

Distribution Network Options Assessment (DNOA) Report

January 2024



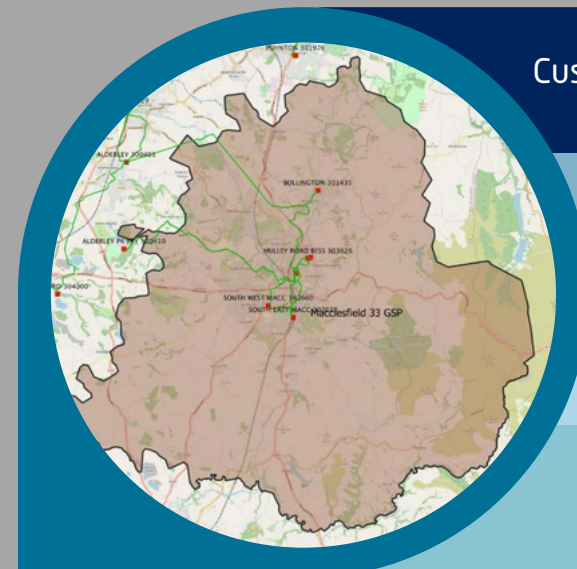
Report Structure

Number of BSP and Primary substation by GSP substations

Maximum demand, total installed generation capacity and total energy at GSP (FY23 Best View)

Total number of electric vehicles, domestic & non-domestic heat pumps at GSP (FY23 Best View)

MACCLESFIELD GSP



Customer Numbers: Approximately 36,000

Area of Supply: Approximately 234 km²

Local Authority Areas: Cheshire East, Staffordshire, Moorland

Main Cities, Towns & Villages Macclesfield, Bollinbrook, Hurdsfield Langley, Sutton, Gawsforth

No. of Primary Substations	6	Evaluation Requirements FY23-FY33	Sites	2
No. of Bulk Supply Points	0		Capacity	1.5 MVA
Maximum Demand	73 MVA	Flexible Services FY23-FY28	Sites	1
Generation Capacity	11 MW		Tendered	23 MVA
Energy Demand	278 GWh		Procured	3 MVA
Domestic HP's	652	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	79		New firm capacity	22 MVA
Electric Vehicles	754			

The DNOA decisions

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Macclesfield BSP	Switchgear	X	X	Reinforce
Bollington	Transformer	X	✓	Flexibility
S.W Macclesfield	Switchgear	X	X	Reinforce

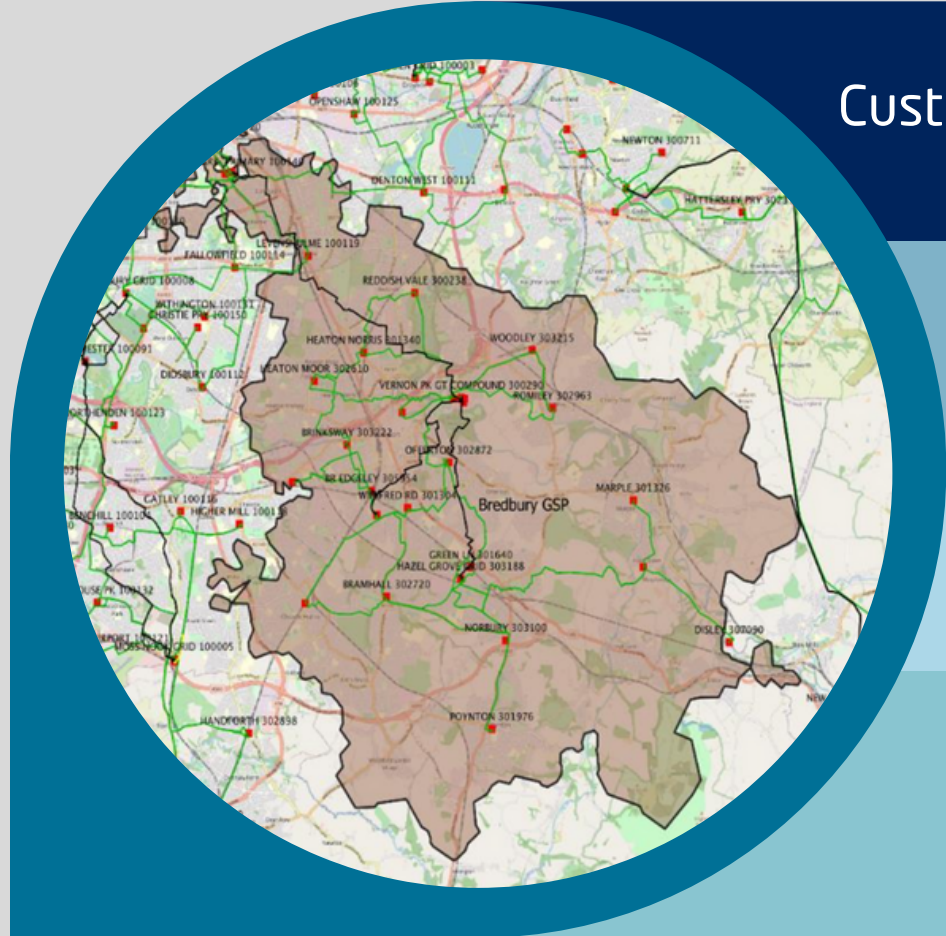
Quantities of sites which will be evaluated (flexible services vs reinforcement) over the next 10 years (capacity taken at FY33)

Quantities of tendered and procured flexible services as currently published (tenders accumulated from FY23-FY28)

Quantities of approved reinforcement work on sites where flexibility services were not available

A common template for the reporting of data at each GSP substation has been developed. The boxes on the left provide an overview of the substations served from the GSP along with technical insights into the existing demand, generation and LCT uptake. The boxes on the right provide an overview of future evaluation requirements, quantities of flexible services tendered and procured and quantities of sites which have approved reinforcement where flexibility services were not available.

BREDBURY GSP



Customer Numbers: Approximately 178,000

Area of Supply:
Approximately 140 km²

Local Authority Areas:
Manchester, Stockport, Cheshire East

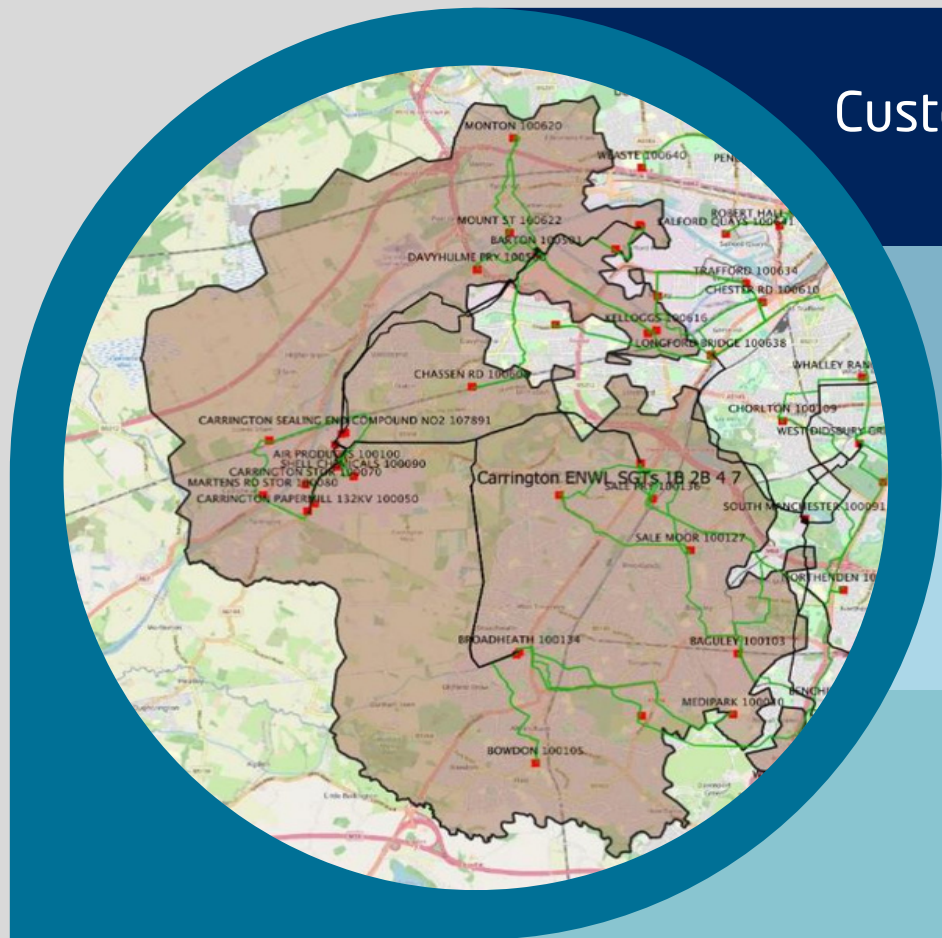
Main Cities, Towns & Villages:
Reddish, Stockport, Marple, Bramhall,
Poynton, Romiley

No. of Primary Substations	23	Evaluation Requirements FY23-FY33	Sites	6
No. of Bulk Supply Points	4		Capacity	40 MVA
Maximum Demand	256 MVA	Flexible Services FY23-FY28	Sites	4
Generation Capacity	39 MW		Tendered	246 MVA
Energy Demand	1516 GWh		Procured	0 MVA
Domestic HP's	2585	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	288		New firm capacity	0 MVA
Electric Vehicles	1757			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Southern Gateway (New Primary)	Transformer	X	X	Reinforce
Moss Side	Transformer	X	✓	Flexibility
Portwood	Switchgear	X	X	Reinforce
Victoria Park	Transformer	X	✓	Flexibility
Romiley	Transformer	X	✓	Flexibility
Heaton Norris	Transformer	X	✓	Flexibility

CARRINGTON GSP



Customer Numbers: Approximately 110,000

Area of Supply:
Approximately 112 km

Local Authority Areas:
Manchester, Trafford, Cheshire East,
Warrington

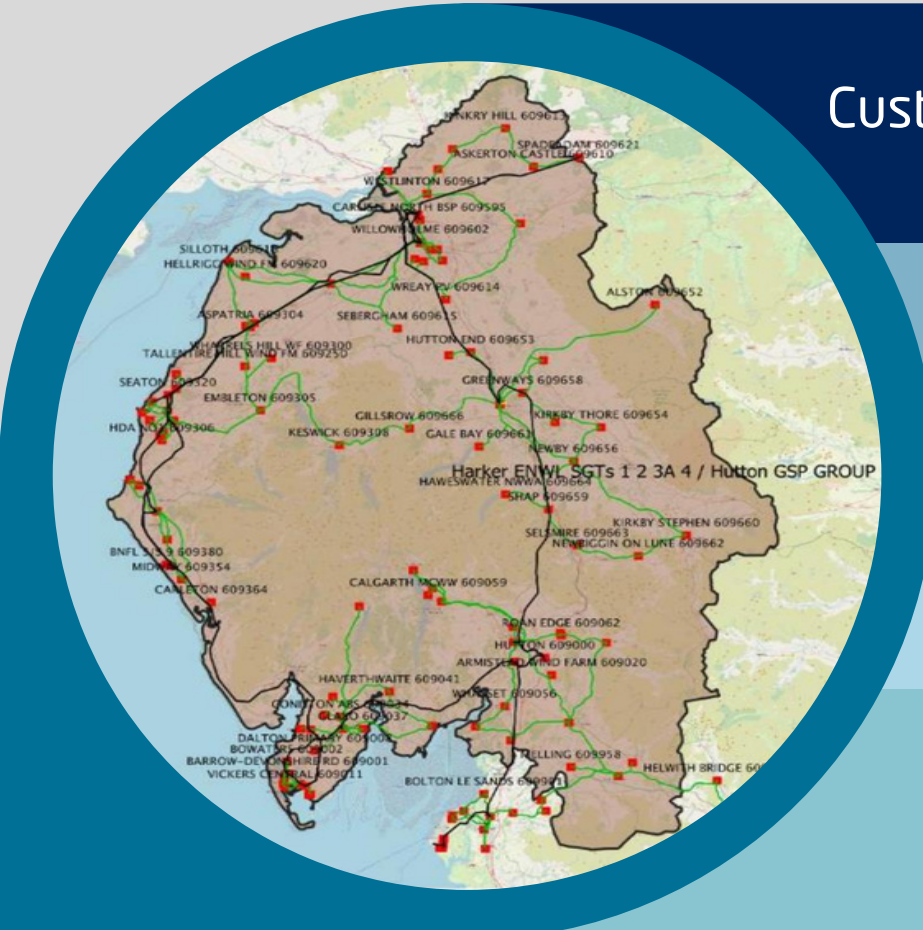
Main Cities, Towns & Villages
Urmston, Stretford, Trafford,
Sale, Altrincham

No. of Primary Substations	17	Evaluation Requirements FY23-FY33	Sites	3
No. of Bulk Supply Points	4		Capacity	2.2 MVA
Maximum Demand	235 MVA	Flexible Services FY23-FY28	Sites	3
Generation Capacity	93 MW		Tendered	49 MVA
Energy Demand	1173 GWh		Procured	1.4 MVA
Domestic HP's	2197	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	213		New firm capacity	0 MVA
Electric Vehicles	1800			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Baguley	Switchgear	X	✓	Flexibility
Chassen Road	Circuit	X	X	Reinforce
Barton BSP	Transformer	X	✓	Flexibility

HARKER / HUTTON GSP GROUP



Customer Numbers: Approximately 235,000

Area of Supply:
Approximately 7106 km²

Local Authority Areas:
Lancaster, Carlisle, South Lakeland,
Allerdale, Craven, Copeland

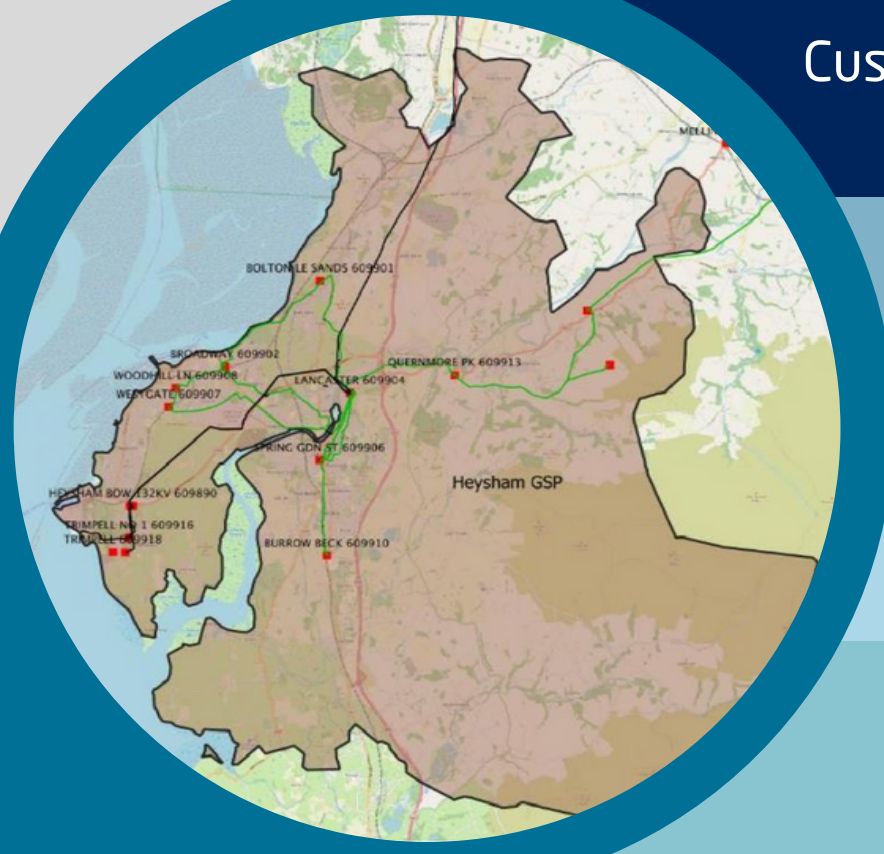
Main Cities, Towns & Villages
Carlisle, Penrith, Barrow-In-Furness,
Workington, Whitehaven, Kendal

No. of Primary Substations	93	Evaluation Requirements FY23-FY33	Sites	16
No. of Bulk Supply Points	10		Capacity	40 MVA
Maximum Demand	575 MVA	Flexible Services FY23-FY28	Sites	16
Generation Capacity	466 MW		Tendered	441 MVA
Energy Demand	3030 GWh		Procured	6 MVA
Domestic HP's	3912	Approved Reinforcement work FY23-FY26	Sites	5
Non - Domestic HP's	777		New firm capacity	62 MVA
Electric Vehicles	2296			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Embleton	Switchgear	✓	✗	Flexibility
Bowaters	Transformer	✓	✗	Flexibility
HDA 1 & 2	Circuits	✓	✗	Flexibility
Leyland National	Switchgear	✓	✗	Flexibility
Alston	Interconnection	✗	✓	Flexibility
Askam & Dalton	Circuits	✗	✓	Flexibility
Coniston	Interconnection	✗	✓	Flexibility
Easton	Interconnection	✗	✓	Flexibility
Egremont	Transformer	✗	✓	Flexibility
Gillsrow	Interconnection	✗	✓	Flexibility
Mintsfeet	Circuit	✗	✓	Flexibility
Morton Park & Pirelli	Transformer	✗	✓	Flexibility
Sebergham	Interconnection	✗	✓	Flexibility
Whasset	Transformer	✗	✓	Flexibility
Wigton	Switchgear	✗	✓	Flexibility
Yealand	Interconnection	✗	✓	Flexibility
Carlisle BSP	Transformer	✗	✓	Flexibility
Kendal BSP	Transformer	✗	✓	Flexibility
Stainbure & Siddick BSP	Transformer	✗	✗	Reinforce

HEYSHAM GSP



Customer Numbers: Approximately 50,000

Area of Supply: Approximately 330 km²

Local Authority Areas: Lancaster, Wyre

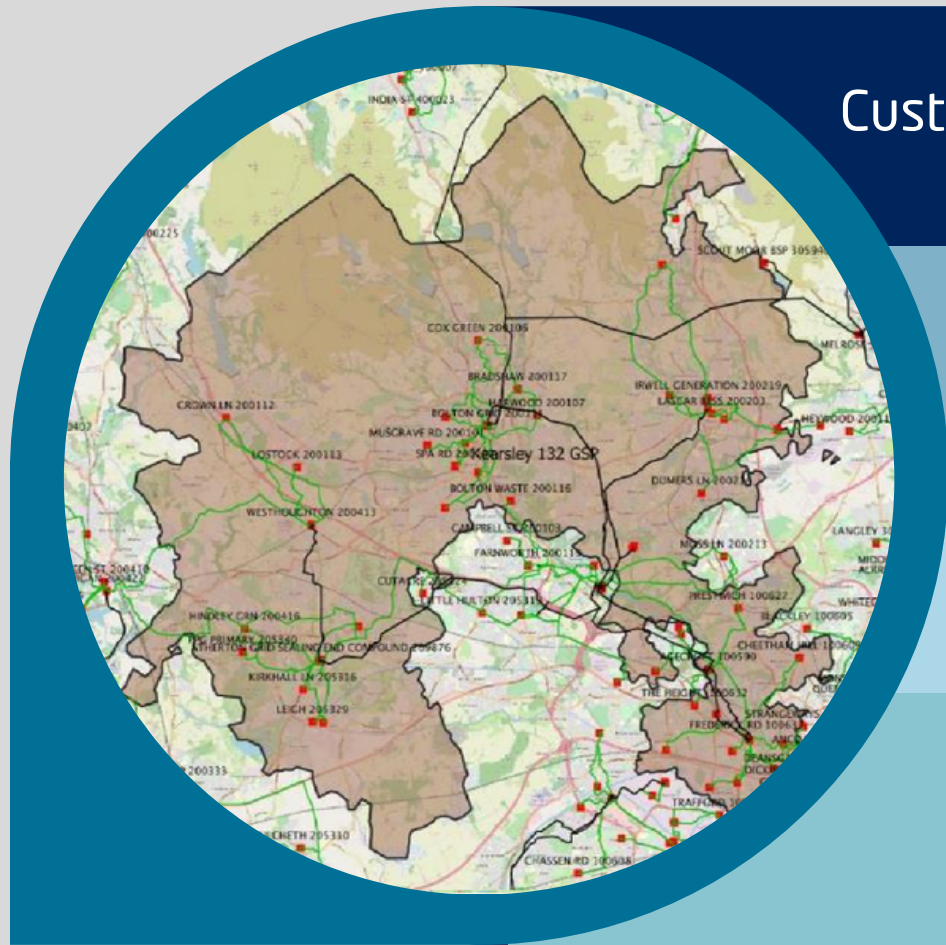
Main Cities, Towns & Villages Heysham, Lancaster, Morecambe

No. of Primary Substations	9	Evaluation Requirements FY23-FY33	Sites	2
No. of Bulk Supply Points	2		Capacity	3.4 MVA
Maximum Demand	113 MVA	Flexible Services FY23-FY28	Sites	3
Generation Capacity	67MW		Tendered	31 MVA
Energy Demand	570 GWh		Procured	1.4 MVA
Domestic HP's	882	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	145		New firm capacity	0 MVA
Electric Vehicles	545			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Burrow Beck	Transformer	X	X	Reinforce
Cloughton	Interconnection	X	✓	Flexibility
Lancaster	Switchgear	X	✓	Flexibility
Lancaster BSP	Transformer	X	✓	Flexibility

KEARSLEY GSP



Customer Numbers: Approximately 322,000

Area of Supply:
Approximately 398 km²

Local Authority Areas:
Bolton, Wigan, Salford, Bury,
Rochdale, Chorley

Main Cities, Towns & Villages
Leigh, Bolton, Bury,
Salford, Horwich

No. of Primary Substations	37	Evaluation Requirements FY23-FY33	Sites	9
No. of Bulk Supply Points	7		Capacity	19 MVA
Maximum Demand	507 MVA	Flexible Services FY23-FY28	Sites	5
Generation Capacity	120 MW		Tendered	175 MVA
Energy Demand	2786 GWh		Procured	0.6 MVA
Domestic HP's	5010	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	560		New firm capacity	0 MVA
Electric Vehicles	3442			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Frederick Road BSP	Transformer	X	X	Reinforce
Trinity	Transformer	X	X	Reinforce
Bolton BSP	Transformer	X	X	Reinforce
Bury BSP	Transformer	X	X	Reinforce
Blackfriars (FY23 FC Exceedance)	Circuit	X	X	Reinforce
Westhoughton	Switchgear	X	X	Reinforce
Westhoughton BSP	Transformer	X	X	Reinforce
Atherton Town Centre	Circuit	X	✓	Flexibility
Blackfriars (FY28 FC Exceedance)	Circuit	X	✓	Flexibility
Crown Lane	Switchgear	X	✓	Flexibility
Harwood	Circuit	X	✓	Flexibility
Holt St	Transformer	X	X	Reinforce
Atherton BSP	Transformer	X	✓	Flexibility

KEARSLEY LOCAL GSP



Customer Numbers: Approximately 50,000

Area of Supply:
Approximately 75 km²

Local Authority Areas:
Bolton, Salford, Wigan, Rochdale

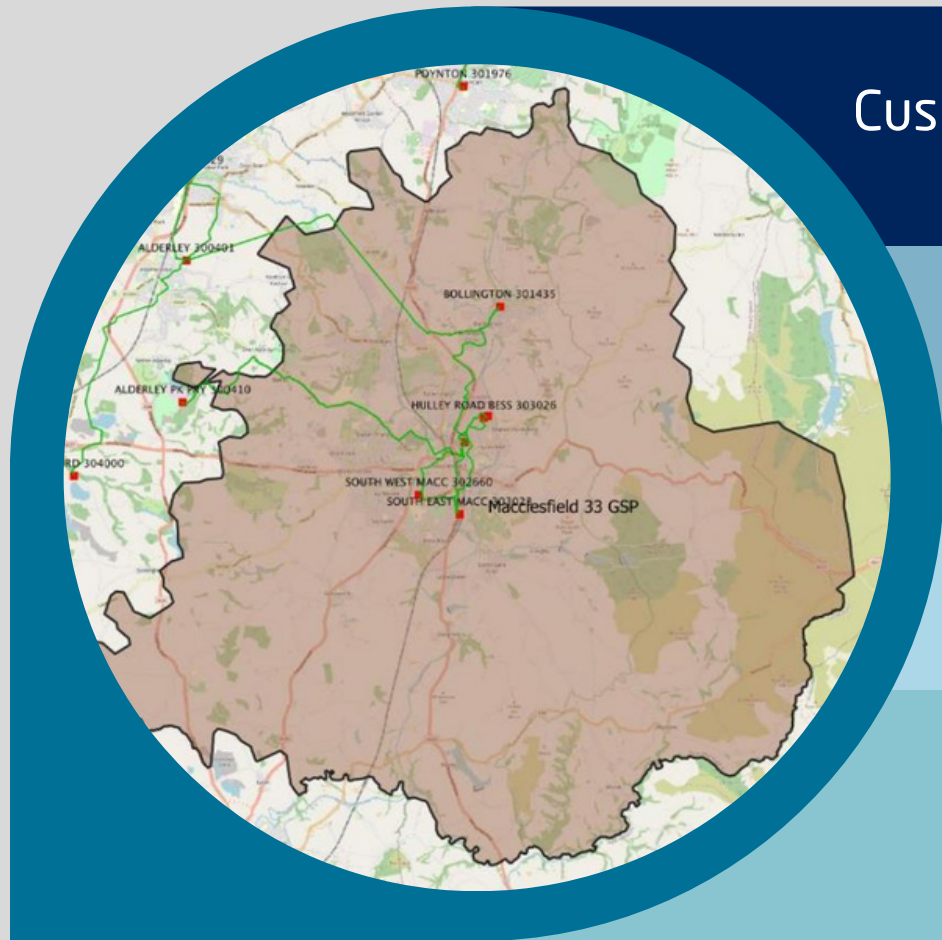
Main Cities, Towns & Villages
Farnworth, Kearsley, Walkden, Worsley

No. of Primary Substations	10	Evaluation Requirements FY23-FY33	Sites	3
No. of Bulk Supply Points	0		Capacity	12 MVA
Maximum Demand	106 MVA	Flexible Services FY23-FY28	Sites	2
Generation Capacity	25 MW		Tendered	9.7 MVA
Energy Demand	595 GWh		Procured	0 MVA
Domestic HP's	1693	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	101		New firm capacity	22.9 MVA
Electric Vehicles	883			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Little Hulton	Circuit	X	X	Reinforce
Moss Lane	Switchgear	X	✓	Flexibility
Hill Top T11 & T12	Switchgear	X	✓	Flexibility

MACCLESFIELD GSP



Customer Numbers: Approximately 36,000

Area of Supply:
Approximately 234 km²

Local Authority Areas:
Cheshire East, Staffordshire, Moorland

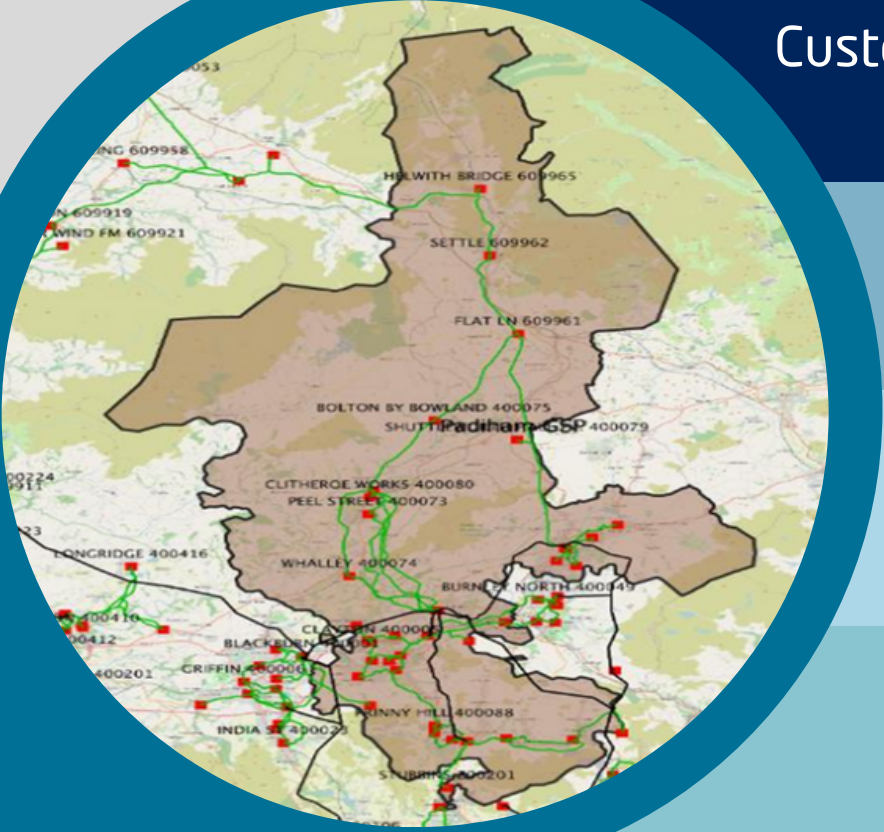
Main Cities, Towns & Villages
Macclesfield, Bollinbrook, Hurdsfield
Langley, Sutton, Gawsforth

No. of Primary Substations	6	Evaluation Requirements FY23-FY33	Sites	2
No. of Bulk Supply Points	0		Capacity	1.5 MVA
Maximum Demand	73 MVA	Flexible Services FY23-FY28	Sites	1
Generation Capacity	11 MW		Tendered	23 MVA
Energy Demand	278 GWh		Procured	3 MVA
Domestic HP's	652	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	79		New firm capacity	22 MVA
Electric Vehicles	754			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Macclesfield BSP	Switchgear	X	X	Reinforce
Bollington	Transformer	X	✓	Flexibility
S.W Macclesfield	Switchgear	X	X	Reinforce

PADIHAM GSP



Customer Numbers: Approximately 130,000

Area of Supply: Approximately 630 km²

Local Authority Areas: Hyndburn, Ribble Valley, Burnley, Rossendale, Pendle

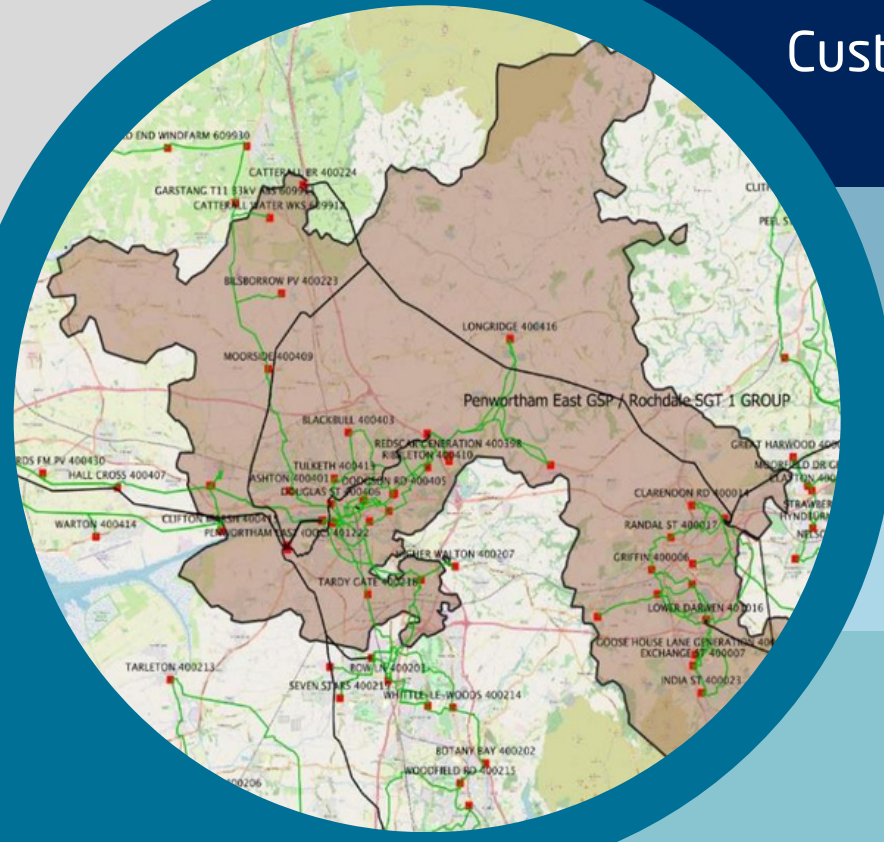
Main Cities, Towns & Villages Settle, Clitheroe, Haslingden, Bolton By Bowland

No. of Primary Substations	28	Evaluation Requirements FY23-FY33	Sites	7
No. of Bulk Supply Points	4		Capacity	12.5 MVA
Maximum Demand	245 MVA	Flexible Services FY23-FY28	Sites	6
Generation Capacity	91 MW		Tendered	166 MVA
Energy Demand	1395 GWh		Procured	1.2 MVA
Domestic HP's	1567	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	317		New firm capacity	0 MVA
Electric Vehicles	1364			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Spring Cottage	Switchgear	X	X	Reinforce
Bolton by Bowland	Interconnections	X	✓	Flexibility
Flat Lane	Interconnections	X	✓	Flexibility
Peel St	Interconnections	X	✓	Flexibility
Ribblesdale T13 & T14	Transformer	X	✓	Flexibility

PENWORTHAM EAST GSP ROCHDALE SGT 1



Customer Numbers: Approximately 167,000

Area of Supply: Approximately 493 km²

Local Authority Areas: Hyndburn, Preston, Wyre, Blackburn with Darwen, Fylde

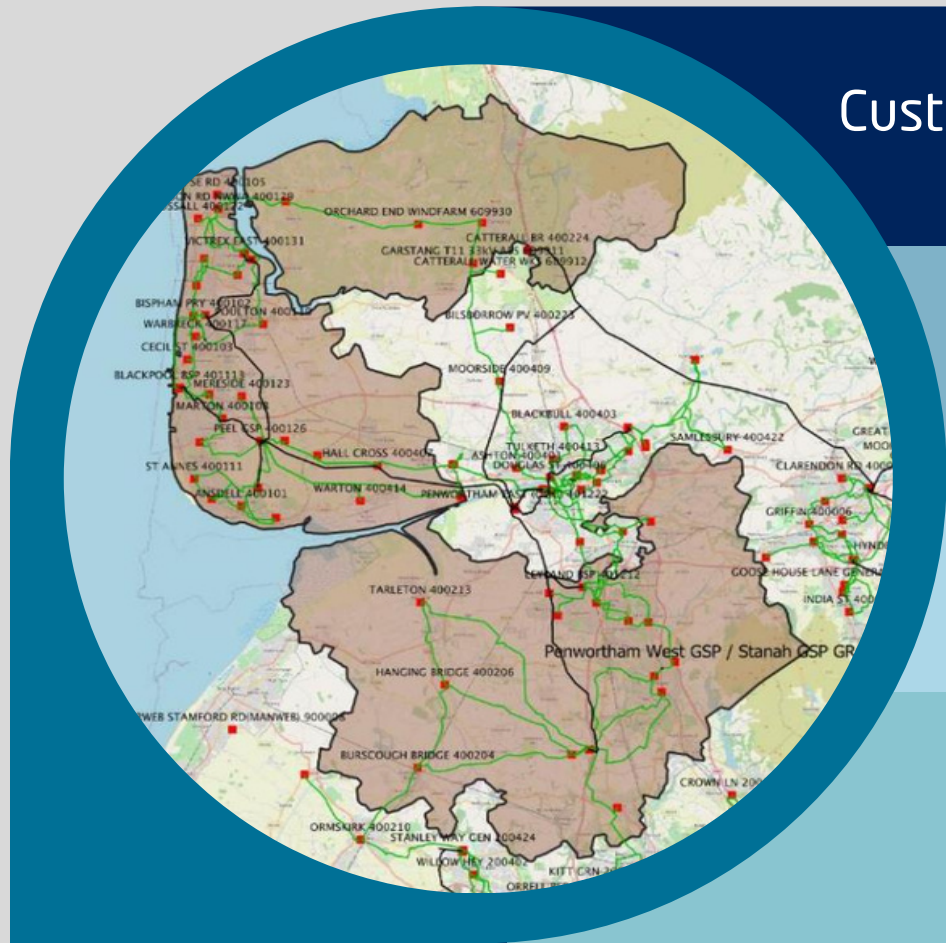
Main Cities, Towns & Villages Fulwood, Preston, Blackburn, Darwen

No. of Primary Substations	31	Evaluation Requirements FY23-FY33	Sites	7
No. of Bulk Supply Points	4		Capacity	12.5 MVA
Maximum Demand	300 MVA	Flexible Services FY23-FY28	Sites	6
Generation Capacity	155 MW		Tendered	332 MVA
Energy Demand	1713 GWh		Procured	40 MVA
Domestic HP's	2365	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	359		New firm capacity	0 MVA
Electric Vehicles	1805			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Catterall Waterworks	Interconnections	✓	✗	Flexibility
Lower Darwen BSP	Switchgear	✗	✗	Reinforce

PENWORTHAM WEST GSP - STANAH GSP GROUP



Customer Numbers: Approximately 240,000

Area of Supply:
Approximately 844 km²

Local Authority Areas:
Blackpool, Chorley, South Ribble,
Fylde, Wyre

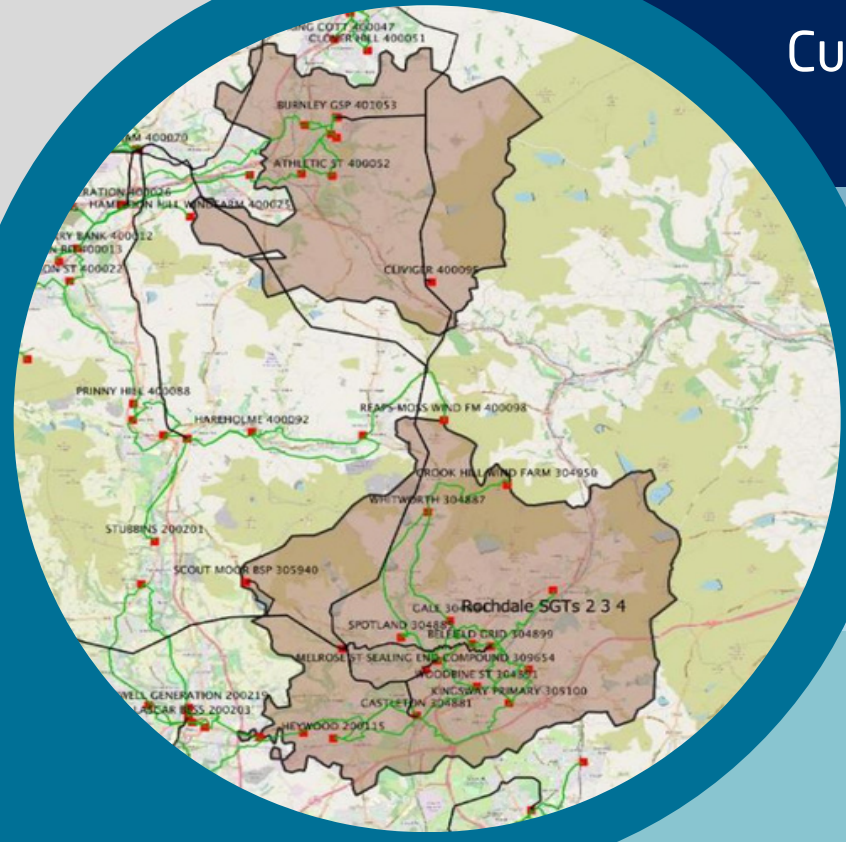
Main Cities, Towns & Villages
Garstang, Fleetwood, Blackpool,
Chorley, Leyland

No. of Primary Substations	45	Evaluation Requirements FY23-FY33	Sites	7
No. of Bulk Supply Points	7		Capacity	16 MVA
Maximum Demand	447 MVA	Flexible Services FY23-FY28	Sites	4
Generation Capacity	183 MW		Tendered	96 MVA
Energy Demand	2301 GWh		Procured	6 MVA
Domestic HP's	3656	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	566		New firm capacity	0 MVA
Electric Vehicles	2941			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Rossall	Interconnections	X	✓	Flexibility
Bispham BSP	Transformer	X	X	Reinforce
Botany Bay	Interconnections	X	✓	Flexibility
Bow Lane	Switchgear	X	X	Reinforce
Hall Cross	Switchgear	X	X	Reinforce
Hanging Bridge	Interconnections	X	✓	Flexibility
Wrightington BSP	Switchgear	X	X	Reinforce
Mosside & Seven Stars	Circuit	X	✓	Flexibility

ROCHDALE SGTs 2 3 4



Customer Numbers: Approximately 155,000

Area of Supply:
Approximately 225 km²

Local Authority Areas:
Burnley, Pendle, Rochdale, Bury

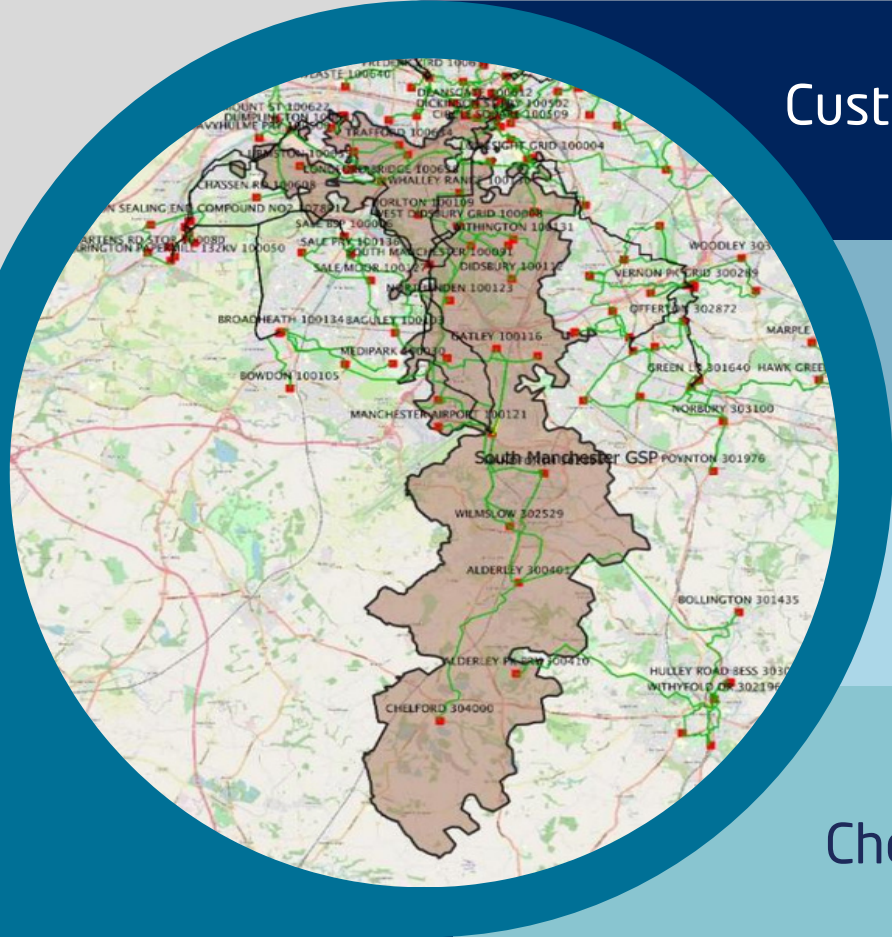
Main Cities, Towns & Villages
Burnley, Whitworth, Rochdale, Heywood

No. of Primary Substations	17	Evaluation Requirements FY23-FY33	Sites	1
No. of Bulk Supply Points	4		Capacity	21 MVA
Maximum Demand	185 MVA	Flexible Services FY23-FY28	Sites	1
Generation Capacity	93 MW		Tendered	136 MVA
Energy Demand	959 GWh		Procured	0 MVA
Domestic HP's	1555	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	197		New firm capacity	0 MVA
Electric Vehicles	907			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Heasandford	Switchgear	X	X	Reinforce
Heywood	Circuits	X	X	Reinforce
Northern Gateway (New Primary Substation)	Transformer	X	X	Reinforce

SOUTH MANCHESTER GSP



Customer Numbers: Approximately 156,000

Area of Supply:
Approximately 163 km²

Local Authority Areas:
Cheshire East, Manchester, Trafford,
Stockport

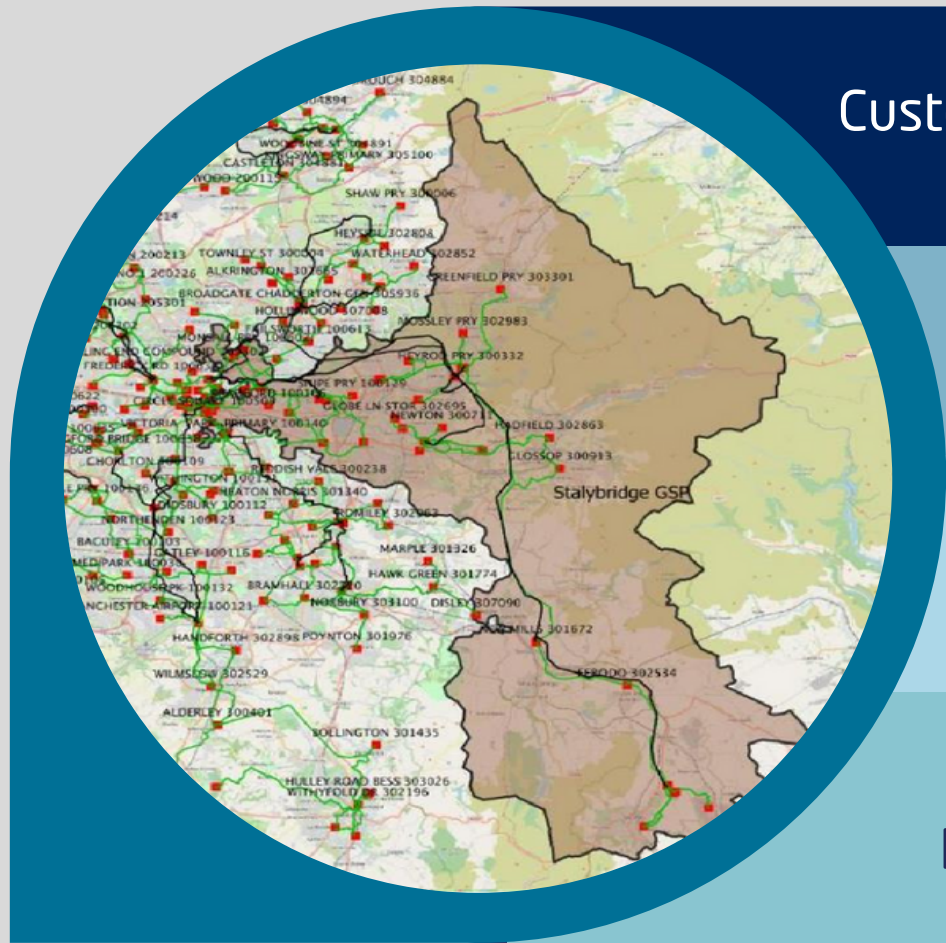
Main Cities, Towns & Villages
Chelford, Alderley Edge, Wilmslow, Cheadle

No. of Primary Substations	27	Evaluation Requirements FY23-FY33	Sites	3
No. of Bulk Supply Points	4		Capacity	3.4 MVA
Maximum Demand	318 MVA	Flexible Services FY23-FY28	Sites	1
Generation Capacity	65 MW		Tendered	2.2 MVA
Energy Demand	1815 GWh		Procured	0 MVA
Domestic HP's	3368	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	351		New firm capacity	0 MVA
Electric Vehicles	1925			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Knott Mill	Switchgear	X	X	Reinforce
West Didsbury BSP (Generation)	Switchgear	X	X	Reinforce
West Didsbury BSP (Demand)	Switchgear	X	✓	Flexibility
Moss Nook BSP	Switchgear	X	X	Reinforce
Cannon Street	Transformer	X	X	Reinforce
Trafford	Transformer	X	X	Reinforce
Whalley Range	Switchgear	X	✓	Flexibility
Withington	Transformer	X	X	Reinforce
West Didsbury BSP	Transformer	X	✓	Flexibility

STALYBRIDGE GSP



Customer Numbers: Approximately 216,000

Area of Supply:
Approximately 575 km²

Local Authority Areas:
Manchester, Oldham, Tameside
High Peak, Stockport, High Peak

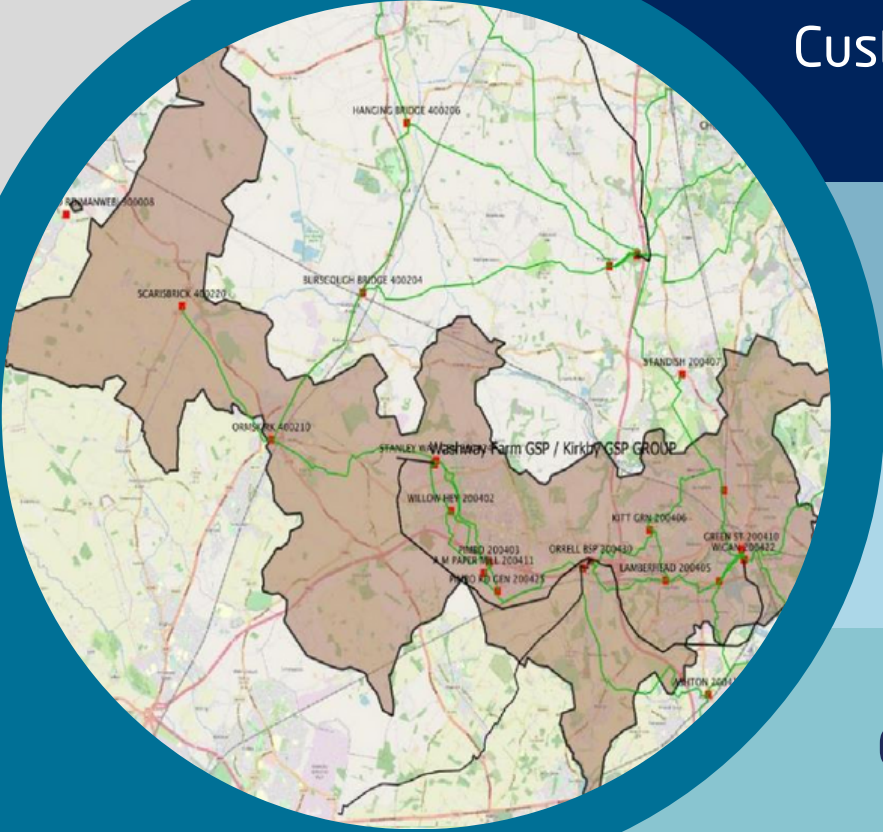
Main Cities, Towns & Villages
Buxton, Glossop, Mossley, Stalybridge

No. of Primary Substations	28	Evaluation Requirements FY23-FY33	Sites	7
No. of Bulk Supply Points	6		Capacity	71 MVA
Maximum Demand	355 MVA	Flexible Services FY23-FY28	Sites	4
Generation Capacity	110 MW		Tendered	173 MVA
Energy Demand	2034 GWh		Procured	1 MVA
Domestic HP's	3265	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	358		New firm capacity	0 MVA
Electric Vehicles	1736			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Queen Park	Transformer	X	X	Reinforce
Mayfield (New Primary)	Transformer	X	X	Reinforce
Ardwick	Transformer	X	✓	Flexibility
Central Manchester	Transformer	X	✓	Flexibility
Eastlands	Transformer	X	X	Reinforce
Hattersley	Transformer	X	✓	Flexibility
Bradford	Switchgear	X	X	Reinforce
Buxton BSP	Transformer	X	X	Reinforce
Droylsden BSP	Transformer	X	X	Reinforce
Heyrod BSP	Transformer	X	X	Reinforce
Gowhole	Switchgear	X	✓	Flexibility
Openshaw	Transformer	X	X	Reinforce

WASHWAY FARM / KIRKBY GSP



Customer Numbers: Approximately 74,000

Area of Supply: Approximately 204 km²

Local Authority Areas: Bolton, Wigan, St Helens, West Lancashire

Main Cities, Towns & Villages Ormskirk, Skelmersdale, Skelmersdale, Orrell, Wigan

No. of Primary Substations	12	Evaluation Requirements FY23-FY33	Sites	6
No. of Bulk Supply Points	3		Capacity	8.2 MVA
Maximum Demand	183 MVA	Flexible Services FY23-FY28	Sites	2
Generation Capacity	100 MW		Tendered	47 MVA
Energy Demand	942 GWh		Procured	0 MVA
Domestic HP's	1789	Approved Reinforcement work FY23-FY26	Sites	1
Non - Domestic HP's	161		New firm capacity	0 MVA
Electric Vehicles	884			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Skelmersale	Switchgear	X	X	Reinforce
Skelmersdale BSP	Transformer	X	X	Reinforce
Wigan BSP	Transformer	X	✓	Flexibility
Ashton (Golborne)	Circuit	X	✓	Flexibility
Green St T11	Transformer	X	X	Reinforce
Upholland	Transformer	X	✓	Flexibility

Whitegate GSP



Customer Numbers: Approximately 179,000

Area of Supply:
Approximately 103 km²

Local Authority Areas:
Manchester, Oldham, Tameside
Bury, Rochdale, Salford

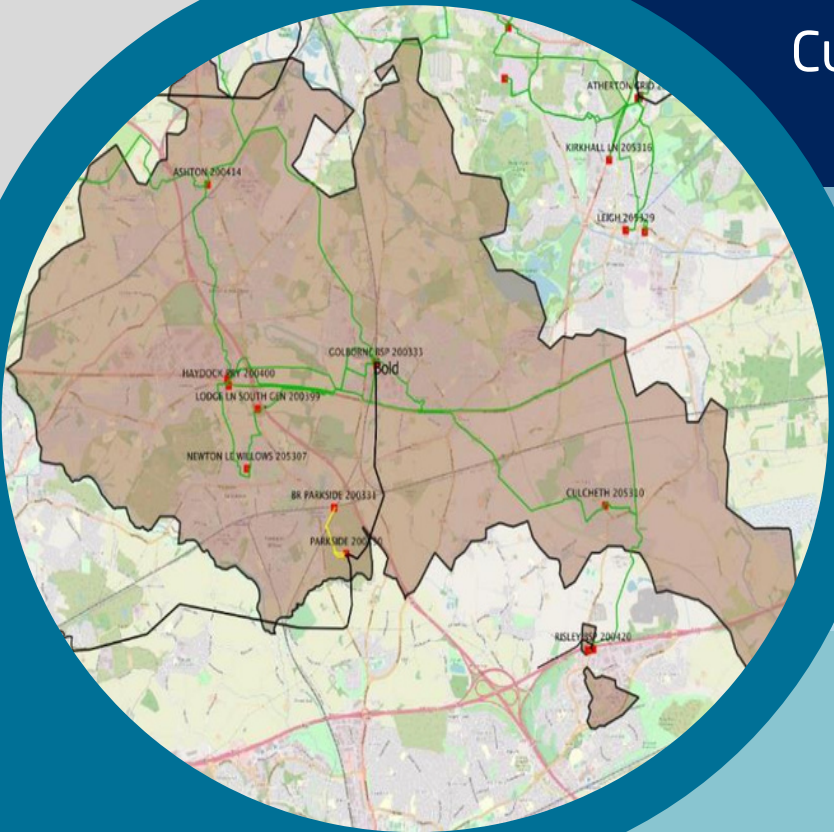
Main Cities, Towns & Villages
Royton, Oldham, Shaw, Failsworth

No. of Primary Substations	23	Evaluation Requirements FY23-FY33	Sites	0
No. of Bulk Supply Points	4		Capacity	0 MVA
Maximum Demand	262MVA	Flexible Services FY23-FY28	Sites	0
Generation Capacity	85 MW		Tendered	0 MVA
Energy Demand	1373 GWh		Procured	0 MVA
Domestic HP's	2924	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	283		New firm capacity	0 MVA
Electric Vehicles	1072			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Royton BSP	Switchgear	X	X	Reinforce
Greenhill	Switchgear	X	X	Reinforce
Hollinwood	Switchgear	X	X	Reinforce

Bold (Golbourne BSP)



Customer Numbers: Approximately 34,000

Area of Supply: Approximately 92 km²

Local Authority Areas: St Helens, Wigan, Salford, Warrington

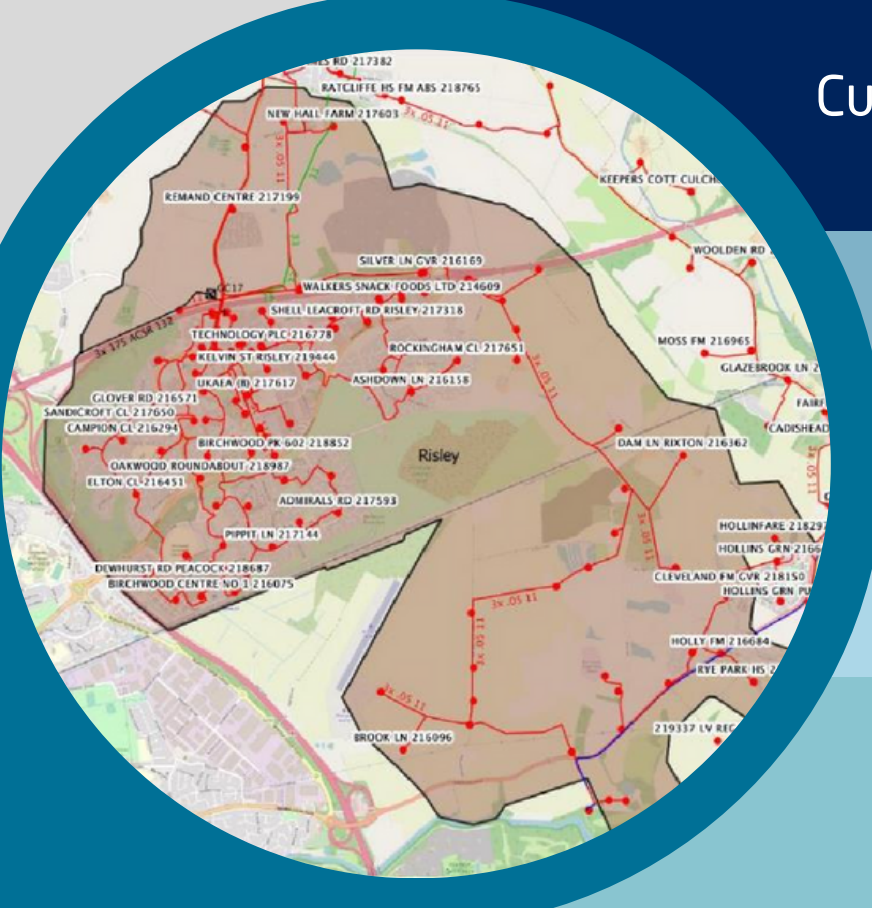
Main Cities, Towns & Villages
Culcheth, Golborne, Ashton-In-Makerfield

No. of Primary Substations	5	Evaluation Requirements FY23-FY33	Sites	2
No. of Bulk Supply Points	0		Capacity	6.7 MVA
Maximum Demand	82 MVA	Flexible Services FY23-FY28	Sites	2
Generation Capacity	70 MW		Tendered	53 MVA
Energy Demand	387 GWh		Procured	0 MVA
Domestic HP's	629	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	56		New firm capacity	0 MVA
Electric Vehicles	408			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Golborne	Transformer	X	✓	Flexibility

RISLEY GSP



Customer Numbers: Approximately 5000

Area of Supply: Approximately 20 km²

Local Authority Areas: Warrington

Main Cities, Towns & Villages Risley

No. of Primary Substations	1	Evaluation Requirements FY23-FY33	Sites	0
No. of Bulk Supply Points	0		Capacity	0 MVA
Maximum Demand	15 MVA	Flexible Services FY23-FY28	Sites	0
Generation Capacity	6 MW		Tendered	0 MVA
Energy Demand	71 GWh		Procured	0 MVA
Domestic HP's	109	Approved Reinforcement work FY23-FY26	Sites	0
Non - Domestic HP's	15		New firm capacity	0 MVA
Electric Vehicles	104			

DNOA Decision

Site	Need	Tendered for Flex	Signposted for Flex	DNOA Recommendation
Risley (Demand)	Circuit	X	✓	Flexibility
Risley (Generation)	Switchgear	X	X	Reinforce