

Distribution Long Term Development Statement

November 2019

SP Distribution for the years 2019/2020 to 2023/24



Long Term Development Statement

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Registered Office: 320 St. Vincent Street, Glasgow G2 5AD.

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Long Term Development Statement

Part 1: Introduction

1.1 Purpose of Statement

The Long Term Development Statement (hereby referred to as such or as the Statement) is prepared on an annual basis by SP Energy Networks on behalf of SP Distribution plc and provides information on the operation and development of the licensee's distribution system.

The purpose of the Long Term Development Statement is to provide information on the distribution system that may be of use to developers wishing to connect to, or make use of, the distribution system. The data is provided to enable developers to identify opportunities and carry out high level assessment of the capability of the network to support their development. Future network development plans are included to advise existing and potential users of significant changes to the system, which may have an impact on their development plans.

1.2 SP Energy Networks

SP Energy Networks (SPEN) is part of the ScottishPower Group of companies. We provide power on behalf of supply companies through a network of cables and power lines that we own and maintain. We own and operate the following licence areas:

- **SP Transmission** plc (SPT) is responsible for the Transmission network in Central and Southern Scotland
- **SP Distribution** plc (SPD) is responsible for the Distribution network in Central and Southern Scotland
- **SP Manweb** plc (SPM) is responsible for the Distribution network in Merseyside, Cheshire, North Wales and North Shropshire

1.3 An introduction to the SP Distribution Network

The SP Distribution network supplies greater than 2 million customers in Central and Southern Scotland. The geographical area extends from Stirling in the North, Glasgow and Ayr in the West, Edinburgh in the East and Dumfries & Galloway in the South, covering an area of over 21,905 km². Electricity is taken from SP Transmission's 400 kV, 275 kV and 132 kV networks and distributed to our customers through a succession of networks operating at 33 kV, 22kV, 11 kV, 6.6kV and 400/230 V. There are also connections to Scottish & Southern Electricity Networks in the North and to an area around Berwick-upon-Tweed to the South of the Border.



SP Distribution Network Overview Distribution voltages

33 kV, 22 kV, 11 kV, 6.6 kV, 400/230 V

Assets (HV and above)

Overhead lines:	16,328 km
Underground cables	15,881 km
Transformers	42,428

Customers

2.008 million customers	
System Max Demand:	3.44 GW
Connected Generation (>1MW):	2.20 GW
Contracted Generation (>1MW):	2.38 GW

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Both the demand on the distribution system and the operation of generators are dynamic in nature and are dependent on many factors. The weather, dawn/dusk times, social or sports events and relative fuel cost all play a part in shaping the load profile and generation patterns.

The demand on the SP Distribution system varies throughout the day, and also over the seasons. Peak demand on the system generally occurs on a weekday in mid-winter and the minimum demand at the weekend during summer. The maximum system demand for the SP Distribution area for 2018/19 was 3,437 MW on Tuesday 5th February 2019 within the half hour ending 18:30 hours.

We anticipate relatively modest demand growth in the short-term, as outlined in 'Section 2.3.11 Distribution System Demand', followed by a considerable increase in the medium to longer term driven by the electrification of heat and transport, and increases in industrial and commercial load. Our forecast is based on National Grid Future Energy Scenarios, local intelligence and regional decarbonisation ambitions. These forecasts are disaggregated to a local substation level in tables 'Appendix 3 System Loads'.

Flexibility and smart solutions will be key enablers to reducing the impact on system peak demand. We are progressing extensive work in this area and have an ongoing tender for the provision of flexible capacity support across ten sites for 95MW / 14MVar and are the only DNO to tender for reactive power. We are progressing with deployment of wide scale Active Network Management and are pioneering the development of Active Fault Level Management to facilitate the management of system demand and generation.

We will be publishing our SPEN Distribution Future Energy Scenarios for the SP Distribution licence area early in 2020. This will provide a range of credible pathways out to 2050, incorporating local intelligence and regional ambitions, enabling us to prepare for the challenges ahead and to support our communities' through the low carbon transition.

In line with the UK Government's plan to reduce carbon dioxide emissions, low-carbon generation technologies are increasingly being connected to the distribution network. This integration of Distributed Generation (DG) increases network fault levels and can consequently trigger significant network interventions.

SPEN's policy to manage the prospective fault level when it approaches or exceeds the rating of equipment is provided in Section 2.4.3 Substation Fault Levels.



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1.4 Content of the Long Term Development Statement

The Long Term Development Statement consists of the following content:

Part 1: Introduction

Part 2: Summary Information

- Network long term vision
- Design and operation philosophies of the network
- Network characteristics
- Indication of geographical arrangement of the network
- Statutory obligations and industry standards
- References to engineering recommendations and SPEN documentation
- Contact information

Part 3: Detailed Information

- Schematic diagrams detailing the normal operation of the distribution network
- Table 1: Circuit Data
- Table 2: Transformer Data
- Table 3: System Loads
- Table 4: Fault Levels
- Table 5: Embedded Generation

Part 4: Network development proposals and opportunities

- Network development proposals
- Connection request statistics

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1.5 Annual Publication and Obtaining the LTDS

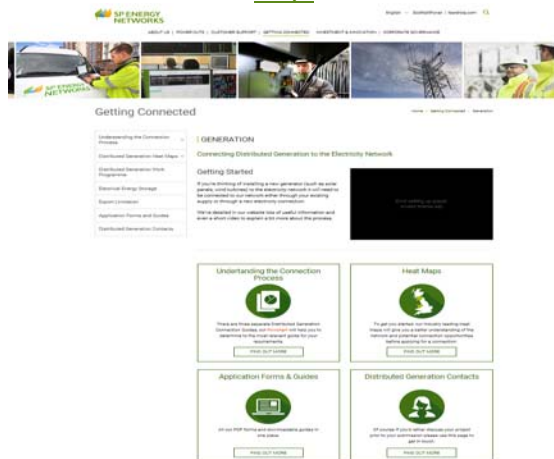
The network changes over time and the data contained within the Long Term Development Statement include the known and anticipated developments at the data freeze date, usually the end of August each year. The analytical models, which form the basis of the Statement data, are finalised by the end of October. System maximum demand data and Grid Supply Point loads are for the period April to March. The detailed data tables section is fully reassessed on an annual basis for publication in November each year. A brief mid-year update summary is published in May.

Access to the Long Term Development Statement requires registration only. After registration the statement document and associated data tables are available for download free of charge.

1.6 Further Information for Distributed Generation Connections

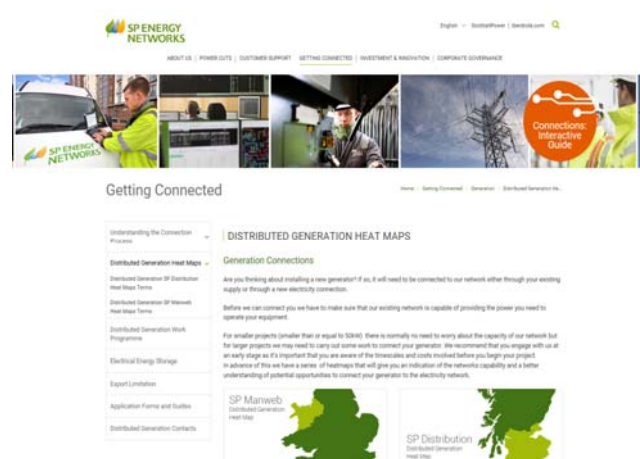
Information on how to connect a generation scheme onto our network can be found on the following webpage:

https://www.spenergynetworks.co.uk/pages/distributed_generation.n.aspx



Information on the location of network assets and capacity available can be found using our interactive mapping tool:

https://www.spenergynetworks.co.uk/pages/connection_opportunities.aspx



SP Energy Networks is a regulated business. We must meet certain criteria in order to meet our licence conditions. You can find further details on the following webpage:

https://www.spenergynetworks.co.uk/pages/regulation_guidance_leaflets.aspx



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1.7 Contact Information

Should you wish clarification on any aspect of this document, please contact:



Address

David Neilson,
Distribution Network Manager,
System Design and Asset Management,
Network Planning and Regulation,
SP Energy Networks,
ScottishPower House,
320 St. Vincent Street,
Glasgow. G2 5AD.
Telephone: +44 (0)141 614 1793

Opportunities exist for the connection of new load or generation throughout the SP Distribution system. System conditions and connection parameters are site specific and therefore the economics of a development may vary across the system. Developers are encouraged to discuss their development opportunities and SP Distribution will be pleased to advise on connection issues.

To discuss a specific enquiry about a new connection to the distribution network, or an enhancement to an existing connection, please contact:

Address: SP Energy Networks,
Network Connections,
55 Fullarton Drive,
Cambuslang,
Glasgow. G32 8FA.
Telephone: 0845 270 0785
Email: gettingconnected@scottishpower.com