of Open Data to enhance value to the customers and the communities that SSEN serves?**
4. **How bold do you think SSEN's digital strategy is? Please let us know which areas of the strategy could be bolder.**
5. **Is our action plan sufficiently ambitious? Which areas require a stronger focus?**
6. **To what extent do you feel that SSEN is making progress in meeting the current and future needs of our customers in a digital world?**
7. **In the process of digitalising the business and opening up data securely, where should our priorities be focused? For example EV connections, whole system planning, customer supply interruptions.**

Digital feedback survey

If you would like to give general feedback or fill out our questionnaire, please go to:

www.ssen.co.uk/DigitalFeedback/

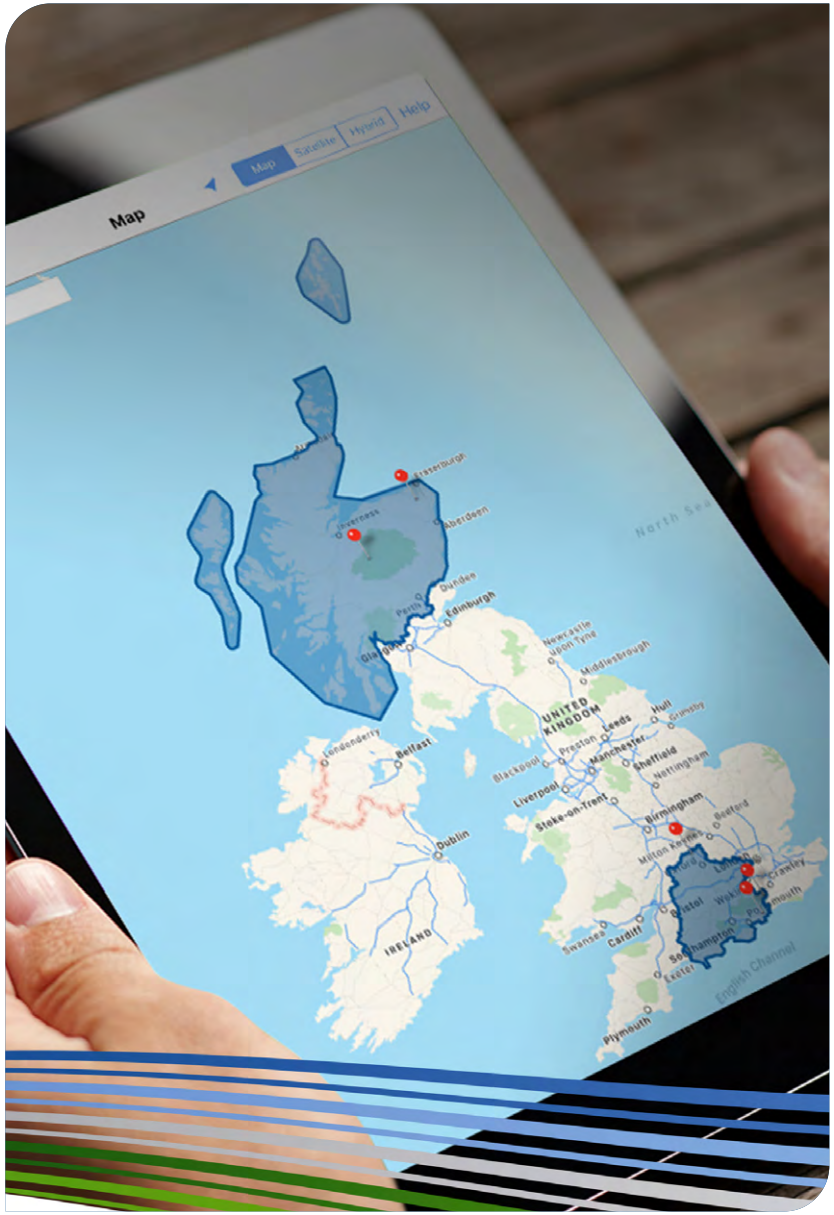
Glossary

Term	Definition
Aggregators	A new type of energy service provider which can increase or moderate the electricity consumption of a group of consumers according to total electricity demand on the grid.
Agile	Methodology and way of working based on iterative development, where requirements and solutions evolve through collaboration between self-organising cross-functional teams.
API	Application programming interface: a computing interface that defines code and interactions between different software platforms.
Artificial Intelligence (AI)	Development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision making and translation between languages.
CEG	Customer Engagement Group
Channel	A digital medium (website, mobile, Chatbot) by which to consume content, engage with a brand and / or complete a transaction.
CMZ	Constraint Managed Zones . These zones make use of technologies providing flexibility to alleviate network constraints, deploying them as an alternative to traditional network reinforcement in the management of peak demand.
Consumer	Energy consumers, meaning wider users of network services including business and domestic customers that pay for their network use through energy bills.
Customer	An individual, business, generator or flexibility service provider that is connected to, or seeks to connect to SSEN's electricity distribution network.
Decarbonisation	Reducing the carbon intensity in terms of emissions per unit of electricity generated.
Data triage	Systematically find issues which should inhibit open data, identify the 'least impact' mitigation technique(s) and make the process transparent
Digital	Describes the dominant use of the latest digital technologies to improve organisational processes, improve interactions between people, organisations and things, or make new business models possible.
Digitalisation	The use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business.
Digital System Map/ Digital Twin	A digital representation of a real world entity or system.
Distributed Energy Resources (DER)	Any resource on the distribution system that produces or stores electricity. This can include distributed generation, storage, heat pumps and electric vehicles as well as other technologies.

Term	Definition
Distribution Network Operator (DNO)	The distribution system is a network of wires, transporting electricity from the transmission system or distribution connected generation to domestic, commercial and industrial electricity consumers.
Distribution System Operator (DSO)	Securely operates and develops an active distribution system comprising networks, demand, generation and other flexible distributed energy resources (DER).
DSAP	Digital Strategy and Action Plan
Ecosystem	Connection of people, processes, companies, data and things that share the use of digital platforms. Participants in an ecosystem interact with each other to create and exchange sustainable value.
ED1 and ED2	Refers to Ofgem's RIIO-ED1 and RIIO-ED2, which is Ofgem's electricity distribution price control model for network regulation (Revenue = Incentives + Innovation + Outputs)
Electricity System Operator (ESO)	Supply and demand are balanced second by second and in the longer term and that power flows across the network safely and reliably.
ENA DWG	Energy Networks Association Data Working Group
EV	Electric Vehicles
Flexr	Flexr is a DNO data provision and standardisation service from ElectraLink that will connect to the data held by all six DNOs and their DER customers.
Fuel Poor	A fuel poor household is defined as one that needs to spend 10% or more of their household income on all fuel use in order to maintain a satisfactory heating regime.
GIS	Geographic Information System: computer based visualisation of spatial and geographic data.
Independent Connection Providers (ICPs)	An independent connections provider not affiliated to a distribution network operator.
Independent Distribution Network Operators (IDNO)	Independent Distribution Network Operators (IDNOs) develop, operate and maintain local electricity distribution networks.
Internet of Things (IoT)	IoT refers to a vast network of devices connected to the Internet with the promise to enhance real-time customer experience and unlock new value from data.
Lean Six Sigma	Continuous improvement methodology and tools for business problem solving and process improvement.

Glossary

Term	Definition
Long Term Development Statement	A document that sets out the use and likely development of the distribution network and the distribution network operator's plans for modifying the distribution system.
Low Carbon Technologies (LCT)	Processes or technologies that produce power with substantially lower amounts of carbon dioxide emissions than is emitted from conventional fossil fuel power generation.
Low Voltage (LV)	This refers to voltages up to, but not including, 1kV.
Machine Learning	Machine learning is an area of artificial intelligence concerned with developing techniques that allow machines to learn.
MEDA	Modernising Energy Data Access: UK Government competition to enable energy data to be open-sourced for the benefit of society.
Metadata	Data that describes other data. It helps to organise, find and understand data.
Net zero emissions	Any emissions would be balanced by schemes to offset an equivalent amount of greenhouse gases from the atmosphere, such as planting trees or using technology like carbon capture and storage.
Neutral Market Facilitator (NMF)	The Neutral Market Facilitator (NMF) will provide a market for trading the use of Distributed Energy Resources (DERs)
Open Data	Data in a machine readable format that can be freely used, shared and built on by anyone, anywhere, for any purpose.
Platform	Series of cloud based technologies that offer pre configured solutions to common business processes together with a flexible way to extend and build new processes to support your own requirements.
Priority Services Register (PSR)	A register of all customers in an electricity distribution area that are of pensionable age, have a disability, are chronically sick, require special communication needs, depend on electricity for medical reasons, have children under five in the household or require certain information and advice about supply interruptions.
Service Oriented Architecture (SOA)	Service-Oriented Architecture (SOA) is a style of software design where services are provided to the other components by application components, through a communication protocol over a network.
SSEN	Scottish and Southern Electricity Networks
Transmission Owner (TO)	Companies which hold transmission owner licenses.
Vulnerable Consumer	Significantly less able than a typical consumer to protect or represent their own interests; and/or significantly more likely to experience detriment, or for that detriment to be more substantial.



Engage with us

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

stakeholder.engagement@sse.com

www.ssen.co.uk

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Scottish & Southern Electricity Networks

Powering our community