LONG TERM DEVELOPMENT STATEMENT

FOR SCOTTISH HYDRO ELECTRIC POWER DISTRIBUTION PLC'S ELECTRICITY DISTRIBUTION SYSTEM

NOV 2023

Scottish & Southern Electricity Networks

SCOTTISH HYDRO ELECTRIC POWER DISTRIBUTION PLC
LONG TERM DEVELOPMENT STATEMENT

FOREWORD

Scottish Hydro Electric Power Distribution plc (SHEPD) is pleased to present this Long-Term Development Statement (LTDS) for its electricity distribution network. It is produced by SHEPD in accordance with its Electricity Distribution Standard Licence Condition (SLC) 25. The statement covers the period 2022/23 to 2027/28.

The main purpose of the LTDS is to assist existing and prospective users of the electricity distribution network in assessing opportunities available for making new connections, or for additional use of the SHEPD distribution system.

The assets referred to in this document are in the ownership of Scottish Hydro Electric Power Distribution plc which delivers electricity to over 785,000 customers in Scotland.

Although all reasonable efforts have been made to ensure the accuracy of data, SHEPD does not accept any liability for the accuracy of the information contained herein and in particular neither SHEPD, nor its directors or employees, shall be under any liability for any errors.

CONTENTS

INTRODUCTORY SECTION

1 PURPOSE OF STATEMENT

This Long Term Development Statement (LTDS) is prepared in accordance with Standard Licence Condition 25.

The purpose of this statement is to:

- Provide sufficient information which will assist existing and prospective new users who are contemplating entering into distribution arrangements with the licensee, to identify and evaluate opportunities.
- Ensure the general availability of such information in the public domain.
- Inform users of distribution network development proposals.
- Provide users of the correct point of contact for specific enquiries.

Users of the distribution system should also be aware that the main document which governs development and operation of the distribution system is the Distribution Code. This code covers all material technical aspects relating to connections to and the operation and use of the distribution systems of the Licensee.

2 CONTENTS OF STATEMENT

This LTDS is in two parts.

- Part 1 gives an overview of document content and provides relevant contact details and sources of information.
- Part 2 contains detailed information of the system.

The statement contains a range of information associated with our 33 kV distribution system including the 11 kV busbar of 33/11 kV primary substations.

Information relating to 11 kV and LV systems may be available on request depending on the area. A price list for the provision of this data is included in Appendix 1.

Part 2 of the statement gives:

- Detailed information on the guiding principles for planning the distribution system, company internal standards, design policies and network characteristics.
- Schematic and geographical plans showing the 33 kV system including location of 132/33 kV and 33/11 kV substations.
- Details of embedded generation.
- Planned network development proposals for which financial approvals have been given in Appendix 3. They provide a summary of the work to be carried out, timescale and area of the network impacted by each proposal. These exclude like for like replacement (as this does not change system capability) and system developments for new or existing users.

- Detailed information relating to:
  - Circuit Data, Table 1
  - Transformer Data, Table 2
  - Demand Data*, Table 3
  - Fault Level Data*, Table 4
  - Generation Data, Table 5
  - Connection Interest Table 6
  - Schematic Diagrams of the Distribution Network Single Line Diagrams

* Demand forecast methodology is formulated around a combination of important contributing factors impacting demand. Historic growth rates for each primary substation are calculated before being banded into four growth trends of Zero, Low, Medium, or High.

Individual future growth rates are based on the calculated historic trend and key drivers including committed connections, geographic economic factors derived from local authority development plans and demand forecast from large users with knowledge of major changes in connected load.

The key assumptions included in the demand forecast are as follows:

- Exponential growth is assumed and calculated using historic maximum demand readings over the past five years.
- Consistent running arrangement and system configurations are considered. Recorded substation peak demands are normalised to account for abnormal running arrangements or equipment faults to ensure the forecast is consistent to previous years running arrangement.
- Power export from distributed generators (DG) is removed, where possible, from recorded figures to give a true representation of underlying substation demand.
- Individual demand forecast submissions from large consumers are factored into forecasts
- Committed new loads and new connections are assumed to materialise in the manner predicted i.e., user timing and usage is assumed to occur as advised/requested by customer.
- Future Zero growth rates are assumed to have a forecast trend of 100% i.e., neither increasing nor decreasing.

* SHEPD will undertake further assessments to determine whether intervention is required where the calculated planning fault levels, identified in Table 4, exceed 95% of the circuit breaker fault level rating. The additional assessments undertaken by SHEPD include, but are not limited to, site specific protection settings analysis and circuit breaker trip testing.

If further assessments confirm that intervention is required SHEPD will determine the most economic, efficient and cost-effective solution to reduce the overall fault level. Possible mitigation works include, but are not limited to, opening the bus-section circuit breaker, reconfiguring the network, installing fast response automation, and extending circuit breaker trip times.

Details of the 132 kV system (regarded as transmission voltage in Scotland) are included in the Electricity Ten Year Statement, which is available on National Grid's Electricity System Operator website.
https://www.nationalgrideso.com/

3 CONTACT DETAILS

The LTDS is available free of charge by sending an email to:

Modelling.Reporting@sse.com

or by making a request through the Scottish and Southern Electricity Networks website:

https://www.ssen.co.uk/our-services/tools-and-maps/long-term-development-statements-ltds/

For further information relating to LTDS, or to provide feedback:

Modelling & Reporting North
Scottish Hydro Electric Power Distribution plc
Inveralmond House
200 Dunkeld Road
Perth
PH1 3AQ
E-mail: Modelling.Reporting@sse.com

Enquiries relating to new load connections or changes to existing load connections should be addressed to:

Connections and Engineering
Customer Service Centre
Scottish and Southern Electricity Networks
Walton Park, Walton Road
Cosham, Portsmouth
PO6 1UJ
E-mail: connections@sse.com
Tel: 0800 0483516

Enquiries relating to connection of generators should be addressed to:

Major Connections Contracts (MCC)
Scottish and Southern Electricity Networks
Perth Training Centre
Ruthvenfield Way
Inveralmond Industrial Estate
Perth
PH1 3AF
E-mail: mcc@sse.com
Tel: 0345 0724319

Enquiries relating to connection of generators should review the options on the Scottish and Southern Electricity Networks website:

http://www.ssen.co.uk/GenerationConnectionsHome/

Enquiries relating to the provision of copies of the “Statement of methodology and charges for connection" should be addressed to:

Connections Policy Team
Scottish Hydro Electric Power Distribution plc
Inveralmond House
200 Dunkeld Road
Perth
PH1 3AQ
Email: connections.policy@sse.com

The Connection and Use of System charging statements can be viewed on our website. Our connection charging statements are revised from time to time and our Use of System charging statements are revised at least annually. Revised Use of System charges normally take effect from 1 April of each year. The latest documents can be viewed via the link below:

http://www.ssen.co.uk/Library/ChargingStatements/SHEPD/

4 OTHER INFORMATION SOURCES

Distributed Generation Connection Guide

The ENA produces connection guides to help users as an owner or developer of distributed generation to connect distributed generation to the UK’s electricity distribution networks.

The guides can be viewed by following the link below:

https://www.energynetworks.org/operating-the-networks/connecting-to-the-networks

Guaranteed Standards

In accordance with the Electricity (Standards of Performance) Regulations 2015, DNOs are obliged to meet guaranteed standards of performance set by OFGEM, the industry regulator.

These guaranteed standards are laid out in three documents which can be viewed by following the below links:
The Guaranteed Standards:

- The Electricity (Connection Standards of Performance) Regulations 2015

http://www.legislation.gov.uk/uksi/2015/698/pdfs/uksi_20150698_en.pdf

Part 2 – Services and Standards for Metered Connections
Part 3 – Services and Standards for Unmetered Connections

- The Electricity (Standards of Performance) Regulations 2015

http://www.legislation.gov.uk/uksi/2015/699/pdfs/uksi_20150699_en.pdf

- The Electricity and Gas (Standards of Performance) (Suppliers) Regulations 2015

http://www.legislation.gov.uk/uksi/2015/1544/pdfs/uksi_20151544_en.pdf

Process to Request Additional Network Data

Enquiries relating to the provision of additional network data to that contained in the LTDS should be sent to:

Modelling.Reporting@sse.com

SSEN Data Portal

In October 2023, we launched our Data Portal to drive forward net zero decisions. Our Data Portal is a single point of access to all the data SSEN publishes and a catalogue of data that brings visibility to our network assets, their location, their usage, and their performance. All documents related to the SHEPD and SEPD LTDS submission are published on our Open Data Portal, along with other planning publications such as the Network Development Plan, DFES, Capacity Heatmaps and Embedded Capacity Register (ECR). The timeline of these documents is shown in the figure below.

SSEN Distribution's commitment to transparency and accessibility is a significant step forward in the transition to a net-zero future, and by providing this vital information, this data portal will play a pivotal role in reducing greenhouse gas emissions, improving energy efficiency, and ultimately taking us all closer to achieving our sustainability goals.

We have built our data portal on CKAN allowing us to display our data in a user-friendly environment and allow our data consumers to use data in a meaningful way. CKAN has been used extensively by our Open Data Peers and Partners and allows us to tailor our portal, to serve our customers.

Link to data portal: SSEN Data Portal. To understand how to use our portal please view our video guide here.

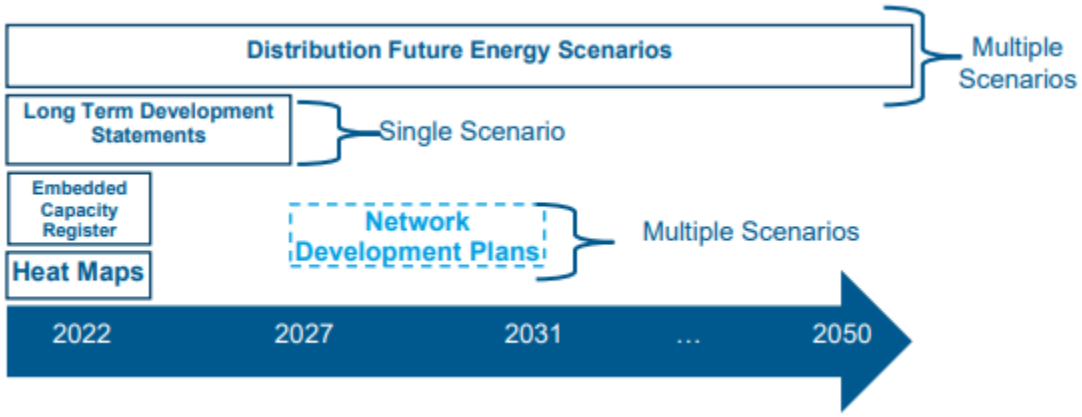

Figure 1 - LTDS in relation to other scenario and capacity reporting by DNOs