



# Planning and delivering on Net Zero Networks

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Whole System Manager*

27 April 2023



# Who we are

We own and operate two regulated distribution networks, SP Distribution plc (SPD) and SP Manweb plc (SPM). We are the only DNO group to operate across all three nations of GB – Scotland, England and Wales. We also own and operate one transmission network in Central and Southern Scotland, SP Transmission plc (SPT).

**Our business is crucial to the delivery of the UK's Net Zero targets and the transition to a more sustainable future.**

**We are committed to making this happen at pace, and placing our customers and stakeholders at the heart of this journey.**

### Key facts

**>7m people served**

across 3.5 million homes and businesses



**30,000**

substations across our distribution network areas



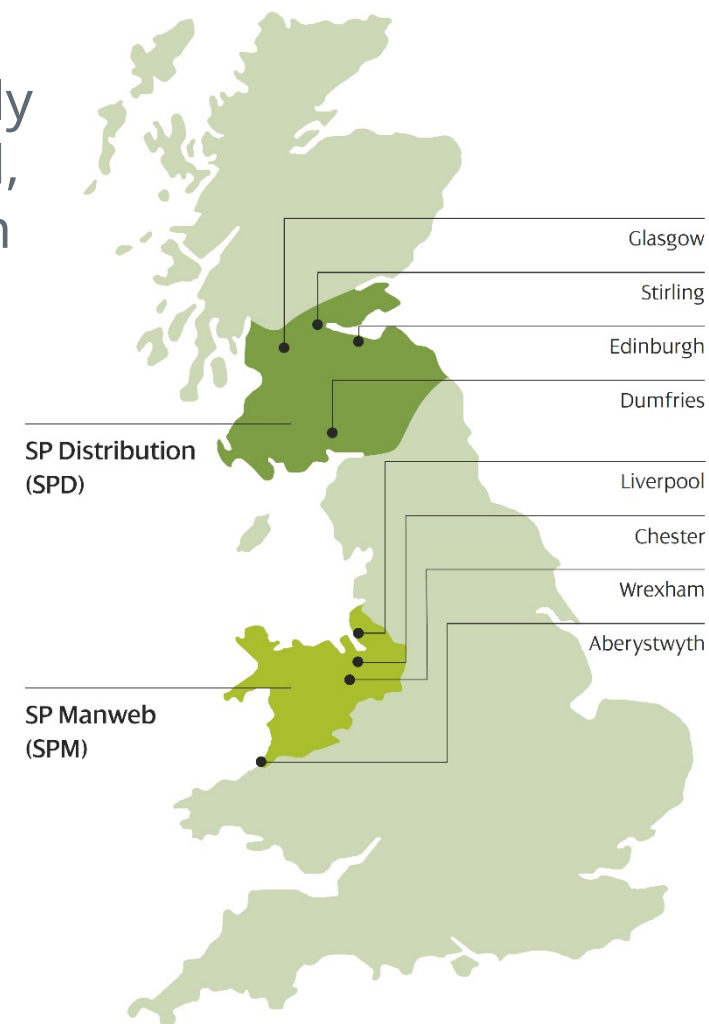
**>2,400 employees**

across our distribution business



**>100,000km**

of cables and overhead lines, enough to wrap 2.5x around the world



# Enabling the path to Net Zero

This is a time of unprecedented change for our business and the wider energy sector. To enable legislated Net Zero targets, we must transform the architecture of our network, the services to our customers, and the capabilities of our business.

Our network has served us well, but, with so much change ahead, now is the time to invest for the future. We need to future-proof the network to ensure the continued safe, secure and reliable service that our customers want.



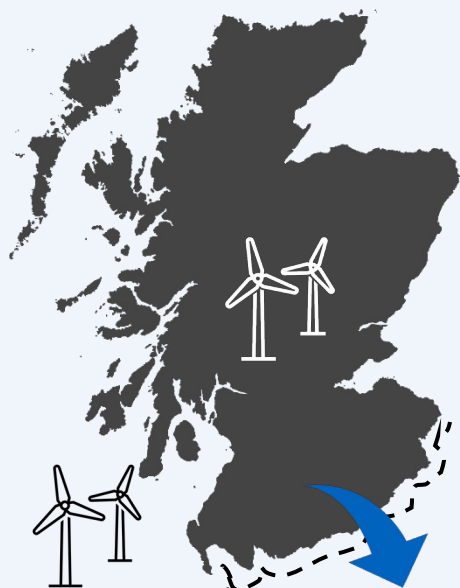
## Net Zero targets

UK	Scotland	Wales
<b>Net Zero target dates:</b>		
<b>2050</b>	<b>2045</b>	<b>2050</b> <i>Public sector by 2030</i>
<b>% Greenhouse gas emission reduction targets:</b>		
<b>68% by 2030</b>	<b>75% by 2030</b>	<b>63% by 2030</b>
<b>78% by 2035</b>	<b>90% by 2040</b>	<b>89% by 2040</b> <i>Avg 58% (2026-30)</i>
<b>Renewable generation targets:</b>		
<b>100% decarbonised power generation by 2035</b>	<b>50% of energy consumption by 2030, and almost 100% by 2050</b>	<b>70% of generation by 2030</b> <i>(set in 2017)</i>
<b>UK Targets for transport and heat</b>		
<i>End the sale of new petrol and diesel only vehicles by 2030 (with hybrid sales ending in 2035)</i>		<b>by 2030</b>
<i>Install 600,000 heat pumps per year by 2028</i>		<b>600,000</b>

# Planning for Net Zero on the Transmission network

Major energy networks projects in central and southern Scotland are being driven by the need to deliver new connections, reinforce the MITS, modernise our assets and ensure security and system operability.

## 2022 Future Energy Scenarios



Current Transfer Capacity: **6.6GW**

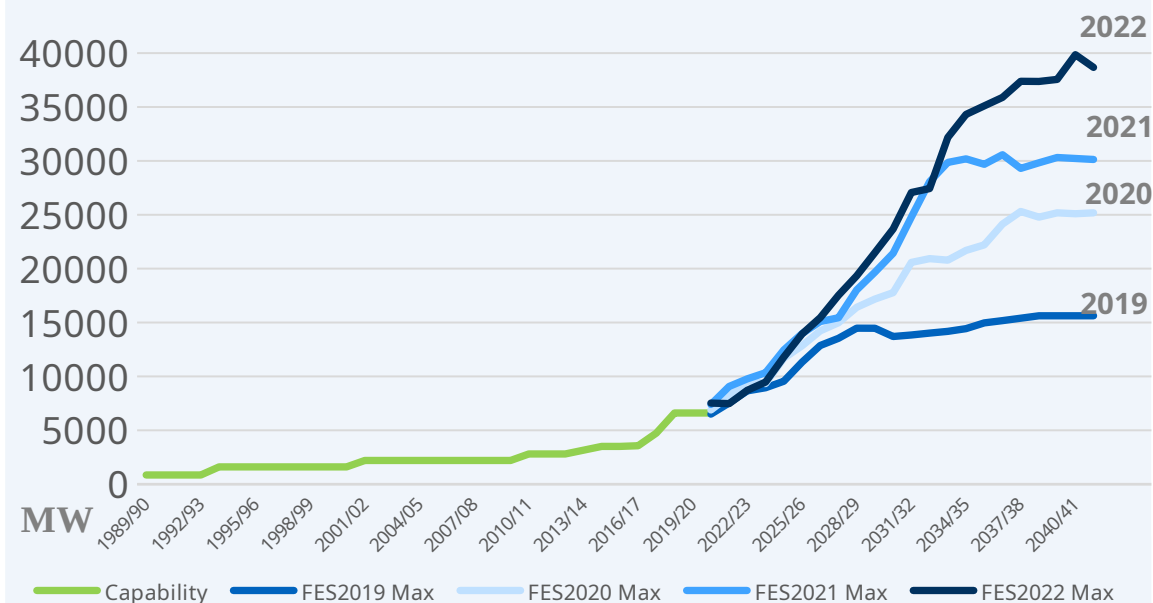
**Onshore and Offshore Wind in Scotland:**

Up to **60GW** by 2040

Increasing the transfer requirement between **Scotland and England** to:

Up to **40GW** by 2040

## Historical B6 Capability and Maximum Required Transfer FES 2019 - FES 2022



We have a key role to facilitate the transition to Net Zero and tackle the Climate Emergency

# Planning for Net Zero on the distribution network



**Eight million LCTs by 2050.**



**Four times distributed generation by 2050.**



**Double Peak demand by 2050.**

These customer-led changes far exceed what our networks and systems were designed for creating 4 key challenges:

## Create additional network **Capacity**

to ensure can accommodate our customers' EVs, heat pumps, and generation.

## Manage increasing **Complexity**

to safeguard the network and whole system, and to enable new markets to operate safely and efficiently.

## Recognise increasing network **Criticality**

as our customers are becoming increasingly dependent on their electricity supply for all their activities.

## Manage deteriorating asset **Condition**

as utilisation and criticality increase due to greater levels of demand and generation.

We have a key role to facilitate the transition to Net Zero and tackle the Climate Emergency



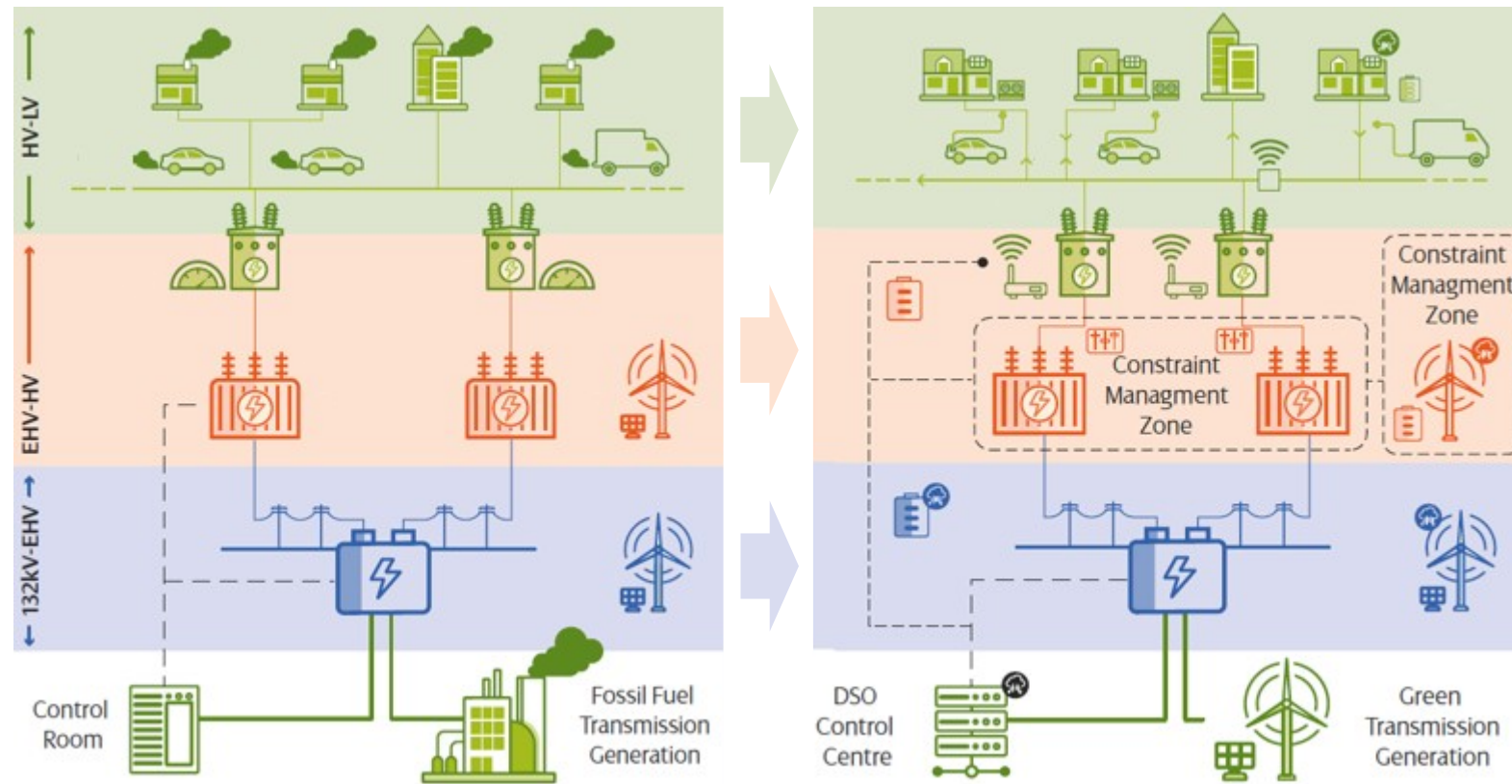
# Changing network planning assumptions

## The Network Transition

**Passive** LV network with limited visibility, with manually intensive and operational processes.

**High levels** of generation have been connected, with the network now its approaching limits.

**Closure** of large synchronous generation e.g. Longannet, creates **security, operability, resilience & restoration challenges**.



**Dynamic** LV network with full visibility & control and widescale automation.

**Transformation** of planning and operational processes using our Data & Digitalisation.

**DSO capabilities** increase transparency and enable new solutions e.g. flexibility, through advanced analysis, open data, and new markets to manage a more complex interactive system.

Increasing customer requirements, complexity of planning & operation, and whole system interactivity

# Delivering Net Zero networks – 2021/22 snapshot

## 2021/22 – Transmission

**186MW** of renewable generation connected to our network since April 2021.

**£2.8m** invested in ongoing innovation activities supporting decarbonisation and environmental protection.

**34%** increase in connection applications from 2020/21.

## 2021/22 – Distribution

We over **2.6GW** of onshore wind connected to our distribution networks.

**695MW** we have accepted 694.6MW of flexibility bids in 2021/22.

**22%** Reduction in interruptions with the duration of those reduced by 30%. We are already exceeding our 2023 targets.

**6  
Years**

Our business carbon footprint has been accredited through Plant Mark's external verification scheme

**1.5°C**

Our Science Based Targets have been validated by SBTi

Working with our communities to continue delivering a safe and reliable electricity supply

# Our RIIO-T2 business plan in numbers

**£2.2bn**

In RIIO-T2 we will invest £1.3bn to deliver our ambitious plan (baseline). £2.2bn -including Uncertainty Mechanism forecast.

**£2.2bn**

Across baseline and uncertainty mechanisms for RIIO-T2

**£110m**

We have embedded £110m of savings in our baseline plan by building on our track record of innovation and efficiency.

**+£1.6bn**

Additional Holistic Network Design (HND) required by 2030

**10p**

Our domestic customers will pay on average 10p per day to deliver our business plan, approximately 2% of an average electricity bill .

**>11GW**

Of Scotland's generation is currently facilitated by our transmission network

Delivering on our vision and ambition for RIIO-T2 from 2021 to 2026



# Our RIIO-ED2 business plan in numbers

## c. £3bn

We will spend in RIIO-ED2 of baseline funding to deliver our ambitious plan

## 89%

of our Engineering Justification Papers were assessed by Ofgem as fully justified – by far the highest of any DNO

## 40p

Our domestic customers will pay an average of 40p per day for our services, approximately 8% of an average electricity bill.

## 95%

Taking into account uncertainty mechanisms, we secured circa 95% of our overall business plan submission.

## 9.4/10

We have committed to deliver a customer satisfaction rating of 9.4/10 across every service and every channel, by 2028.

## 19,174

19,174 customers and stakeholders had the chance to change & shape our proposals through the development of the plan.

Running from 2023 to 2028, ED2 is our vision for a network that can meet the challenge of Net Zero

# Delivering Whole System Outcomes

Delivering efficient Whole System outcomes as standard is essential to ensuring our network is ready for the energy transition and that our customers are supported on their journey to Net Zero.

## Whole System Outcomes

Co-ordinate with other energy vectors including heat, transport and hydrogen

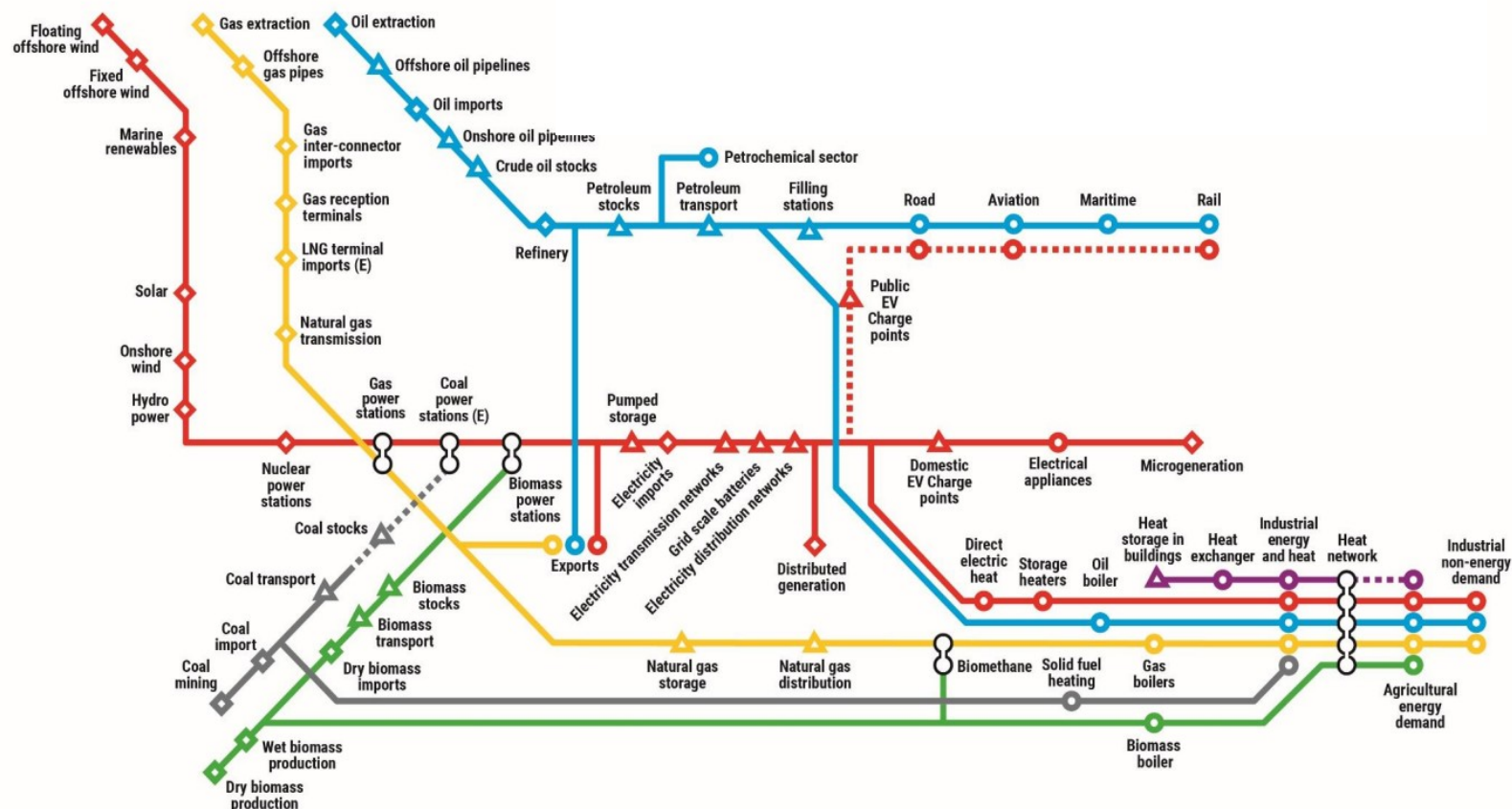
Support communities and vulnerable customers in the transition to Net Zero

Innovation, markets and flexibility to push the boundaries of Whole System thinking

Data sharing processes

Strategic Partnerships

WS thinking in our organisation, culture, and ways of working to deliver long-term value



Collaborating to ensure efficient investment in our network on the journey to Net Zero

Image Ref: Scottish Government Draft Energy Strategy and Just Transition Plan - Jan 2023



# Thank you

*If you'd like to find out more visit:  
[www.spenergynetworks.co.uk](http://www.spenergynetworks.co.uk)*