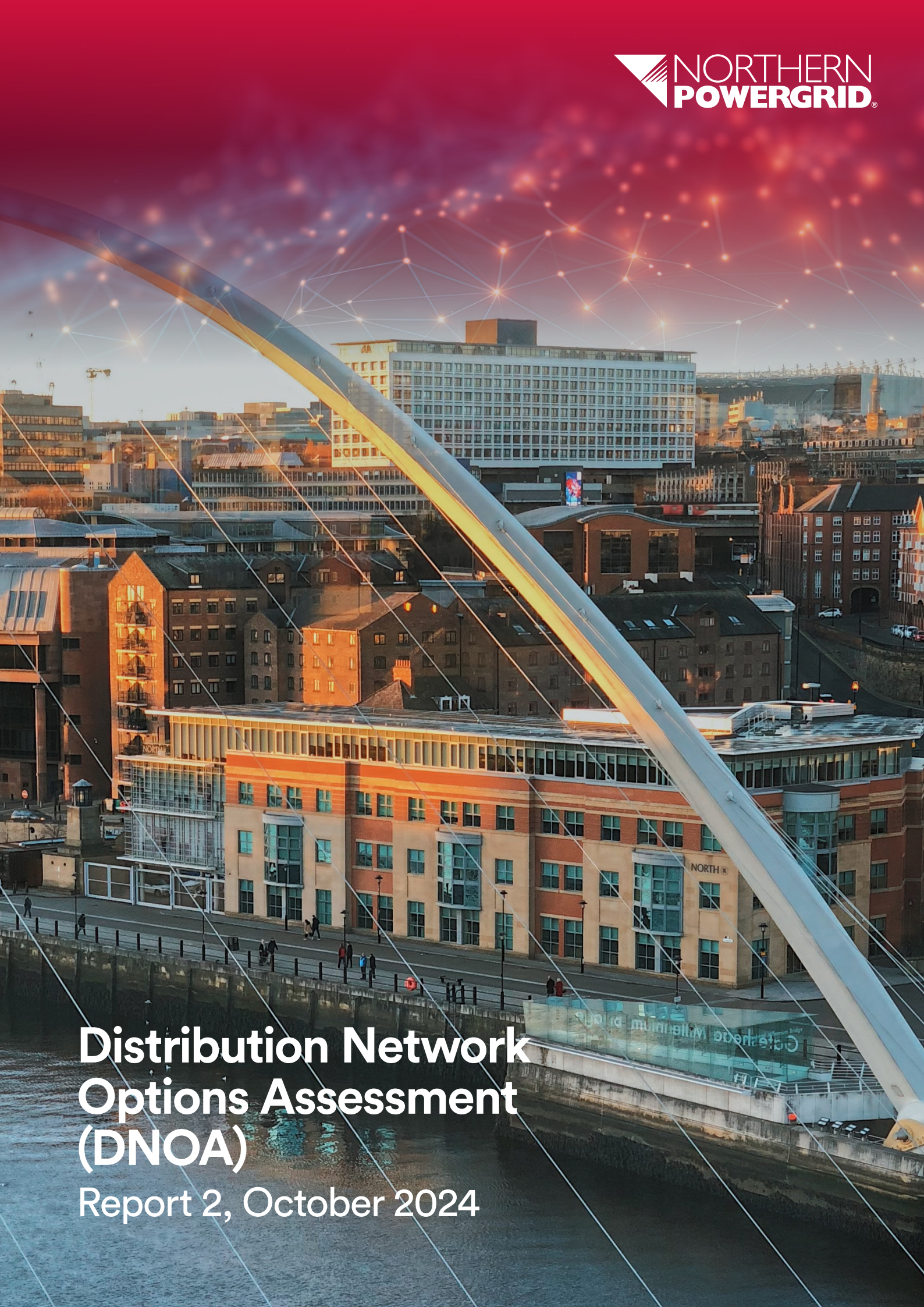
NORTHERN POWERGRID

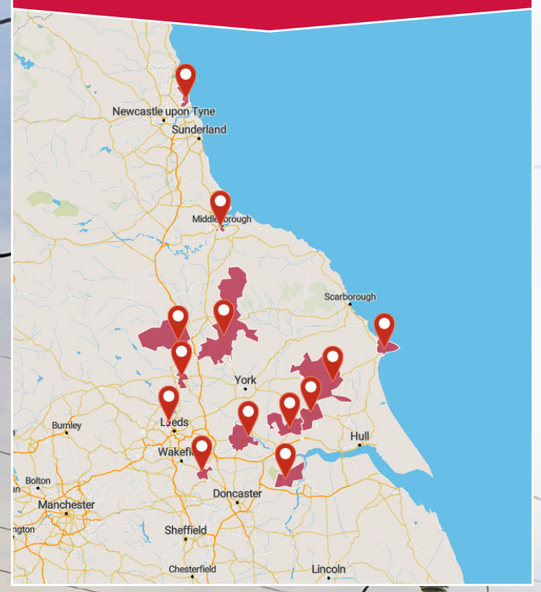


Distribution Network Options Assessment (DNOA)

Report 2, October 2024

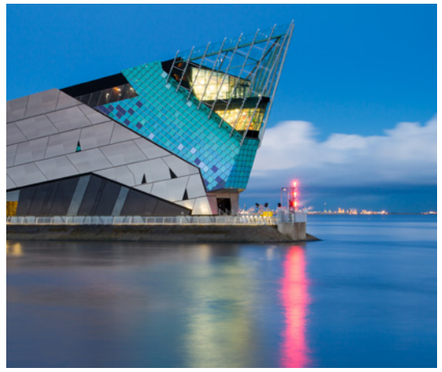
DNOA Report October 2024

The 13 DNOA locations



Introduction

This Distribution Network Options Assessment (DNOA) report presents Northern Powergrid's short term plans for the use of flexibility and conventional reinforcement to manage network capacity. We are committed to being transparent in our investment decision making to demonstrate our Flexibility First approach in practice and highlight opportunities for Flexibility Services.



Northern Powergrid is responsible for the electricity distribution network across the North East, Yorkshire, and northern Lincolnshire. Across our region, we power the daily lives of 8 million people and 3.9 million homes and businesses.

Our responsibility for the electricity distribution network is covered by our two licence areas - Northern Powergrid Northeast and Northern Powergrid Yorkshire. As the company responsible for managing the network across these two licence areas, we are committed to delivering reliable and resilient electricity, while preparing the network to support regional and national net zero ambitions.

As the demand for electricity grows in line with low carbon technology uptake such as electric vehicles and heat pumps, our network requires development. We are committed to taking a 'flexibility first' approach to network development to accommodate growing demand.

This approach will deliver the most cost-effective solutions for our customers while transforming our network into a flexible, future-ready distribution network which will support net zero ambitions.

The Distribution Network Options Assessment (DNOA) is an important process for meeting our commitment to developing a network to serve our region's needs. This document is our second publication of the DNOA report in 2024. We are committed to publishing a version of this report at least twice a year, to ensure we are continuously evaluating the distribution network, identifying new opportunities for flexibility and updating our strategies where necessary. This approach allows us to engage with our customers and the market in an efficient and transparent manner.

Our decision-making on flexibility requirements is informed by assessments of how our network will cope with the demands forecasts in our Distribution Future Energy Scenarios (DFES) and the ceiling price determined using the Common Evaluation Methodology tool. More information on this is detailed in the DNOA methodology document.

The purpose of this DNOA report is to transparently inform our stakeholders of the investment decisions we are taking, to allow scrutiny of our decisions and ensure our plans are informing those of our stakeholders.

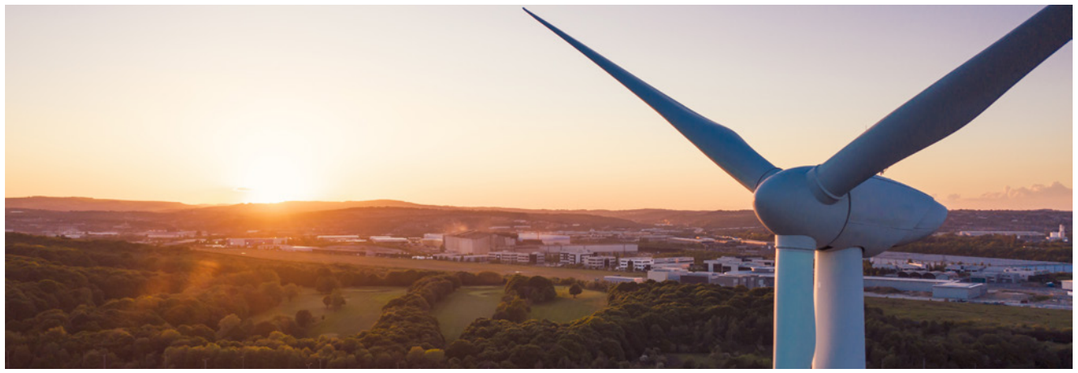
This DNOA report covers thirteen primary substations (schemes) across our network that are forecast to experience load-related constraints within the next five years. The outcomes of our Flexibility Services tenders are reflected in the DNOA intervention decisions included in this report for all schemes where we have procured Flexibility Services.

Seven of the thirteen schemes in this document (Crowle, Holme Upon Spalding Moor, Kirkburn, Martongate, Monkseaton, Ripon, and Southgate) were included in the previous DNOA. The other six schemes (Faraday Street, Hemsworth, Husthwaite, Moor Road, Selby, and Starbeck) are new additions due to emerging newly identified capacity requirements.

Among the schemes carried over from the last DNOA, the intervention decision for four (Holme Upon Spalding Moor, Martongate, Monkseaton, and Ripon) remains signposting. For Kirkburn, the decision is to utilise flexibility. For the other two schemes (Crowle and Southgate), the decision is to utilise flexibility and subsequently reinforcement. In this DNOA report, Crowle continues to have the DNOA intervention decision to utilise flexibility and subsequently reinforcement, but the intervention decision for Southgate is now signposting due to the absence of immediate network capacity needs following the cancellation of a planned future connection scheme.

Among the new additions, the intervention decision for five (Faraday Street, Hemsworth, Husthwaite, Moor Road, and Selby) is signposting. For the other scheme (Starbeck) the decision is to utilise flexibility.

DNOA Report October 2024



Signposting refers to Northern Powergrid providing information to the flexibility market about potential areas where we are seeking expressions of interest for future flexibility in the next three or more years. Our flexibility needs are open on our website[1] where any interested customers in the region who may be able to provide Flexibility Services to Northern Powergrid are welcome to contact us.

Please contact our System Forecasting team opendata@northernpowergrid.com if you have any feedback or questions.

Our DNOA methodology, that is, our process for identifying network constraints and assessing network capacity, remains unchanged. However, we have conducted a network constraint assessment to refresh our analysis for this DNOA report. This assessment incorporated updated demand profiles, procured flexibility volumes from our tenders up to the results of our Spring 2024 tender (we have excluded the result of our Summer 2024 tender while we finalise our contracts), and future connection profiles. This assessment formed the basis of revised forecast demand profiles.

This DNOA report provides the most up to date information on our constrained asset intervention volumes, DNOA intervention decisions, and flexibility requirements, alongside asset loading data – all of which is provided on the schemes' pages. The rationale of the DNOA intervention decisions, along with detailed descriptions of constraints, can also be found in the corresponding report pages for each named scheme in the following section.

To ensure that we present the data with a consistent approach, we have developed a common DNOA report template for reporting each named scheme. The structure and features of our DNOA reports are described in the DNOA methodology document, one part of our suite of documents. The DNOA reports are presented in the next section.

As we continue to refine our future DNOA, we welcome any feedback from our stakeholders to optimise our decision making and the way in which we communicate these decisions.

1 https://www.flexiblepower.co.uk/locations/location/northern-powergrid

Crowle
66/11 kV SUBSTATION

DNOA intervention decision:
FLEXIBILITY / REINFORCEMENT

Constraint season:
Autumn and Winter

Flexibility ceiling price (£/MWh):
248

Reinforcement delivery time (years):
2

Postal sectors supplied from Crowle Primary Substation:

DN17 1; DN17 3; DN17 4; DN8 5; DN9 1

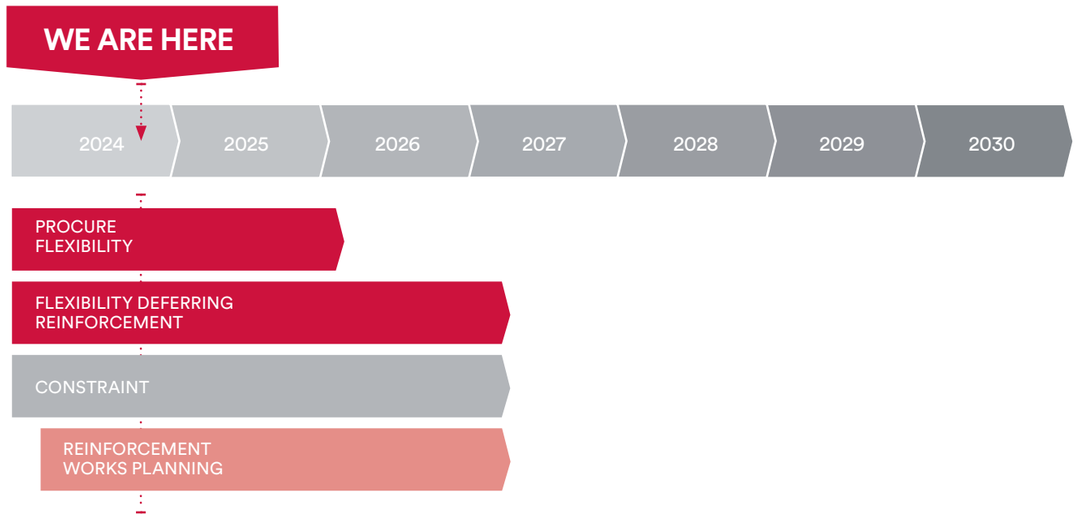
Scheme Description:

- Crowle 66/11 kV substation is equipped with a single 7.5/15 MVA transformer, and has a firm capacity of 4.5 MVA. Network load is forecasted to exceed firm capacity in 2024/25.
- Insufficient Flexibility Services have been procured. Hence we will start reinforcement works and use partial Flexibility Services to help relieve the network overload in the interim.
- We will continue Flexibility tendering and may stall reinforcement works if enough Flexibility is procured.

Postcode
DN17 4BB

Licence area
Yorkshire

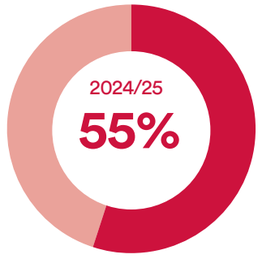
Timeline

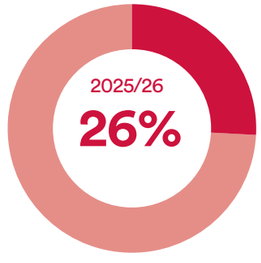


Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	0.4	0.7	2.4	2.6	2.8
Flexibility Procured (MW)	0.22	0.18	-	-	-

Flexibility procured





Faraday Street
66/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Faraday Street Substation:

TS1 2; TS1 3; TS1 4; TS1 5; TS177; TS2 1; TS3 7; TS4 2; TS5 4; TS5 5; TS5 6

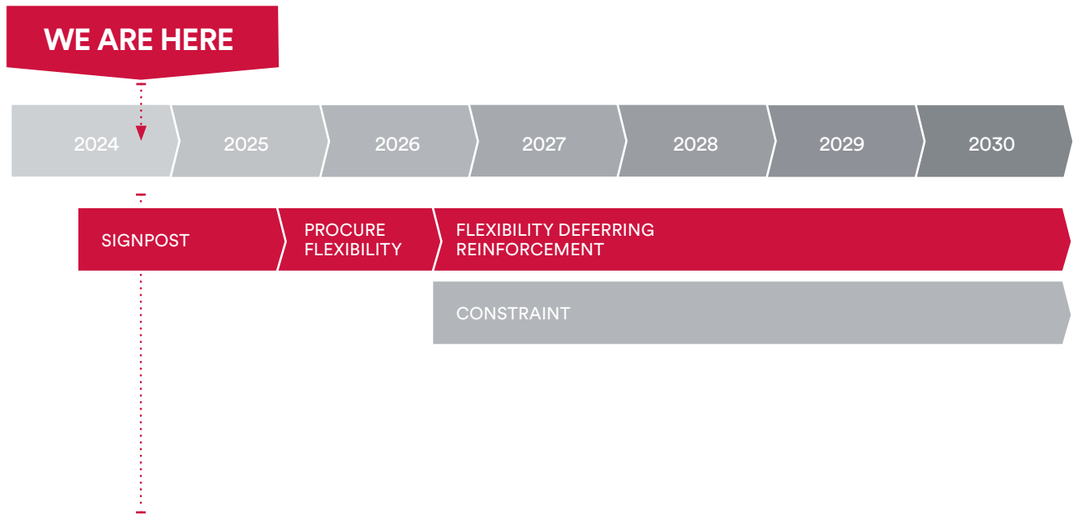
Scheme Description:

- Faraday Street 66/11 kV substation is equipped with 2x 15/18.75 MVA transformers, and has a firm capacity of 22.6 MVA. Network load is forecasted to exceed firm capacity in 2026/27.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
TS1 4JG

Licence area
Northeast

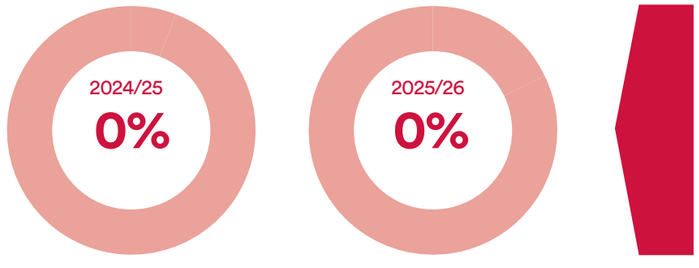
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	3.3	3.7	4.1
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Hemsworth
66/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Hemsworth Substation:

WF4 1; WF4 2; WF7 7; WF8 3; WF9 1; WF9 4; WF9 5

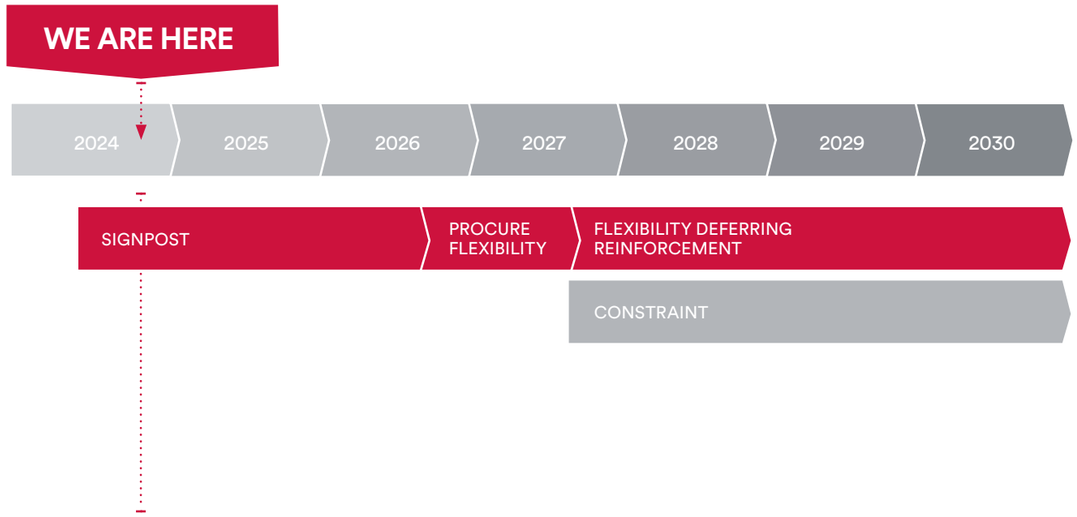
Scheme Description:

- Hemsworth 66/11 kV substation is equipped with a single 12/24 MVA transformer, and has a firm capacity of 10.0 MVA. Network load is forecasted to exceed firm capacity in 2027/28.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
WF9 5BZ

Licence area
Yorkshire

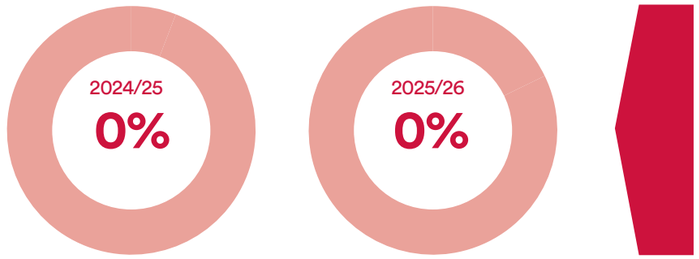
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	0.1	0.5
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Holme Upon Spalding Moor
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Holme Upon Spalding Moor Substation:

DN14 7; HU15 2; YO42 1; YO42 4; YO43 3; YO43 4; YO62 5; YO8 6; YO8 7

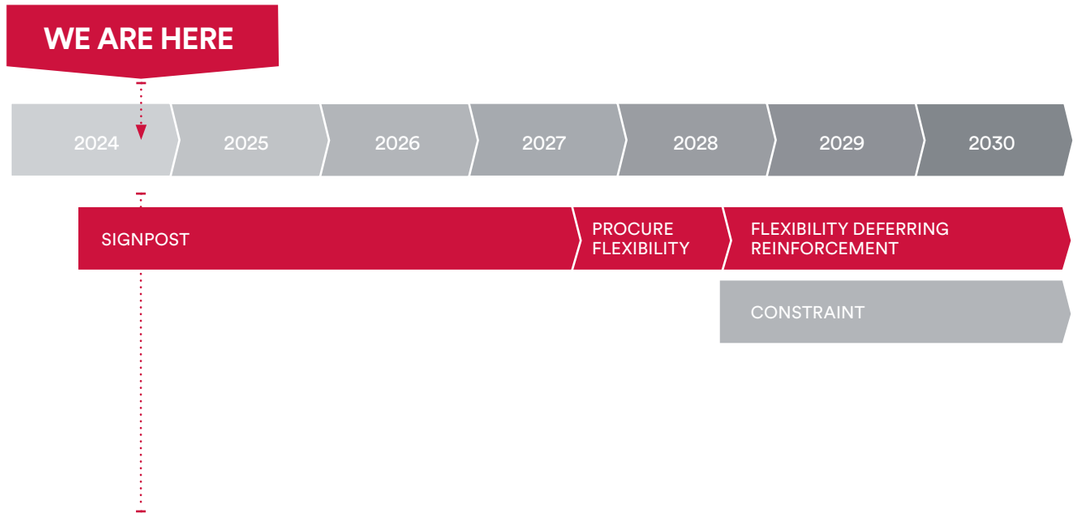
Scheme Description:

- Holme Upon Spalding Moor 33/11 kV substation is equipped with a single 12/24 MVA transformer, and has a firm capacity of 8 MVA. Network load is forecasted to exceed firm capacity in 2028/29.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
YO43 4BX

Licence area
Yorkshire

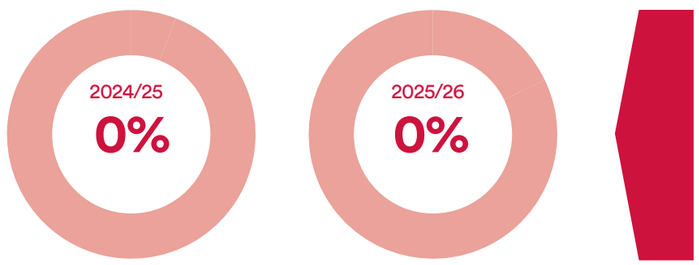
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	-	0.3
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Husthwaite
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Husthwaite Substation:

DL6 3; TS9 7; YO51 9; YO60 6; YO61 1; YO61 2; YO61 3; YO61 4; YO61 5; YO62 4; YO62 5; YO6 3; YO7 2; YO7 3

Scheme Description:

— Husthwaite 33/11 kV substation is equipped with 2x 7.5/15 MVA transformers, and has a firm capacity of 15.0 MVA. Network load is forecasted to exceed firm capacity in 2025/26.

— To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
YO61 4PN

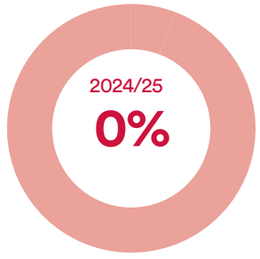
Licence area
Northeast

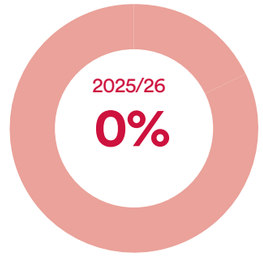
Timeline

Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	0.2	0.9	1.6	2.2
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured





Kirkburn
66/11 kV SUBSTATION

DNOA intervention decision:
FLEXIBILITY

Constraint season:
Autumn and Winter

Flexibility ceiling price (£/MWh):
1200

Reinforcement delivery time (years):
2

Postal sectors supplied from Kirkburn Primary Substation:

YO17 9; YO25 0; YO25 1; YO25 3; YO25 4; YO25 8; YO25 9; YO42 1

Scheme Description:

- Kirkburn 66/11 kV substation is equipped with a single 15/30 MVA transformer, and has a firm capacity of 8 MVA. Network load is forecasted to exceed firm capacity in 2024/25.
- To relieve the network overload, we will deploy Flexibility Services solution until it is no longer viable to delay reinforcement.

Postcode
YO25 9EH

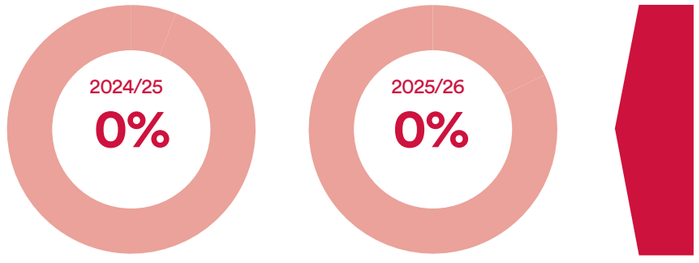
Licence area
Yorkshire

Timeline

Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	0.3	0.3	0.5	0.7	0.8
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Martongate
66/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Martongate Primary Substation:

YO14 0; YO14 9; YO15 1; YO15 2; YO16 4; YO16 6; YO16 7

Scheme Description:

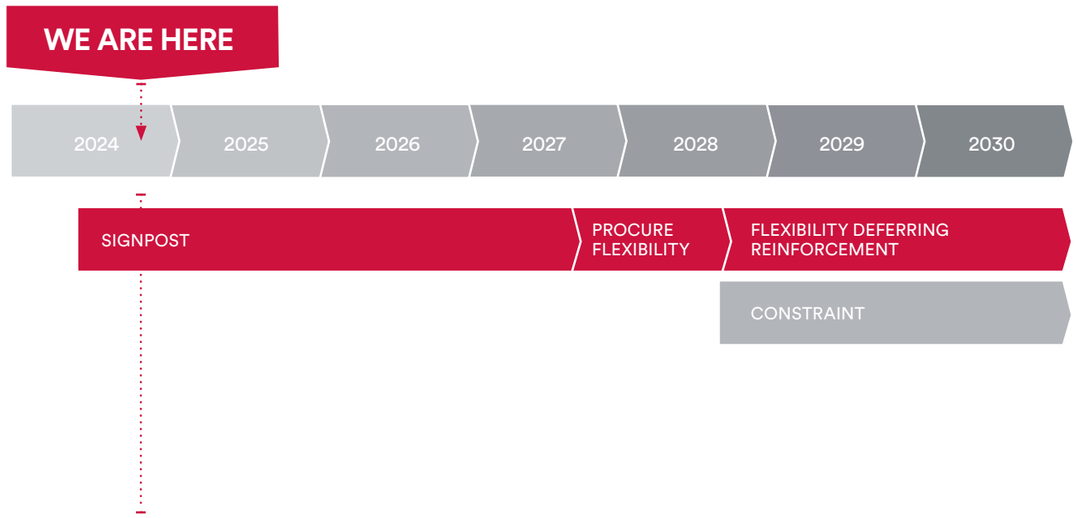
— Martongate 66/11 kV substation is equipped with 2x 10/12.5 MVA transformers, and has a firm capacity of 14.1 MVA. Network load is forecasted to exceed firm capacity in 2028/29.

— To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
YO16 6RX

Licence area
Yorkshire

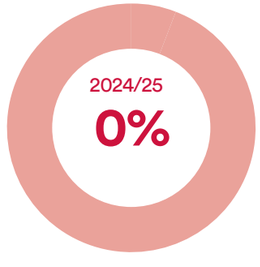
Timeline

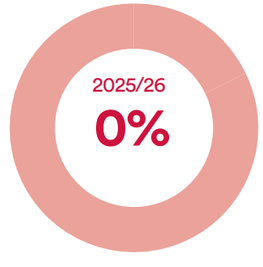


Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	-	0.8
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured





Monkseaton
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Monkseaton Primary Substation:

NE25 0; NE25 8; NE25 9; NE26 1; NE26 2; NE26 3; NE26 4; NE27 0; NE29 8

Scheme Description:

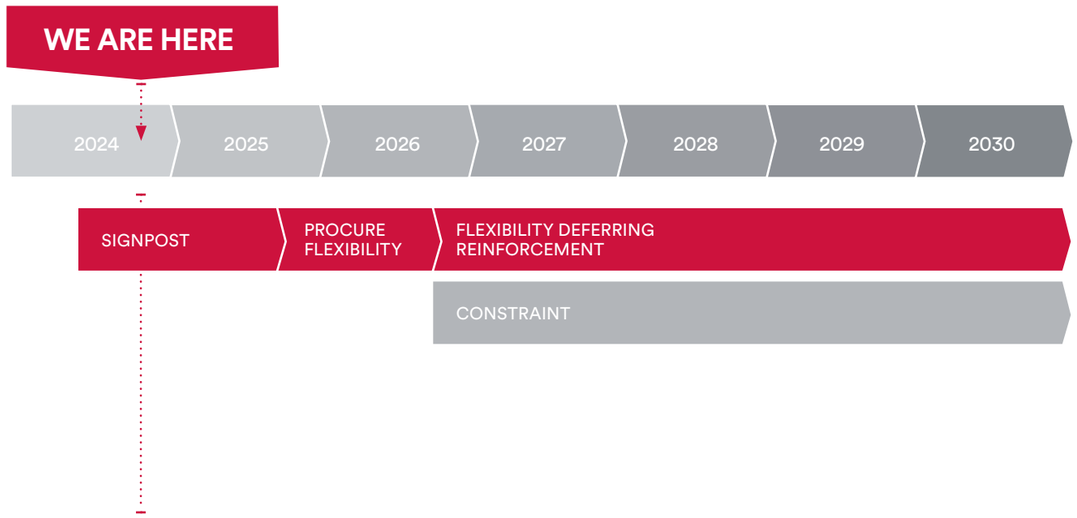
— Monseaton 33/11 kV substation is equipped with 2x 15/18.75 MVA transformers, and has a firm capacity of 20.5 MVA. Network load is forecasted to exceed firm capacity in 2026/27.

— To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
NE25 9AF

Licence area
Northeast

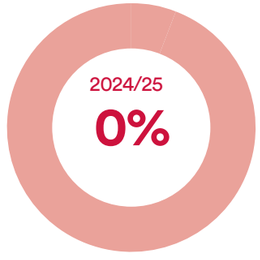
Timeline

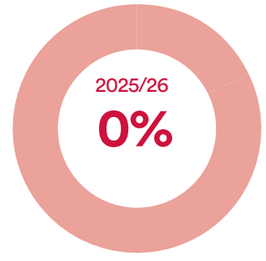


Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	0.1	0.8	1.2
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured





Moor Road
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Moor Road Substation:

LS16 5; LS16 7; LS16 8; LS4 2; LS5 3; LS6 1; LS6 2; LS6 3; LS6 4

Scheme Description:

— Moor Road 33/11 kV substation is equipped with 2x 15/18.75 MVA transformers, and has a firm capacity of 20.1 MVA. Network load is forecasted to exceed firm capacity in 2025/26.

— To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
LS6 4BJ

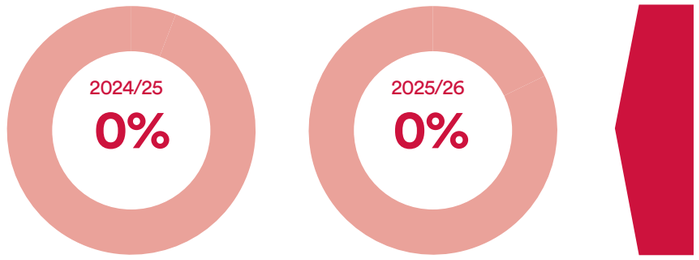
Licence area
Yorkshire

Timeline

Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	2.3	3.1	3.9	4.4
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Ripon
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Ripon Primary Substation:

DL7 9; DL8 2; HG3 3; HG4 1; HG4 2; HG4 3; HG4 4; HG4 5; YO7 3; YO7 4

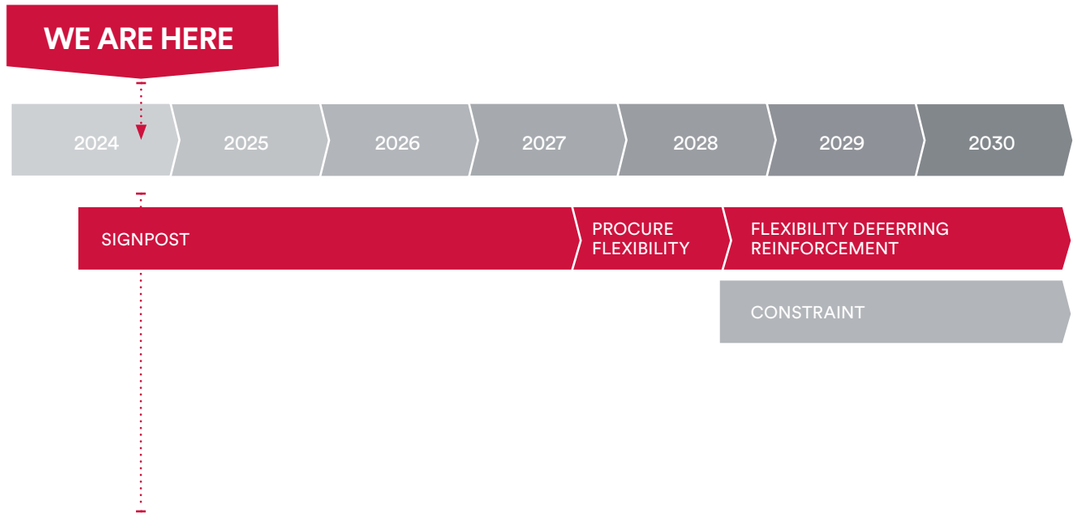
Scheme Description:

- Ripon 33/11 kV substation is equipped with 2x 12/24 MVA transformers, and has a firm capacity of 18.7 MVA. Network load is forecasted to exceed firm capacity in 2028/29.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
HG4 1QE

Licence area
Northeast

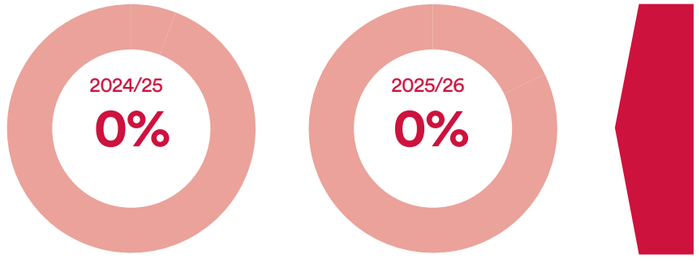
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	-	0.3
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Selby
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

Reinforcement delivery time (years):
TBC

Postal sectors supplied from Selby Substation:

LN8 3; LS24 9; YO19 6; YO8 0; YO8 3; YO8 4; YO8 5; YO8 6; YO8 8; YO8 9

Scheme Description:

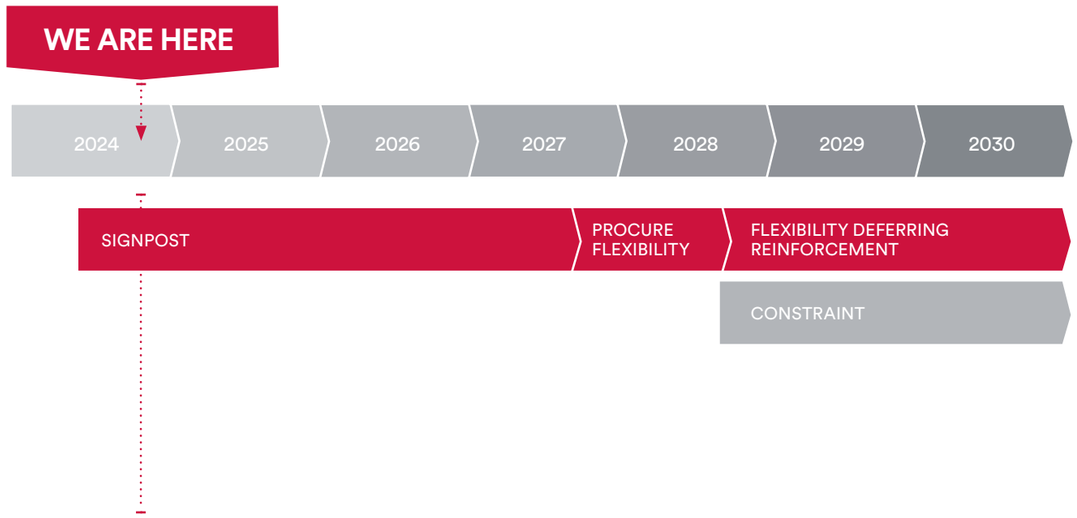
— Selby 33/11 kV substation is equipped with 2x 15/30 MVA transformers, and has a firm capacity of 29.0 MVA. Network load is forecasted to exceed firm capacity in 2028/29.

— To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.

Postcode
YO8 8NB

Licence area
Yorkshire

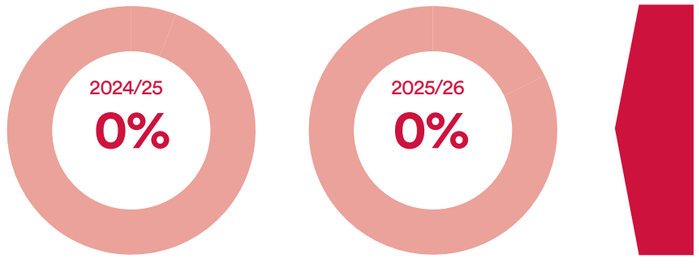
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	-	0.2
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Southgate
33/11 kV SUBSTATION

DNOA intervention decision:
SIGNPOSTING

Constraint season:
TBC

Flexibility ceiling price (£/MWh):
TBC

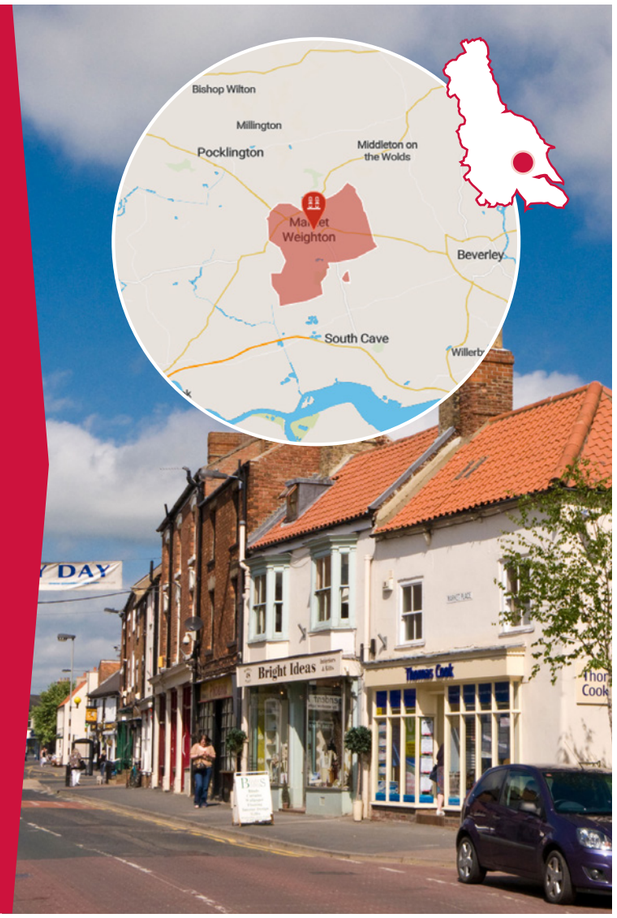
Reinforcement delivery time (years):
TBC

Postal sectors supplied from Southgate Primary Substation:

HU15 2; HU17 7; YO25 9; YO42 4; YO4 3; YO43 3; YO43 4

Scheme Description:

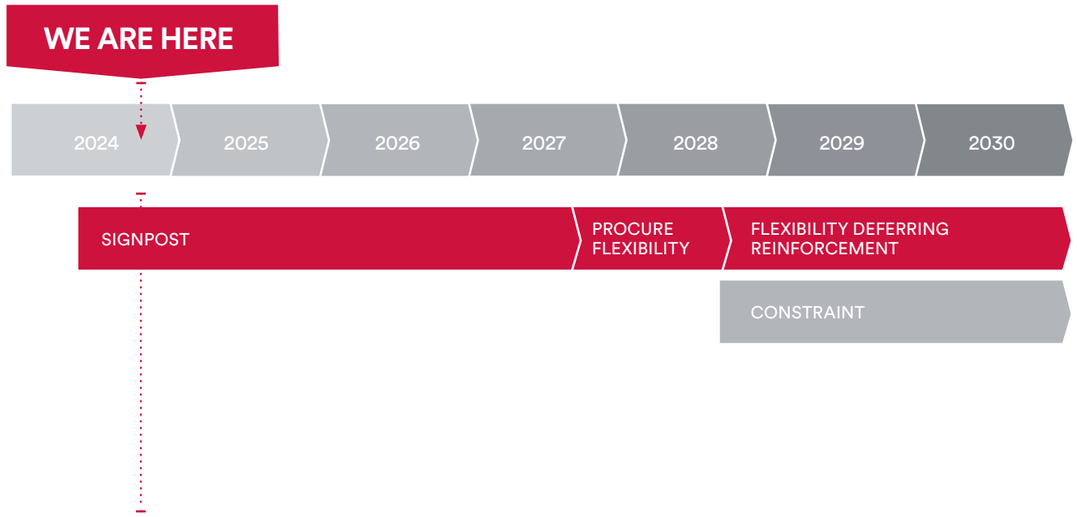
- Southgate 33/11 kV substation is equipped with a single 11.5/23 MVA transformer, and has a firm capacity of 8.0 MVA. Network load is forecasted to exceed firm capacity in 2028/29.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2024 Autumn flexibility tendering round.



Postcode
YO43 4BE

Licence area
Yorkshire

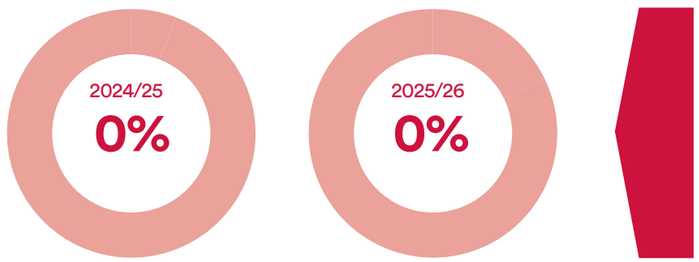
Timeline



Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	-	-	-	-	0.2
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured



Starbeck
33/11 kV SUBSTATION

DNOA intervention decision:
FLEXIBILITY

Constraint season:
Autumn and Winter

Flexibility ceiling price (£/MWh):
5190

Reinforcement delivery time (years):
2

Postal sectors supplied from Starbeck Substation:

HG1 3; HG1 4; HG2 7; HG2 8; HG3 1; HG3 3; HG5 0; HG5 8; HG5 9

Scheme Description:

- Starbeck 33/11 kV substation is equipped with 2x 15/18.75 MVA transformers, and has a firm capacity of 21.1 MVA. Network load is forecasted to exceed firm capacity in 2024/25.
- To relieve the network overload, we will deploy Flexibility Services solution until it is no longer viable to delay reinforcement.
- We have tendered for Flexibility Services procurement in our 2024 Autumn flexibility tendering round.

Postcode
HG2 7PT

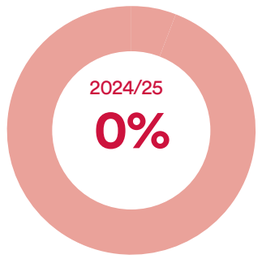
Licence area
Northeast

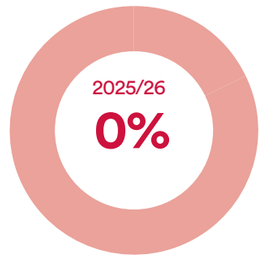
Timeline

Flexibility Requirements and Procurements

Forecast Year	2024/25	2025/26	2026/27	2027/28	2028/29
Flexibility Required (Best View) (MW)	0.5	0.5	2.1	2.8	3.3
Flexibility Procured (MW)	-	-	-	-	-

Flexibility procured





Contact us

Your feedback is important to us and should be sent to:

opendata@northernpowergrid.com

Please contact us if you have any questions.