

SP Energy Networks vision of our DNO to DSO Transition

Who are we?

We are SP Energy Networks, part of the Iberdrola group, leaders in sustainable innovation. As your Transmission and Distribution Network Operator (DNO) we supply electricity to 3.5m customers, homes and businesses throughout Central and Southern Scotland, North Wales, Merseyside, Cheshire and North Shropshire.

We do this through our network of overhead lines and underground cables which could stretch almost three times around the globe. Our three regulated electricity licences are:

- SP Transmission PLC (SPT)
- SP Distribution PLC (SPD)
- and SP Manweb PLC (SPM)



We deliver a safe and reliable electricity supply **24 hours** a day, **365 days a year**

We are **regulated by Ofgem**, who set the level of revenue made by energy companies through the **RIIO Price Control model**. This model delivers a sustainable energy sector, drives value for money and encourages innovation to help us meet demand in the changing energy landscape



It would cost around **£17bn to replace our network today**

We are committed to supporting the government's ambitious **carbon reduction targets** and have connected **30% of the UK's wind generation** on our networks.



We provide a **99.9% reliable network** at the cost to an average bill payer of just **30p-35p** a day. That's less than a 2nd class postage stamp!

We employ 3,000 direct staff and **3,000 contractors** while also supporting **12,000 jobs** indirectly across our supply-chain



Between 2006 and 2017, **we reduced** the annual percentage of customers experiencing a **power cut by 15%** and the duration of power cuts by over 50%

Each year **we invest £775m** into our network with just a **4-5% return** on our investments over the next 45 years



We have launched a new **£20m Green Economy Fund** aimed at kick starting the transformation of the way both transport and heating is powered in Scotland



Delivering excellent customer service



Delivering excellent customer service is our number one priority and we are proud of our customer satisfaction score:

Institute of Customer Service Customer Satisfaction Index –



Ranking Top 50 UK Companies.

Our **overall index of 84.5** well exceeds the UK average of 78.1 – Above Waitrose and M&S and ranking us **equivalent 7th in the UK.**



First place among all ranked utilities



We are equivalent to **1st for Customer Effort** against the top 50 UK Companies for all service sectors.

Our **vulnerable customers** rate us **9/10** for the support they receive

Customer satisfaction has **risen by 21%** over the current price control period



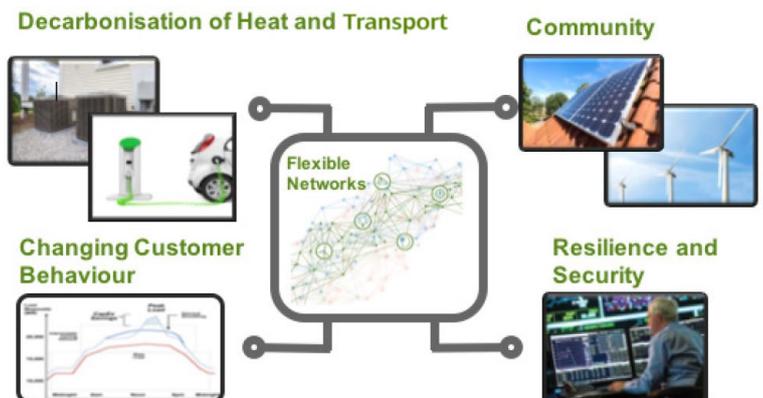
Changing Energy landscape

Our energy landscape is evolving at pace as the global community takes action on climate change. To meet ambitious government carbon reduction targets, the way we generate, distribute and use energy is changing.

Large traditional thermal power stations are increasingly being replaced by renewable generation such as solar and wind so we no longer rely on large power stations supplying all our customers.

Customers are choosing more sustainable options for everyday activities such as heating and transport. We need to change too, adapting to the low carbon, more flexible smart grid of the future whilst still providing low cost, safe, reliable electricity distribution for our customers.

We call this future network model 'Distribution System Operator'(DSO).



Networks need to adapt and meet these challenges at lowest overall cost to customers

The Energy Networks Association Open Networks Project

We are passionate about supporting this industry-wide change and the opportunities it brings to our customers. So we are playing a leading role in the Energy Networks Association's Open Networks project.

The project is an industry-wide collaboration to find solutions to the network challenges we face by redefining the way electricity networks operate, laying the foundations of the smart grid in Great Britain and agreeing what our DSO future looks like. The project

is led by the Electricity Networks Association (ENA), and Ofgem, The Department for Business, Energy and Industrial Strategy (BEIS), and all 10 of UK and Ireland's electricity network operators are part of this industry-wide project.

The Future World's Consultation

There are a range of options as to how the future smart energy grid could work. The most recent Open Networks project consultation, launched by the ENA, sets out and seeks opinions on five such options (called 'Future Worlds'). In summary, **the five potential future worlds are:**

World:	Main Element:	Description:
A	DSO Coordinates	A world where the DSO (Distribution System Operator) acts as the neutral market facilitator for all Distributed Energy Resources (DER) and provides services on a locational basis to National Grid in its role as the Electricity System Operator (ESO).
B	Co-ordinated DSO	ESO (Electricity System Operator) procurement and dispatch – a world where DSO and ESO work together to efficiently manage networks through coordinated procurement and dispatch of flexibility resources.
C	Price Driven Flexibility	A world where changes developed through Ofgem's Reform of electricity network access and forward-looking charges have improved access arrangements and forward looking signals for customers.
D	ESO Coordinates	A world where the ESO is the counterparty for distribution energy resource (DER) with DSOs informing the ESO of their requirements
E	Flexibility Coordinator(s)	A world where new national (or potentially regional) third party(ies) act as the neutral market facilitator(s) for DER providing efficient services to the ESO and/or DSO as required.

So what does this mean for you and why should you get involved?

This new model will transform our energy network to best meet the needs of all our future energy consumers. It will allow for radical technological developments, such as two-way grids, smart

vehicle charging, and smarter control of gas and electricity flows at the local level. We know our stakeholders have a wealth of experience and breadth of viewpoints which can help inform

this debate. We need your views to help build the evidence base and provide context from your experience about if, and why, you may participate in this new flexible market.

New smart energy infrastructure could deliver economic benefits across the UK:

£13billion

An estimated £13 billion of Gross Value Added

£5billion

£5 billion of potential exports to 2050

9000jobs

Up to 9,000 jobs over the 2020s and 2030s associated with creating smart grids (BEIS)

If the industry evolves correctly you will benefit from:

- Increased ability to adopt low carbon technologies (like electric vehicles) sooner
- Greater control of our energy and ability to lower costs
- Using new smart energy efficiency technology will help users adjust consumption remotely and buy or sell electricity from battery storage including electric vehicles
- Homes and businesses will be able to control their electricity use at the times of day to produce more at cheaper, off-peak times of the day
- Promote greater competition in energy markets, offering greater choice
- Selling power generated by new technologies such as solar panels and wind turbines, therefore generating money
- Ensure that the planning, operation and maintenance of the energy networks is done as intelligently and efficiently as possible
- Reducing power cuts and minimising disruptions
- Delivering cost efficiencies with feasibility services providing alternatives to traditional investment

SP Energy Networks' View

Why should the DNO become the DSO?



1. It's best for security of supply and customer service

We have deep knowledge of our local and regional distribution networks and the customers we serve and already have significant infrastructure in place to deliver excellent customer service.



2. Best value for customers

Simplest and lowest cost transition which also retains focus on customers and local requirements (avoids costs of duplication).



3. We can move to the new model quickly

We are already transitioning through ongoing projects such as Active Network Management in Dumfries and Galloway and demonstrating our ability to offer flexibility services through UK leading pilot projects such as Fusion.

SPEN DSO Transition Assessment criteria

Criteria	Requirement	DNO (Worlds A&B)	ESO (National Grid) (World D)	Independent DSO (World E)
World C is not an independent world but works with the four other worlds				
Safety	Keeping the voltage of customers' supplies within safe limits (avoiding public risk of customer equipment failing dangerously)	Manage local supply voltages and fault levels within safe limits	Manages GB wide system frequency	Does not currently exist: 
	Keeping network fault levels within safe limits (avoiding public risk of customer equipment failing dangerously)	Across GB, have >25 million customers (SPEN has 3.5m)	Across GB has hundreds of large industrial customers	
	Engaging with vulnerable customers to mitigate the impact of local network outages	Across GB, have 2-3 million vulnerable customers (SPEN serves over 800k vulnerable households)	Has no vulnerable customers Typically has no faults that affect customers	
Service	Minimising frequency and length of power cuts to customers	A DNO manages up to 120 high voltage network faults on a normal day (many more during exceptional storms)		Significant set up costs and risks
	Engaging effectively with all customers affected by power cuts	Has customer databases and network connectivity systems		
	Ensuring local networks are resilient to storm events	Existing engagement channels with communities, local authorities, cities and devolved government		
Society	Enabling the low carbon transition at lowest overall cost to customers		Significant set up costs and risks	Duplication of DNO systems and information
	Facilitating the low carbon transition for all customer groups (universal access)		Duplication of DNO systems and information	New interfaces, potentially introducing inefficiencies and service and safety issues
	Meeting local priorities (e.g. community/ city and devolved government projects)		Efficient and effective to extend existing responsibilities	New interfaces potentially introducing inefficiencies and service and safety issues
		Ensures single responsibility for safety and service of local networks	Will be challenging to deliver local priorities	Could evolve (in future) from DNO when needs case and customer benefits are clear (similar to the TO/ESO)
		Ensures customer needs remain at the heart of the DSO transition	Ultimate requirement unclear, so could represent a major unnecessary investment for customers	

Our journey towards becoming a Distribution System Operator (DSO) has already started

In 2016 we were the first DNO in the UK energy industry to launch our DSO vision paper. Now, here in 2018 comms we are working collaboratively with other DNOs in U.K. and Ireland to make the move to a DSO. We have flagship innovation projects that are key to creating a smarter flexible network:

- **Fusion** will create an Information Technology (IT) infrastructure required to facilitate a local energy market and release additional network capacity to allow more low carbon technology connections to the network.
- **Dumfries and Galloway** Integrated Network Management will allow us to simultaneously monitor and match network capacity with local generation output for distributed energy resources of all sizes. This is the single largest and most capable active network management project in GB.

We are working collaboratively with communities and other stakeholders to ensure our activities are driven by those who use our services.



Get Involved!

The way our energy industry shapes itself for the future will impact on each and every one of us. So we want to hear from you. Respond to the ON Future Networks Survey available on the ENA Website. Join our stakeholder online community and get involved with discussions. This is a fast paced environment so make sure you sign up to receive the latest information on our business and events so you can stay up to date. **Visit our website for more information:**

www.spenergynetworks.co.uk/online-community

To respond to the consultation or for more or for more information on the ENA Open Networks project please visit the ENA website:

www.energynetworks.org/electricity/futures/open-networks-project