

# Distribution Network Options Assessment (DNOA) Report 3, March 2025

William Street

# GG

We are excited to share with you our third DNOA. It provides transparency in how we are optimising our investment plans to take advantage of the value customer flexibility can provide and provides insight for flexibility service providers on opportunities to support our network

**Gill Williamson** Head of System Forecasting, Energy Systems

# Contents



Introduction	4
Intervention decision types	6
North East substations	
— Starbeck	10
— Faraday Street	12
— Husthwaite	14
— Monkseaton	16
— Ripon	18
— Thirsk	20
— Fawdon T1	22
— Seaton Burn T1	24
— Darlington West	26
— Prissick	28
Yorkshire substations	
— Crowle	32
— Audby Lane	34
— Wheatacre Road	36
— Kirkburn	38
— Gibson Lane	40
— Hayton	42
— Moor Road	44
— Hemsworth	46
— St Andrews Road 132/33kV	48
— Bramley	50
— Commonside Lane	52
— Martongate	54
— Rodley Lane	56
— Barrow	58
— Belmont Avenue	60
— Scartho	62

# 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 North East and Northern Powergrid Yorkshire. As the company responsible for managing the network in these 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 will take 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.

### The March 2025 DNOA

The DNOA is an important part of the development of a network that serves our region's needs. This document is our first publication of the DNOA report in 2025. We are committed to publishing a version of this report at least twice a year to ensure we are continuously evaluating network distribution, identifying new opportunities for flexibility and updating our strategies when necessary.

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

The purpose of the revision of our DNOA report is to transparently inform our stakeholders of the latest investment decisions we are taking. This allows scrutiny of our decisions and ensures our plans are informing those of our stakeholders.





### March 2025 DNOA sites

This DNOA report covers twenty-six primary substations or supply points 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.

- Ten of the twenty-six schemes (Starbeck, Faraday Street, Husthwaite, Monkseaton, Ripon, Crowle, Kirkburn, Moor Road, Hemsworth and Martongate) were included in the previous DNOA (Oct 2024).
- The other sixteen schemes (Thirsk, Darlington West, Fawdon T1, Seaton Burn T1, Prissick, Wheatacre Road, Audby Lane, Gibson Lane, Hayton, Commonside Lane, Rodley Lane, Saint Andrews Road 132/33kV, Barrow, Belmont Avenue, Bramley and Scartho) are new additions due to forecasting of emerging capacity requirements.

### **DNOA** outcomes

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 scheme named below.

### **DNOA Report March 2025**



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



# **Intervention decision types**

There are four separate intervention decision types<sup>1</sup> signalled within this report.



### **DNOA Report March 2025**



### Signpost

Refers to the open call made to the flexibility market listing potential parts of the network that may require Flexibility Services within the next five years.

### Schemes:

_	Ripon
	Thirsk
_	Darlington West
	Fawdon T1
_	Seaton Burn T1
_	Prissick
_	Moor Road
_	Hemsworth
_	Commonside Lane
_	Martongate
_	Rodley Lane
_	Saint Andrews Road 132/33k
_	Barrow
_	Belmont Avenue
_	Bramley
_	Scartho



# North East substations

# **Starbeck** 33/11 kV SUBSTATION



Postal sectors supplied from Starbeck Substation:

HG1 3; HG1 4; HG2 7; HG2 8; HG3 1; HG3 3; HG5 0; HG5 8; HG5 10

### 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 2025/26.
- We have currently not secured sufficient flexibility services to date to defer network reinforcement and as such have initiated reinforcement works. We will utilise contracted flexibility services during build in order to manage risk on the network and will continue to tender for flexibility services with the option to stall construction if efficient to do so.





Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	1.3	1.9
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	0.055	-





¢	2028	$\rangle$	2029	$\rangle$	2030

# Faraday Street 66/11 kV SUBSTATION



 

 Postcode TS1 4JG
 Region Teesside

 Timeline
 VE ARE HERE

 2025
 2026
 2027

 PROCURE FLEXIBILITY
 2025
 2027

 PROCURE FLEXIBILITY
 FLEXIBILITY

 CONSTRAINT
 CONSTRAINT

 REINFORCEMENT WORKS PLANNING
 REINFORCEMENT

Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	0.2	3.9
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-







$\rangle$	2028	$\rangle$	2029	$\rangle$	2030

# Husthwaite 33/11 kV SUBSTATION



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 determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2026/27.
- To relieve the network overload, we will deploy Flexibility Services solution until it is no longer viable to delay reinforcement.



Postcode YO61 4PN Region North Yorkshire



Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	0.
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-







# Monkseaton 33/11 kV SUBSTATION





Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	-	0.1
Expressions of Interest received to date (MW)	-	0.0
Flexibility Procured (MW)	-	-







# **Ripon** 33/11 kV SUBSTATION



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 determined by the rating of the secondary switchboard.
- Network load is forecasted to exceed firm capacity in 2027/28.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-







# **Thirsk** 33/11 kV SUBSTATION



Postal sectors supplied from Thirsk Primary Substation:

DL63; DL79; DL82; YO612; YO71; YO72; YO73; YO74

### Scheme Description:

- Thirsk 33/11 kV substation is equipped with 2x 10/14 MVA transformers, and has a firm capacity of 14.7 MVA determined by the cyclic rating of the transformers.
- Network load is forecasted to exceed firm capacity in 2027/28.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-







# Fawdon T1 66/20 kV SUBSTATION



NE136; NE137; NE139; NE150; NE159; NE180; NE200; NE209; NE237; NE32; NE35; NE51

- Fawdon T1 66/20 kV substation is equipped with 1 x
   18.75/25 MVA transformer, and has a firm capacity of 25.0 MVA determined by the cyclic rating of the transformers.
- Network load is forecasted to exceed firm capacity in 2028/29.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Seaton Burn T1 66/20 kV SUBSTATION



Postal sectors supplied from Seaton Burn T1 Primary Substation:

NE136; NE137; NE200; NE209; NE237; NE613; NE616

### Scheme Description:

- Seaton Burn T1 66/20 kV substation is equipped with 1×18.75/25 MVA transformer, and has a firm capacity of 25.0 MVA determined by the cyclic rating of the transformers.
- Network load is forecasted to exceed firm capacity in 2028/29.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Darlington West 33/11 kV SUBSTATION



Postal sectors supplied from Darlington West Primary Substation:

DL11; DL22; DL30; DL36; DL37; DL38; DL39

### Scheme Description:

- Darlington West 33/11 kV substation is equipped with 2 x 15/18.75 MVA transformers, and has a firm capacity of 24.0 MVA determined cyclic rating of the transformers.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.



# Postcode Region DL3 9QG Teesside Timeline WE ARE HERE 2025 2026 SIGNPOSTING

Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-









# **Prissick** 66/11 kV SUBSTATION



Postal sectors supplied from Prissick T1 Primary Substation:

TS30; TS37; TS43; TS57; TS58; TS70; TS78; TS80; TS89; TS96

### Scheme Description:

- Prissick 66/11 kV substation is equipped with 2 × 15/18.75 MVA transformers, and has a firm capacity of 22.8 MVA determined by the rating of the secondary switchboard.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-







# Crowle 66/11 kV SUBSTATION



Postal sectors supplied from Crowle Primary Substation:

DN8 5; DN9 1

# DN17 1; DN17 3; DN17 4;

### 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 2025/26.
- We have currently not secured sufficient flexibility services to date to defer network reinforcement and as such have initiated reinforcement works. We will utilise contracted flexibility services during build in order to manage risk on the network and will continue to tender for flexibility services with the option to stall construction if efficient to do so.





### **Flexibility Requirements and Procurements**

Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	2.1	2.3
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	0.1



## 2025/26 0%

$\rangle$	2028	$\rangle$	2029	$\rangle$	2030



# **Audby Lane** 33/11 kV SUBSTATION



Postal sectors supplied from Audby Lane Primary Substation:

HG31; HG58; LS224; LS225; LS226; LS227; LS236; LS237; LS248; YO267; YO268; YO58

### Scheme Description:

- Audby Lane 33/11 kV substation is equipped with a double 11.5/23 MVA transformer, and has a firm capacity of 23 MVA determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2025/26.
- To relieve the network overload, we will deploy Flexibility Services solution until it is no longer viable to delay reinforcement.





Forecast Year	2025/26	2026/27	2027/28	2028/29	2029/30
Flexibility Required (MW) (NPg Reference Scenario)	3.9	3.9	4.1	4.4	4.7
Expressions of Interest received to date (MW)	-	-	-	-	-
Flexibility Procured (MW)	-	-	-	-	-
Flexibility procured	2025 09			26/27 <b>)%</b>	





$\rangle$	2028	2029	2030

# Wheatacre Road 66/11 kV SUBSTATION



Postal sectors supplied from Wheatacre Road Primary Substation:

S305; S350; S357; S361; S362; S363; S364; S369; S66

### Scheme Description:

- Wheatacre Road 66/11 kV substation is equipped with a single 10/12.5 MVA transformer, and has a firm capacity of 6.6 MVA determined by the capacity of normally connected secondary interconnection.
- Network load is forecasted to exceed firm capacity in 2025/26.
- We will continue Flexibility tendering and may stall reinforcement works if enough Flexibility is procured.



Postcode S36 2GQ Region South Yorkshire



### Flexibility Requirements and Procurements

Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	1.8	2.
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-



2025/26 **0%** 



$\rangle$	2028	$\rangle$	2029	$\rangle$	2030



# **Kirkburn** 66/11 kV SUBSTATION



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 determined by the capacity of normally connected secondary interconnection.
- Network load is forecasted to exceed firm capacity in 2025/26.
- To relieve the network overload, we will deploy Flexibility Services solution until it is no longer viable to delay reinforcement.





### **Flexibility Requirements and Procurements**

Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	0.4	0.
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	0.3	-



2025/26 0%

$\rangle$	2028	$\rangle$	2029	$\rangle$	2030



# **Gibson Lane** 33/11 kV SUBSTATION





HU107; HU12; HU130; HU143; HU151; HU20

### Scheme Description:

- Gibson Lane 33/11 kV substation is equipped with a double 15/18.75 MVA transformer, and has a firm capacity of 23 MVA determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2026/27.
- Customer driven reinforcement works (non-discretionary) are being completed.





Forecast Year	2025/26	202
Flexibility Required (MW) (NPg Reference Scenario)	-	0.3
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Hayton 66/11 kV SUBSTATION



Postal sectors supplied from Hayton Primary Substation:

YO259; YO415; YO42; YO421; YO422; YO424; YO433; YO434; YO45; YO86

### Scheme Description:

- Hayton 66/11 kV substation is equipped with a double 10/12.5 MVA transformer, and has a firm capacity of 15.3 MVA determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2027/28.
- Customer driven reinforcement works (non-discretionary) are being completed.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Moor Road 33/11 kV SUBSTATION



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

- 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 2027/28.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	0.163	-
Flexibility Procured (MW)	-	-





# Hemsworth 66/11 kV SUBSTATION



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.





### Flexibility Requirements and Procurements

Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-



2025/26 **0%** 



# Saint Andrews Road 132/33kV 132/33 kV SUBSTATION



Postal sectors supplied from Saint Andrews Road 132/33kV Primary Substation:

HD14; HD15; HD16; HD21; HD22; HD33; HD11; HD12; HD13; HD46; HD58; HD59; HD45; HD47; HD71; HD50; HD80

### Scheme Description:

- Saint Andrews Road 132/33kV supply point is equipped with a double 45/108 MVA transformer, and has a firm capacity of 64.4 MVA determined by the rating of the incoming circuit(s).
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# **Bramley** 33/11 kV SUBSTATION





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# **Commonside Lane** 33/11 kV SUBSTATION



Postal sectors supplied from Commonside Lane Primary Substation:

WF27; WF41; WF61; WF64; WF75; WF76; WF77; WF84

### Scheme Description:

- Commonsite Lane 33/11 kV substation is equipped with a double 12/24 MVA transformer, and has a firm capacity of 18.7 MVA determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Martongate 66/11 kV SUBSTATION



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 determined by the cyclic rating of the transformer.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# **Rodley Lane** 33/11 kV SUBSTATION



BD100; LS131; LS184; LS185; LS196; LS285; LS288; LS53

# Network load is forecasted to exceed firm capacity in 2029/30.

 As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Barrow 33/11 kV SUBSTATION



Postal sectors supplied from Barrow Primary Substation:

DN197; DN378; DN386; DN396; DN403

### Scheme Description:

- Barrow 33/11 kV substation is equipped with a single 12/24 MVA transformer, and has a firm capacity of 11.6 MVA determined by the capacity of normally connected secondary interconnection.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-





# Belmont Avenue 33/11 kV SUBSTATION







### Flexibility Requirements and Procurements

Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-



2025/26 **0%** 



# Scartho 33/11 kV SUBSTATION



Postal sectors supplied from Scartho Primary Substation:

DN320; DN329; DN331; DN332; DN333; DN345; DN364; DN365; DN370; DN377; DN379; LN76

### Scheme Description:

- Scartho 33/11 kV substation is equipped with a double 15/18.75 MVA transformer, and has a firm capacity of 23.0 MVA determined by the cyclic rating of a transformer.
- Network load is forecasted to exceed firm capacity in 2029/30.
- As part of the future plan to relieve the network overload, we are signposting the need for Flexibility Services.





### **Flexibility Requirements and Procurements**

Forecast Year	2025/26	20
Flexibility Required (MW) (NPg Reference Scenario)	-	-
Expressions of Interest received to date (MW)	-	-
Flexibility Procured (MW)	-	-



2025/26 **0%** 



# **DNOA** feedback

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 at opendata@northernpowergrid.com if you have any feedback or questions.