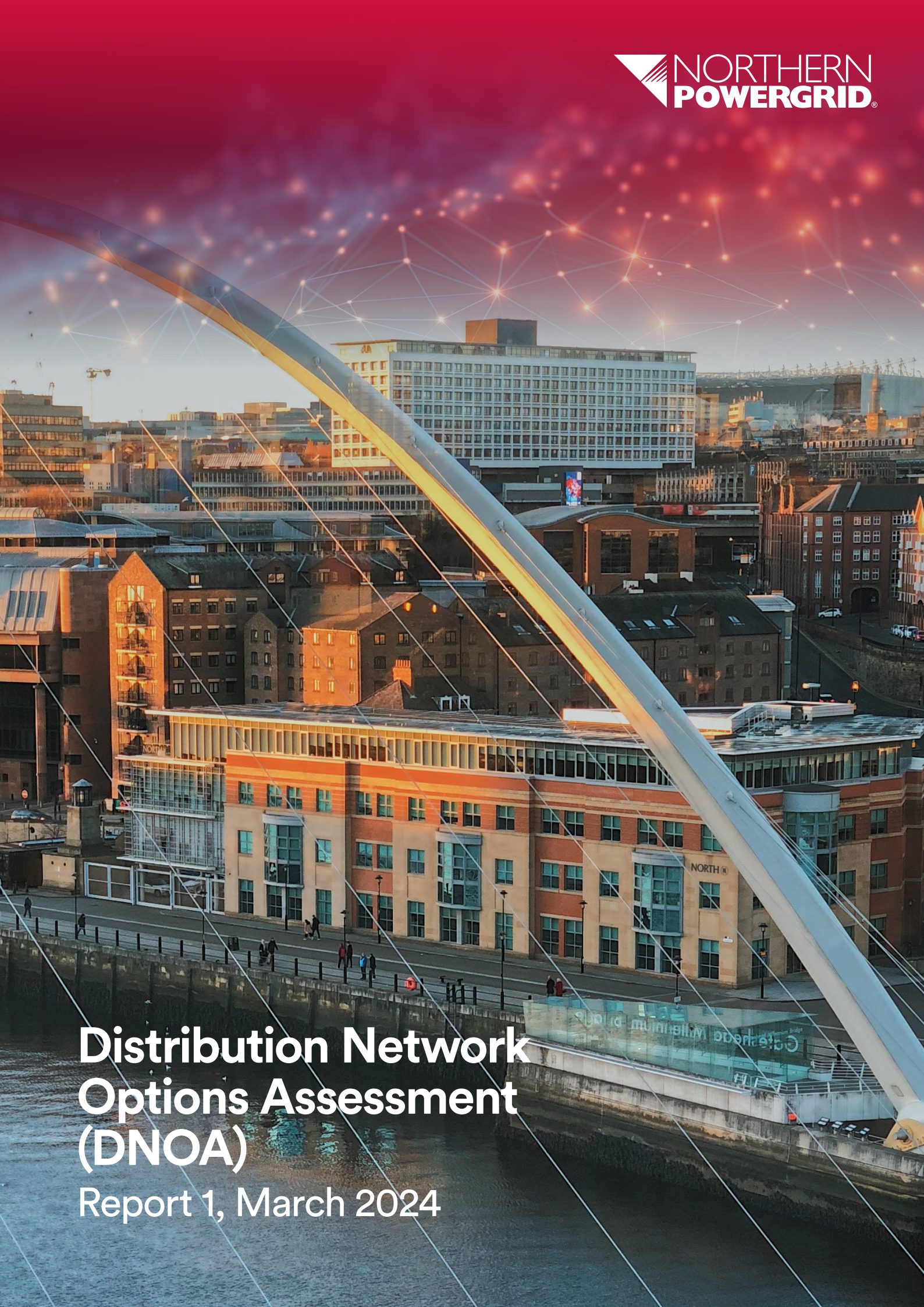
NORTHERN POWERGRID



# Distribution Network Options Assessment (DNOA)

Report 1, March 2024

DNOA Report March 2024

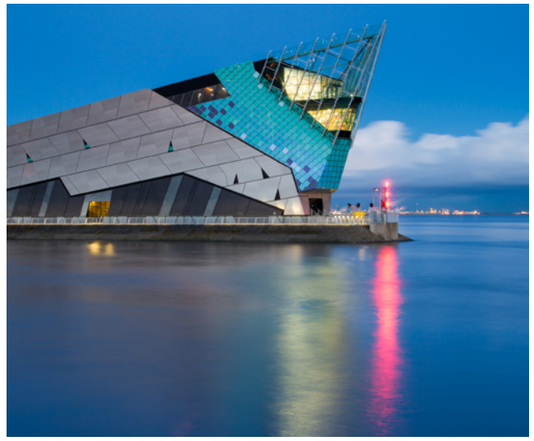
# Contents



**The seven 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 accomodate 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 first publication of the DNOA report, and we will be publishing this report twice yearly moving forward.

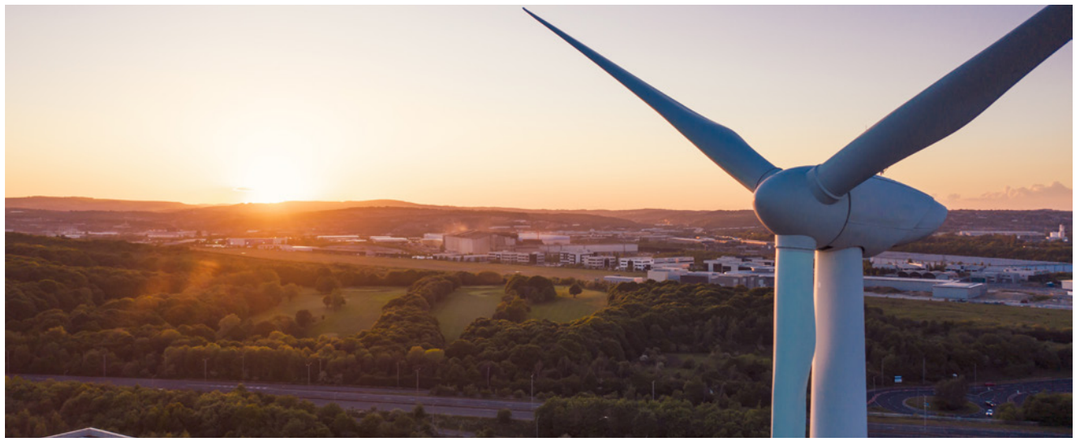
Our decision-making on flexibility requirements are informed by assessments of how our network will cope with our Distribution Future Energy Scenarios (DFES) and the ceiling price determined using the Common Evaluation Methodology tool. More information on this is detailed in the DNOA methodology.

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 seven primary substations across our network that are forecast to become overloaded and require intervention in the RIIO-ED2 price control period from 2023 to 2028. The outcomes of our Autmn 2023 Flexibilty Services tender are reflected in the DNOA intervention decisions included in this report.



DNOA Report March 2024



For two of the substations, Crowle and Southgate, our DNOA intervention decision is to utilise flexibility and reinforcement due to immediate network capacity needs at these locations. Five of the substations (Holme Upon Spalding Moor, Kirkburn, Martongate, Monkseaton and Ripon) are forecast to become constrained in the later years of the RIIO-ED2 period and our DNOA intervention decision for these is Signposting. 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.

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.

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


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):
**141**

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 MVA transformer, and has a firm capacity of 4.5 MVA. Network load is forecasted to exceed firm capacity in 2023/24.
- Insufficient Flexibility Services have been procured. Hence we will start planning 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 plans if enough flexibility is procured.

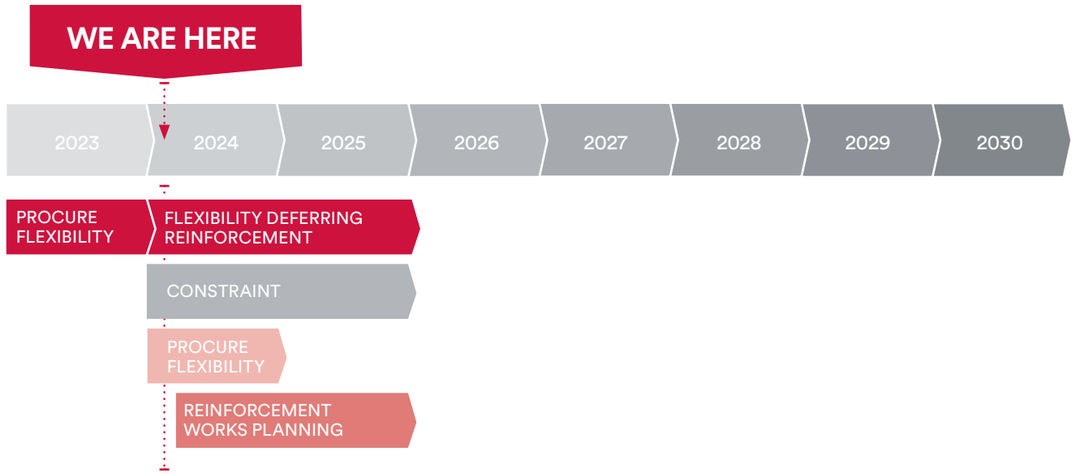





Postcode
DN17 4BB

Licence area
Yorkshire

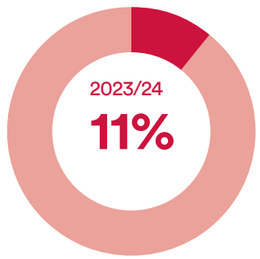
## Timeline

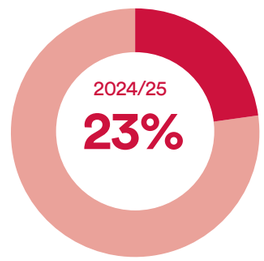



## Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | 0.5 | 0.5 | 0.6 | 0.7 | 1.0 |
| Flexibility Procured (MW) | 0.05 | 0.12 | | | |

**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 24 MVA transformer, and has a firm capacity of 8 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 2023 Autumn flexibility tendering.

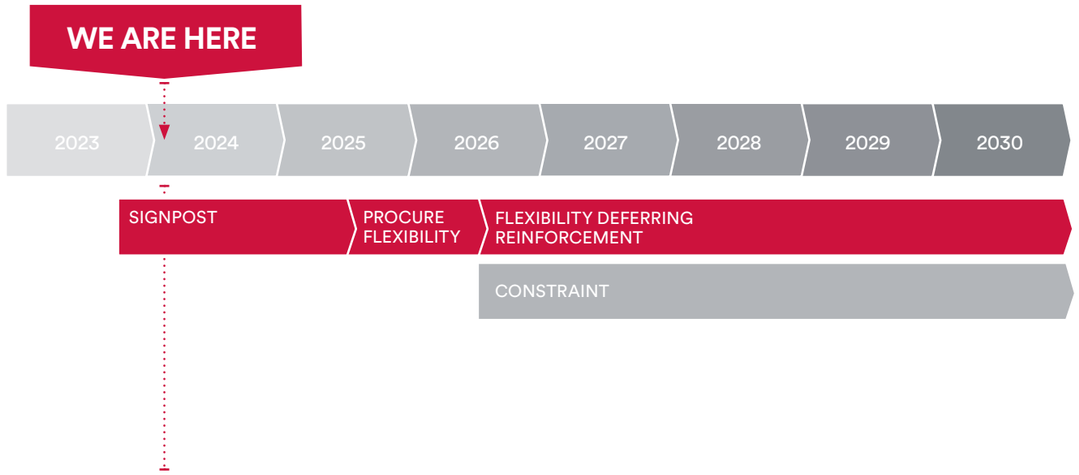





Postcode
YO43 4BX

Licence area
Yorkshire

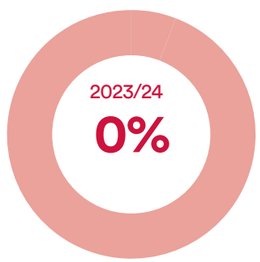
### Timeline

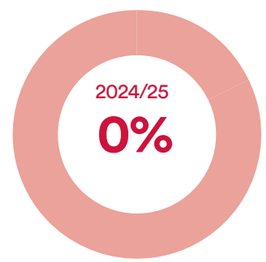



### Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | - | - | - | 0.1 | 0.3 |
| Flexibility Procured (MW) | - | - | | | |

**Flexibility procured**



# Kirkburn
## 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 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 2027/28.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2023 Autumn flexibility tendering.

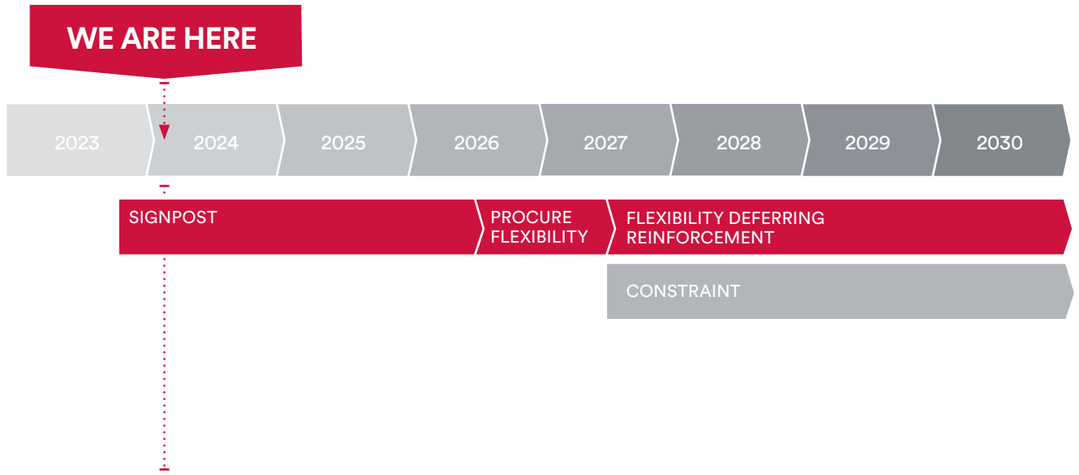





Postcode
YO25 9EH

Licence area
Yorkshire

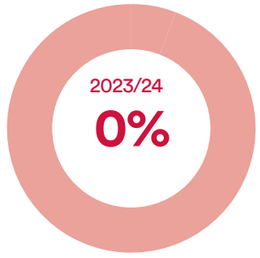
### Timeline

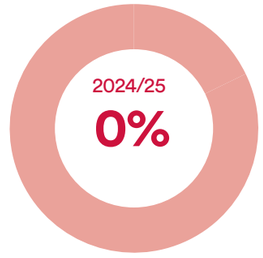



### Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | - | - | - | - | 0.4 |
| 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 12.5 MVA transformers, and has a firm capacity of 14.1 MVA. Network load is forecasted to exceed firm capacity in 2027/28.

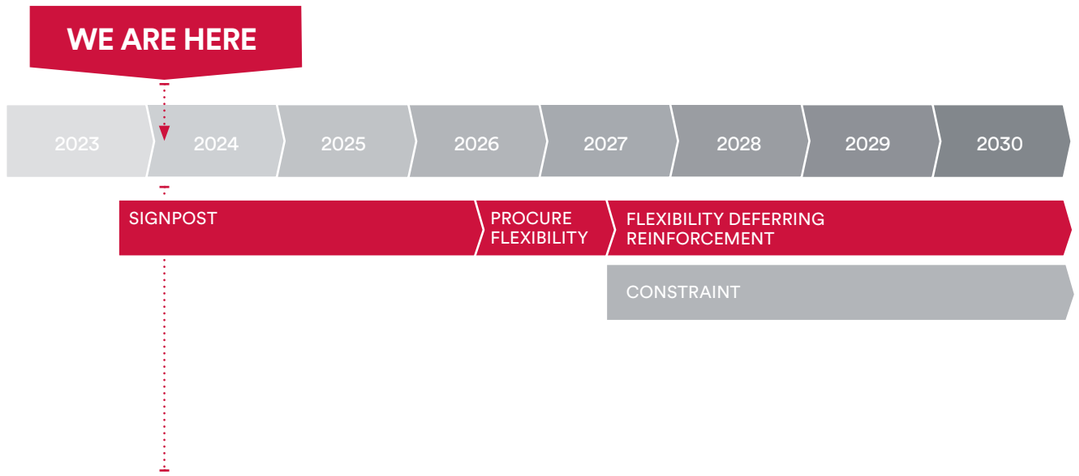
— To relieve the network overload, we have signposted the need for Flexibility Services in our 2023 Autumn flexibility tendering.




Postcode
YO16 6RX

Licence area
Yorkshire

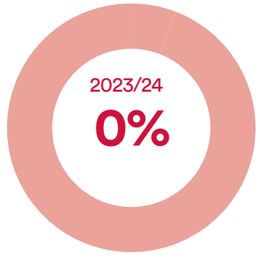
## Timeline

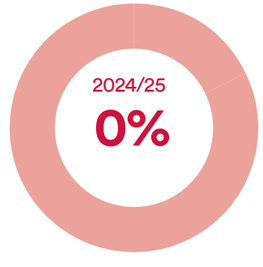



## Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| 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 2027/28.

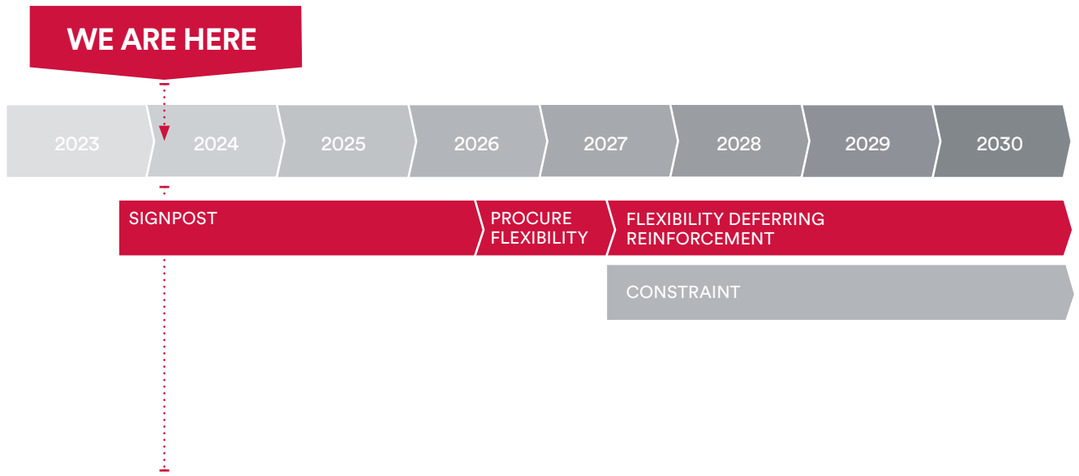
— To relieve the network overload, we have signposted the need for Flexibility Services in our 2023 Autumn flexibility tendering.




**Postcode**
NE25 9AF

**Licence area**
Northeast

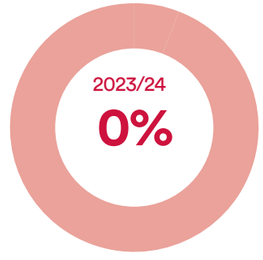
## Timeline

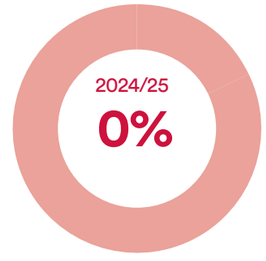



## Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | - | - | - | - | 0.4 |
| 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 2027/28.
- To relieve the network overload, we have signposted the need for Flexibility Services in our 2023 Autumn flexibility tendering.

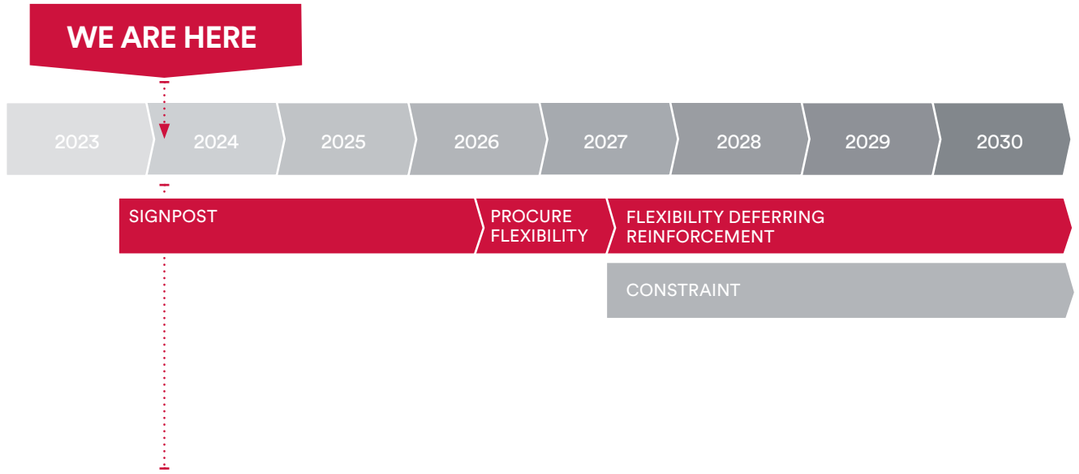





Postcode
HG4 1QE

Licence area
Northeast

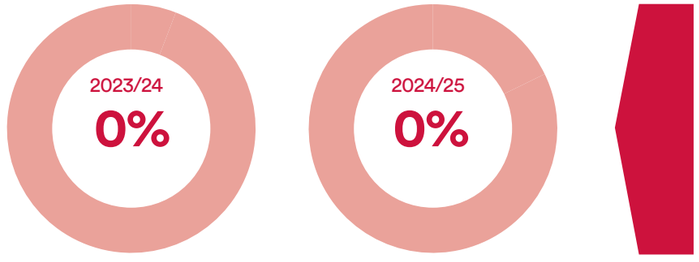
### Timeline




### Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | - | - | - | - | 0.3 |
| Flexibility Procured (MW) | - | - | | | |

**Flexibility procured**



# Southgate
## 33/11 kV SUBSTATION

DNOA intervention decision:
**FLEXIBILITY / REINFORCEMENT**

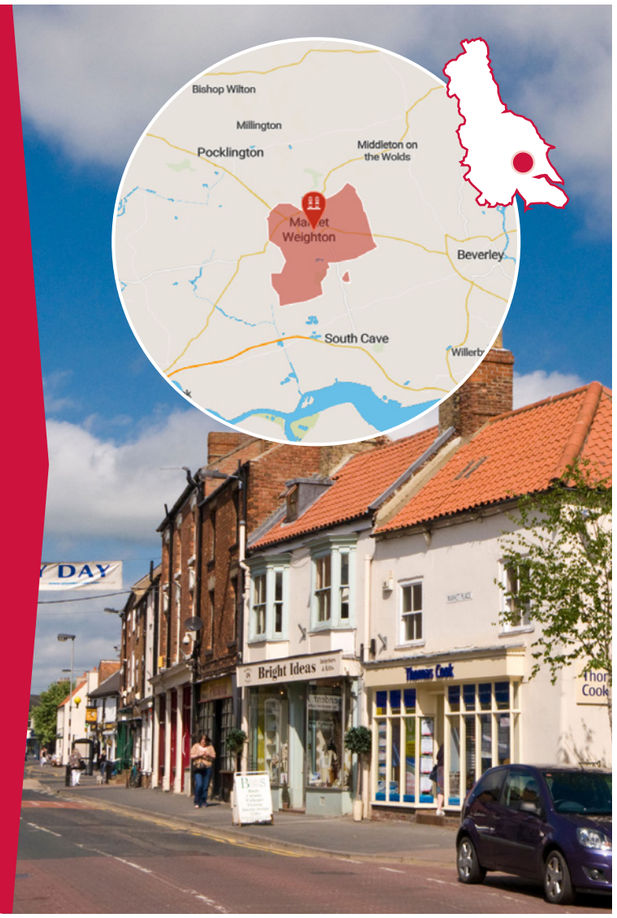
Constraint season:
**Autumn and Winter**

Flexibility ceiling price (£/MWh):
**900**

Reinforcement delivery time (years):
**2**

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 23 MVA transformer, and has a firm capacity of 8.0 MVA. Network load is forecasted to exceed firm capacity in 2023/24.
- Insufficient Flexibility Services have been procured. Hence we will start reinforcement works planning and use partial Flexibility Services to help relieve the network overload in the interim.
- We will continue flexibility tendering and may stall reinforcement works plans if enough flexibility is procured.

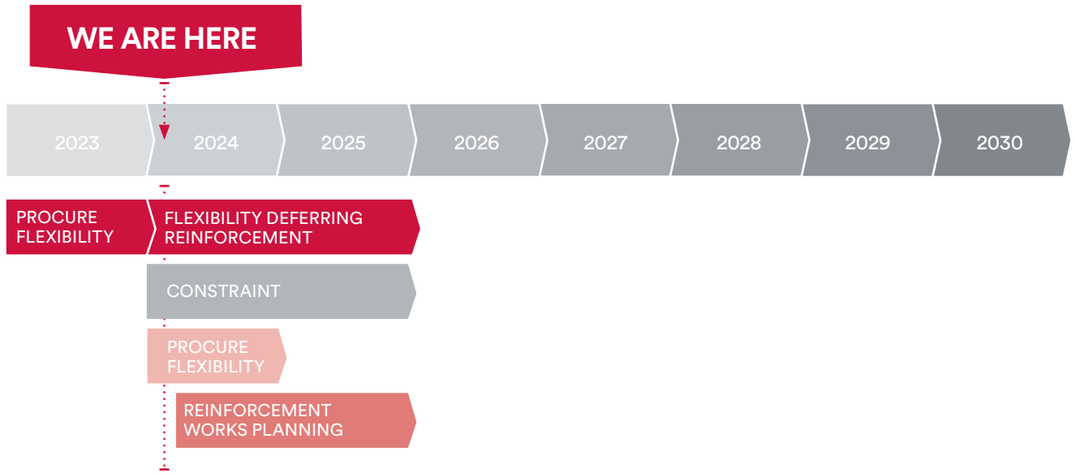




Postcode
YO43 4BE

Licence area
Yorkshire

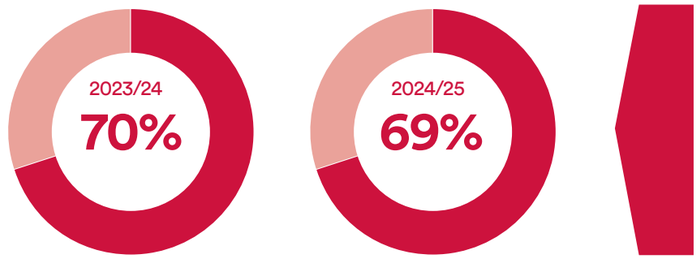
### Timeline




### Flexibility Requirements and Procurements

| Forecast Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Flexibility Required (Best View) (MW) | 0.2 | 0.3 | 0.4 | 0.6 | 0.9 |
| Flexibility Procured (MW) | 0.14 | 0.21 | | | |

**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.