

From PACE to RIIO-ED2

Mark Goudie – Whole System Manager

Whole System & Market Development

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Mark Goudie

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



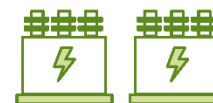
>2,600 employees

across our distribution business



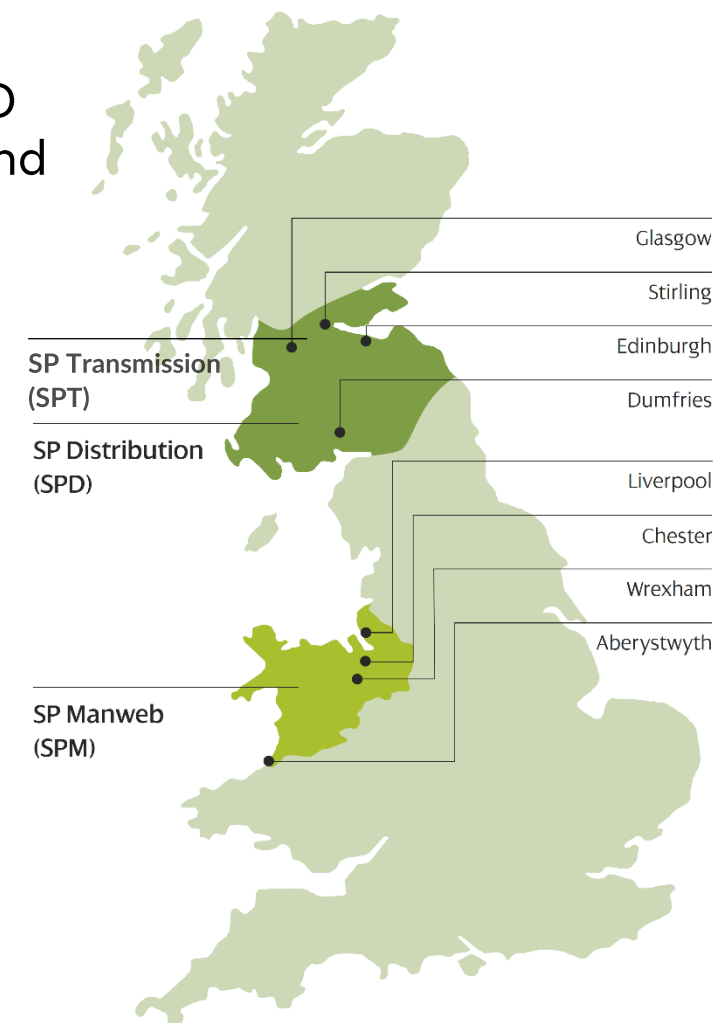
30,000

substations across our distribution network areas



>100,000km

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



SPEN Distribution Future Energy Scenarios (DFES) 2022

To efficiently plan and operate our network to accommodate our customers' requirements, we first need to understand what these requirements are.

We develop Distribution Future Energy Scenario (DFES) forecasts to do this. We then compare these against Net Zero compliant scenarios from the Electricity System Operator (ESO) and the Climate Change Committee (CCC) to develop our RII0-ED2 investment scenarios.



Electrification of Transport

0.9m - 1.9m new EVs by 2030



Electrification of Heating

0.3m - 1.0m new heat pumps by 2030

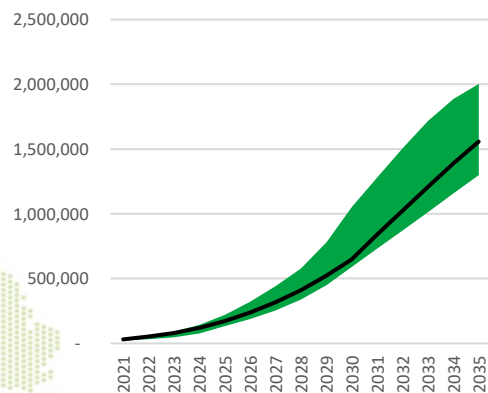


Distributed Generation

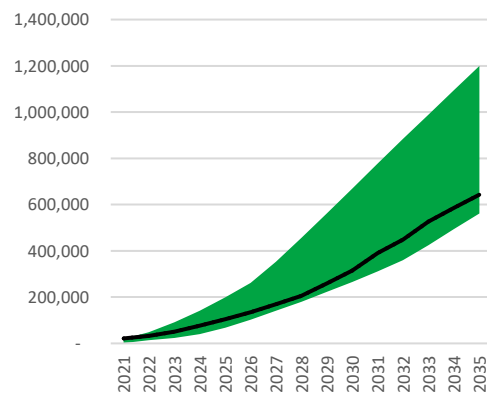
+6GW to +10GW of new generation by 2030. (up to ~3 x current levels)

SP Distribution

Total EVs 

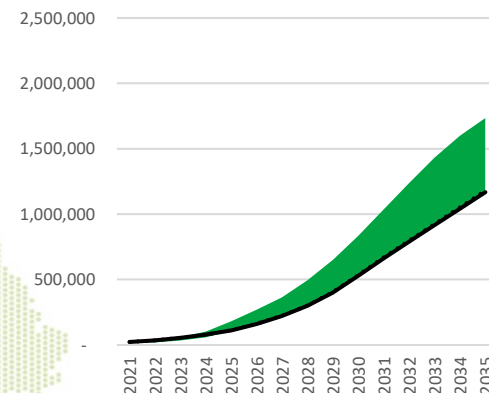


Total HPs 

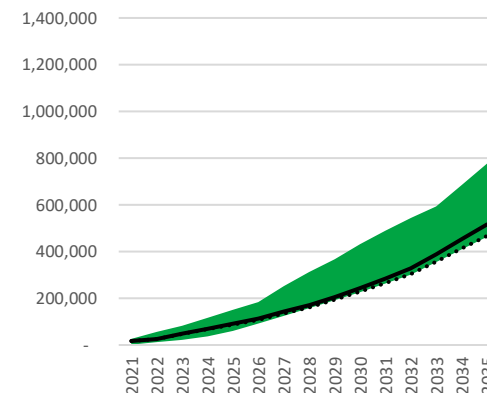


SP Manweb

Total EVs 



Total HPs 



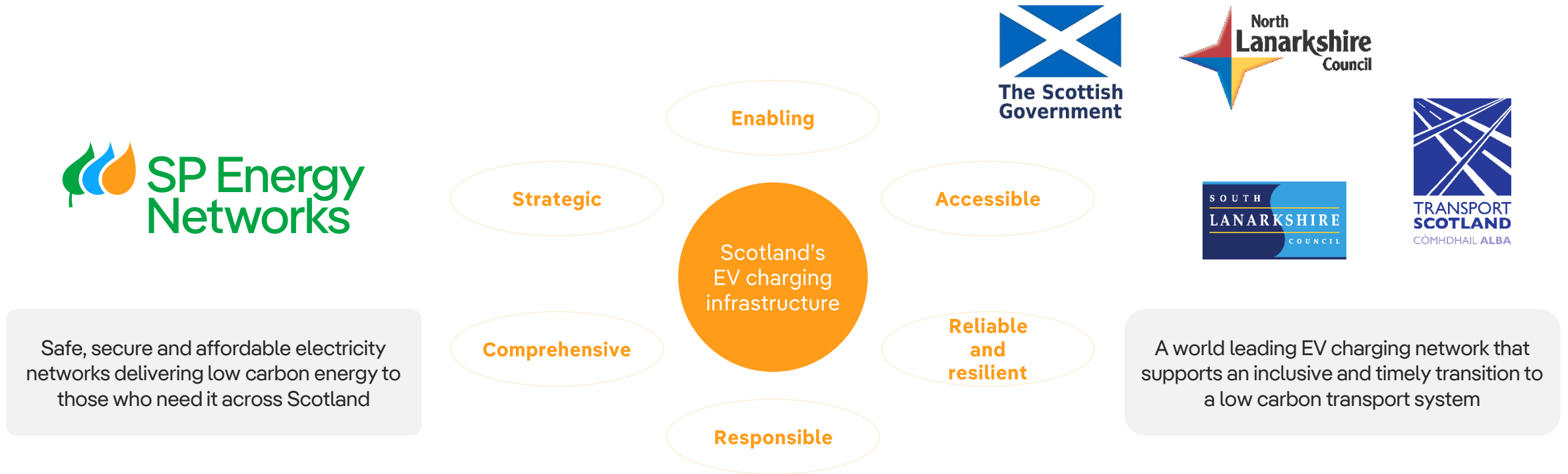
DFES updated values are going to be published in December 2023

2022 Scenario range

2022 Baseline scenario

Strategic Partnership

A strategic partnership between the Scottish Government, Transport Scotland, South and North Lanarkshire councils and SP Energy Networks was established in 2019 with the aim of coordinating the decarbonisation of transport with the strategic development of the electricity networks.



Jenny Gilruth, Scottish Government Transport Minister

“Our electricity network companies will be critical in growing Scotland’s electric vehicle charging network and the benefits that SP Energy Networks have brought to project PACE are clear.”

Project PACE - Overview

First major project delivered by SP Energy Networks on behalf of the Strategic Partnership.

Explores the roles a DNO can play in the process of planning and delivering a public EV charging network for areas of high electricity and transport energy demand.

Project Objectives



Efficiency

- Identifying the most cost-effective potential EV ChargePoint hub sites to connect to, from an electricity network point of view.
- Complex sites that could have created unforeseen costs or delays were eliminated early in the process.



PACE/Scalability

- Increase the number of public chargers in Lanarkshire by around 200% in 12 months.
- Delivering around 14% increase in public chargers in Scotland within a 12-month period.



Enabling Access to EV charging

- Supporting the 'Just Transition' ethos in the decarbonisation of transport.
- Supporting local community transport groups in the transition to electric vehicles.

Funded by the Scottish Government via Transport Scotland with match funding from SP Energy Networks

**Supporting & complimentary
EV innovation projects**

Electric Vehicle Uptake
Modelling (EV Up)

Network Connectivity Early
Warning System (NCEWS)

Centre for Energy Policy (CEP)

Project PACE - Delivery and Results

Project Delivery

May 2019 – Jul 2019

Framework Definition

- Agree commercial parameters
- Agree roles & responsibilities

Aug 2019 – Jan 2020

Project set up & Optioneering

- Mobilise project team
- Approve tender documents for procurement
- Determine optimum charging hub locations

Jan 2019 – Mar 2020

Design, Planning & Procurement

- Connections design
- Define network reinforcement requirements
- Define wayleaves & planning considerations
- Procurement
- Benefits – Cost benefit analysis

Apr 2020 – Apr 2021

Reinforcement, Site preparation, Installation & Operation

- Network reinforcement
- Charger installation
- Charger commissioning
- Charger operation & maintenance

Project Results

167 New Chargers Provided

46 new 7kW chargers

59 new 22kW chargers

62 new 50kW chargers

44

EV Charging Hubs

6,030
tn./yr.

Carbon savings

4,150
EVs

Capacity for EVs

£1.4-
2.9m

Total Savings

300%

Increase in public chargers

Project PACE – Key Learnings

Key Learnings from SP Energy Networks



Site visits allowed the **SPEN team insight into the detailed design.**



Having **one point of contact per Local Authority** was useful when communicating at a working level and ensured all issues were dealt with quickly.



Urban Foresight's knowledge was invaluable for community engagement in the construction phase.



A Close working relationship with the Local Authorities was key to the success of the optioneering study.



Optioneering analysis provided key decision making in allocating the best type charger by location.

RIIO-ED2: Whole System Introduction

Our approach is centred on bringing a more collaborative approach into how we operate and to achieve a step change in both solutions and outcomes.

SPEN Whole System Mission

“Unlock the full value of Whole System thinking, by collaborating with other stakeholders to ensure efficient investment in the electricity network and to achieve a just transition to Net Zero for customers.”

Step Change in WS Solutions and Outcomes in RIIO-ED2

Structured Strategic Engagement

- Establishing Strategic Partnerships across the energy and non-energy sectors.

Dedicated Whole System teams

- Building on our track record of planning and collaboration including through our Strategic Optimisers and EV Optioneers.

Business Transformation

- Embedding Whole System thinking in SPEN - Developing processes, revising policies, and building a WS Culture.

SPEN Strategic Pillars



Support energy vectors
i.e. heat, transport



Innovation, markets
and flexibility



Strategic partnerships



Embed WS thinking for
long-term value



Improve data sharing for
customer benefits



Community support
to Net Zero

Increasing interdependence across the electricity system and growing interactions with gas, heat, and transport necessitates thinking that exceeds traditional boundaries.

RIIO-ED2: Whole System - Strategic Optimisation

Strategic Optimiser Function



Strategic Optimisers

Support Local Authorities with their Net Zero ambitions (i.e. LHEES, LAEPs). Reviewing plans to decarbonise alongside network planning requirements.



EV Optioneering

Support the Strategic Optimisers in the development of the technical network studies for the implementation of EV charging hubs.

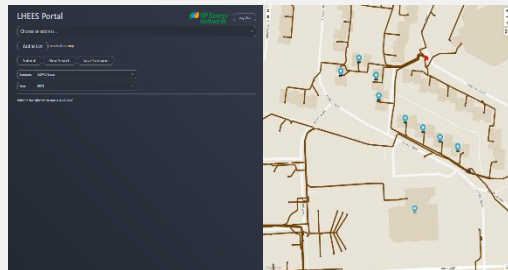
Optioneering Tools

LHEES NAVI Tool

Powered by NAVI, the SPEN LHEES Portal has been developed as a useful tool to aid local authorities in the development of their LHEES plans.

- ✓ Supporting LHEES in Scotland
- ✓ Being develop for Manweb
- ✓ Estimated EV/Heat connection costs
- ✓ Working together with LA future plans
- ✓ Better communication w/ LA
- ✓ Published in July 2023

Screenshot of LHEES NAVI tool

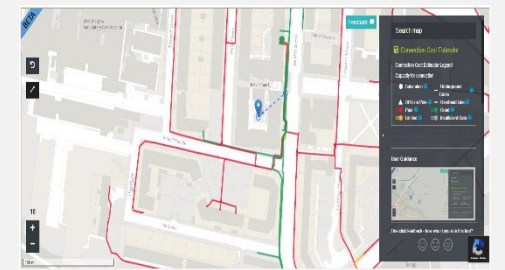


ConnectMORE

The Interactive Map application will provide an indication of the potential EV charging demand and high voltage and low voltage network capacity

- ✓ Supporting LHEEs & LAEPs
- ✓ Demand connection estimated costs
- ✓ Optioneering of network capacity
- ✓ Free access from SPEN webpage
- ✓ User friendly tool for analysis
- ✓ Published in Autumn 2022

Screenshot of ConnectMORE tool



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