

The Heatmap Tool, a User Guide

At Electricity North West we are committed to improving the experience of our customers. As part of this commitment we have developed our Heatmap Tool. This tool provides information on the level of capacity available to new connections at our BSPs and primary substations. This information can be accessed in two ways, either through the Heatmap Tool itself, or through a scrollable map interface embedded on our website. This document provides guidance on how to use both of these resources.

We envisage that the published data will be used to inform initial discussion between ourselves and our customers. Although we have taken steps to ensure the accuracy of this data, it cannot replicate the level of accuracy provided by the detailed assessment carried out as part of the formal application process. As such, we advise that customers enter into dialog with us before submitting a formal application. Similarly, if the Heatmap Tool indicates that there is insufficient capacity to accommodate your development please contact us to discuss the next steps. We will always work with customers to find solutions to network constraints, including the deployment of smart technology.

Heatmap Tool

Our Heatmap Tool takes the form of an Excel workbook that allows the user to undertake a high level feasibility assessment for connections to our 33 kV, 11 kV and 6.6 kV networks. The different functions of the Tool are summarised below.

Component	Description
Worksheet 1	User guide and geographic diagrams detailing the location of our primary substations, BSPs and Grid Supply Points (GSP).
Worksheet 2	A user interface that allows the customer to search for substations in the vicinity of their proposed development and receive an estimate of whether there is currently sufficient capacity to accommodate it.
Worksheet 3	
Worksheet 4	The raw data in table format upon which the Heatmap tool is based. Estimated spare capacity is broken down by technology type for each primary substation and BSP.
Worksheet 5	
Worksheet 6	An indication of transmission system constraints provided in worksheet 6 in the form of the latest Appendix G results.

Web Interface

The web interface provides the same information as is provided by the Heatmap Tool. This information can be accessed by clicking on any of the symbols which represent substations. The symbol used is based on the type of substation it represents. A key explaining the meaning of the symbols used is provided below.

Symbol	Meaning
	Primary Substation
	Bulk Supply Point (BSP)
	Grid Supply Point (GSP)

The Data

The Heatmap Tool is based on an estimate of spare capacity at each of our Bulk Supply Points (BSP) and primary substations. The capacity at these substations is one of the most common sources of constraint to new connections. An overview of the different substation types featured in the tool is given below.

Substation Type	Description
Grid Supply Point (GSP)	These substations act as the interface between our 132 kV network and the transmission network operated at 400 kV or 275 kV.
Bulk Supply Point (BSP)	BSPs typically consist of two 132 /33 kV transformers feeding several primary substations.
Primary Substation	Primary substations typically consist of two 33 /11 kV or 33 /6.6 kV transformers feeding a radial HV network. It should be noted that the value of spare capacity quoted for a given primary substation takes into account constraints at the associated BSP.

Spare capacity has been estimated by a high level assessment of typical network constraints including thermal loading of circuits and transformers, fault level and voltage step change. There are however a number of constraints that are not included in the tool. These include 132 kV network constraints and the effect of meshed networks i.e. where two or more substations share the same circuits.

The capacity available is dependent on the type of connection required. The following connection types are covered by the tool.

Connection Type*	Description
Demand Firm	A demand connection with a supply secure for the loss of a single circuit. This includes connections secured by post outage switching.
Demand N-0	A demand connection which is constrained off for the loss of the first circuit and remains which off until the circuit is restored.
Generation – Synchronous (LV)	Synchronous generation e.g. gas or diesel, connected to the HV or HV network via a step up transformer.
Generation – Synchronous (HV)	Synchronous generation e.g. gas or diesel, connected to the HV network directly without a step up transformer i.e. use of generators with a HV nominal terminal voltage.
Generation – Inverter Based	Inverter based generation; This includes photo-voltaic sites and many types of wind generator.
Battery Energy Storage	Inverter based energy storage with a Maximum Import Capacity (MIC) equal to the Maximum Export Capacity (MEC). For sites with unequally matched MICs and MECs the MIC and MEC may be assessed independently by selecting the “Demand N-0” and “Generation – Inverter Based” from the menu.

****With the exception of “demand firm”, the figures for all connection types listed above are based on a N-0 connection i.e. a connection that is constrained off for the loss of the first circuit and which remains off until the circuit is restored.***

The values of spare capacity quoted by the Heatmap Tool are based on total capacity available to connections not the maximum size of an individual connection, which can be significantly less. The typical size of a single connection that can be accommodated at each voltage level is given below.

Voltage Level	Typical Size of Connection
132 kV	>40 MW
33 kV	7 MW-40 MW
11 kV / 6.6 kV	0.2 MW-7 MW
Low Voltage (LV)	<0.2 MW

Contact Us

If you have any questions regarding the capacity data that we publish or wish to discuss a particular scheme, please do not hesitate to contact us. Contact details are provided below.

Voltage Level	Contact
Generation & BESS connections	g&pconnections@enwl.co.uk
132 kV & 33 kV Demand	g&pconnections@enwl.co.uk
11 kV & 6.6 kV Demand	connectionapplications@enwl.co.uk

The information contained in the Heatmap Tool is provided for the sole purpose of allowing existing and potential customers to assess the capabilities of the electricity network and opportunities for changes in their use of the network or for connecting to it.

While all reasonable effort has been made to ensure the accuracy of the information, Electricity North West Ltd will accept not liability for any loss of range caused by the information not being accurate. Actual changes in supply capacity for existing customers or new connections are subject to detailed assessment and approval by Electricity North West Ltd and by the payment of appropriate charges.

The information contained within the Heatmap Tool is the Copyright of Electricity North West Ltd, All Rights Reserved.