

**Long Term Development Statement for
Western Power Distribution
(West Midlands) plc's
Electricity Distribution System
November 2017**

**Introductory Section
(PART ONE ONLY)**

Western Power Distribution (West Midlands) plc
Registered in England & Wales No.3600574
Registered Office:
Avonbank, Feeder Road, Bristol BS2 0TB

Although all reasonable efforts have been made to ensure the accuracy of data provided in this statement, Western Power Distribution (West Midlands) plc does not accept any liability for the accuracy of the information contained herein and, in particular neither Western Power Distribution nor its directors or employees shall be under any liability for any error or misstatement or opinion on which the recipient of this Statement relies or seeks to rely.

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Western Power Distribution – Company Profile

Western Power Distribution is owned by PPL Global LLC, a subsidiary of PPL Corporation of Allentown, Pennsylvania.

Western Power Distribution is an electricity Distribution Network Operator (DNO). We are responsible for the network of engineering assets that allows the distribution of electricity to customer's premises from the National Grid.

Western Power Distribution employs over 6000 staff across four Distribution Areas to distribute electricity from National Grid supply points to the distribution network areas of the East Midlands, the West Midlands, the South West of England and the South and South West of Wales.

As a distribution business we own distribution system assets including 220,000km of network and over 189,000 substations.

We are responsible for:

- Maintaining our electricity network on a daily basis
- Repairing our electricity network when faults occur
- Reinforcing our electricity network to cope with changes in the pattern of demand
- Extending our network to connect new customers

Western Power Distribution is not involved in either the buying or selling of electricity to end use customers, as this is the responsibility of electricity supply companies. For a list of supply companies please visit www.ofgem.gov.uk.

This statement covers the network in the West Midlands.

Western Power Distribution (West Midlands) plc, (hereafter referred to as 'WPD'), is responsible for over 2.4 million customers in a 13,000 sq. km service area in West Midlands.

The region covered by WPD's West Midlands distribution network includes the majority of the West Midlands conurbation, with the exception of Coventry and Warwick. It extends from Congleton in the north to the outskirts of Bristol in the south; and from Knighton and the Welsh Marches in the west to Banbury in the east.

WPD's 132kV networks in the West Midlands are a mix of mesh and radial systems, with some 132kV interconnection between adjoining networks. Grid supply points are not normally operated in parallel except for the Shrewsbury and Ironbridge groups. Otherwise, the use of 132kV interconnection between grid supply points for load

transfer is strictly controlled to avoid detrimental effects to the transmission system and to ensure that fault levels are kept within safe limits.

WPD West Midlands also has extensive 66kV networks. These networks cover large rural areas, including the north Cotswolds, Worcestershire, Herefordshire and the Welsh Marches. Networks at this voltage provide economic and reliable rural systems, permitting long feeding distances and being of robust construction. However, some parts of the 66kV network are ageing and may require replacement over the next 10 years. WPD would consider reinforcement at the 66kV voltage level or conversion to 132/11kV transformation depending on the solution offering the optimum technical and economic value.

WPD engineering depots are located in the following distribution areas: Birmingham, Gloucester, Hereford & Ludlow, Worcester, Telford, Tipton and Stoke.

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PART 1 Introductory Section

The Long Term Development Statement (the ‘Statement’) is presented in two parts.

Part One

- The Introductory Section

Part Two

- Summary Information
- Detailed Proposals
- Development Proposals

The Introductory section (Part 1) is published on the Licensee’s website free of charge and without the need for registration. It provides an overview of the distribution network of an area licensed under the Electricity Act 1989. The Introductory Section also describes the detailed information contained in Part 2. Part 1 of the Statement contains sufficient information to enable any person to understand the scope of the information contained within the full Statement and to assess whether it would be of use to them.

Access to the full Statement (Parts 1 and 2) is also available free of charge from the Licensee’s website following the registration of user details.

[Apply For Access to Full Statement](#)

The Statement and its accompanying data is refreshed annually and published by the end of November each year. In addition to the November publication, the Statement is supplemented with a revision of ‘Table 6’ of Part 2 of the Statement, to update the Licensee’s firm development proposals and generation data. The update is available at the end of May each year to registered users.

1.0 Purpose of the Statement

This Statement has been compiled in accordance with Licence Condition 25, to assist existing and future users of Western Power Distribution’s West Midlands network in identifying and assessing opportunities available to them for making new or additional use of our Distribution System. It also gives contact details for specific enquiries.

Licence Condition 25 applies for the purpose of ensuring that the licensee:

- (a) provides information that will assist any person who might wish to enter into arrangements with the licensee that relate to Use of System or connections to identify and evaluate opportunities for doing so; and
- (b) makes such information generally available in the public domain.

2.0 Content of the statement

2.1 Summary Information

This section includes:

- High-level information relating to the design and operation of all voltage levels of the WPD distribution network.
- Small scale geographic plans, providing an overview of the 132kV, EHV networks and substations described in the detailed information section.

Due to the volume of data and speed with which it can become outdated, data on the 11kV and LV systems has not been included in the statement. Data on the 11kV and LV systems is available on request. A price list for the provision of this data is included as [Attachment 1](#).

2.2 Detailed Information

Detailed Information is provided for 132Kv networks to the lower voltage busbars of primary substations, but includes details of any interconnectors at lower voltages which are needed to assess the capability of the higher voltage networks.

The detailed information section contains information/data relating to the following:

- Geographic plans showing WPD's 132kV, 66kV and 33kV systems including the National Grid Transmission System within our geographic area of operation.
- Schematic diagrams detailing normal operating configurations of the distribution network
- Circuit data
- Transformer data
- Load information
- Fault level information
- Connected generators with a capacity greater than 1MW

2.3 Network Development Proposals

The Network Development Proposals section includes:

- All planned major developments to the system at 132kV, 66kV or 33kV that have financial authorisation to proceed and that are expected to change system capability after project completion. Details are provided for the:
 - Area of the network affected
 - Work that is intended to be carried out
 - Impact on the distribution network
 - Expected timescale

This section excludes like for like replacements (which will not change system capability) and changes to the system caused by a new user or by an existing user where they have yet to agree terms for connection.

The Network Development Proposals section also includes:

- A high level summary of the interest in defined parts of the distribution network
- Summary details of design policies and practices to assist a user to assess the potential future development of the distribution network.

If you wish to view or download information from Part 2 of this statement then you will need to apply for full access. [Apply For Access to Full Statement](#)

The overall historic and forecasted peak demand on the distribution system is provided in Part 2 of this statement. It shows the winter peak and summer minimum daily demand curves for WPD, along with the annual load duration curve.

Information regarding the commercial terms for connecting to and using WPD's network in the West Midlands is contained in WPD's Statement of Methodology and Charges for Connection to Western Power Distribution (West Midlands) Plc's Electricity Distribution System. This statement also provides information regarding competition in connections. Technical requirements are detailed in the Distribution Code.

Details of how to obtain these documents along with useful contacts for further information is shown in [Attachment 2](#).

3.0 Contact Points within WPD for Further Information/Feedback

Requests for the full statement can be made to:

Tony Berndes
Primary System Design Manager
Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2101

Email: wpdltds@westernpower.co.uk or tberndes@westernpower.co.uk

Guidance on the process for requesting network data in addition to that contained in the statement should be addressed to:

Tony Berndes
Primary System Design Manager
Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2101

Email: wpdltds@westernpower.co.uk or tberndes@westernpower.co.uk

Connections

Enquiries related to new connections or existing connections should be addressed to:

Records Team
Western Power Distribution
Toll End Road, Tipton, DY4 0HH

Tel: 0845 072 7270
Fax: 0115 876 7458

Further information relating to New Connections within WPD can be found via the following link:

[New Connections Webpage](#)

Network and Plant Data Requests

Requests for the network and plant data listed in [Attachment 1](#) should be addressed to:

Tony Berndes
Primary System Design Manager
Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2101
Email: wpdltds@westernpower.co.uk or tberndes@westernpower.co.uk

To provide feedback on any aspect of the Statement, or to make a request for further information/clarity relating to the Statement, please contact:

Tony Berndes
Primary System Design Manager
Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2101

Use of System Agreement

Before an Authorised Electricity Operator can use the network to supply connected customers, they need to enter into a Use of System Agreement.

Copies of our Use of System Agreement are available from:

Tim Hughes
Connections Policy Engineer
Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2148
Email: thughes@westernpower.co.uk

Specifications

Users who require more information on the specifications used for equipment which forms part of the distribution network should contact:

Paul Jewell

Policy Manager

Western Power Distribution, Avonbank, Feeder Road, Bristol, BS2 OTB

Tel: 0117 933 2413

Email: pjewell@westernpower.co.uk

Further WPD Information

Further information regarding WPD is also available via the website:
www.westernpower.co.uk

4.0 Other Related Information Sources

Other Related information sources can be found in [Attachment 2](#).

Attachment 1 – Standard Network Information Price List

1. Geographic & Schematic Maps

Geographic Maps and Schematic Diagrams	
Description	Price
1:1250 and 1:500 scale mapping in response to “site specific” requests	Free of charge via our service provider when undertaking site works. To register, please visit http://www.linesearchbeforeyoudig.co.uk
System Overview Map showing WPD 33/66/132Kv Network(single map per WPD DNO area in PDF or hard copy)	Free
Information Map with Distribution Areas and local contacts. (single map per WPD DNO area in PDF or hard copy)	Free
Small Scale Mapping – WPD HV & EHV Network referenced to OS Vector Map District (all 4 WPD DNO areas on a single disk in PDF format).	Free to bona fide organisations. Email: westernpower.co.uk/Partners and provide royal mail address/contact details or alternatively register to receive access to WPD’s Planning Data Portal: http://westernpower.co.uk/planningdata
11KV Schematic Diagrams (non geographical) and produced on a Distribution Area basis. (There are 30 Distribution Areas within the 4 WPD DNO areas – available in hardcopy only)	£20 per Distribution Area (when printed)
33KV Schematic Diagrams (non geographical) and produced on a WPD DNO Area basis – available in hardcopy only.	£80 per WPD DNO Area (when printed)
132KV Schematic Diagrams (non geographical) and produced on a WPD DNO Area basis – available in hardcopy only.	£50 per WPD DNO Area (when printed)

2. Network Data

- a) Fault Outage Data - 132kV, 66kV or 33kV Circuit £30 per circuit
- b) Circuit Impedance & Rating -
11kV Circuits (per circuit) £20 per circuit
- c) 11kV Feeder Load Data (up to 5 circuits)
Typical winter max and summer min £30
- d) Protection Settings (up to 10 circuit breakers) £30

3. Plant Data

- a) Circuit Breaker rating (up to 10 circuit breakers)
Continuous and fault £30
- b) 132kV, 66kV or 33kV Transformer (up to 3 transformers)
Rating, impedance, tap range and tap step £20

4. Feasibility Studies – Illustrative Costs

Prior to making a formal Application for a Connection Offer you may request we undertake a Feasibility Study to establish the viability of making a connection to our distribution system. We will carry out preliminary network analysis and provide an indicative connection assessment which will include the results of the network analysis and an outline of the engineering scheme to allow the connection. We will require payment in advance of the study being made and will notify you of the relevant study charges prior to commencing work.

Our charges associated with the provision of feasibility studies involving design in advance of a formal connection application are set out in the table below. Charges for any other activities, such as excavation works will be individually assessed and agreed with you before these are undertaken. The Minimum Charge will always apply. Additional charges will only be applicable where the Applicant amends their connection requirement which necessitates us to carry out further analysis or assessment:-

Category- Demand	Minimum Charge £	Additional Charge per hour £
Connection greater than 250kVA and up to 1MVA at LV	572	72
Connection greater than 250kVA and up to 1MVA at HV	572	72
Connection greater than 1MVA and up to 3MVA at HV	728	78
Connection greater than 3MVA and up to 10MVA at HV	1453	91
Connection greater than 3MVA and up to 10MVA at EHV	2179	91
Connection greater than 10MVA and up to 50MVA	2179	91
Connection greater than 50MVA	2906	91

Category- Generation	Minimum Charge £	Additional Charge per hour £
Connection of a Small Scale Embedded Generator	143	72
Connection of other generation at LV up to 20kVA not covered by the above	585	78
Connection of other generation at LV greater than 20kVA and up to 50kVA	780	78
Connection of other generation at LV greater than 50kVA	1092	78
Connection of generation at HV up to 250kVA	1248	78
Connection of generation at HV greater than 250kVA and up to 1MVA	1560	78
Connection of generation at HV greater than 1MVA	2543	91
Connection of generation at EHV up to 10MVA	3996	91
Connection of generation at EHV greater than 10MVA	3996	91
Connection of generation greater than 50MVA	4722	91

Note:

“LV”, “HV”, or “EHV” in the table above denotes the highest voltage of assets installed including any associated reinforcement or diversionary works.

Small Scale Embedded Generation (SSEG) is defined as a source of electrical energy rated up to and including 16 Amperes per phase, single or multi-phase Low Voltage (LV), designed to operate in parallel with our distribution system.

These charges are based on WPD’s direct labour and overhead rates at the time of print. Charges are subject to change. The above Feasibility Study charges are exclusive of VAT which should be added at the prevailing rate.

Terms

The charge for carrying out a Feasibility Study will normally be provided within 10 working days. Following payment and the provision of appropriate data, studies will typically require 2 – 10 weeks depending on the complexity of the study work required.

High volume requests may take longer to process, and would be priced individually, based on the time taken to compile the requested information, but would not exceed the rates above.

In the event that enquiries need information from original equipment suppliers e.g. to seek enhanced ratings, reverse power flows etc., WPD will use its best endeavours to obtain this, but cannot be held responsible for non-provision or delayed provision of information from third parties. Where third parties require payment for information, the costs of obtaining it will be advised.

Although all reasonable efforts will be made to ensure the accuracy of data provided, WPD shall have no liability in contract, tort or otherwise to the enquirer or any other person for any loss or damage resulting from any delay in providing the data or any reliance placed upon it whether or not WPD is proved to have acted negligently.

We reserve the right to exclude information that may be considered confidential to an individual customer.

Cheques should be made payable to Western Power Distribution (West Midlands) plc.

**** All prices above will be subject to VAT at the prevailing rate ****

Attachment 2 – Other Related Information Sources

Useful documents and contacts:

Ofgem

Ofgem regulates the electricity and gas markets in Great Britain. Their website includes consultation and decision documents relating to electricity and gas industries.

www.ofgem.gov.uk

Distribution Code

This sets out all the material technical aspects related to connections to and operation of the distribution system. Copies are available from www.dcode.org.uk

Engineering Recommendations

A number of Engineering Recommendations (including Engineering Recommendation P2/6 – Security of Supply) are referenced in the Distribution Code. Information regarding Engineering Recommendations can be obtained from www.energynetworks.org

Distributed Generation Connection Guides

The Energy Networks Association (ENA) also provides Distributed Generation Connection Guides, which can be obtained from www.energynetworks.org

Guaranteed Standards

Guaranteed Standards of Performance for connections are set out in the Electricity (Standards of Performance) Regulations 2015 and under the direction of Distribution Licence Conditions 15 & 15A.

Further information regarding Engineering Recommendations, Distributed Generation and Guaranteed Standards is available from;

Energy Networks Association
6th Floor, Dean Bradley House
52 Horseferry Road
London
SW1P 2AF

Tel: 0207 706 5100

Email: info@energynetworks.org

Website: www.energynetworks.org

Statement of Methodology and Charges for Connection to Western Power Distribution (West Midlands) Plc's Electricity Distribution System

The Statement of Methodology and Charges for Connection consists of a Connection Charging Methodology that has been approved by the Gas and Electricity Markets Authority ('the Authority') and a Connection Charging Statement, the form of which has been approved by the Authority. The document also provides other information to explain the options available for obtaining a connection and the processes that need to be followed.

The Connection Charging Statement provides the basis of charges for the provision of a connection whilst the Connection Charging Methodology describes the methodology under which Customers will be charged for a connection to Western Power Distribution (West Midlands).

A copy of the statement is available from the WPD website www.westernpower.co.uk

For queries related to this document please contact:

Tim Hughes
Western Power Distribution
Avonbank
Feeder Road
Bristol, BS2 OTB

Tel: 0117 933 2148

Email: thughes@westernpower.co.uk

Contact details for other interconnecting networks

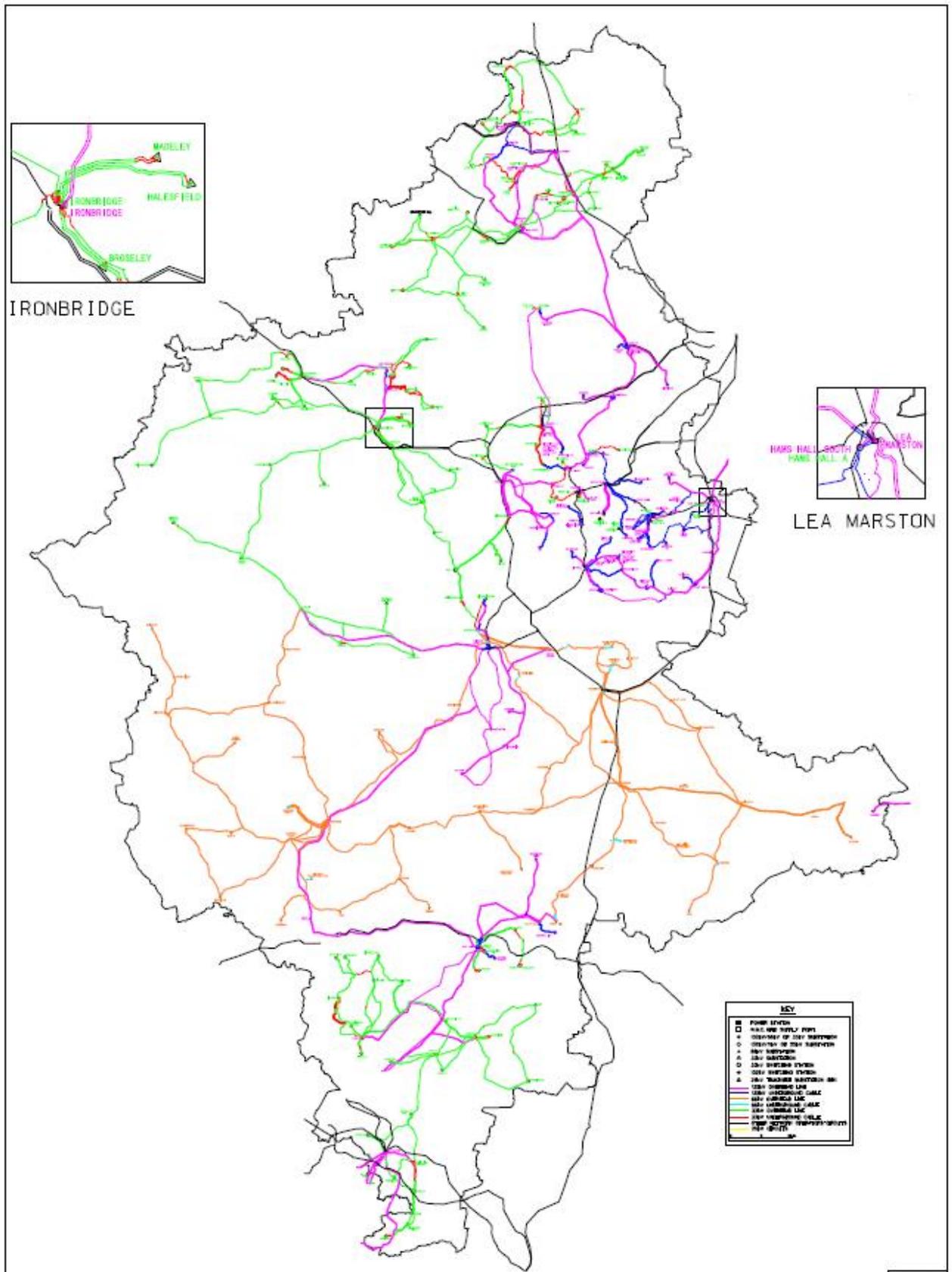
National Grid UK
NGT House, Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA

Western Power Distribution (**South West**)
Avonbank, Feeder Road, Bristol, BS2 OTB

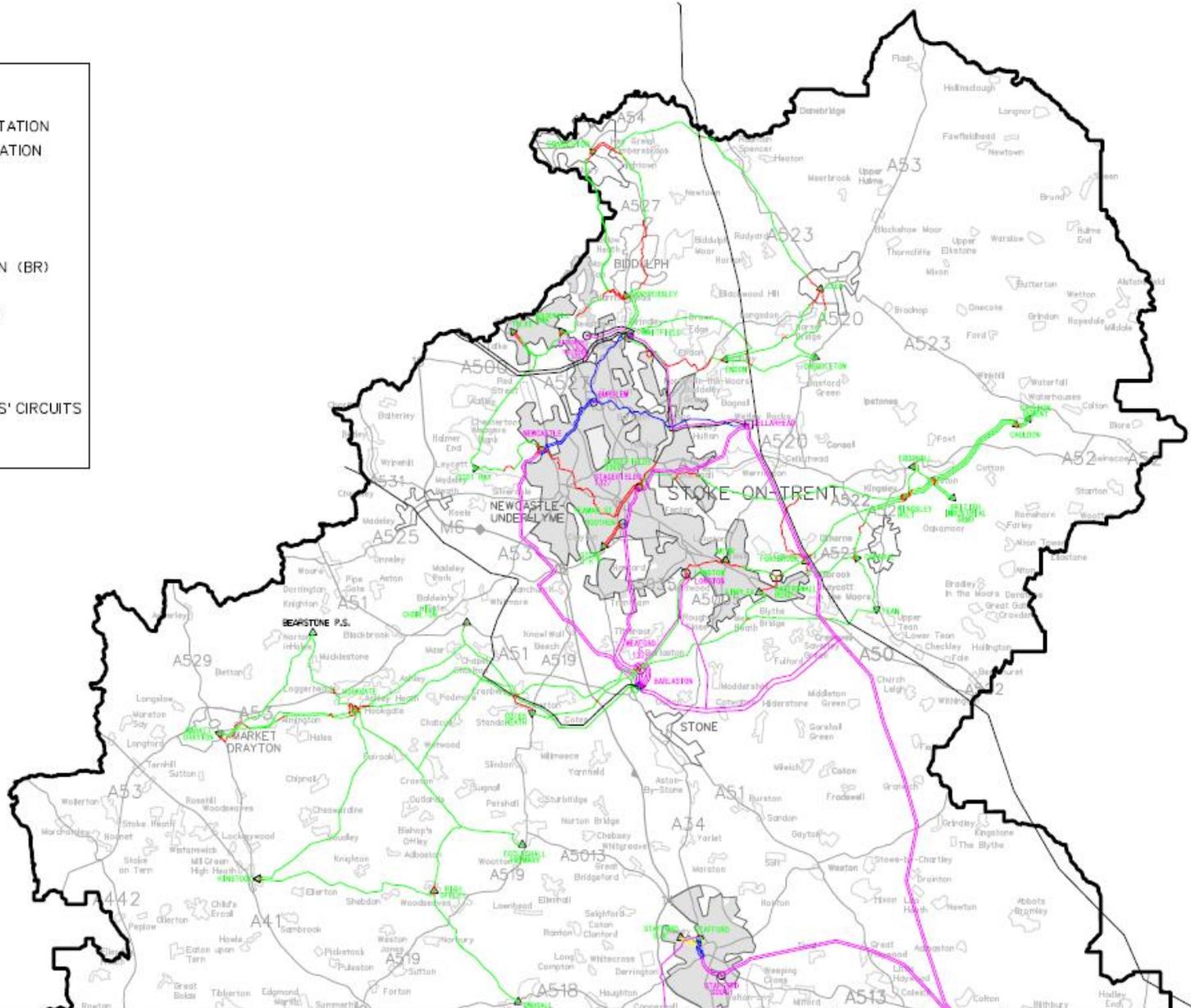
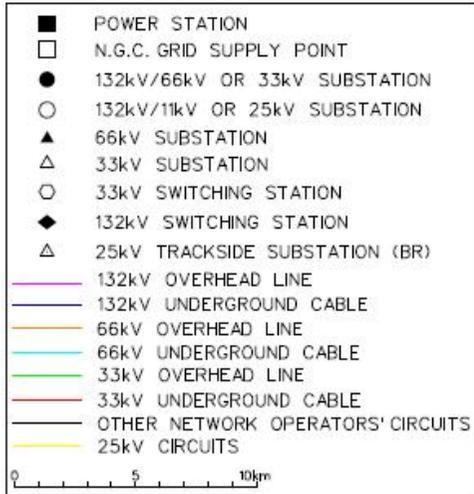
Western Power Distribution (**East Midlands**)
Avonbank, Feeder Road, Bristol, BS2 OTB

SP Energy Networks (Manweb)
Manweb House, Chester Business Park, Wrexham Road, Chester, CH4 R9F

West Midlands Small Scale Geographic Diagram



	WPD WEST MIDLANDS INTRODUCTION SMALL SCALE GEOGRAPHIC DIAGRAM	D 25.0.03 C 15.0.08 B 08.0.08 A 05.0.03	WESTERN POWER DISTRIBUTION Group 10, Western Power PLC MAPS-040-061 d
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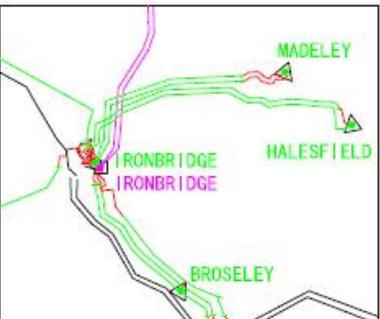
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WPD WEST MIDLANDS GEOGRAPHIC DIAGRAM

ISSUE	DATE	ISSUE	DATE	ISSUE	DATE
I	06/10/02	J	11/02/02	K	26/05/03
SHEET 1					

WESTERN POWER DISTRIBUTION <small>Serving the Midlands, East of Warwickshire</small>	
ORG. No.	MAPS-040-051

- POWER STATION
- N.G.C. GRID SUPPLY POINT
- 132kV/66kV OR 33kV SUBSTATION
- 132kV/11kV OR 25kV SUBSTATION
- ▲ 66kV SUBSTATION
- △ 33kV SUBSTATION
- 33kV SWITCHING STATION
- ◆ 132kV SWITCHING STATION
- △ 25kV TRACKSIDE SUBSTATION (BR)
- 132kV OVERHEAD LINE
- 132kV UNDERGROUND CABLE
- 66kV OVERHEAD LINE
- 66kV UNDERGROUND CABLE
- 33kV OVERHEAD LINE
- 33kV UNDERGROUND CABLE
- OTHER NETWORK OPERATORS' CIRCUITS
- 25kV CIRCUITS



IRONBRIDGE

WPD WEST MIDLANDS GEOGRAPHIC DIAGRAM

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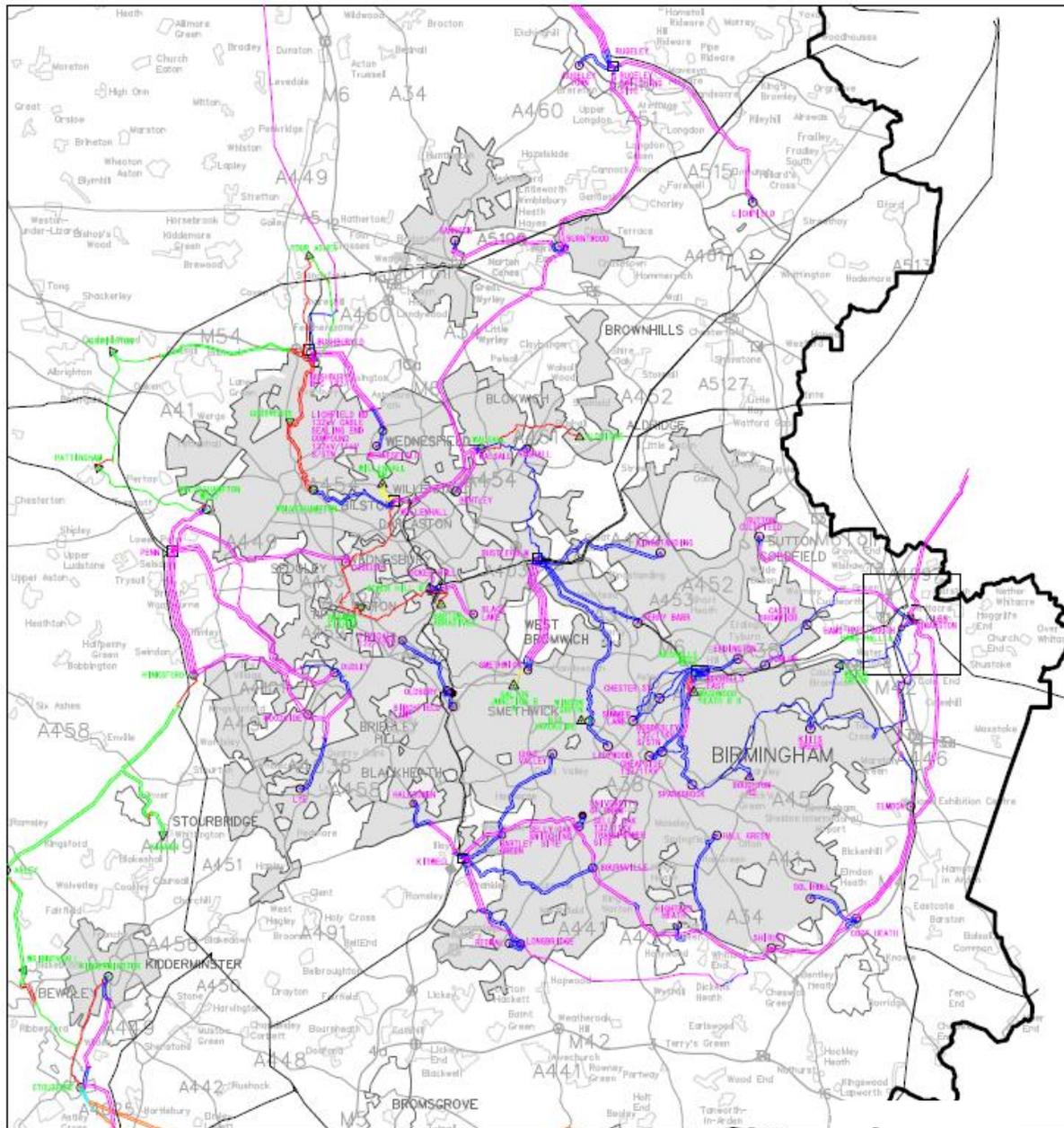
SHEET 2

WESTERN POWER
DISTRIBUTION

Solving the problems of power distribution

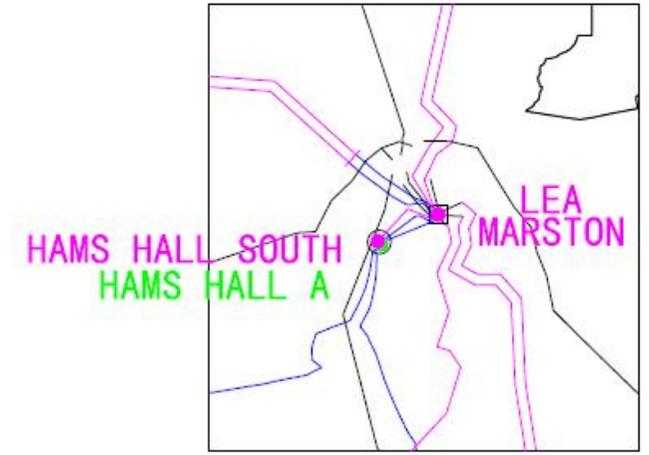
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■	POWER STATION
□	N.G.C. GRID SUPPLY POINT
●	132kV/66kV OR 33kV SUBSTATION
○	132kV/11kV OR 25kV SUBSTATION
▲	66kV SUBSTATION
△	33kV SUBSTATION
○	33kV SWITCHING STATION
◆	132kV SWITCHING STATION
△	25kV TRACKSIDE SUBSTATION (BR)
— (Pink)	132kV OVERHEAD LINE
— (Blue)	132kV UNDERGROUND CABLE
— (Orange)	66kV OVERHEAD LINE
— (Light Blue)	66kV UNDERGROUND CABLE
— (Green)	33kV OVERHEAD LINE
— (Red)	33kV UNDERGROUND CABLE
— (Black)	OTHER NETWORK OPERATORS' CIRCUITS
— (Yellow)	25kV CIRCUITS

0 5 10km



LEA MARSTON

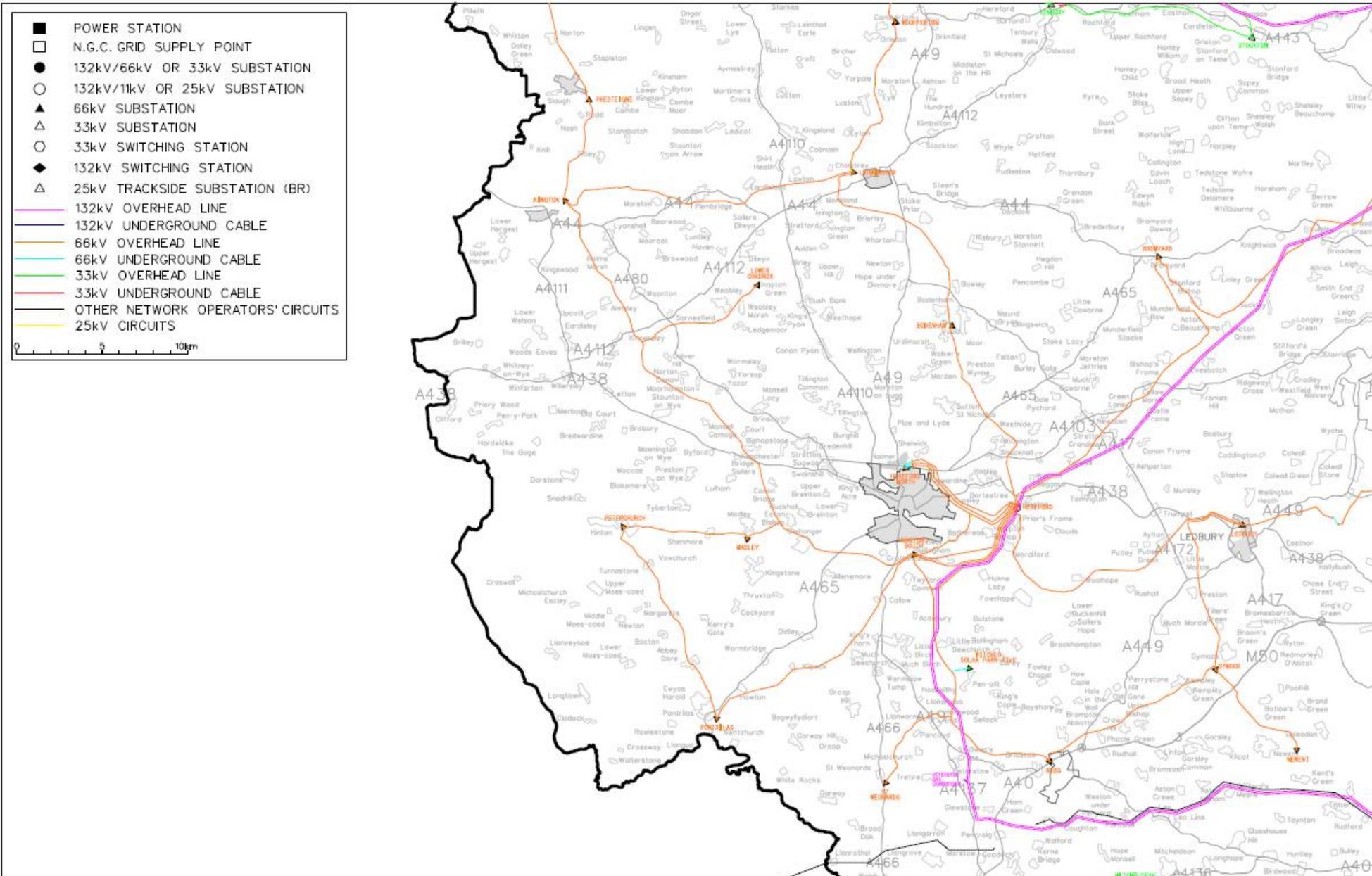
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APPROVED	TD

**WPD WEST MIDLANDS
GEOGRAPHIC DIAGRAM**

ISSUE	DATE	ISSUE	DATE	ISSUE	DATE
H	15/10/09	I	17/06/12	J	25/04/13
SHEET 3					

WESTERN POWER DISTRIBUTION
Serving the Midlands, South Western Plan

DRG. NO.
MAPS-040-053



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APPROVED	TJ

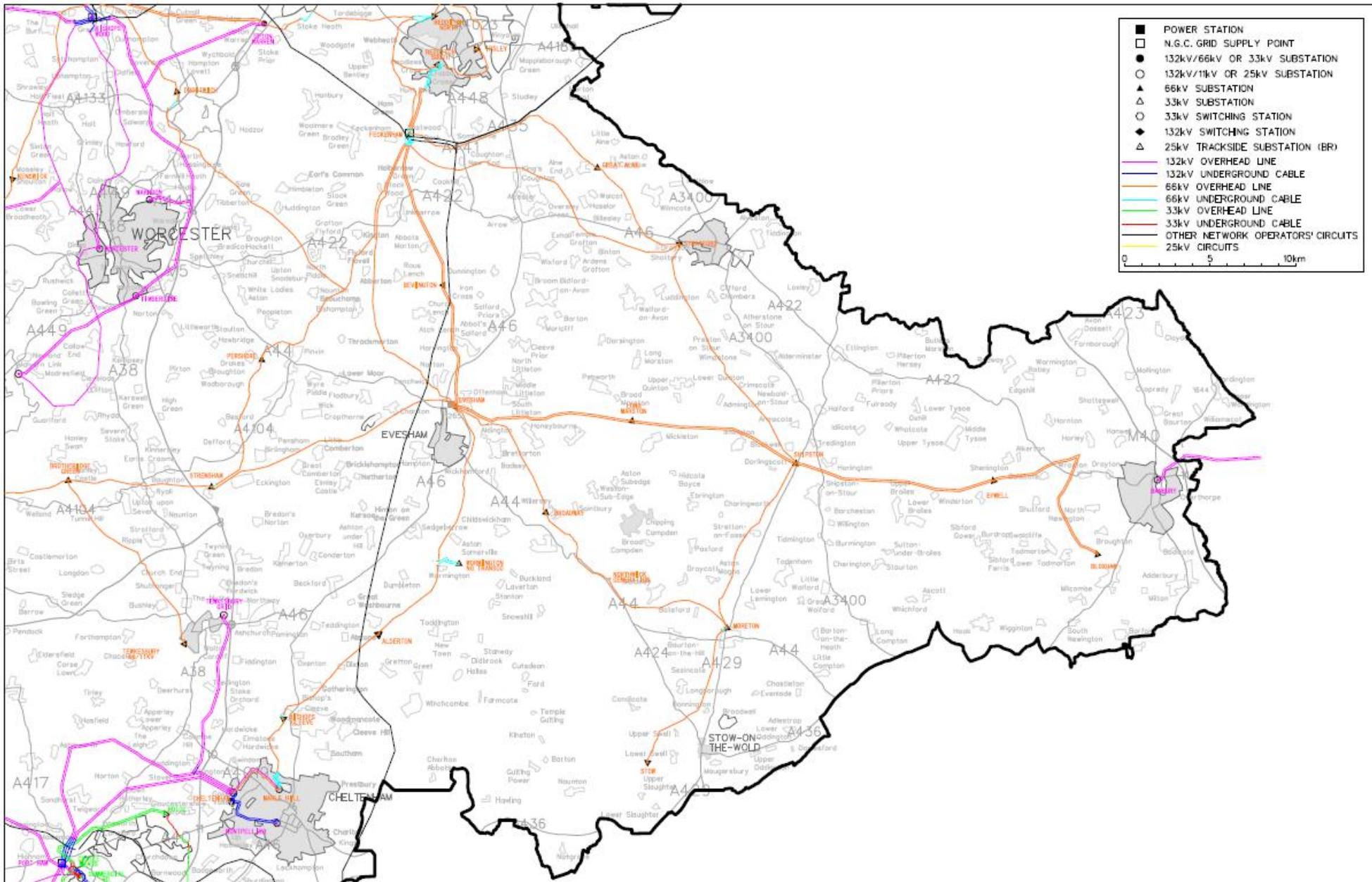
**WPD WEST MIDLANDS
GEOGRAPHIC DIAGRAM**

ISSUE	DATE	ISSUE	DATE	ISSUE	DATE
H	28/10/15	G	17/08/12	F	14/12/10

WESTERN POWER DISTRIBUTION
Creating the Future. Sustaining the Past.

SHEET 4

DRG. No. **MAPS-040-054**



- POWER STATION
- N.G.C. GRID SUPPLY POINT
- 132kV/66kV OR 33kV SUBSTATION
- 132kV/11kV OR 25kV SUBSTATION
- ▲ 66kV SUBSTATION
- △ 33kV SUBSTATION
- 33kV SWITCHING STATION
- ◇ 132kV SWITCHING STATION
- ▲ 25kV TRACKSIDE SUBSTATION (BR)
- 132kV OVERHEAD LINE
- 132kV UNDERGROUND CABLE
- 66kV OVERHEAD LINE
- 66kV UNDERGROUND CABLE
- 33kV OVERHEAD LINE
- 33kV UNDERGROUND CABLE
- OTHER NETWORK OPERATORS' CIRCUITS
- 25kV CIRCUITS

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APPROVED	TD

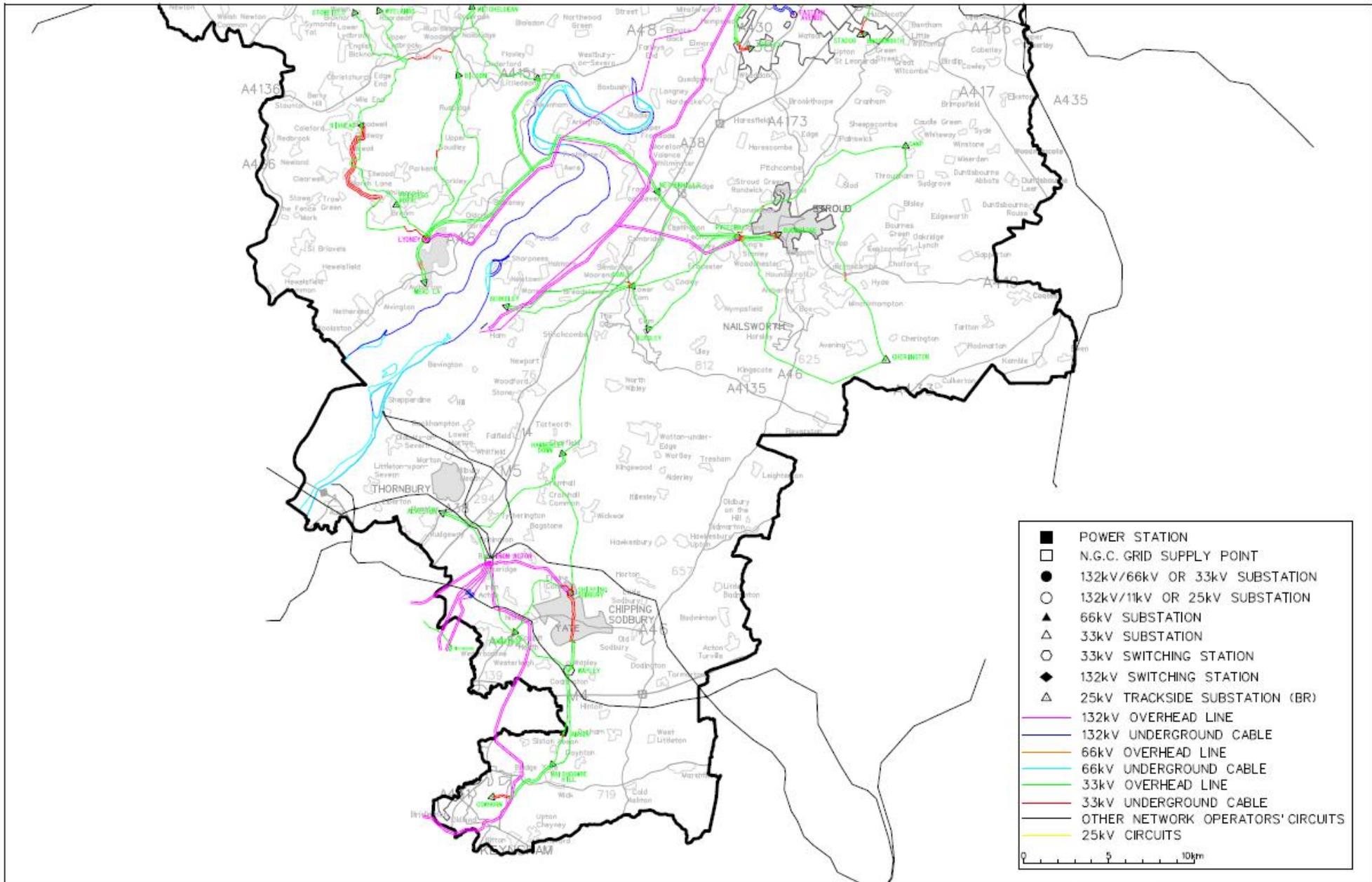
WPD WEST MIDLANDS GEOGRAPHIC DIAGRAM

ISSUE	DATE	ISSUE	DATE	ISSUE	DATE
H	06/02/09	I	17/06/10	J	28/10/15

SHEET 5

WESTERN POWER DISTRIBUTION
Supplying the West Midlands, South Western Plans

ORG. No. **MAPS-040-065**



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APPROVED	TD

**WPD WEST MIDLANDS
GEOGRAPHIC DIAGRAM**

ISSUE	DATE	ISSUE	DATE	ISSUE	DATE
F	16/12/10	G	11/10/12	H	28/10/13

SHEET 6



DRG. NO.
MAPS-040-058