SSEN Distribution

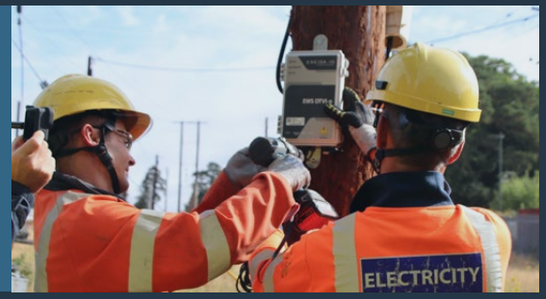
DNOA OUTCOMES REPORT

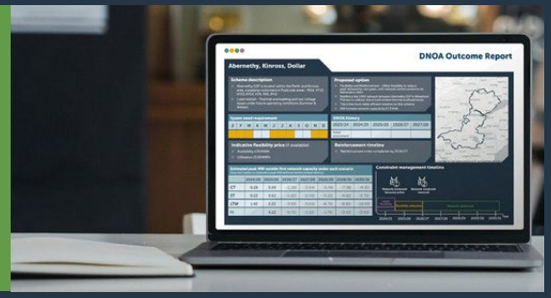
July 2024

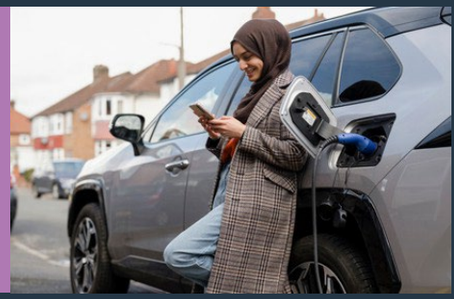
Scottish & Southern Electricity Networks

DSO Powering Change

Contents







Foreword

It's critical that we provide transparency in our decision making processes. This is particularly the case where we are creating the system capacity to enable customers' connections, while at the same time facilitating the decarbonisation of transport and heat. The Distribution Networks Options Assessment methodology is pivotal to this process.

This is our second Distribution Networks Options Assessment (DNOA) outcomes report summarising around 40 assessments we have recently undertaken in both our north of Scotland and central southern England licence areas.

The DNOA methodology is a critical part of our wider Net Zero Strategic Planning approach which aims to provide the network capacity needed to facilitate Net Zero.

The DNOA process allows us to embed a "flexibility-first" approach within our decision making. This ensures we're making appropriate use of flexibility services, to deliver efficient and cost-effective whole system solutions at the optimum time.

This report reflects this approach as a significant proportion of needs can be met by flexibility services, particularly in the shorter term. The majority of cases where this is not possible relate to other system needs where flexibility markets are less mature. Some also relate to network compliance issues.

Whilst we provide indications of future flexibility opportunities, please treat these as indicative. Further information will be provided through our flexibility procurement communications.

Asset solutions, where recommended, will be progressed through more detailed project development. We will continue to work with stakeholders through this process, monitoring need and optimising delivery to the timescale required.

Whilst our assessments remain in line with our March 2024 methodology report we have made a number of improvements in the layout of the outcomes reports to improve readability;

- We have indicated where we plan to use operational management as a smart solution to help us maximise the capacity of our existing asset base. Operational optioneering such as demand transfers and the use of short term ratings can help us defer the need for both network interventions and / or flexibility services.

- We have standardised more of the language regarding the constraints on our networks. We are now utilising terminology such as 'first circuit outage' (FCO) to determine the nature and extent of a network need. The glossary has been updated to reflect new terms used, but please let us know if there is more we need to do.

Over the next few pages, we'll provide guidance on how to view these reports. We'll also provide an index to help you navigate the document and understand assessments of relevance to you.

We have already started work on further DNOA outcomes and are working to publish our third outcomes report this Autumn.

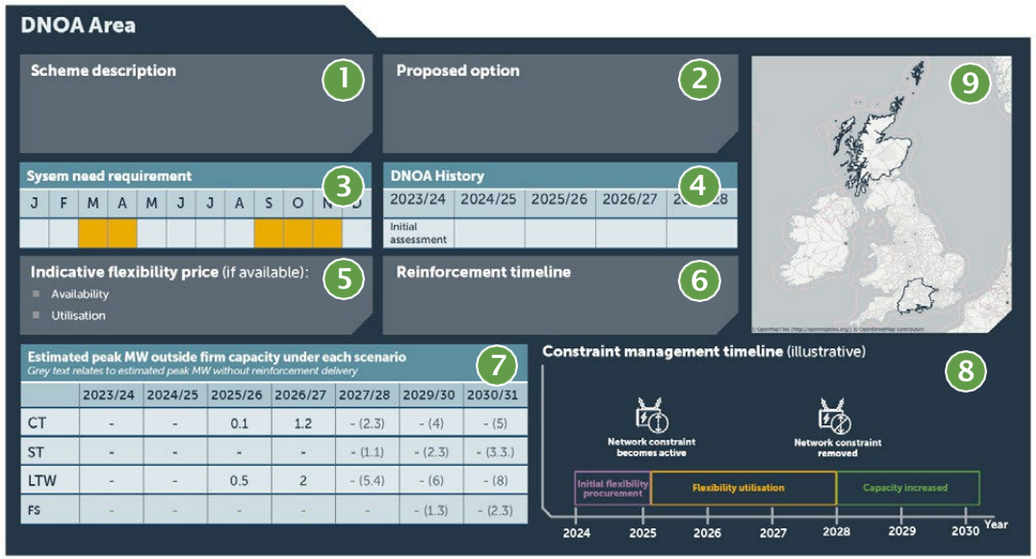
Ahead of that please do provide feedback on this second outcomes report and also thoughts on how we can improve it further.

ANDREW WAINWRIGHT
Whole Systems Manager

> ***Please do provide feedback on this second outcomes report and also thoughts on how we can improve it further.***

How to view this report

The following guidance note can be used to help navigate each outcomes report



1 Scheme description:

- This section describes the location where a system need has been identified. This is accompanied with indicative postcodes for the customer areas related to this scheme.
- Included is the type of constraint on the network and the estimated year the constraint will become active.

2 Proposed option:

- An outline of the proposed solution option aligned with the defined outcomes in the DNOA methodology. A description of any flexibility procurement and/or reinforcement works required is provided and justified.
- An estimated value for the capacity released by the delivery of any works required can be found here. It does not necessarily relate to available capacity.

3 System need requirement:

- This table highlights in yellow the months of the year where there is a potential system need due to the constraint arising.

4 DNOA history:

- A record of the outcome report status.

5 Indicative flexibility price:

- The indicative flexibility price used in the techno-economic assessment is given in this section where relevant and available.
- This is given as an availability and utilisation price in £/MWh.

6 Reinforcement timeline:

- Where reinforcement is proposed, an indicative delivery year for the completion of works is given.

7 Estimated peak MW outside firm capacity:

- Where reinforcement is proposed, an indicative delivery year for the completion of works is given.

8 Constraint management timeline:

- The timeline illustrates the stages needed to remove the constraint from the network.
- **For schemes proposing to procure flexibility:** The first stage (purple) is an indicative 2-year initial flexibility procurement window where any required services will be acquired. The second stage (yellow) indicates the years where the option uses flexibility services to release more capacity. The last stage (green) indicates the year when capacity will be increased on the network to relieve the constraint.
- **For schemes proposing an asset solution:** The timeline indicates when capacity will be increased on the network to relieve the constraint.

9 Scheme map:

- The map provided shows the approximate geographical area covered by the scheme.

Index of DNOA outcomes - SHEPD

1 Procure Flexibility Solutions - *see below the DNOA Outcome Reports proposing flexibility opportunities*

DNOA outcome	Flexibility utilisation period	Indicative postcode Areas
Aberdeen (Springhill PSS) Ref.0724 - 01	2024/25	AB(10-12), AB(14-16), AB(21-25), AB32, AB42, AB54, PH1
Dundee (Ashludie PSS) Ref.0724 - 02	2026/27 & 2029/30 - 2030/31 (3 years)	DD4, DD5, DD7, G21
Kenmore (Coshieville PSS) Ref.0724 - 03	2024/25 – 2026/27 (3 years)	FK21, PH15
Moray (Burghead, Elgin, Lossiemouth PSSs) Ref.0724 - 04	2028/29	IV30, IV31, IV36
Newtonhill (Newtonhill PSS) Ref.0724 - 05	2027/28 – 2028/29 (2 years)	AB12, AB15, AB39, DD10
Stoneywood (Stoneywood T1&T2, & Circuits) Ref.0724 - 06	2025/26 – 2026/27 & 2029/30 - 2030/31 (4 years)	AB15, AB16, AB21, AB24

2 Asset Solutions - *see below the DNOA Outcome Reports proposing asset solutions only*

DNOA outcome	Capacity increase from	Indicative postcode areas
Calvine – Dalnaspidal (Calvine PSS) Ref.0724 - 07	2027/28	IV33, PH16, PH18
Dunoon & Isle of Bute (33kV Circuits) Ref.0724 - 08	2028/29	KA28, PA20, PA23, PA28, PA31, PA75
Harris & Lewis (Harris 33kV Circuits) Ref.0724 - 09	2025/26	HS1, HS2, HS3, HS4, HS5
Inverness (Waterloo Place PSS) Ref.0724 - 10	2026/27	IV1, IV2
Isle of Arran (Brodick and Balliekine PSS) Ref.0724 - 11	2027/28	KA27, PA23

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2 Asset Solutions - *see below the DNOA Outcome Reports proposing asset solutions only*

DNOA outcome	Capacity increase from	Indicative postcode areas
Isle of Lewis (Gisla PSS) Ref.0724 - 12	2026/27	HS2
Lewis & Harris (Stornoway & Harris GSPs) Ref.0724 – 13	2027/28	HS2, HS3, HS5
Shetland (Scalloway, Sandwick, & Sumburgh PSS) Ref.0724 – 14	2027/28	ZE1, ZE2, ZE3
Strathdon – Rhynie (Mossat PSS) Ref.0724 - 15	2028/29	AB31, AB33, AB34, AB36, AB54

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1 Procure Flexibility Solutions - *see below the DNOA Outcome Reports proposing flexibility opportunities*

DNOA outcome	Flexibility utilisation period	Indicative postcode areas
Alresford (Alresford PSS) Ref.0724 - 16	2024/25	BH24, DT2 GU32, GU34, RG25, RG29, SO21, SO24, SO32, SO40
Berkshire & Hampshire (Fleet Bramley GSP) Ref.0724 – 17	2025/26 – 2027/28 (3 years)	RG(1-9, 12, 30, 40-42), SL(5,6), GU(7, 9, 10, 12, 14, 15, 27, 34, 51)
East Didcot (Fulscot & Cholsey PSSs) Ref.0724 – 18	2027/28 – 2028/29 (2 years)	OX10, OX11
East Trowbridge (Ashton Park PSS) Ref.0724 – 19	2030/31	BA14
Osney (Oxford BSP) Ref.0724 – 20	2026/27 – 2029/30 (4 years)	OX1, OX2, OX4, OX10, OX11, OX13, OX14
Romsey (Romsey PSS) Ref.0724 – 21	2024/25 – 2026/27 (3 years)	SO16, SO43, SO51
Romsey (Rownhams 33kV circuits) Ref.0724 – 22	2028/29 – 2030/31 (3 years)	SO16, SO43, SO51, SO52

2 Asset Solutions - *see below the DNOA Outcome Reports proposing asset solutions only*

DNOA outcome	Capacity increase from	Indicative postcode areas
Aldershot (Tongham PSS) Ref.0724 – 23	2027/28	GU3, GU10, GU11, GU12
Denham (Denham Avenue PSS) Ref.0724 – 24	2028/29	SL0, SL1, SL3, SL9, UB9
East Hounslow (Bridge Road PSS) Ref.0724 – 25	2026/27	TW1, TW3, TW4, TW7, TW8
East Trowbridge (Ashton Park) Ref.0724 – 26	2028/29	BA14

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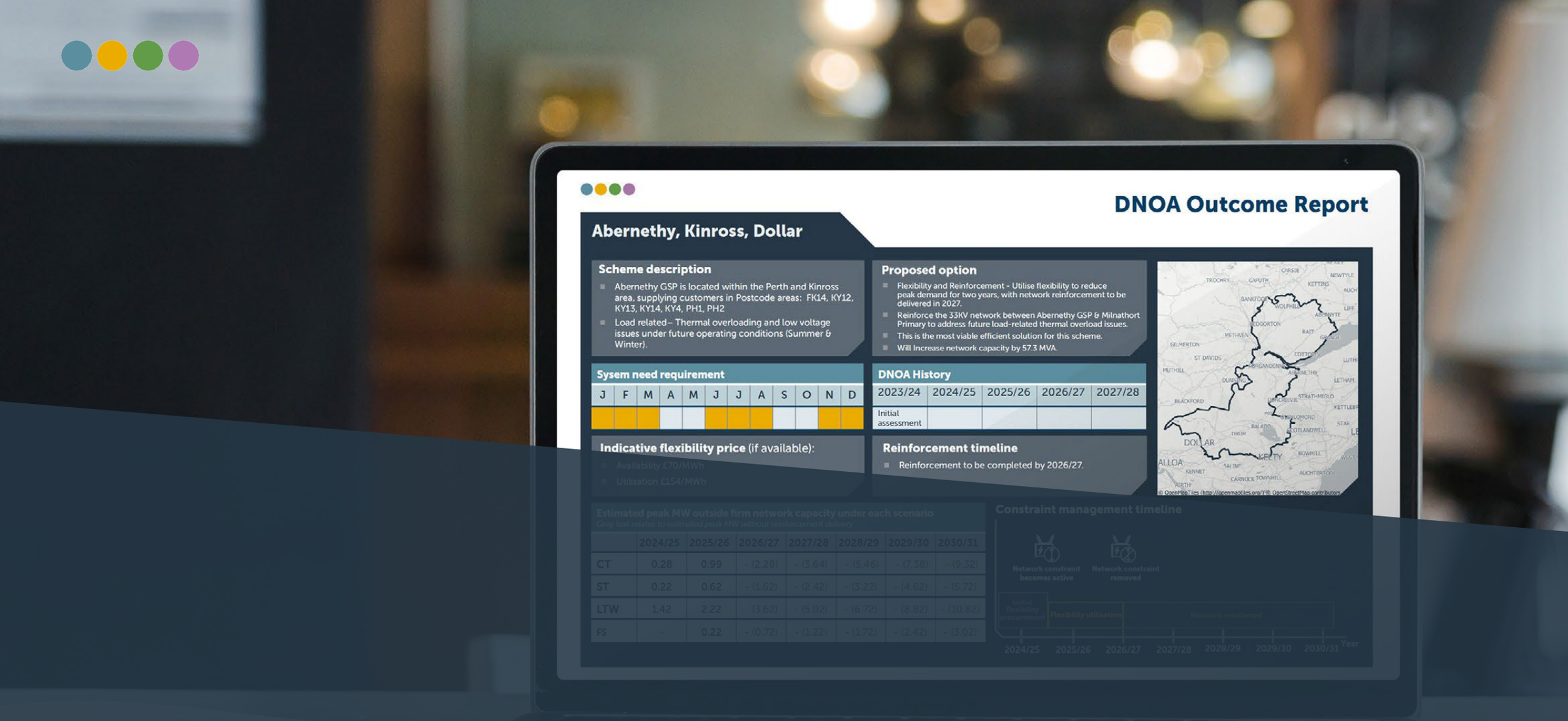
2 Asset Solutions - *see below the DNOA Outcome Reports proposing asset solutions only*

DNOA outcome	Capacity increase from	Indicative postcode areas
Gerrards Cross (Gerrards Cross PSS) Ref.0724 – 27	2028/29	HP7, HP9, SL0, SL2, SL3, SL6, SL9, UB9
Harlington and Southall (North Hyde PSS) Ref.0724 – 28	2028/29	UB2, UB3, TW5
Harlington and Heathrow (Bath Road East PSS) Ref.0724 – 29	2028/29	UB2, UB3, TW5
North Bournemouth (Winton PSS) Ref.0724 – 30	2026/27	BH(1-12), BH19, GU7
North Ealing (Copley Dene PSS) Ref.0724 – 31	2027/28	W3, W5, W7, W13, NW10
Park Royal & Perivale (Park Royal & Perivale PSS) Ref.0724 – 32	2028/29	HA0, N16, NW10, UB(1-6), W3, W5, W7, W11, W13
Slough and Windsor (Slough BSPs) Ref.0724 – 33	2028/29	GU24, HP9, SL(0-6), SL9
Southall and Harlington (North Hyde BSP) Ref.0724 – 34	2027/28	TW4, TW5, TW6, UB1, UB2, UB3, UB4
South Buckinghamshire (Denham BSP) Ref.0724 – 35	2028/29	HP(7-9), RG31, SL(0-3), SL6, SL9, UB8, UB9, WD3
South Hampshire (Arnewood BSP) Ref.0724 – 36	2028/29	BH23, BH24, BH25, SO21, SO41, SO42, SO43, SO51
Uxbridge (Uxbridge PSS) Ref.0724 – 37	2028/29	SL0, UB8, UB9, UB10
Wimbourne Minster (Wimbourne PSS) Ref.0724 – 38	2027/28	BA8, BH(1, 5, 9, 14, 18, 20-24, 31), DT4, PO18, RG41, SO21,SO41
Winchester (Winchester BSP) Ref.0724 – 39	2029/30	SP5, SO20, SO21, SO22, SO23, SO51



DNOA OUTCOMES - SHEPD

Aberdeen (Springhill PSS)

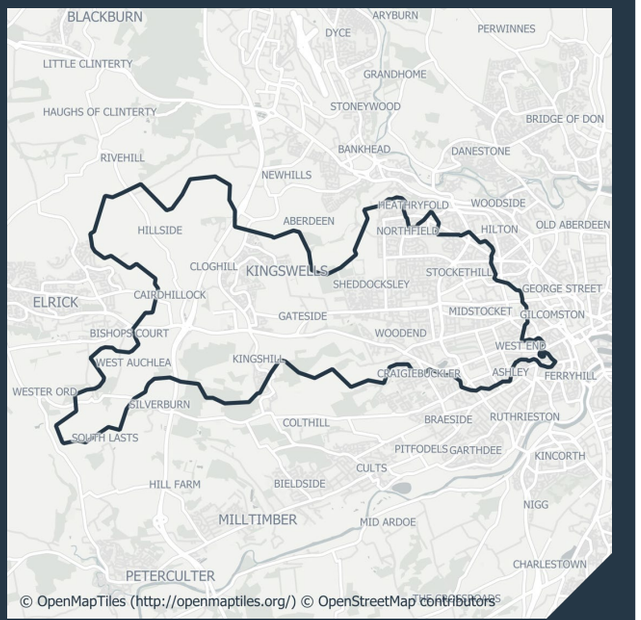
Ref. 0724-01

Scheme description

- Springhill primary is located in Aberdeen, Scotland. Postcode(s): AB10, AB11, AB12, AB14, AB15, AB16, AB21, AB22, AB23, AB24, AB25, AB32, AB42, AB54, PH1.
- Load Related - thermal overloading of Springhill primary substation under FCO conditions.

Proposed option

- Procure flexibility solutions in 2024/25 to manage constraint followed by asset solution: 2 x 33/11kV primary transformers upgrade (2024-25).
- The option provides the economic benefit of deferral through flexibility and accommodates for future demand growth.
- Capacity released: 6.4MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

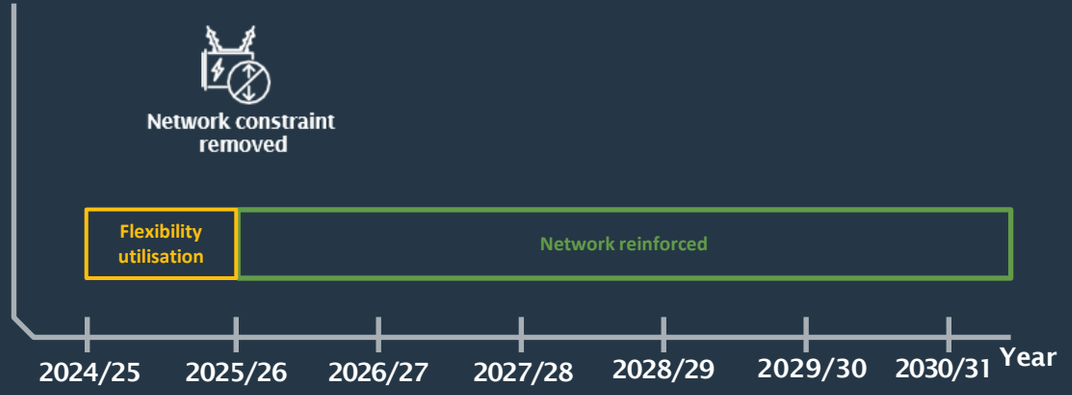
- Flexibility utilisation in 2024/25.
- Reinforcement delivery by 2025/26.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	2.18	- (2.58)	- (3.38)	- (4.18)	- (5.28)	-(6.38)	- (7.18)
ST	1.98	- (2.18)	- (2.68)	- (3.18)	- (3.58)	- (4.28)	- (9.68)
LTW	2.58	- (3.08)	- (4.08)	- (5.28)	- (6.68)	- (8.28)	- (4.78)
FS	1.68	- (1.88)	- (2.18)	- (2.38)	- (2.68)	- (2.98)	- (3.38)

Constraint management timeline



Dundee (Ashludie PSS)

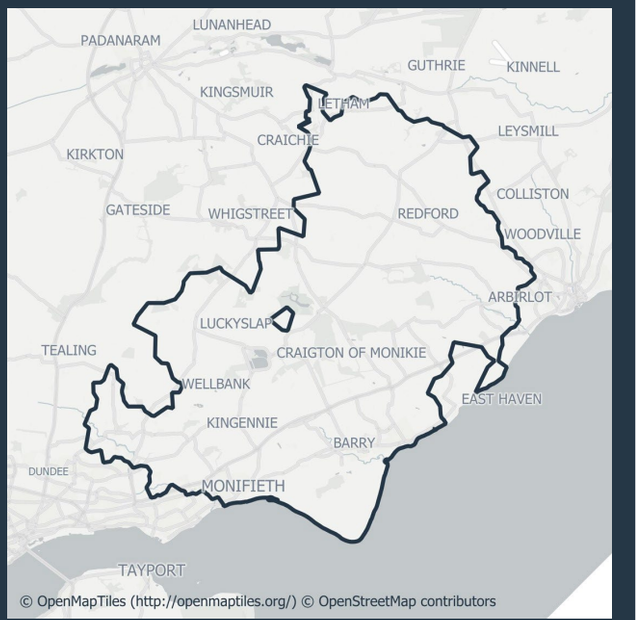
Ref. 0724-02

Scheme description

- Ashludie primary substation is located in Dundee, Scotland, suppling customers within Angus and Dundee City. Postcode(s): DD4, DD5, DD7, G21.
- Load related – Thermal overload of Ashludie primary substation and 33kv circuits within ED2 period, under FCO conditions.

Proposed option

- Utilise flexibility to defer Ashludie primary upgrades by one year.
- Phase 1– Upgrade both Ashludie primary 33/11 Transformer's, 33kv and 11kv switchboards (2028).
- Phase 2 - Utilise flexibility to defer upgrade of Milton of Cragie GSP– Ashludie 33kv Overhead Line circuits by two years into ED3.
- Capacity Released: 17MVA total (Phase1: 5MVA)



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

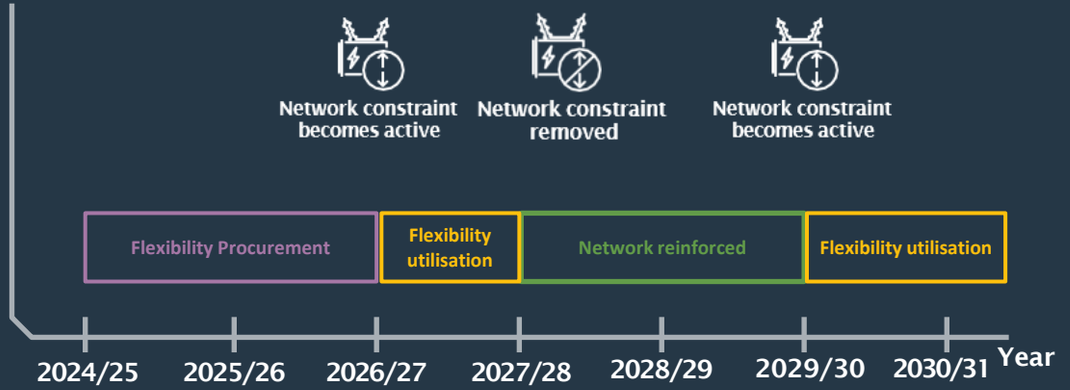
- Utilise Flexibility in year 2026/27, 2029/30 and 2030/31.
- Phase 1 Reinforcement delivery in 2027/28.
- Phase 2 Reinforcement delivery in 2031/32.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	0.56	- (1.96)	- (3.66)	0.23	1.43
ST	-	-	-	- (0.86)	- (1.96)	-	-
LTW	-	0.06	1.46	- (3.06)	- (5.06)	2.03	3.63
FS	-	-	-	- (0.24)	- (0.56)	-	-

Constraint management timeline



Kenmore (Coshieville PSS)

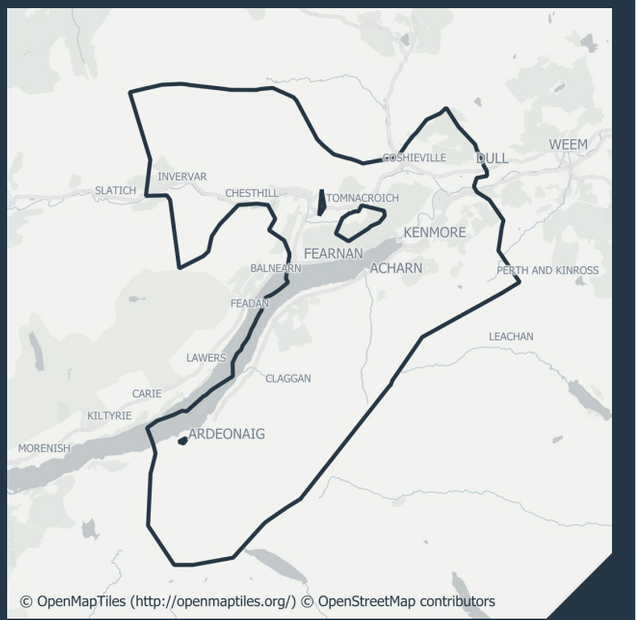
Ref. 0724-03

Scheme description

- Coshieville primary substation is located north-east of Loch Tay in the Perth and Kinross council area of Scotland. Postcode(s): FK21, PH15.
- Load related – substation overload during network intact conditions due to forecasted demand growth.

Proposed option

- Procure flexibility services to resolve system need ahead of completion of reinforcement works. It was evaluated that further deferring reinforcement with flexibility was not cost effective.
- Network reinforcement work includes upgrading the primary transformer, circuit breaker and associated equipment and systems.
- Capacity released: 3.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £108/MW/h
- Utilisation: £133/MWh

Reinforcement timeline

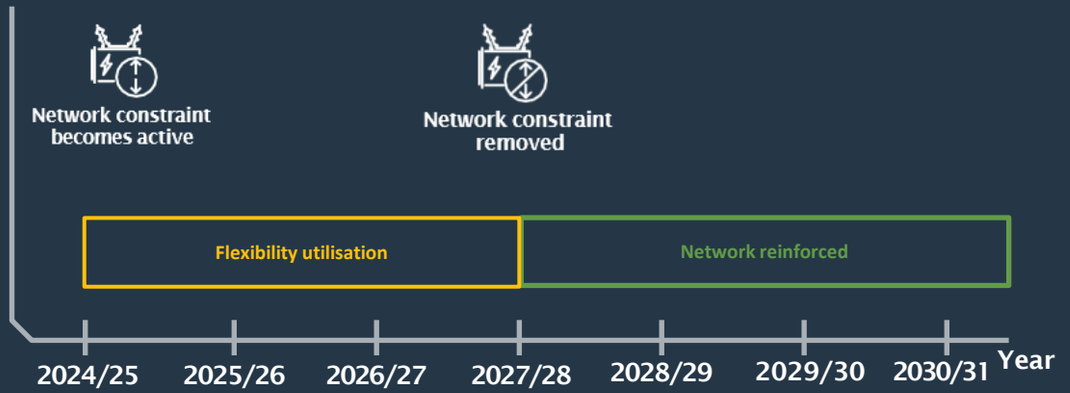
- Flexibility utilisation up to 2027/28.
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.17	0.26	0.43	- (0.64)	- (0.84)	- (1.04)	- (1.23)
ST	0.14	0.16	0.21	- (0.30)	- (0.39)	- (0.49)	- (0.60)
LTW	0.25	0.37	0.49	- (0.65)	- (0.79)	- (0.99)	- (1.20)
FS	0.14	0.15	0.17	- (0.21)	- (0.29)	- (0.37)	- (0.44)

Constraint management timeline



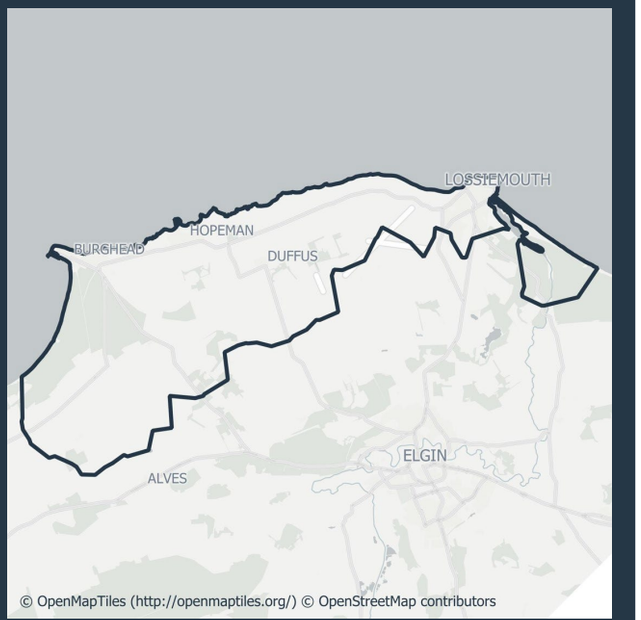
Moray (Elgin GSP, Burghead PSS, Lossiemouth PSS) Ref. 0724-04

Scheme description

- Elgin Grid Supply Point is located in Moray, Scotland. Postcode(s): IV30, IV31, IV36.
- Load Related- Thermal overloading of Elgin GSP 33kv circuit to Burghead and Lossiemouth primary substations under FCO conditions following forecasted demand growth.

Proposed option

- Flexibility and Asset Solution: Procure and utilise flexibility services for one year to defer reinforcement. 33kv circuit will then be rebuilt, including overhead lines, cables and switchgear.
- This option ensures compliance of the substations and ensures circuits can accommodate future demand growth out to 2050.
- Capacity released: 15.9MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £123/MW/h
- Utilisation: £170/MWh

Reinforcement timeline

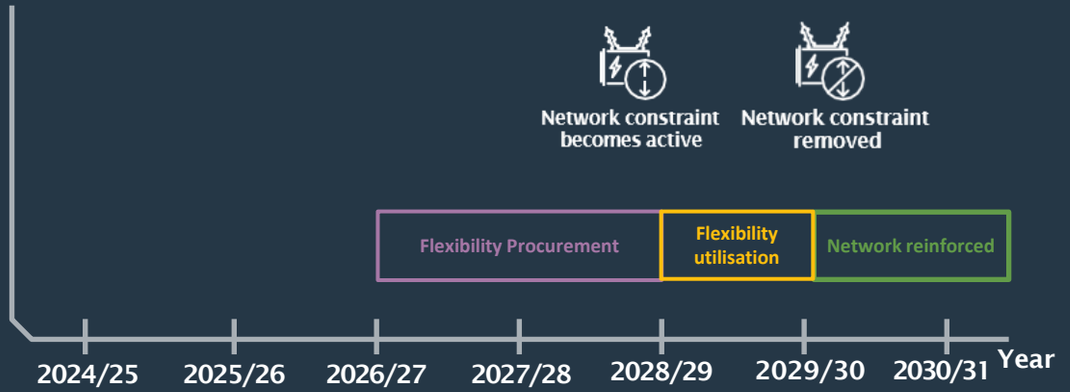
- Flexibility utilisation in 2028/29.
- Reinforcement delivery by 2029/30.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	4.58	- (6.58)	- (8.48)
ST	-	-	-	-	4.68	- (5.48)	- (7.48)
LTW	-	-	-	-	6.98	- (10.28)	- (13.68)
FS	-	-	-	-	3.08	- (3.68)	- (4.08)

Constraint management timeline



Newtonhill (Newtonhill PSS)

Ref. 0724-05

Scheme description

- This reinforcement will increase capacity in the Newtonhill area. Postcodes: AB12, AB15, AB39, DD10.
- Load related – substation thermal overload in FCO conditions due to forecasted demand growth.

Proposed option

- Procure flexibility solutions to defer reinforcement followed by asset solutions: installation of new transformers, followed by circuit upgrades in ED3.
- Ensures compliance of Newtonhill primary substation. The ED3 circuit upgrades ensure demand growth is met to 2050.
- Capacity released: 15MVA

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £108/MW/h
- Utilisation: £133/MWh

Reinforcement timeline

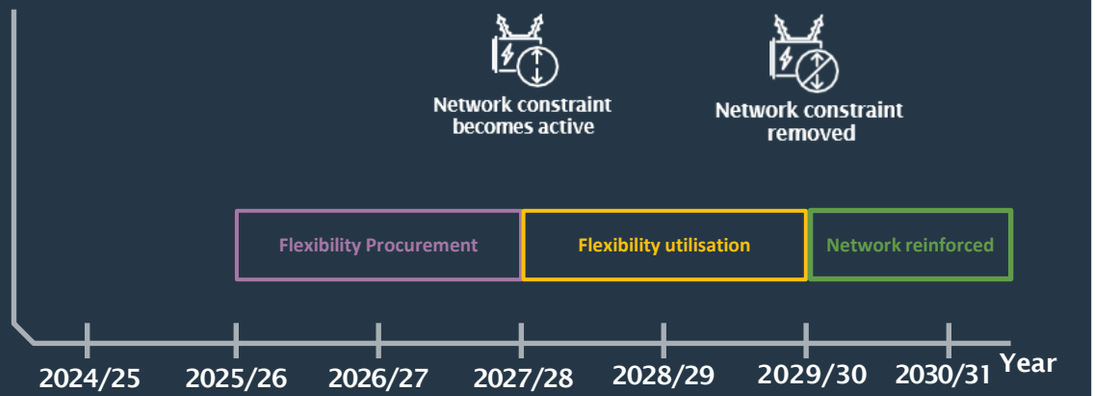
- Flexibility utilisation in 2027/28 and 2028/29.
- Reinforcement delivery by 2029/30.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	0.36	1.36	- (3.06)	- (3.96)
ST	-	-	-	-	-	- (1.36)	- (1.96)
LTW	-	-	0.46	1.46	2.96	- (5.36)	- (6.96)
FS	-	-	-	-	-	-	- (0.14)

Constraint management timeline



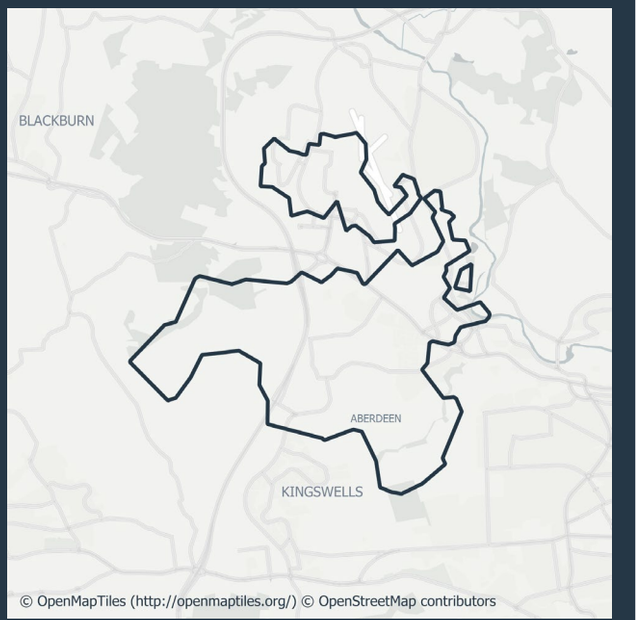
Stoneywood (Stoneywood T1 & T2 PSS) Ref. 0724-06

Scheme description

- These reinforcements will increase capacity in Stoneywood, northwest Aberdeen. Postcode(s): AB15, AB16, AB21, AB24.
- Load related – substation and circuits overload during FCO conditions due to forecasted demand growth.

Proposed option

- Procure flexibility solutions to defer reinforcement, followed by asset solutions: circuits upgraded in ED2, followed by reinforcement of transformers in ED3.
- The first phase ensures compliance for Stoneywood T1 & T2 PSS to 2029/30. The second phase ensures demand growth is met to 2050.
- Phase 1: releases 6MVA of capacity.



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

	2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment					

Indicative flexibility price (if available):

- Availability £150/MW/h
- Utilisation £200/MWh

Reinforcement timeline

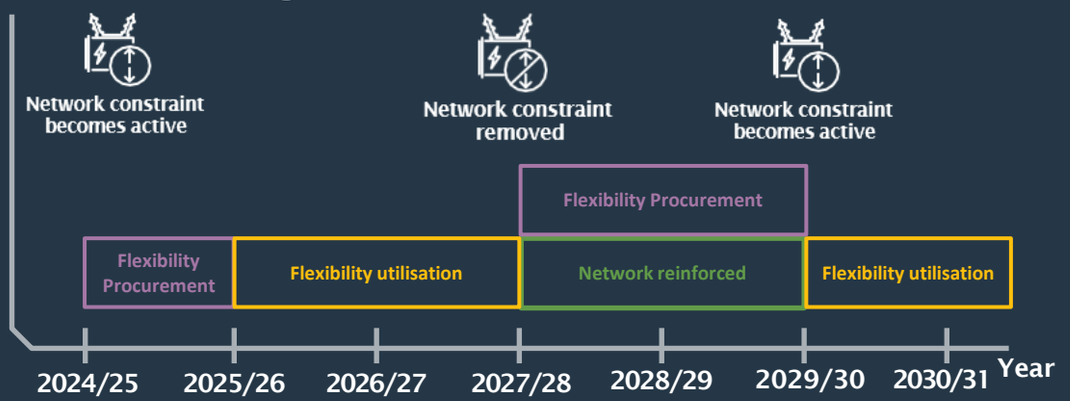
- Flexibility utilisation 2025/26, 2026/27, 2029/30, and 2030/31.
- Phase 1 reinforcement delivery 2027/28.
- Phase 2 reinforcement delivery 2031/32

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	0.09	1.09	-	-	0.15	1.03
ST	-	-	1.39	-	-	-	0.73
LTW	-	0.59	2.39	-	1.85	4.65	6.63
FS	-	-	-	-	-	-	-

Constraint management timeline



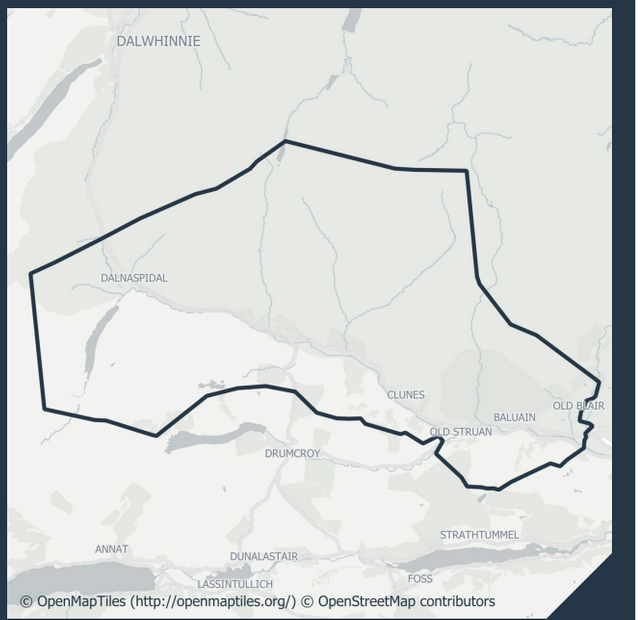
Calvine – Dalnaspidal (Calvine PSS) Ref. 0724-07

Scheme description

- Calvine substation is located north of Tummel Bridge in the Perth and Kinross council area of Scotland. Postcode(s): IV33, PH16, PH18.
- Load related – substation thermal overloading under FCO conditions.

Proposed option

- Asset solution – Upgrade of the existing primary transformer, circuit breakers and associated equipment.
- The use of flexibility to defer reinforcement was evaluated with CEM and was not found to be the most efficient solution.
- Capacity released: 3.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

	2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment					

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

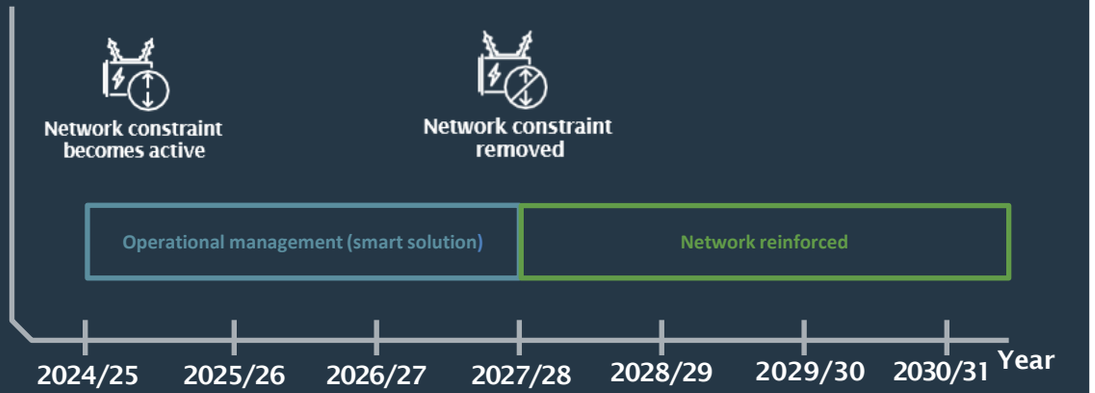
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.86	0.91	0.97	- (1.04)	- (1.14)	- (1.27)	- (1.40)
ST	0.85	0.89	0.93	- (0.97)	- (1.01)	- (1.14)	- (1.27)
LTW	0.84	0.86	0.91	- (0.95)	- (0.99)	- (1.08)	- (1.15)
FS	0.83	0.85	0.87	- (0.90)	- (0.93)	- (0.97)	- (1.00)

Constraint management timeline



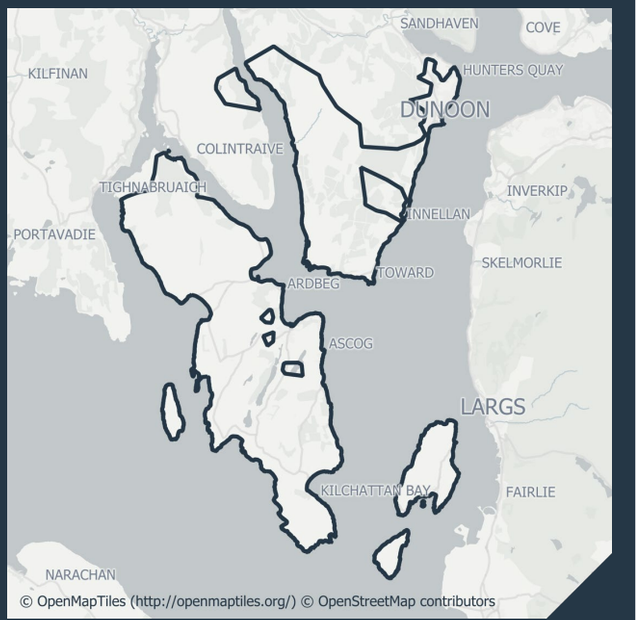
Dunoon & Isle of Bute (33kV circuits) Ref. 0724-08

Scheme description

- Dunoon GSP supplies customers in Argyll & Bute and North Ayrshire. Postcode(s): KA28, PA20, PA23, PA28, PA31, PA75
- Load Related – Voltage compliance issues under network intact conditions.

Proposed option

- Asset Solution: Reinforcement of both 33kv overhead line circuits from Dunoon GSP to Craigagoul switching station on Bute. Installation of new 33kv switchboard at Craigagoul switching station and installation of voltage regulating equipment to correct voltage issues on the Isle of Bute at Bruchag primary substation.
- Flexibility is not viable due to nature of voltage constraint.
- Capacity Released: 3.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

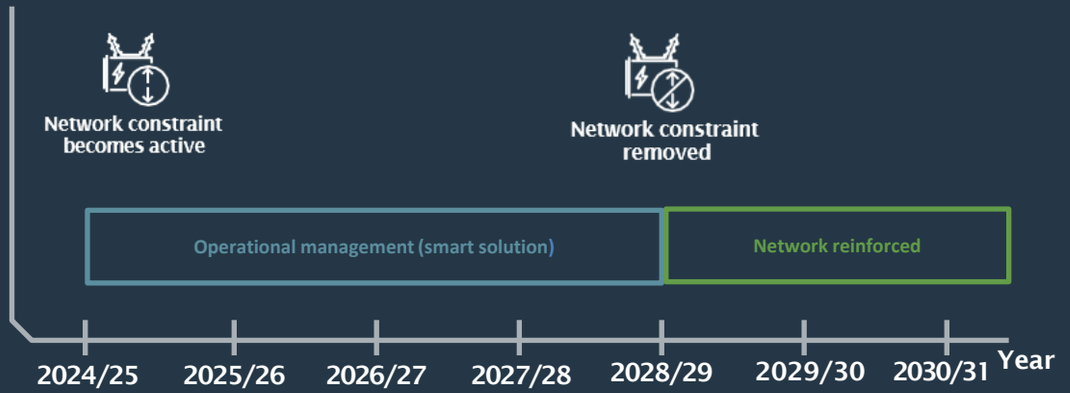
- Substation will be operationally managed to ensure voltage compliance, until reinforcement delivery.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-

Constraint management timeline



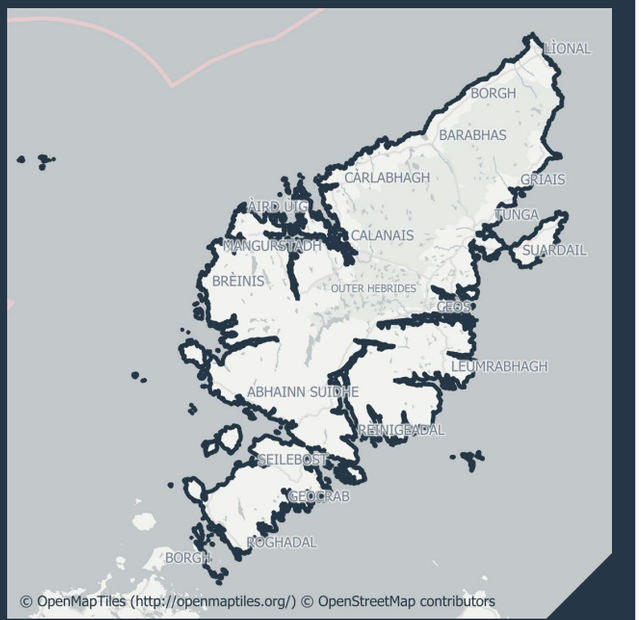
Harris & Lewis (Harris 33kV circuits) Ref. 0724-09

Scheme description

- Harris Grid Supply Point is in the Western Isles of Scotland and is the supply point for the Isles of Lewis & Harris. Postcode(s): HS1, HS2, HS3, HS4 & HS5.
- Load related – 33kV Overhead line between subsea cable termination and Harris GSP projected to be thermally overloaded.

Proposed option

- Asset Solution: Increase the current carrying capacity of the existing overhead line through reinforcement works. Refurbish the overhead line appropriately to increase its operating temperature to 75˚C.
- This will increase the Winter rating of overhead line section from 29.3MVA to 35.4MVA. The use of flexibility was deemed to be uneconomical by the CEM tool.
- Capacity released: 6.1MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

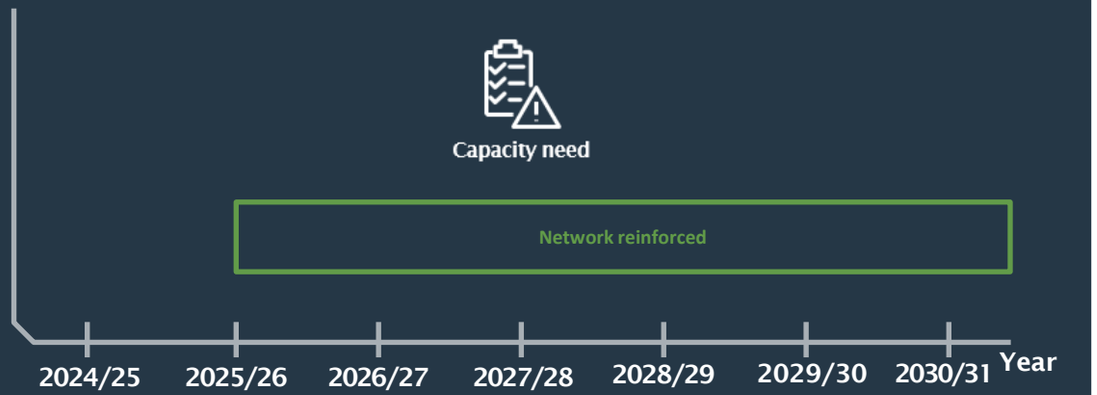
- Reinforcement delivery in 2025/26.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	- (0.94)	- (3.11)	- (5.22)	- (7.59)
ST	-	-	-	-	- (0.58)	- (1.50)	- (2.50)
LTW	-	-	-	- (1.13)	- (3.15)	- (5.11)	- (7.51)
FS	-	-	-	-	-	- (0.20)	- (0.97)

Constraint management timeline



Inverness (Waterloo Place PSS)

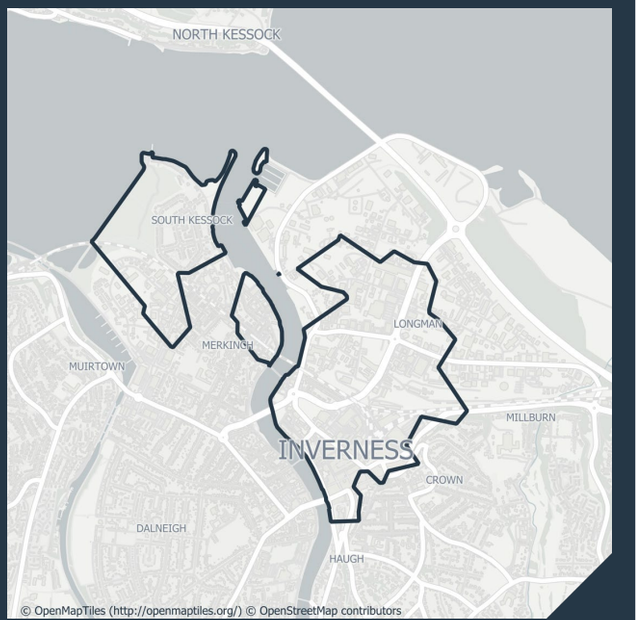
Ref. 0724-10

Scheme description

- Waterloo Place primary substation is situated in Inverness. Postcode(s): IV1, IV2.
- Load related – Future thermal overloading of substation during FCO conditions due to forecasted demand growth.

Proposed option

- Upgrade existing primary transformers and 11KV switchboard at Waterloo place primary substation.
- 20/40MVA transformers to be installed based on 2050 demand forecasts. Due to step change in demand, this has been identified as the most efficient solution.
- Capacity released: 17MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

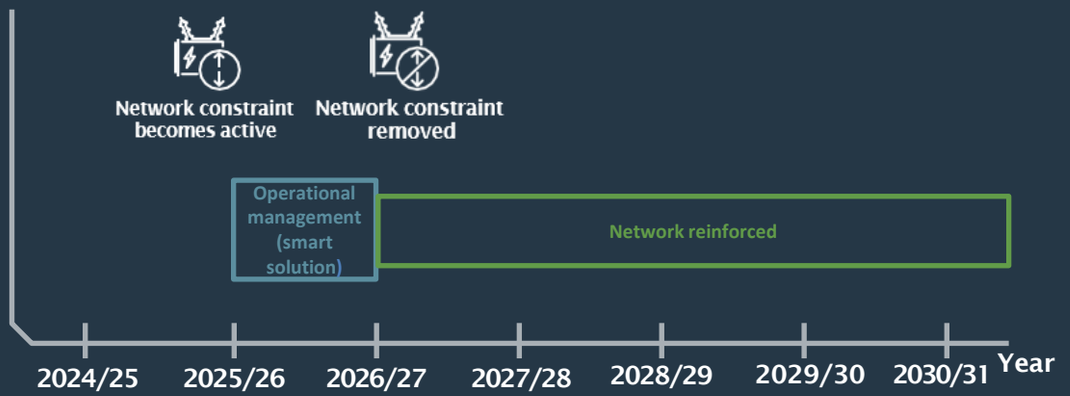
- Reinforcement delivery complete by 2026/27.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	1.35	- (1.83)	- (2.35)	- (3.10)	- (4.18)	- (5.18)
ST	-	0.45	- (0.79)	- (0.88)	- (1.06)	- (1.47)	- (1.80)
LTW	-	1.05	- (1.39)	- (1.62)	- (2.08)	- (2.61)	- (3.91)
FS	-	0.3	- (0.49)	- (0.29)	- (0.33)	- (0.32)	- (0.39)

Constraint management timeline



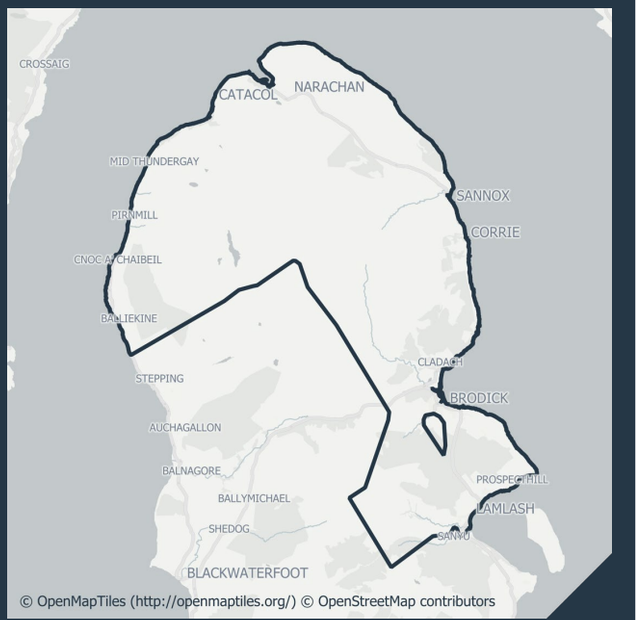
Isle of Arran (Brodick & Balliekine PSS) Ref. 0724-11

Scheme description

- Brodick and Balliekine primary substations are located on the Isle of Arran, Scotland. Postcode(s): KA27 , PA23.
- Load Related– Low Voltage issues under FCO conditions and then thermal overloading under network intact conditions due to forecasted demand growth.

Proposed option

- Addition of new primary substation at Lochranza, including 11kv overhead line reinforcement between Brodick-Balliekine.
- Construction of new 33kv overhead line from Balliekine-Lochranza to split the existing network and resolve FCO Thermal and Voltage issues.
- Capacity released: 2.3MVA (New Lochranza primary substation)



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

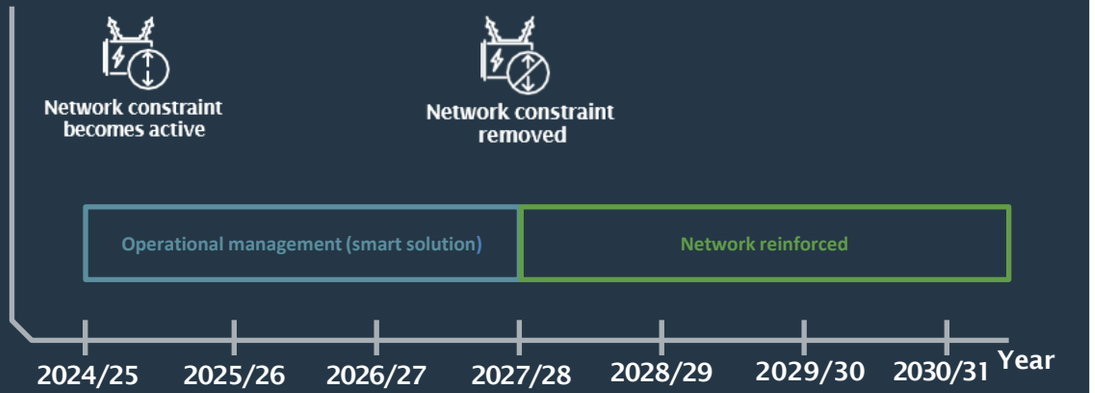
- Network constraint will be operationally managed to ensure voltage compliance, until reinforcement delivery.
- Reinforcement delivery completed by the end of 2026/27.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	- (2.08)	- (2.38)	- (2.58)	- (2.88)
ST	-	-	-	- (1.68)	- (1.68)	- (1.78)	- (1.98)
LTW	-	-	-	- (2.18)	- (2.28)	- (2.48)	- (2.68)
FS	-	-	-	- (1.68)	- (1.78)	- (1.78)	- (1.88)

Constraint management timeline



Isle of Lewis (Gisla PSS)

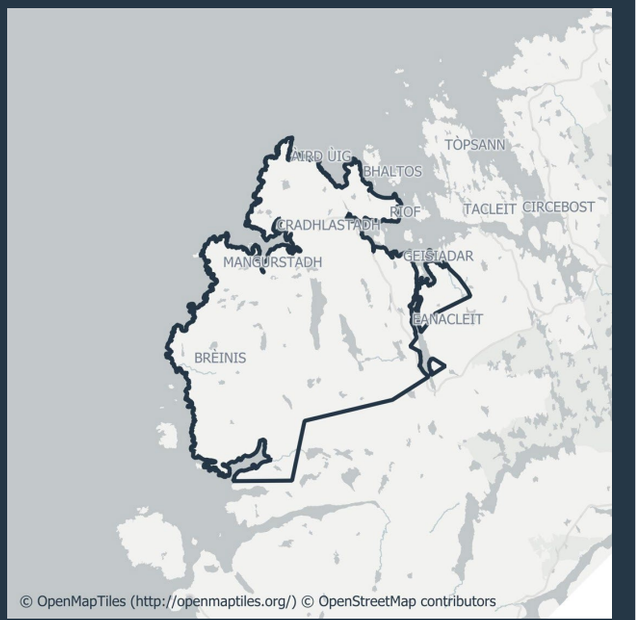
Ref. 0724-12

Scheme description

- Gisla primary substation is located on the Isle of Lewis, Scotland. Postcode(s): HS2.
- Load Related–Thermal overloading of primary transformer and voltage compliance issues under network intact scenarios due to forecasted demand growth.

Proposed option

- Reinforcement of Gisla primary substation and corresponding circuits. New 33kV feeder, reinforcement of existing transformer to 2.5MVA and addition of second 2.5MVA primary transformer, new 11kV circuit (Gisla-Timsgarry Junction), including 11kV voltage regulating equipment at Carishader.
- Constraint to be operationally managed until reinforcement delivery.
- Capacity Released: 5MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

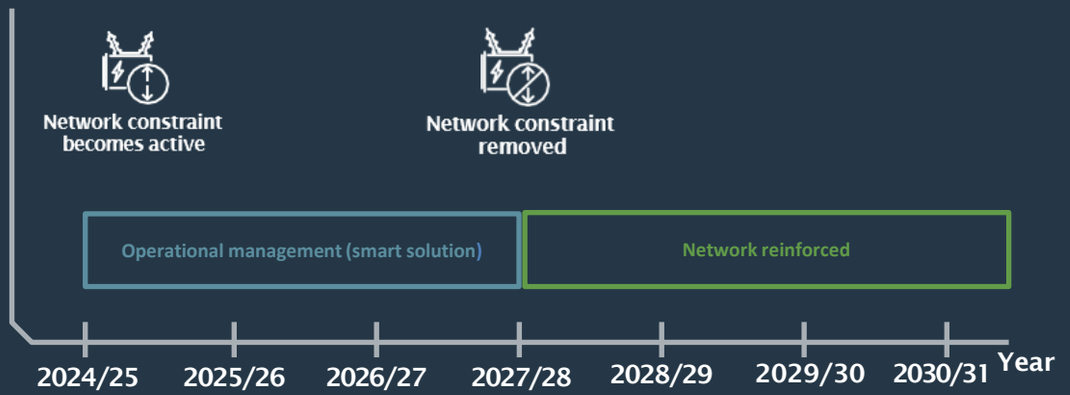
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.64	0.64	0.74	- (0.74)	- (0.74)	- (0.84)	- (0.84)
ST	0.64	0.64	0.64	- (0.64)	- (0.74)	- (0.74)	- (0.74)
LTW	0.64	0.64	0.74	- (0.74)	- (0.74)	- (0.74)	- (0.84)
FS	0.64	0.64	0.64	- (0.64)	- (0.64)	- (0.74)	- (0.74)

Constraint management timeline



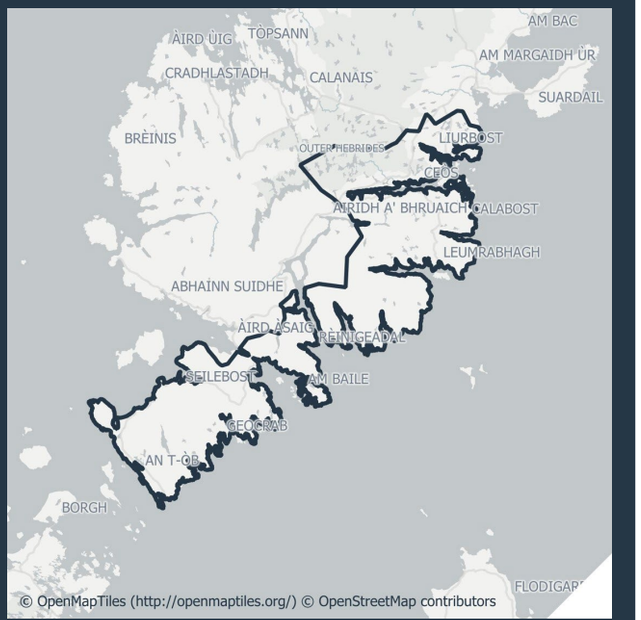
Lewis and Harris (Stornoway and Harris GSP's) Ref. 0724-13

Scheme description

- Stornoway and Harris GSP's are located on the islands of Lewis and Harris in the Outer Hebrides and supply customers within the Comhairle nan Eilean Siar council area. Postcode(s): HS2, HS3, HS4, HS5
- Load Related – Voltage compliance issues during winter peak demand under FCO conditions.

Proposed option

- Asset Solution: Install voltage regulating equipment on the Stornoway 305 circuit & reconfigure 33kV network arrangements. Flexibility is not viable due to the interaction of voltage and thermal constraints.
- This option ensures compliance in FCO conditions until 2032 and sets up future works.
- Capacity Released: 0.23MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

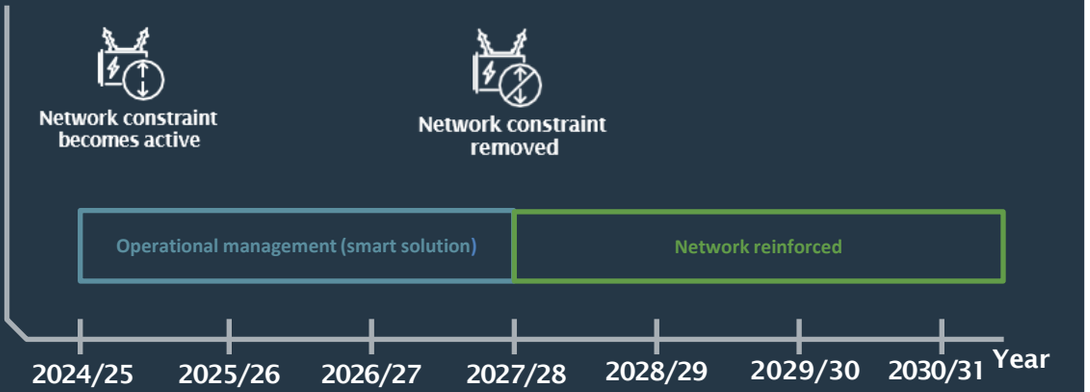
- Network constraint will be operationally managed to ensure voltage compliance, until reinforcement delivery.
- Reinforcement delivery complete by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-

Constraint management timeline



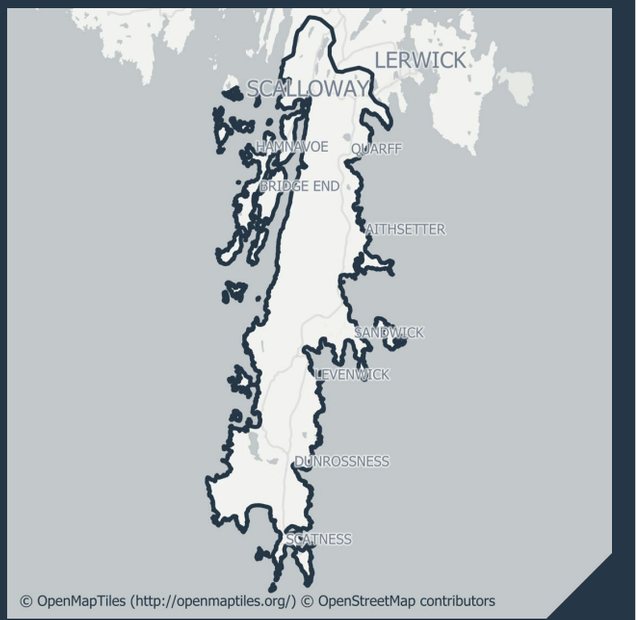
Shetland (Scalloway, Sandwick, & Sumburgh PSSs) Ref. 0724-14

Scheme description

- Scalloway, Setter Sandwick & Sumburgh primary substations are located in the south of Shetland. Postcode(s): ZE1, ZE2, ZE3.
- Load related: Existing compliance issues & thermal overloading of South Shetland 33kV and 11kV circuits under FCO conditions within ED2 period.

Proposed option

- Build additional 33kV circuit (Scalloway to Sandwick) and reinforce existing 11kV circuit (Sumburgh). Furthermore, 8MVA 33/11kV transformer at Scalloway and 8MVA 33/11kV transformer at Sandwick will be added.
- Flexibility discounted due to insufficient flexibility in the area to resolve all the network constraint issues.
- Capacity Released: 16MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

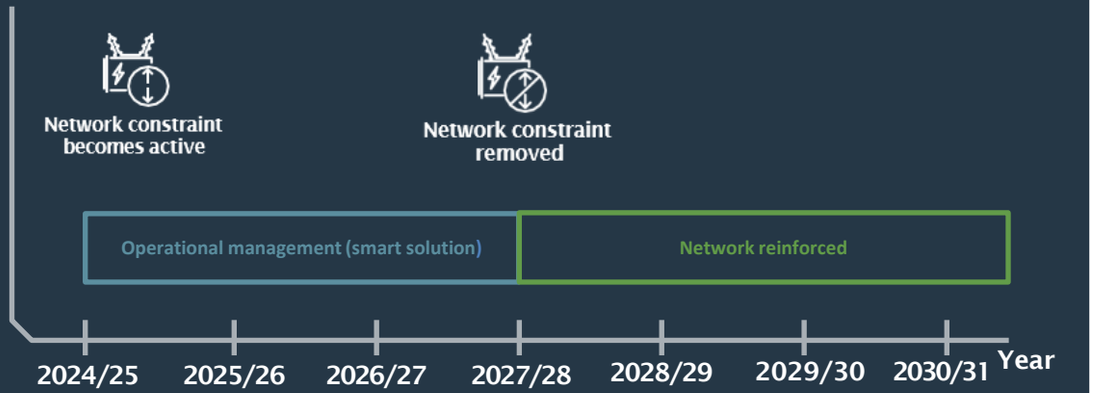
- Reinforcement completed by 2027/28.
- Network is being operationally managed under Load Managed Area (LMA) Scheme until reinforcement can be completed.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.78	0.87	0.98	- (1.23)	- (1.49)	- (1.74)	- (1.98)
ST	0.64	0.59	0.84	- (0.68)	- (0.68)	- (0.66)	- (0.77)
LTW	0.92	0.87	1.40	- (1.37)	- (1.35)	- (1.74)	- (1.85)
FS	0.64	0.59	0.84	- (0.68)	- (0.68)	- (0.66)	- (0.77)

Constraint management timeline



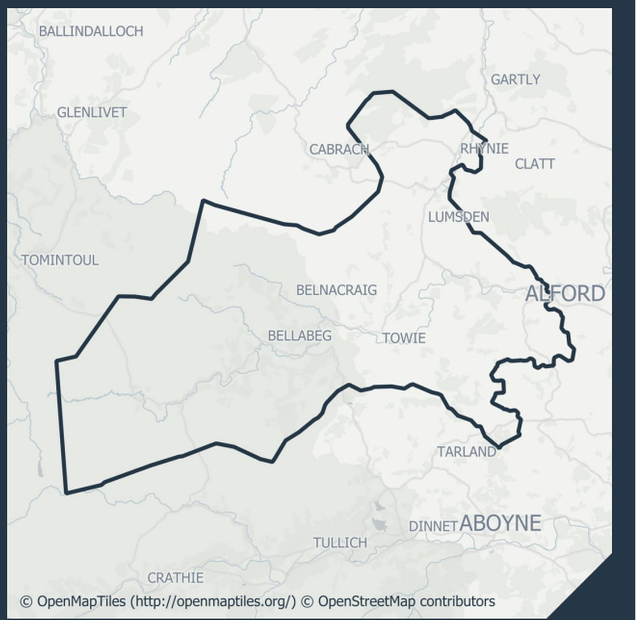
Strathdon – Rhynie (Mossat PSS) Ref. 0724-15

Scheme description

- Mossat substation is located within Aberdeenshire, Scotland. Postcode areas: Postcode(s): AB31, AB33, AB34, AB36, AB54
- Load related – substation thermal overloading under FCO conditions.

Proposed option

- Asset solution: Replace transformers and install a new switchboard at Mossat primary. Flexibility not viable due to market and level of flexibility required.
- This option ensures compliance in FCO conditions and will accommodates future demand growth out to 2050.
- Capacity released: 7.15 MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

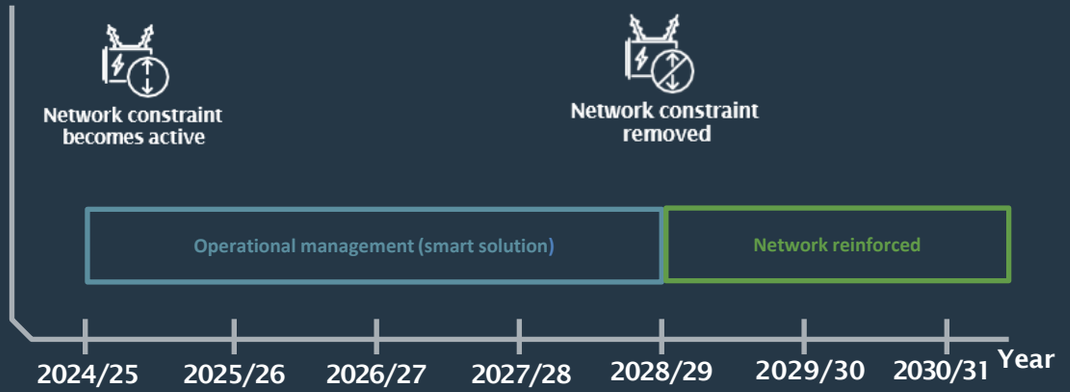
- Substation will be operationally managed to ensure compliance, until reinforcement delivery.
- Reinforcement delivery by 2028/29.

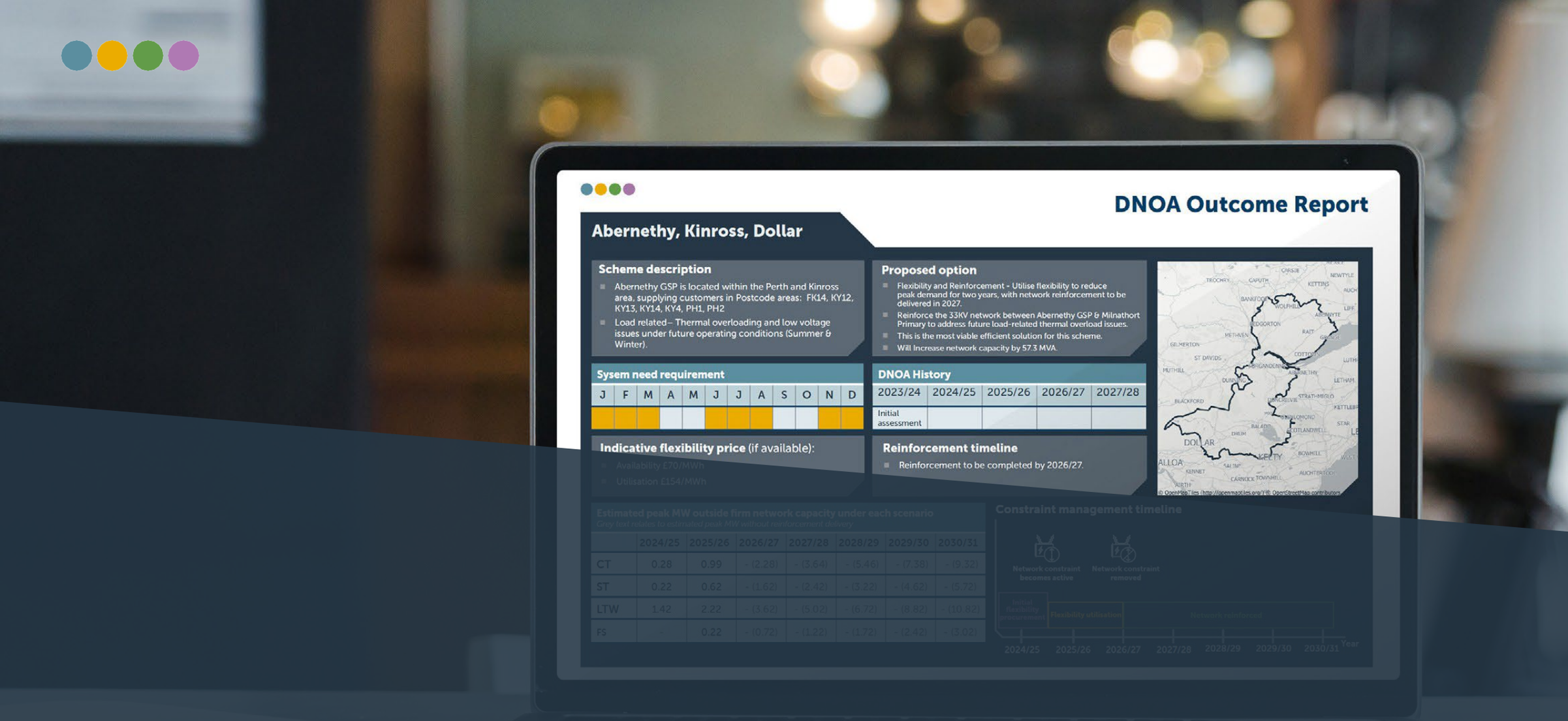
Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.57	0.66	0.85	1.04	- (1.27)	- (1.52)	- (1.74)
ST	0.50	0.56	0.68	0.79	- (0.89)	- (1.07)	- (1.22)
LTW	0.69	0.82	0.96	1.10	- (1.24)	- (1.42)	- (1.64)
FS	0.46	0.50	0.57	0.64	- (0.72)	- (0.80)	- (0.92)

Constraint management timeline





DNOA OUTCOMES - SEPD

Alresford (Alresford PSS)

Ref. 0724-16

Scheme description

- Alresford substation is located northeast of Winchester in Hampshire. Postcode(s): BH24, DT2, GU32, GU34, RG25, RG29, SO21, SO24, SO32, SO40.
- Load related – Thermal overloading on the primary transformers at Alresford Substation from 2024/25 and on the Alton - Alresford circuit from 2028/29.

Proposed option

- Utilise flexibility solutions to defer reinforcement of the 33/11kV transformers at Alresford primary substation by 1 year (Phase I).
- Reinforcement of the 33kV circuit from Alton bulk supply point to Alresford primary substation (Phase II).
- 6.1MVA of capacity is released by 2025/26 and a total of 11MVA released by 2027/28.

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

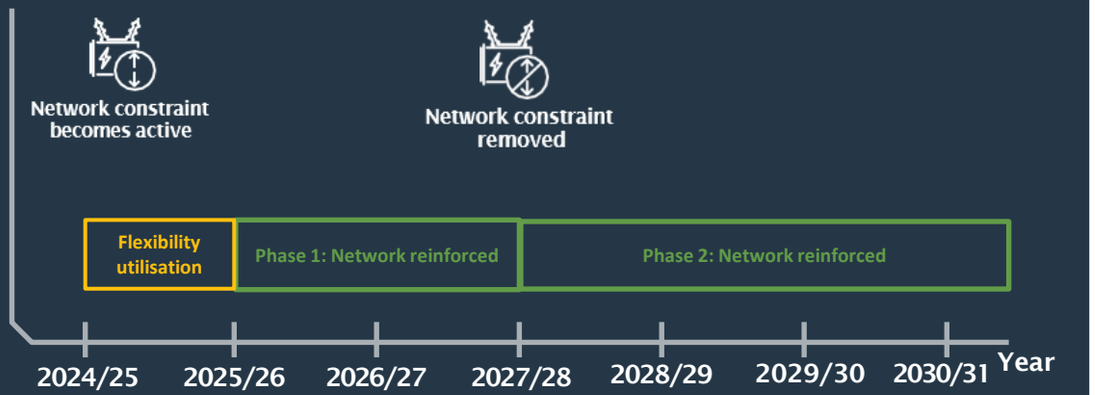
- Flexibility utilisation in 2024/25.
- Phase I reinforcement delivery by 2025/26.
- Phase 2 reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	0.58	- (1.54)	- (2.41)	- (3.18)	- (4.05)	- (5.89)	- (6.66)
ST	1.04	- (2.14)	- (3.06)	- (3.90)	- (4.72)	- (6.62)	- (7.40)
LTW	0.29	- (1.11)	- (1.89)	- (2.53)	- (3.20)	- (4.87)	- (5.31)
FS	0.17	- (0.97)	- (1.65)	- (2.21)	- (2.80)	- (4.33)	- (4.68)

Constraint management timeline



Berkshire & Hampshire (Fleet – Bramley GSP) Ref. 0724-17

Scheme description

- The Fleet-Bramley GSP feeds a large area across Berkshire and Hampshire. Postcode(s): GU7-GU21, GU24-GU35, GU51-GU52, RG1-RG2, RG4-RG10, RG12, RG23-RG31, RG40-RG42, RG45, RH12-RH14, RH20, SL4-SL6, SO21, SO24.
- Load related – Fleet-Bramley GSP group thermal overload in FCO conditions due to forecasted demand growth in the area.

Proposed option

- Procure 3 years of flexibility solutions followed by asset solutions: will split the Fleet/Bramley GSP group into two GSP groups. including works at Bramley GSP, Burghfield Bulk Supply Point (BSP), Reading BSP, Wokingham BSP and on the Fleet-Burghfield Tee-Reading circuit.
- The option provides the economic benefit of reinforcement deferral, ensures network compliance, and sets up future works.

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

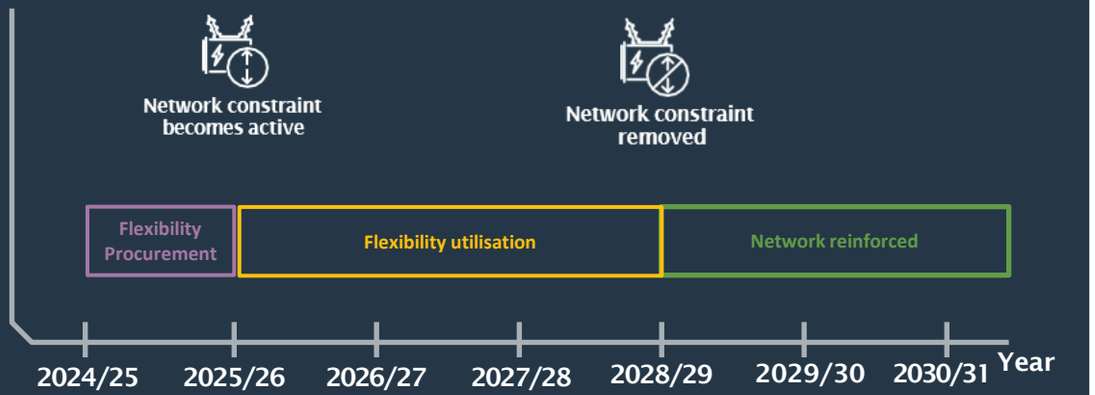
- Flexibility utilisation in 2025/26, 2026/27 and 2027/28.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	8.5	11.2	28.6	- (158.6)	- (218.6)	- (305.6)
ST	-	-	-	-	- (34.4)	- (59.8)	- (89.1)
LTW	6.9	52.4	67.8	90.2	- (237)	- (307.3)	- (387.1)
FS	-	-	-	-	- (14.1)	- (35.5)	- (62.9)

Constraint management timeline



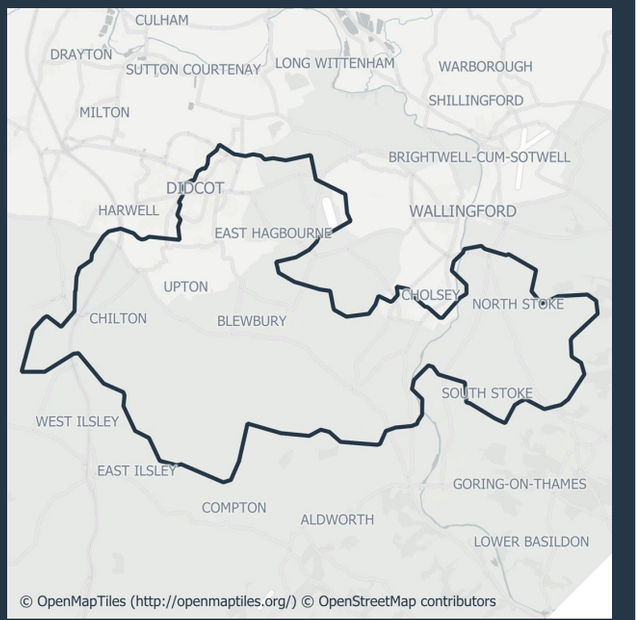
East Didcot (Fulscot and Cholsey PSSs) Ref. 0724-18

Scheme description

- Fulscot and Cholsey primary substations supply the East of Didcot town and the village of Cholsey in South Oxfordshire. Postcode(s): OX10, OX11.
- Load related – substation overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility solution deployed to reduce peak demand and defer capital investment for 2 years. Following this an asset solution will be progressed: reinforcement of the existing 33kV circuit.
- This option has a relatively low cost and creates optionality value as demand grows.
- Capacity released: 15.9MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■					■	■	■	■

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

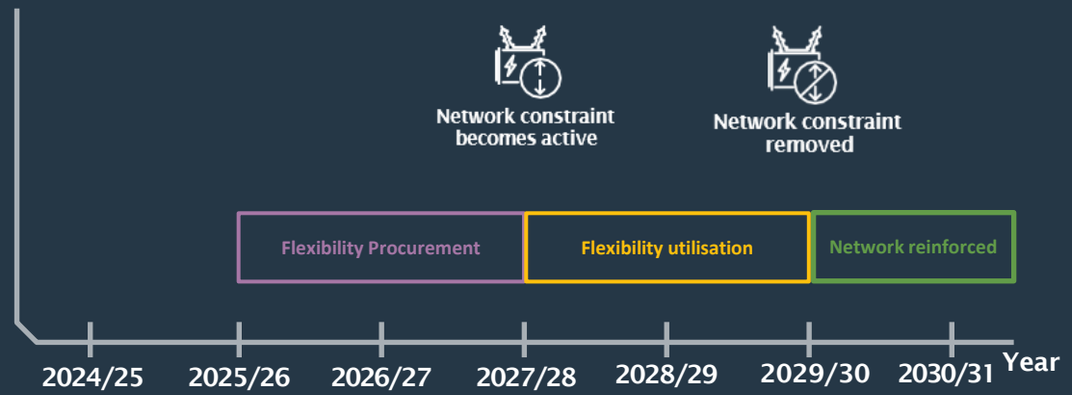
- Flexibility in 2027/28 and 2028/29.
- Reinforcement delivery by 2029/30.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	0.87	2.27	- (3.65)	- (5.23)
ST	-	-	-	-	-	- (0.19)	- (0.83)
LTW	-	-	0.68	2.15	3.60	- (5.38)	- (7.12)
FS	-	-	-	-	-	-	- (0.36)

Constraint management timeline



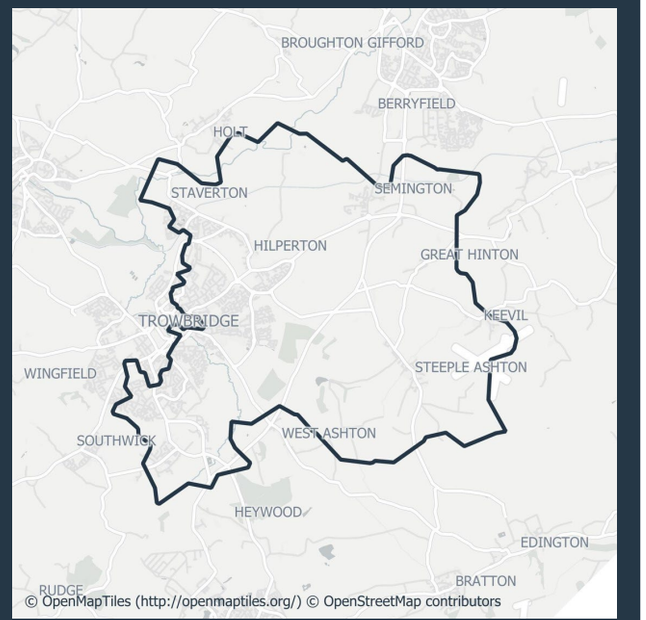
East Trowbridge (Ashton Park PSS) Phase 2 Ref. 0724-19

Scheme description

- Ashton Park primary substation supplies the east of the town of Trowbridge in Wiltshire. Postcode(s): BA14.
- Load related – substation overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility solution used for 1 year to defer asset solution: addition of third 33/11kV transformer at Ashton Park primary substation. Requires replacement of the 11kV switchboard.
- Option provides a long-term solution to increase capacity at Ashton Park and utilises flexibility to defer network expansion.
- Capacity released:30MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

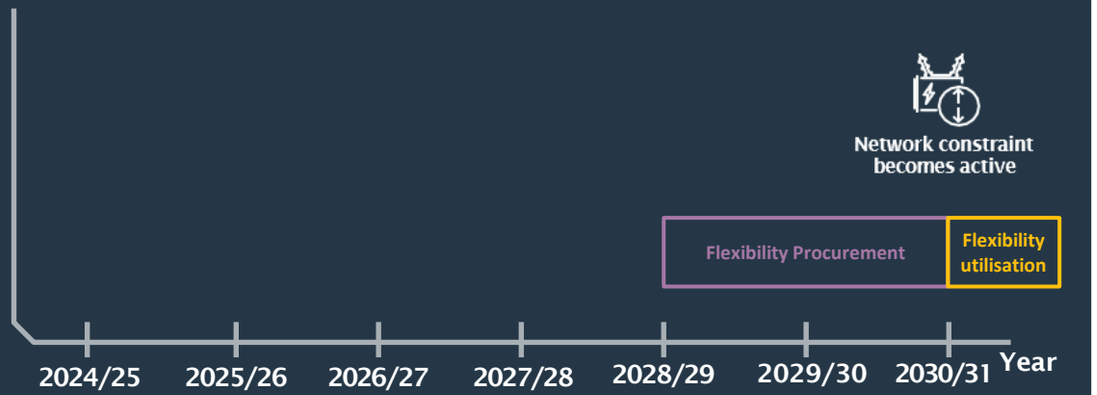
- Flexibility in 2030/31.
- Reinforcement delivery in 2031/32

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	1.42
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	-	2.25	4.83
FS	-	-	-	-	-	-	-

Constraint management timeline



Osney (Oxford BSP)

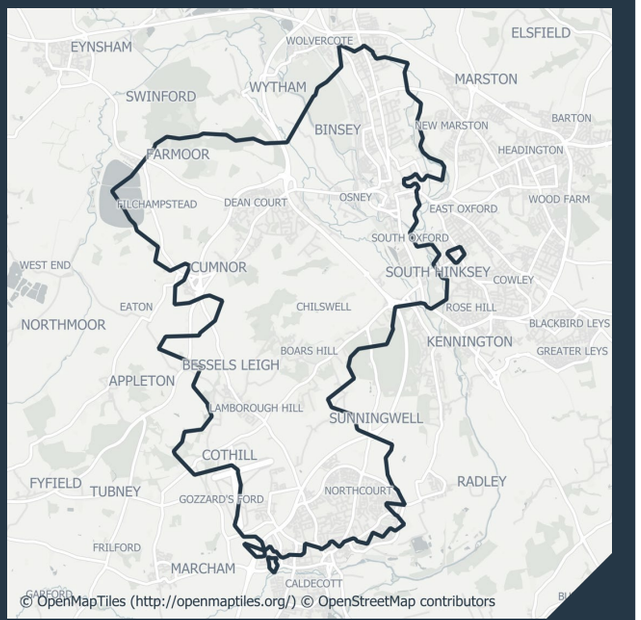
Ref. 0724-20

Scheme description

- Oxford substation is located in Osney, Oxfordshire. Postcode(s): BA13, HP14, KT20, OX1-OX5, OX7, OX9, OX10-OX14, OX20, OX26, OX28, OX44, PO37, RG7 SO45, UM5.
- Load related – substation and circuits thermal overloading under FCO conditions due to forecasted demand growth.

Proposed option

- Procure flexibility solutions – Utilise flexibility to defer reinforcement by 4 years.
- Asset Solution- addition of a new 120MVA transformer and circuit breakers at Oxford. To facilitate this, the addition of a new 132kV circuit from Cowley GSP to Oxford (Osney) BSP is needed.
- Capacity Released: 90MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■					■	■	■	■

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £150/MW/h
- Utilisation: £200/MWh

Reinforcement timeline

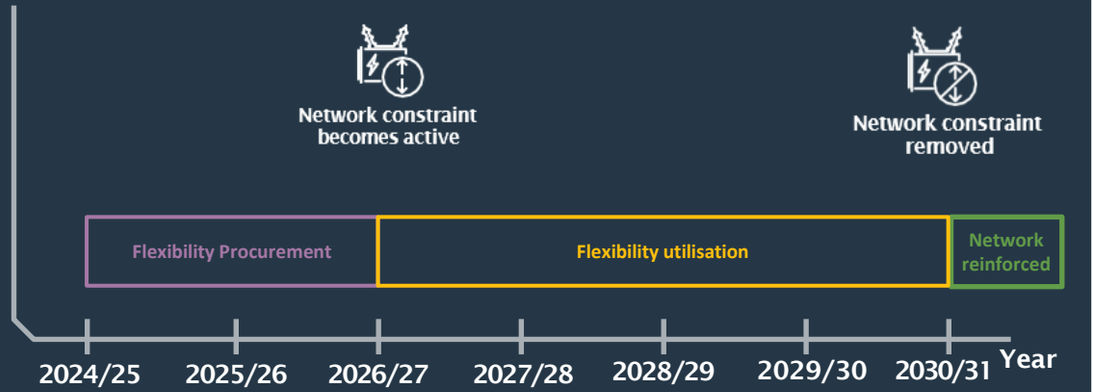
- Flexibility utilisation in 2026/27–2029/30.
- Reinforcement delivery by the end of 2029/30.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	0.96	3.38	6.10	9.03	- (12.37)
ST	-	0.15	0.92	2.18	3.42	4.91	- (6.30)
LTW	-	5.10	7.58	10.81	13.99	17.98	- (21.96)
FS	-	-	-	-	-	0.47	- (1.70)

Constraint management timeline



Romsey (Romsey PSS)

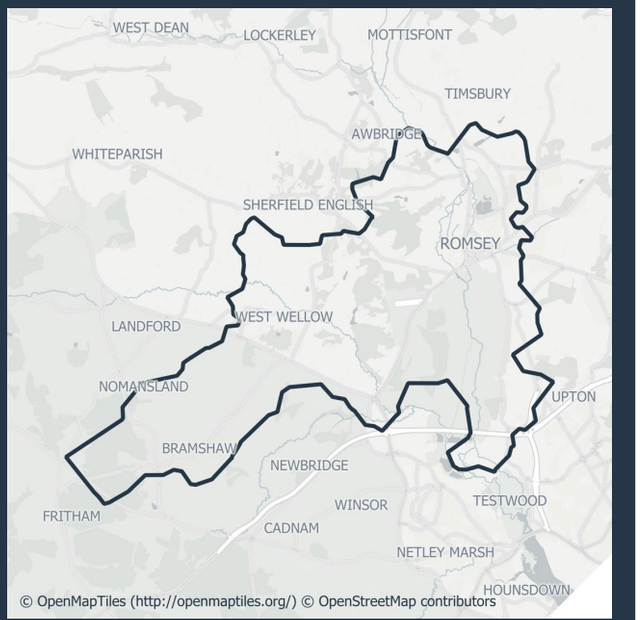
Ref. 0724-21

Scheme description

- Romsey primary substation supplies the town of Romsey to the north of Southampton. This primarily interacts with the Test Valley Borough Council area. Postcode(s): SO16, SO43, SO51.
- Load related – substation overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility solutions used to mitigate thermal overload for 3 years followed by asset solutions. Replace existing transformers with 2 new 20/40MVA rated 33/11kV transformers. Install 2 new 33kV outdoor transformer circuit breakers.
- Option provides benefit of deferral through flexibility and long-term solution through asset reinforcement.
- Capacity released phase 1: 8.1MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £113/MW/h
- Utilisation: £145/MWh

Reinforcement timeline

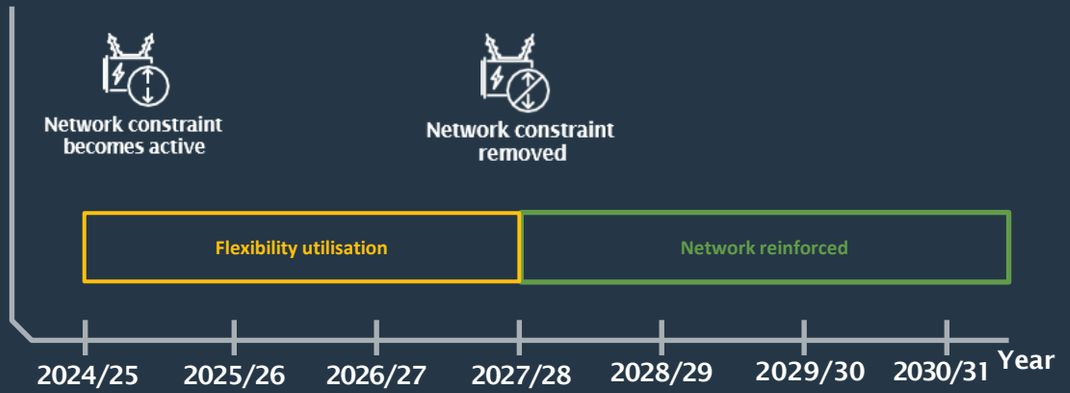
- Flexibility in 2024/25, 2025/26, and 2026/27.
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	1.73	1.94	2.11	-(2.63)	-(3.46)	-(4.34)	-(5.42)
ST	1.67	1.85	2.05	-(2.30)	-(2.49)	-(2.72)	-(2.93)
LTW	1.59	1.80	2.48	-(3.50)	-(4.46)	-(5.67)	-(6.96)
FS	1.43	1.56	1.74	-(1.93)	-(2.10)	-(2.30)	-(2.49)

Constraint management timeline



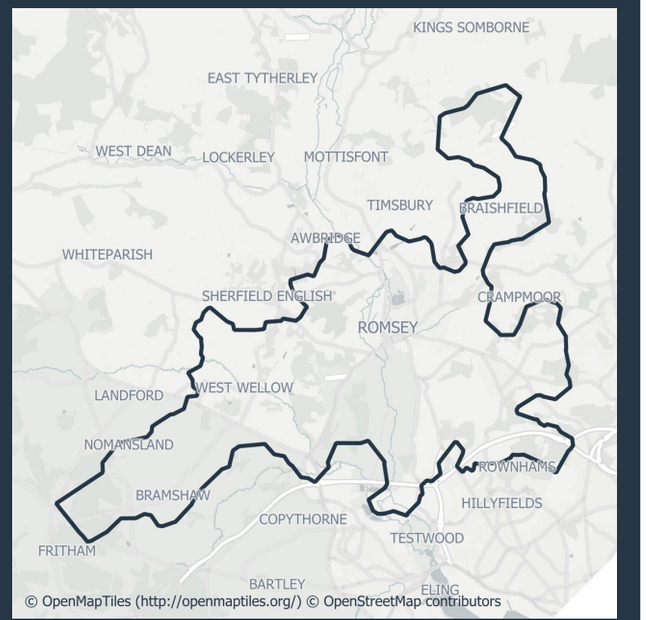
Romsey (Rownhams 33kV circuits) Ref. 0724-22

Scheme description

- Romsey and North Baddesley primary substations supply the town of Romsey to the north of Southampton. Postcode(s): SO16, SO43, SO51, SO52.
- Load related – Projected exceedance of the thermal rating of the 33kV circuit from Rownhams BSP to North Baddesley primary substation under an FCO condition.

Proposed option

- Flexibility solution used to defer reinforcement for 3 years followed by an asset solution. Addition of a third 33kV circuit from Rownhams BSP to Romsey primary substation.
- Option provides benefit of deferral through flexibility and long-term solution through asset reinforcement.
- Capacity released: 46.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■					■	■	■	■

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £113/MW/h
- Utilisation: £145/MWh

Reinforcement timeline

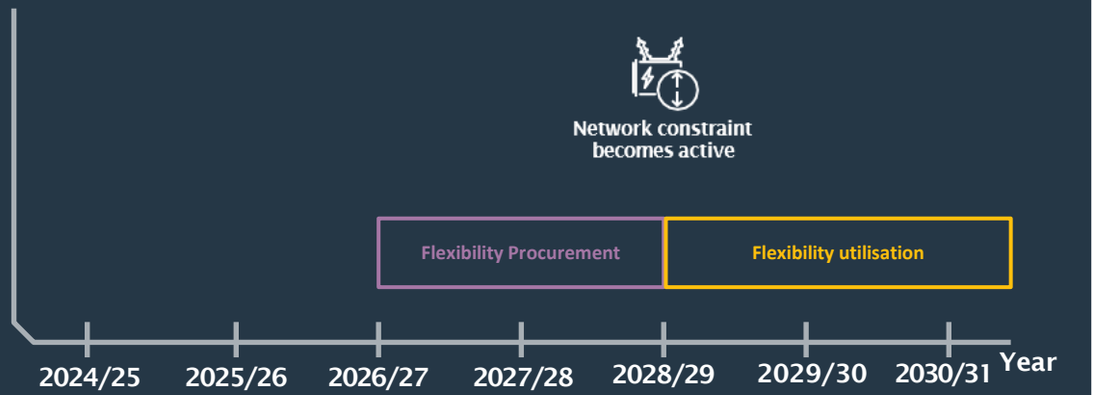
- Flexibility in 2028/29, 2029/30, and 2030/31.
- Reinforcement delivery by 2031/32.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	0.70	2.25	4.07
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	2.96	5.05	7.26
FS	-	-	-	-	-	-	-

Constraint management timeline



Aldershot (Tongham PSS)

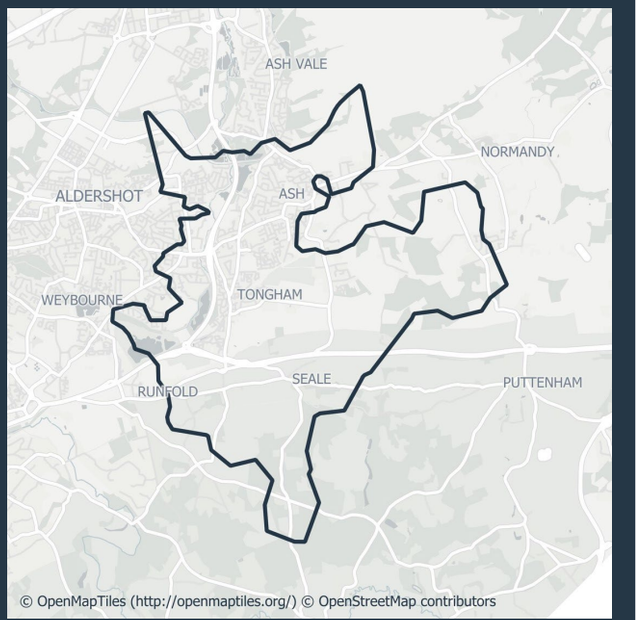
Ref. 0724-23

Scheme description

- Tongham primary substation supplies the area to the East of Aldershot town, covering parts of the Guildford, Waverley, and Rushmoor Borough Council areas. Postcode(s): GU3, GU10, GU11, GU12.
- Concerns over P2/8 security of supply standards are driving the upgrade, in certain outage situations.

Proposed option

- Asset solution: new 33kV underground circuits from Aldershot BSP to Tongham PSS with new circuit breaker to establish interconnector between the substations. Flexibility was deemed not to be viable due its availability falling short of the required amount.
- This option has a relatively low cost and creates optionality as demand grows.
- Capacity released: 16.4MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

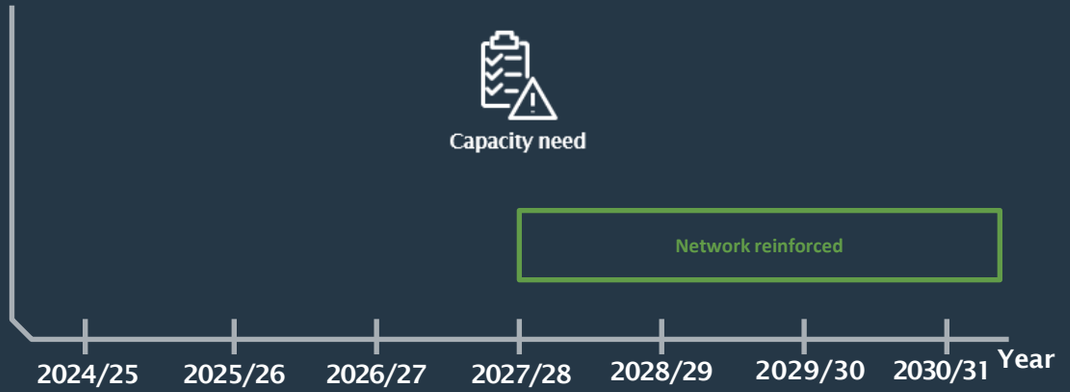
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-

Constraint management timeline



Denham (Denham Avenue PSS)

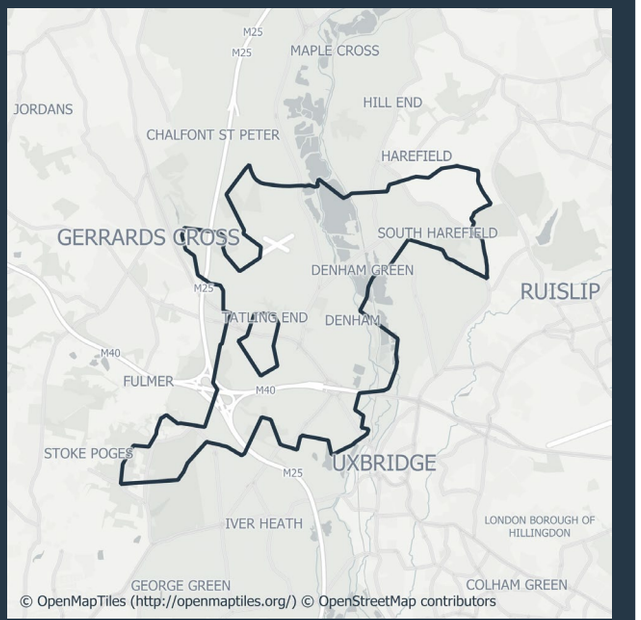
Ref. 0724-24

Scheme description

- This reinforcement will increase capacity in Denham, south Buckinghamshire. Postcodes: SL0, SL1, SL3, SL9, UB9.
- Load related – substation and circuits overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers and circuits.
- Ensures that Denham Avenue PSS is compliant in FCO conditions and accommodates future demand growth out to 2050. Flexibility was determined not to be suitable to defer reinforcement due to assets being near end of life.
- Releases 12.8MVA of capacity.



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

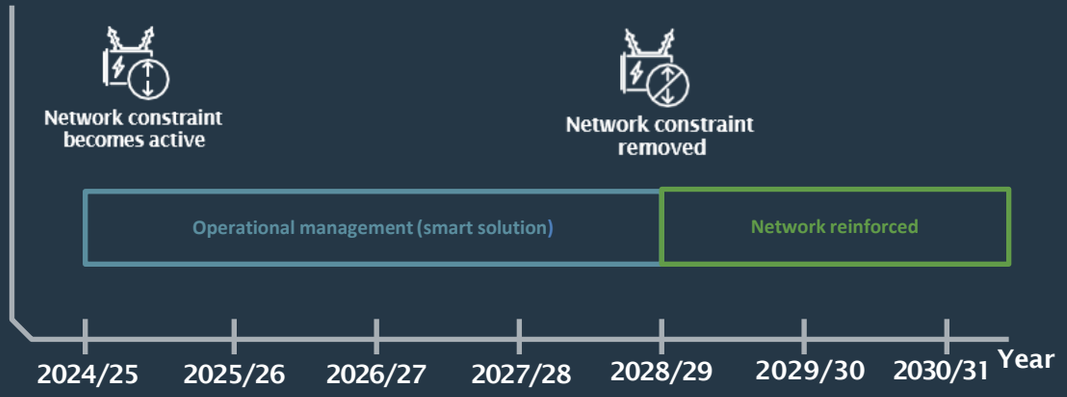
- Substation will be operationally managed to ensure compliance, until reinforcement delivery
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	1.9	1.9	2.1	2.3	- (2.6)	- (2.9)	- (3.2)
ST	1.8	1.8	1.9	2	- (2.2)	- (2.3)	- (2.5)
LTW	2	2.1	2.4	2.7	- (3.1)	- (3.5)	- (3.9)
FS	1.8	1.8	1.8	1.9	- (2.1)	- (2.2)	- (2.3)

Constraint management timeline



East Hounslow (Bridge Road PSS) Ref. 0724-25

Scheme description

- Bridge Road primary substation is in Hounslow, West London. Postcode(s): TW1, TW3, TW4, TW7, TW8.
- Load related – voltage level issues present under FCO conditions by 2027 with thermal capacity projected to be exceeded by 2030.

Proposed option

- Asset solutions: reinforcement of transformers with new transformers of increased capacity, with new switchboard.
- This option addresses immediate voltage issues and provides sufficient capacity for projected 2050 demand. Deferring reinforcement by using flexibility was deemed not feasible due to the voltage level issues.
- Capacity released: 76.2MVA

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

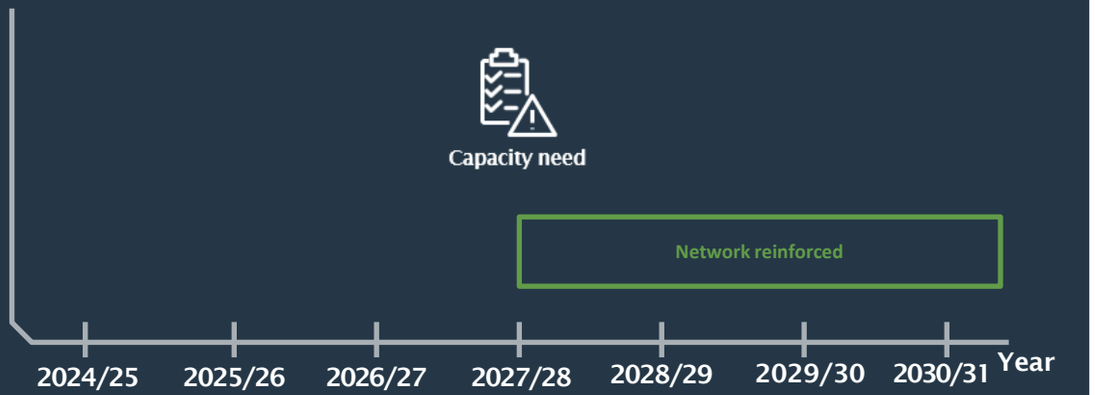
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	- (1.47)
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	- (0.20)	- (2.38)	- (4.43)
FS	-	-	-	-	-	-	-

Constraint management timeline



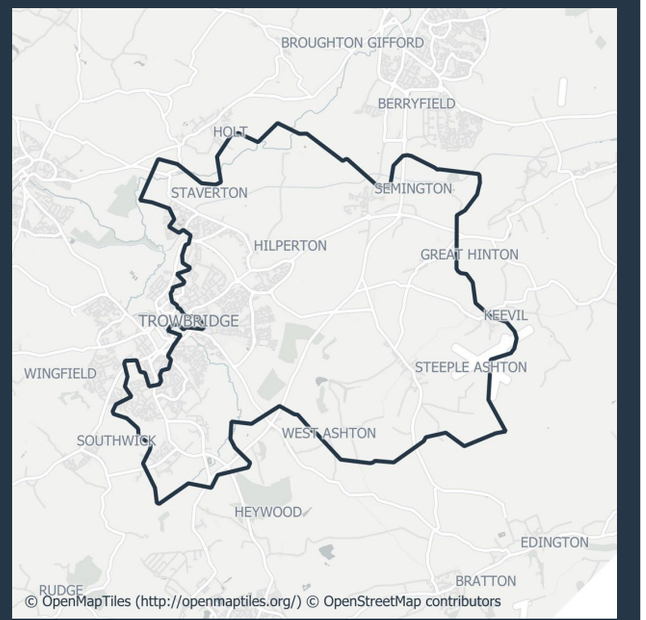
East Trowbridge (Ashton Park PSS) Phase 1 Ref. 0724-26

Scheme description

- Ashton Park PSS supplies the east of the town of Trowbridge in Wiltshire. Postcode(s): BA14.
- Operational standards – Network configuration will be changed to meet present network complexity standards.

Proposed option

- Asset solution: two new 33kV circuits between Norrington and Ashton Park with new circuit breakers required at both the substations. New indoor gas-insulated 33kV-Busbar.
- Option simplifies the network running arrangement making it compliant with engineering recommendations. Flexibility solution not considered as it will not resolve the existing operational issues.
- Capacity released: 45MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

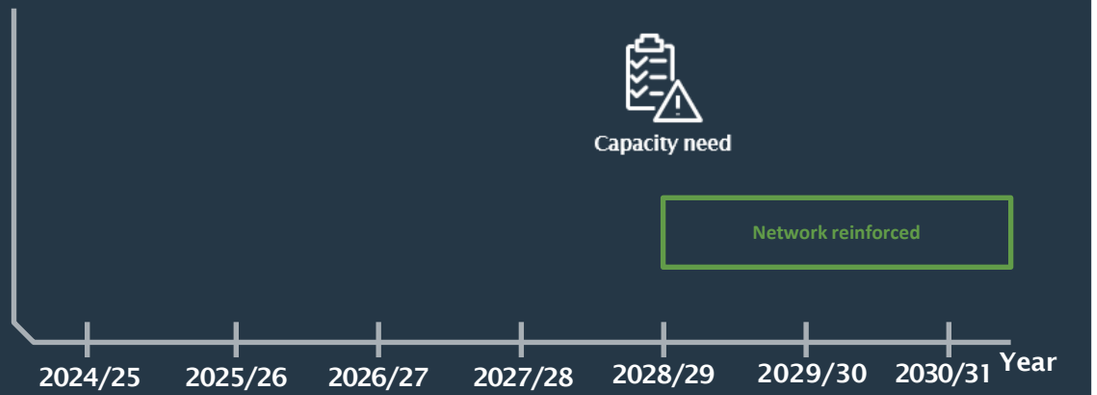
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	-	-
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	-	-	-
FS	-	-	-	-	-	-	-

Constraint management timeline



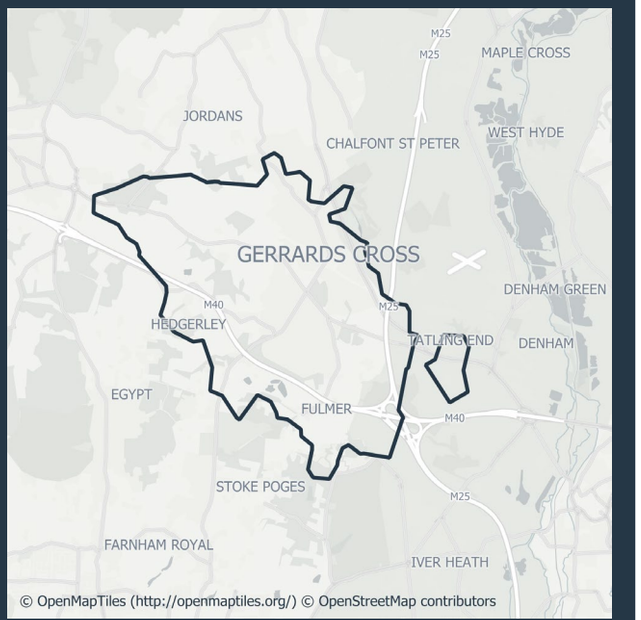
Gerrards Cross (Gerrards Cross PSS) Ref. 0724-27

Scheme description

- This reinforcement will increase capacity in the Gerrards Cross area, south Buckinghamshire. Postcodes: HP7, HP9, SL0, SL2, SL3, SL6, SL9, UB9.
- Load related – substation and circuit overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers and circuits.
- Ensures that Gerrards Cross PSS is compliant in FCO conditions and accommodates future demand growth out to 2050. Flexibility was determined not to be suitable to defer reinforcement due to assets being near end of life.
- Releases 12.8MVA of capacity



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

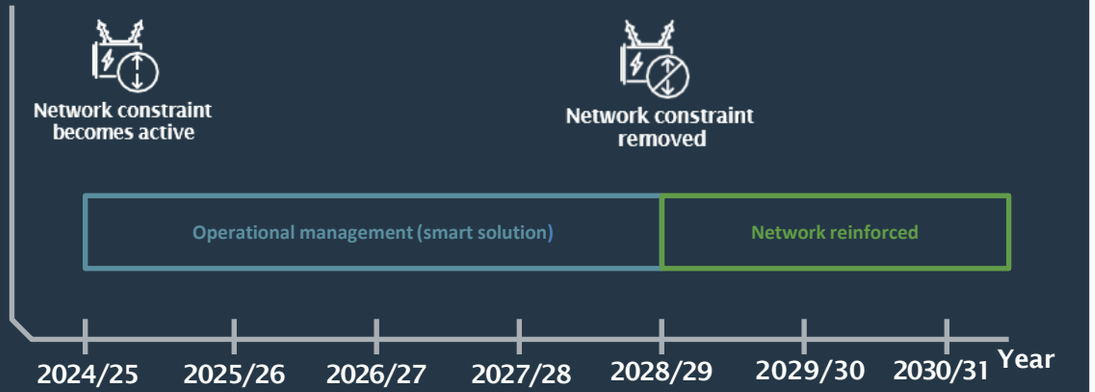
- Substation will be operationally managed to ensure compliance, until reinforcement delivery.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	3.8	4	4.5	5	- (5.6)	- (6.2)	- (6.9)
ST	3.6	3.8	4	4.3	- (4.7)	- (5.1)	- (5.4)
LTW	4	4.4	4.8	5.4	- (6)	- (6.9)	- (7.7)
FS	3.6	3.7	3.9	4	- (4.2)	- (4.6)	- (4.8)

Constraint management timeline



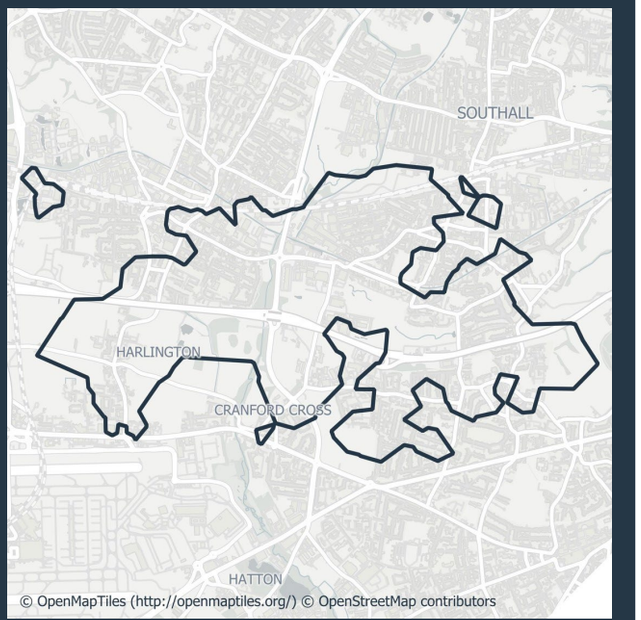
Harlington and Southall (North Hyde PSS) Ref. 0724-28

Scheme description

- North Hyde primary substation supplies areas across Ealing, Hillingdon, and Hounslow local authorities. Postcode(s): UB2, UB3, TW5.
- Load related – Thermal overloading of substation during FCO conditions due to forecasted demand growth in the area.

Proposed option

- Asset solutions: Upgrade three 66/11kV transformers with new 60MVA rated transformers. New 66kV underground circuits. Replacement of the 11kV switchboard.
- This option meets the projected demands out to 2050. Use of flexibility was determined not to be viable in this area due its availability falling short of the required amount.
- Capacity Released: 43.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

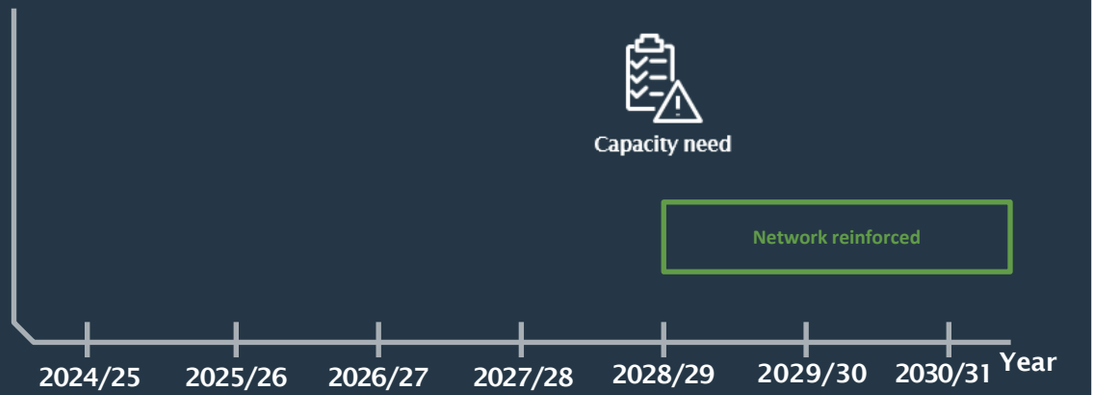
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	- (2.40)	- (4.65)
ST	-	-	-	-	-	-	-
LTW	-	-	-	-	- (1.37)	- (4.65)	- (7.20)
FS	-	-	-	-	-	-	-

Constraint management timeline



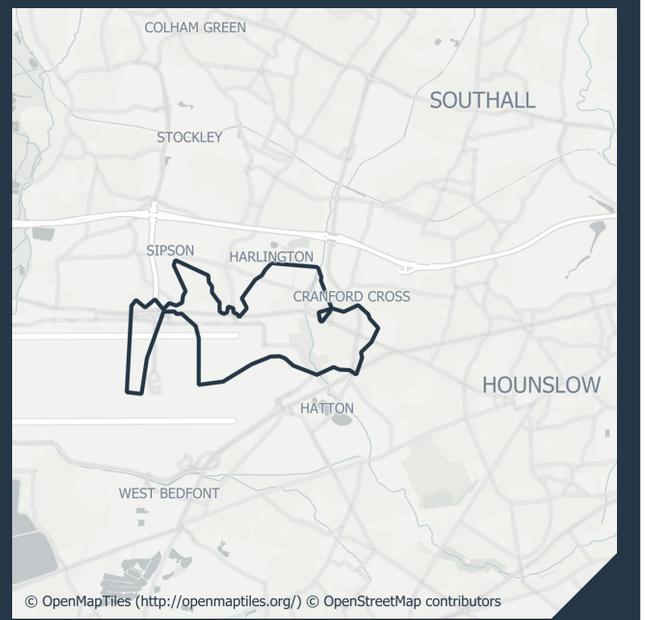
Harlington and Heathrow (Bath Road East PSS) Ref. 0724-29

Scheme description

- Bath Road East primary substation supplies Harlington and Heathrow Airport within Hillingdon and Hounslow local authorities. Postcode(s): TW(3-6), UB3, UB7, UB8.
- Load related – projected thermal overloading during FCO conditions of primary transformers within ED2 period.

Proposed option

- Asset solution: installation of new transformers at Bath Road East primary and circuits between the primary and North Hyde 66kV BSP.
- The upgrade accommodates future demand growth at Bath Road East primary to 2050 while removing non-standard 22kV network assets. Due to low customer numbers, flexibility is not feasible.
- Capacity released: 28.1 MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

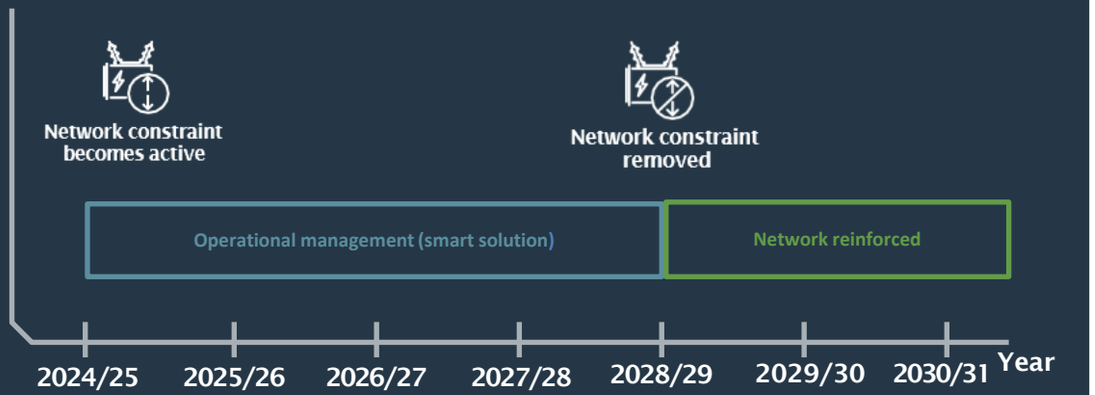
- Substation will be operationally managed to ensure compliance until reinforcement delivery.
- Reinforcement delivery by the end of 2027/2028.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	1.45	1.67	1.77	1.96	- (2.19)	- (2.46)	- (2.76)
ST	1.38	1.53	1.56	1.71	- (1.84)	- (1.98)	- (2.16)
LTW	1.54	1.81	1.94	2.25	- (2.61)	- (2.98)	- (3.46)
FS	1.34	1.47	1.51	1.58	- (1.68)	- (1.77)	- (1.87)

Constraint management timeline



DNOA Outcome Report

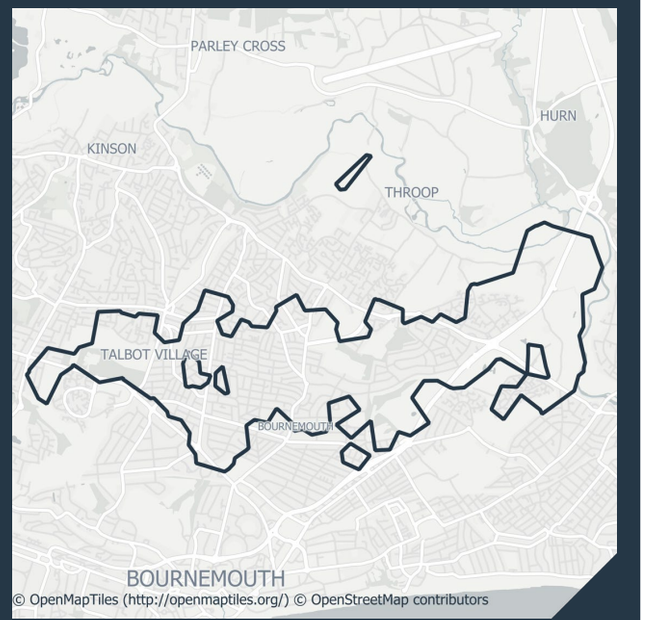
North Bournemouth (Winton PSS) Ref. 0724-30

Scheme description

- This reinforcement will increase capacity in north Bournemouth. Postcodes: BH(1-12), BH19, GU7.
- Load related – substation overload due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers and circuits.
- Ensures compliance of Winton primary substation and that forecasted demand can be met to 2040. Using flexibility to defer the reinforcement was investigated with CEM and found to be uneconomical.
- Capacity released: 12.8MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

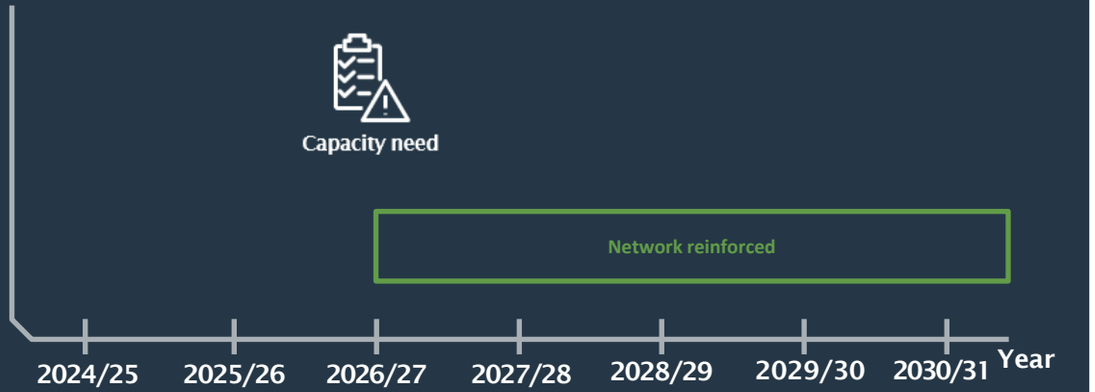
- Reinforcement delivery by 2026/27.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	- (0.26)	- (1.56)	- (2.6)	- (3.64)	- (4.94)
ST	-	-	-	-	-	- (0.40)	- (0.66)
LTW	-	0.57	- (1.40)	- (3.03)	- (4.17)	- (5.63)	- (7.24)
FS	-	-	-	-	-	- (0.08)	- (0.45)

Constraint management timeline



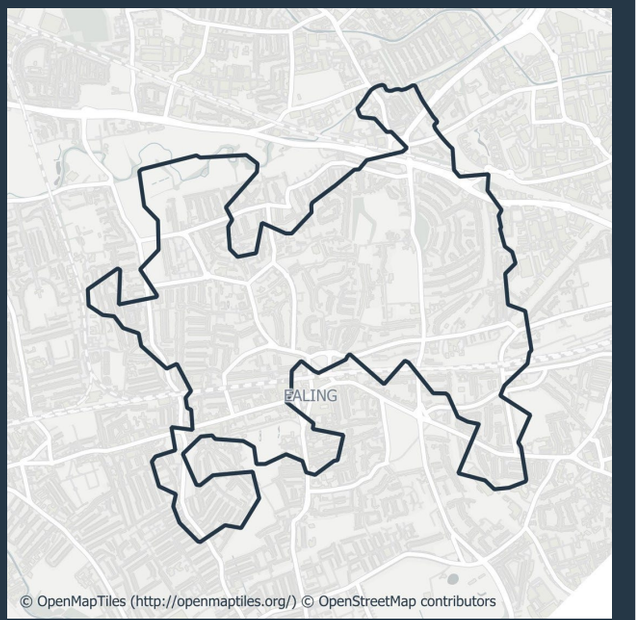
North Ealing (Copley Dene PSS) Ref. 0724-31

Scheme description

- Copley Dene primary substation is in Ealing, West London. Postcode(s): W3, W5, W7, W13, NW10.
- Load related – substation overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: reinforcement of transformers with new transformers of increased capacity, with a new switchboard.
- This option addresses the thermal issues to 2037, and future proofs the network for higher capacity once the feeding circuits are reinforced. Reinforcement deferral through flexibility was determined to be uneconomical by the CEM tool.
- Capacity Released: 38.7MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: £108/MW/h
- Utilisation: £133/MWh

Reinforcement timeline

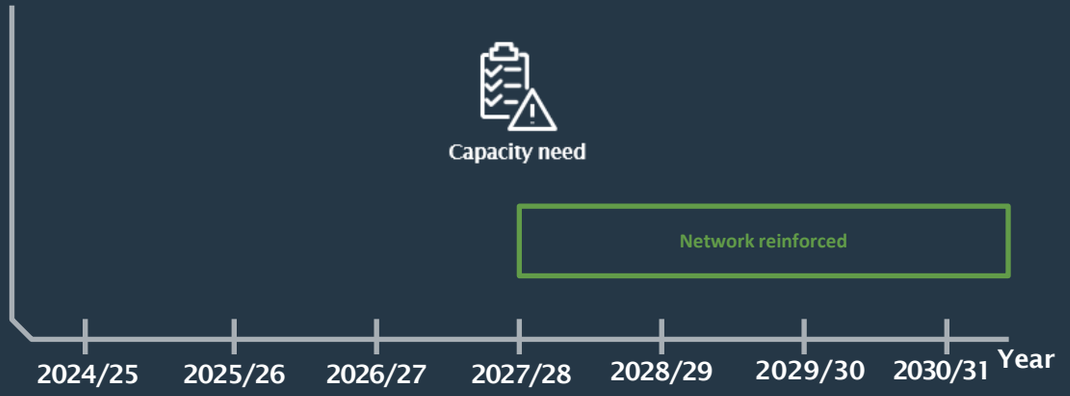
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	- (0.86)	- (1.81)	- (2.95)
ST	-	-	-	-	-	-	-
LTW	-	-	0.07	- (1.10)	- (2.06)	- (3.33)	- (4.70)
FS	-	-	-	-	-	-	-

Constraint management timeline



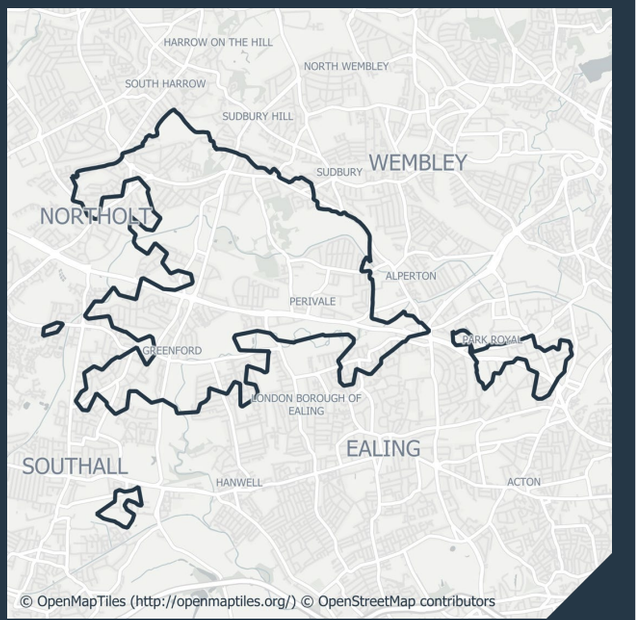
Park Royal and Perivale (Park Royal & Perivale PSS) Ref. 0724-32

Scheme description

- Park Royal Substation is located in the West London area. Postcode area(s): HA0, N16, NW10, UB1 – UB6, W3, W5, W7, W11, W13.
- Load related – Thermal overloading on the transformers at Park Royal primary substation in FCO conditions.

Proposed option

- Asset solution: Upgrade transformers at Park Royal substation and uprate substation to 11kV. Add a new 66kV bus board at Perivale Substation to reconfigure the connections of Park Royal, Perivale, and Greenford substations.
- Assessment concluded that the necessary flexibility is not available during the required timeframe.
- Capacity Released: 10.4MVA at Park Royal primary substation and 38.1MVA at Perivale primary substation.



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

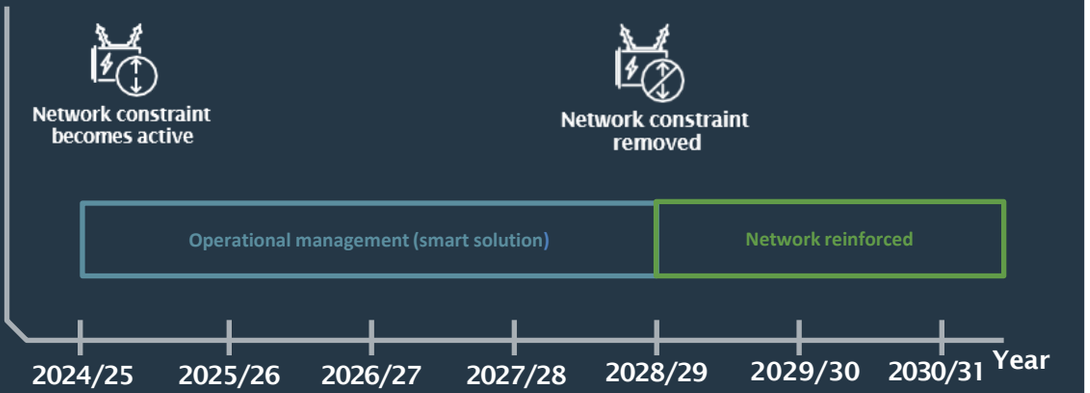
- Park Royal substation will be operationally managed to until reinforcement delivery.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	3.08	3.08	3.08	3.09	- (3.62)	- (4.25)	- (4.74)
ST	3.08	3.08	3.08	3.09	- (3.62)	- (4.27)	- (4.79)
LTW	3.07	3.07	3.07	3.08	- (3.54)	- (4.09)	- (4.56)
FS	3.07	3.07	3.07	3.08	- (3.50)	- (4.00)	- (4.48)

Constraint management timeline



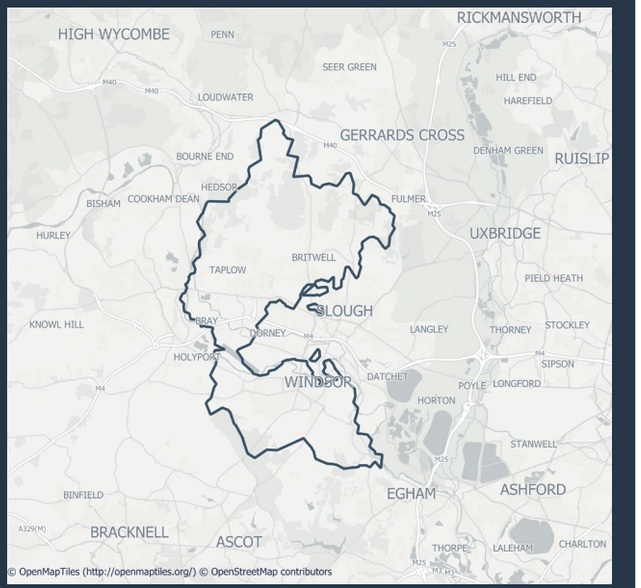
Slough and Windsor (Slough, Slough South, & Cippenham BSPs) Ref. 0724-33

Scheme description

- The following reinforcements will increase capacity in Slough, Windsor, and south Buckinghamshire. Postcode(s): GU24, HP9, SL(0-6), SL9.
- Load related – thermal overload at Slough, Slough South, and Cippenham BSPs during SCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of additional transformer, 132kV cable, and busbars.
- Creates sufficient capacity for Slough, Slough South, and Cippenham to meet demand forecasted to 2050 and ensures P2/8 compliance. Use of flexibility was determined not to be viable due its availability falling short of the required amount.
- Released capacity: 92MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

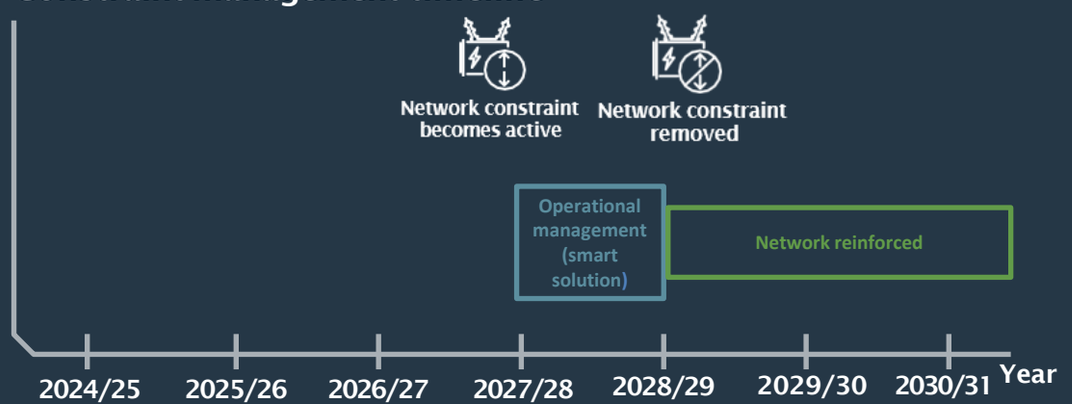
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	- (28.8)	- (33.4)	- (38.6)	- (43.4)
ST	-	-	-	- (25.3)	- (28.3)	- (31.9)	- (35.1)
LTW	-	-	-	- (31.5)	- (36.4)	- (42.4)	- (47.8)
FS	-	-	-	- (25.1)	- (27.9)	- (31.1)	- (34.2)

Constraint management timeline



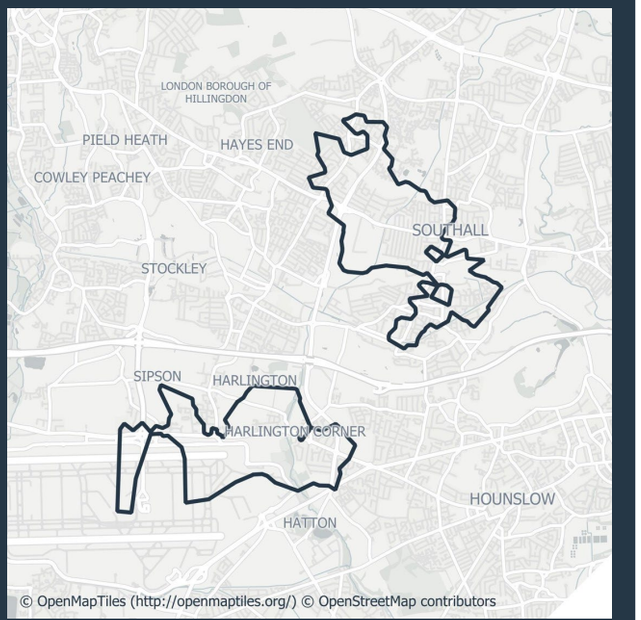
Southall and Harlington (North Hyde BSP) Ref. 0724-34

Scheme description

- North Hyde BSP supplies areas across Ealing, Hillingdon, and Hounslow local authorities. Postcode(s): TW4, TW5, TW6, UB1, UB2, UB3, UB4.
- Load related – substation and circuits overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: Extension of the North Hyde GSP 66kV busbar to be established as a remote 66kV switchboard at North Hyde BSP.
- This option facilitates further works to upgrade the networks to meet the forecasted 2050 demands and enables rationalisation of non-standard voltages. The CEM tool found the deferral of reinforcement through flexibility solution was uneconomical.
- Capacity released: 195MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

	2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment					

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

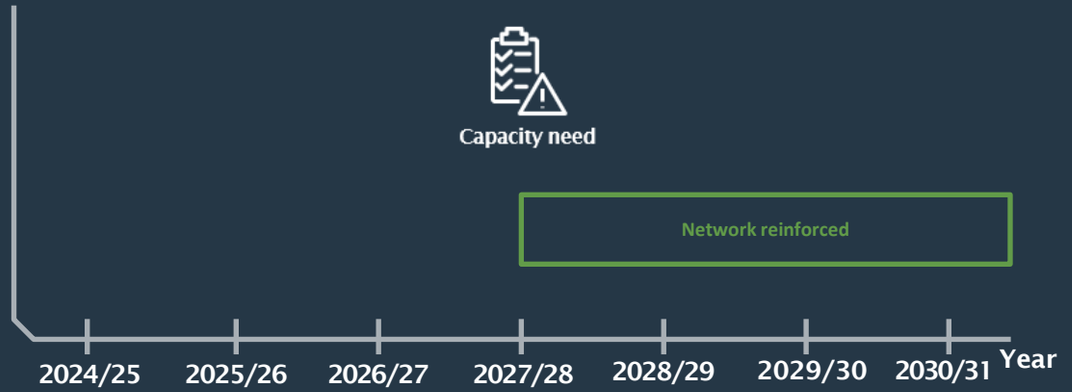
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-(34.11)	-(36.48)	-(39.05)	-(41.42)
ST	-	-	-	-(32.35)	-(33.89)	-(35.64)	-(37.10)
LTW	-	-	-	-(35.51)	-(38.12)	-(41.29)	-(44.08)
FS	-	-	-	-(31.96)	-(33.31)	-(34.80)	-(36.19)

Constraint management timeline



South Buckinghamshire (Denham BSP) Ref. 0724-35

Scheme description

- This reinforcement will increase capacity in the south Buckinghamshire area. Postcodes: HP(7-9), RG31, SL(0-3), SL6, SL9, UB8, UB9, WD3.
- Load related – substation and circuits overload during SCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers and circuits.
- The upgrade ensures the compliance of Denham and West Hyde BSPs for SCO conditions and accommodates future demand growth at Denham BSP to 2050. Flexibility was determined not to be suitable to defer reinforcement due to assets being near end of life.
- Releases 90MVA of capacity.

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability : N/A
- Utilisation : N/A

Reinforcement timeline

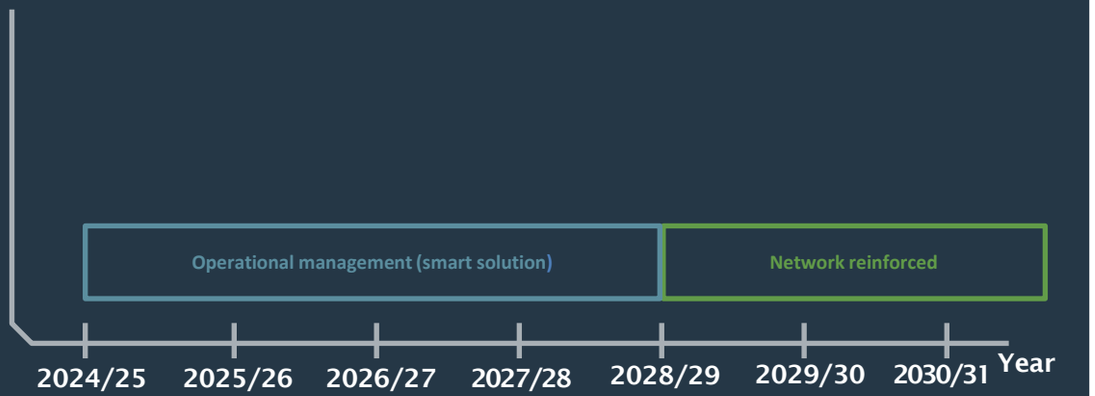
- Substation will be operationally managed to ensure compliance, until reinforcement delivery.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	22.8	24.1	26	14.8	- (17)	- (19.1)	- (21.7)
ST	23.2	25.5	26.5	14.3	- (15.2)	- (16.1)	- (17.1)
LTW	26.2	30	32.3	21.8	- (24.2)	- (27.4)	- (30.7)
FS	21.3	21.8	22.4	10	- (10.6)	- (11.2)	- (11.9)

Constraint management timeline



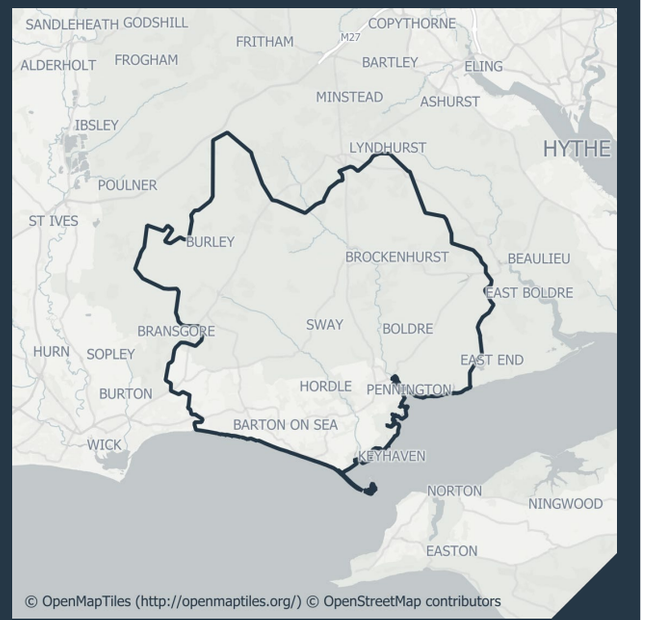
South Hampshire (Arnewood BSP) Ref. 0724-36

Scheme description

- This reinforcement will increase capacity in South Hampshire. Postcodes: BH1, BH2, BH4, BH8, BH(15-17), BH(23-25), DT1, DT11, PO31, RH14, SO14, SO17, SO21, SO(40-45), SO51, SO52, SP3, SP5, SP6, TW18.
- Load related – substation overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers.
- Ensures compliance of Arnewood BSP. Using flexibility to defer the reinforcement was investigated through CEM and found to be uneconomical.
- Capacity released: 52MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

	2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment					

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

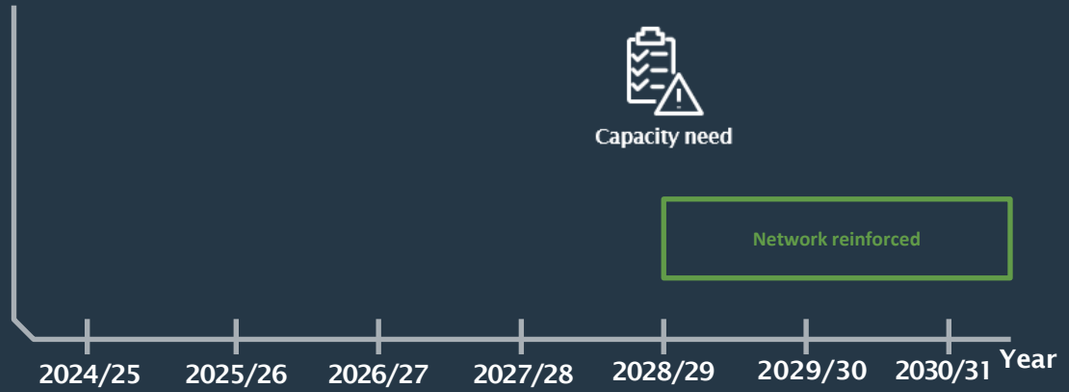
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	0	- (2.96)	- (6.67)
ST	-	-	-	-	-	-	-
LTW	-	-	-	1.83	- (4.87)	- (8.72)	- (12.64)
FS	-	-	-	-	-	-	-

Constraint management timeline



Uxbridge (Uxbridge PSS)

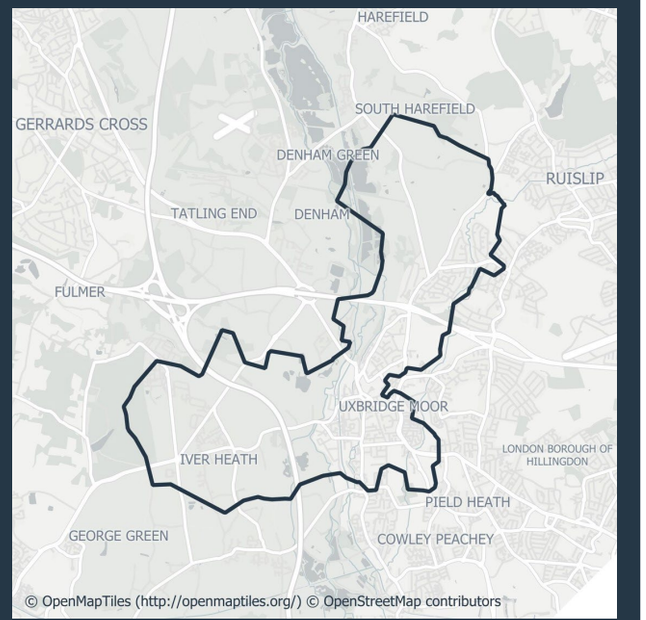
Ref. 0724-37

Scheme description

- Uxbridge primary substation is in the London Borough of Hillingdon, Northwest London. Postcode(s): SL0, UB8, UB9, UB10.
- Load related – Thermal overloading of substation under intact conditions due to forecasted demand growth in the area.

Proposed option

- Asset solutions: Reinforcement by replacing existing assets with three new higher capacity transformers. Three new 40MVA 66/11kV transformers will be installed.
- This option addresses the thermal issues at Uxbridge primary substation and is the only technically and economically viable long-term solution. Flexible solution was determined to be uneconomical by the CEM tool.
- Capacity released: 20.2MVA



System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

	2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment					

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

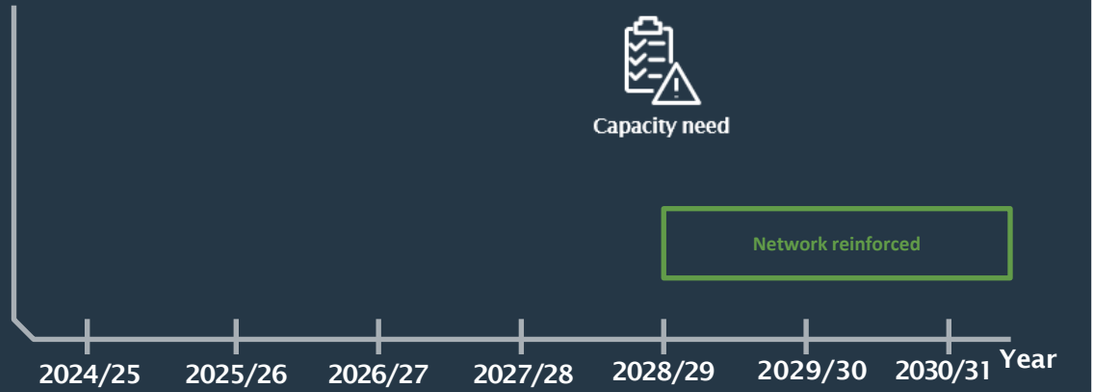
- Substation will be operationally managed to ensure compliance, until reinforcement delivery.
- Reinforcement delivery by 2028/29.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	-	-	-	-	-	- (0.57)	- (3.10)
ST	-	-	-	-	-	-	- (0.21)
LTW	-	-	-	-	-	- (2.59)	- (5.61)
FS	-	-	-	-	-	-	-

Constraint management timeline



Winchester (Winchester BSP)

Ref. 0724-38

Scheme description

- Winchester Bulk Supply Point supplies Winchester and the area to the west of the city. Postcode(s): SP5, SO20, SO21, SO22, SO23, S051.
- Fault level related – Fault level issue arises on the 33kV busbar, caused by forecasted generation growth.

Proposed option

- Asset solution to establish a new 33kV indoor double busbar.
- Flexibility solution is not utilised as it cannot be used to defer/prevent the fault level issue.
- This option offers a long-term solution to the fault level issue at the Winchester 33kv busbar, facilitating large-scale customer connections and downstream network reinforcement.
- Capacity released: N/A

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

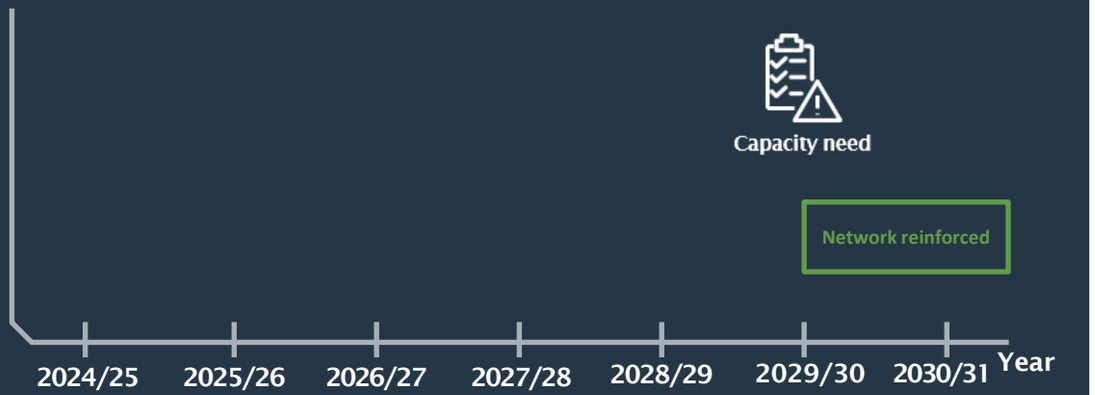
- Reinforcement delivery by 2029/30.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ST	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LTW	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FS	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Constraint management timeline



Wimbourne Minster (Wimbourne PSS) Ref. 0724-39

Scheme description

- This reinforcement will increase capacity in the Wimbourne Minster area. Postcodes: BA8, BH1, BH5, BH9, BH14, BH18, BH(20-24), BH31, DT4, PO18, RG41, SO21, SO41.
- Load related – substation overload in FCO conditions due to forecasted demand growth.

Proposed option

- Asset solutions: installation of new transformers.
- Ensures compliance for Wimbourne primary substation and sets up future works. Use of flexibility was determined not to be viable in this area due its availability falling short of the required amount needed.
- Capacity released: 12.2MVA

System need requirement

J	F	M	A	M	J	J	A	S	O	N	D

DNOA History

2024/25	2025/26	2026/27	2027/28	2028/29
Initial assessment				

Indicative flexibility price (if available):

- Availability: N/A
- Utilisation: N/A

Reinforcement timeline

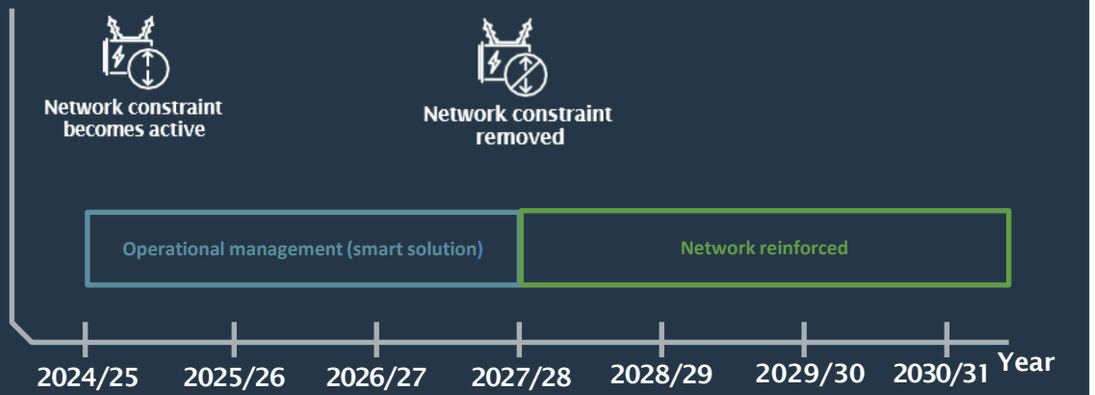
- Substation will be operationally managed to ensure compliance, until reinforcement delivery.
- Reinforcement delivery by 2027/28.

Estimated peak MW outside firm network capacity under each scenario

Grey text relates to estimated peak MW without reinforcement delivery

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
CT	1.4	2.1	2.9	- (3.7)	- (4.7)	- (5.8)	- (7.1)
ST	0.9	1.3	1.7	- (2.1)	- (2.5)	- (3)	- (3.6)
LTW	1.9	2.8	3.8	- (4.9)	- (5.9)	- (7.3)	- (8.7)
FS	0.8	1.1	1.5	- (1.9)	- (2.2)	- (2.6)	- (3)

Constraint management timeline



Engaging with our stakeholders

Listening to our stakeholders

We have engaged with a range of stakeholders throughout the process of refreshing our DSO strategy in October 2023. Ranging from flexibility providers to the ESO and Local Authorities, we have captured the voices of relevant stakeholders on our future plans and defined our priorities based on their preferences.

The key activities and insights that have fed into our DNOA methodology include:

- Engaging with stakeholders on transparency and assurance and gaining their insights on managing uncertainty in our decision-making and how stakeholders want to be involved in our processes.
- We outlined our ambition to embed strategic investment in our strategy and the benefits of it as part of the DSO strategy and heard from our stakeholders about focusing on delivering network visibility, identifying system needs, transparent options assessment and whole system planning.

What are we planning to do in the future?

SSEN is focused on delivering for the communities we serve and doing our part to ensure a just energy transition.

We understand that any evolution of electricity market governance arrangements must serve the needs of all stakeholders and customers, including the most vulnerable.

At every stage of development, we are taking time and care to consider how any changes to the way we manage the electricity distribution system may impact the most vulnerable in our society. We encourage community stakeholders to engage with us in this process, which has the potential to deliver savings for all customers, including vulnerable customers and communities, while also driving the journey towards net zero.

We will annually refresh our DNOA methodology document and publish the outcomes of the DNOA process at least twice a year. We look to get stakeholders' input on our overall DNOA process as well as the level of detail and the granularity we provide in the DNOA outcome reports.

Want to know more?

Topic	Last update
Forecasting the future of our network. Link to our DFES report	Updated annually
Network capacity information and constraints Link	NDR Updated bi-annually NHR and LTDs Updated annually
Local area energy planning support. Sign-up to LENZA	Onboarding of Local Authorities is ongoing
Flexibility tenders and documents. Link	Updated periodically
Outcomes of our DNOA process	Published periodically'

Glossary

Term	Description
Aggregators	A new type of energy service provider which can increase or moderate the electricity consumption of a group of consumers according to total electricity demand on the grid.
BSP	Bulk Supply Point.
CMZ	Constraint Managed Zones . These zones make use of technologies providing flexibility to alleviate network constraints, deploying them as an alternative to traditional network reinforcement in the management of peak demand.
Data triage	Systematically find issues which should inhibit open data, identify the 'least impact' mitigation technique(s) and make the process transparent.
Decarbonisation	Reducing the carbon intensity in terms of emissions per unit of electricity generated.
DER	Distributed Energy Resources. Any resource on the distribution system that produces or stores electricity. This can include distributed generation, storage, heat pumps and electric vehicles as well as other technologies.
Digital System Map/ Digital Twin	A digital representation of a real-world entity or system.
DNO	Distribution Network Operator
DNOA	Distribution Network Options Assessment
DSO	Distribution Systems Operator. The directorate within SSEN that supports a more flexible network operation. Uniquely placed to ensure simple and consistent access to new markets for our active customers through maximising the utilisation of our existing electrical and communication networks.
DSOAB	DSO Advisory Board
DSAP	Digital Strategy and Action Plan
ESO	Electricity System Operator. The electricity system operator for Great Britain, making sure that Great Britain has the essential energy it needs by ensuring supply meets demand.
FCO	First Circuit Outage. Conditions following loss of a circuit from the intact network.
FSO	Future System Operator. Ofgem intend to set up an expert, independent FSO with responsibilities across both the electricity and gas systems and the ability to expand its remit to additional energy vectors when needed. The FSO will be in the public sector, with operational independence from government.
GDN	Gas Distribution Network
GSP	Grid Supply Point
GW	Gigawatt
HV	High Voltage
IDNO	Independent Distribution Network Operator
kWh	Kilowatt hour

Term	Description
LAEP	Local Area Energy Plan. A data-driven and whole energy system, evidence-based approach that sets out to identify the most effective route for the local area to contribute towards meeting the national net zero target, as well as meeting its local net zero target.
LCT	Low Carbon Technologies
LENZA	Local Energy net zero Accelerator. SSEN's tool for supporting local authority LAEPs.
LEO(N)	Local Energy Oxfordshire (Neighbourhood)
LTDS	Long Term Development Statements. Designed to help to identify and evaluate opportunities for entering into arrangements with us relating to use of system or connection.
LV	Low Voltage
MW	Megawatt
NDP	Network Development Plan
NeRDA	Near Real-Time Data Access
NIA	Network Innovation Allowance
NMF	Neutral Market Facilitator will provide a market for trading use of Distributed Energy Resources (DERs).
Open Data	Data in a machine-readable format that can be freely used, shared and built on by anyone, anywhere, for any purpose.
PSS	Primary Substation
RIIO-ED2	Current price control for Electricity Distribution (2023-2028)
RESP	Regional Energy Strategic Planner.
SCO	Second Circuit Outage. Loss of a circuit during the event of an already planned or unplanned network outage,
SEPD	Southern Electric Power Distribution
SHEPD	Scottish Hydro Electric Power Distribution
SIF	Strategic Innovation Fund
SME	Small Medium Size Enterprise
SSEN	Scottish and Southern Electricity Networks
TO	Transmission Owner
TOM	Target Operating Model
VFES	Vulnerability Future Energy Scenarios
VIVID	Vulnerability Identification Via Informative Data

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