



SSEN Distribution

DNOA OUTCOMES REPORT

May 2025



Scottish & Southern
Electricity Networks

DSO Powering Change

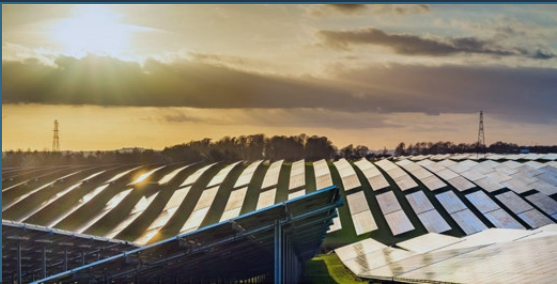


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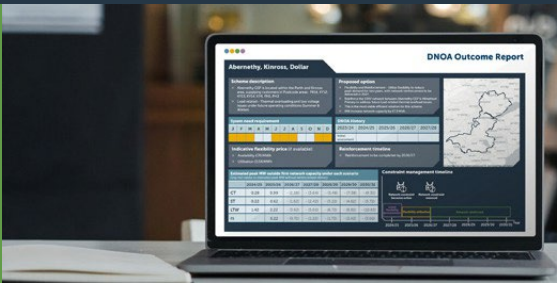
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SHEPD DNOA OUTCOMES

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SEPD DNOA OUTCOMES

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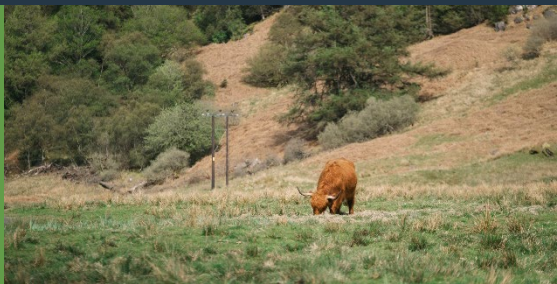
SHEPD DNOA OUTCOMES REVIEW

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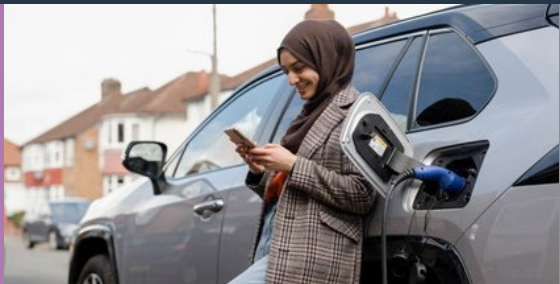
SEPD DNOA OUTCOMES REVIEW

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GLOSSARY

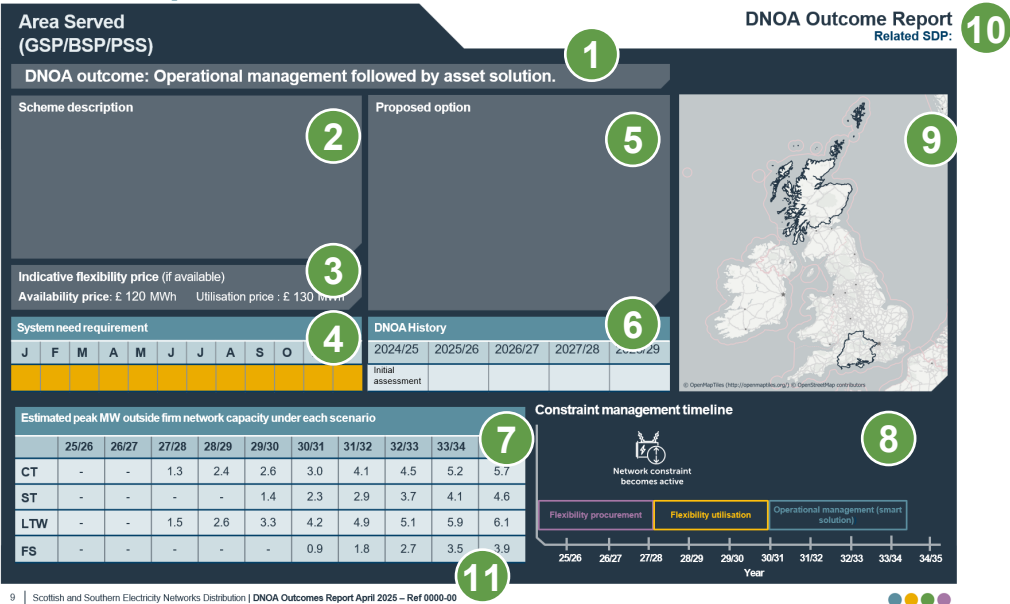
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How to view this report

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



- 1

DNOA outcome:
 - The overall DNOA outcome from the process.
- 2

Scheme description:
 - This section describes the location where a system need has been identified and where capacity is released (if relevant). This is accompanied with indicative postcodes for the customer areas related to this scheme as well as the relevant local authorities.
 - The type of constraint on the network is included.
- 3

Indicative flexibility price:
 - The indicative average flexibility price used in the techno-economic assessment is given in this section where relevant and available. This is typically in a 2020/21 price base.
 - This is given as an availability (£/MWh/h) and utilisation (£/MWh) price.

Proposed option:

- 4

- An outline of the proposed solution option aligned with the defined outcomes in the DNOA methodology. A summary of where the proposed option resolves constraints and for how long is also provided.
 - 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.

System need requirement:

- 5

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

DNOA history:

- 6

- A record of the outcome report status.

Estimated peak MW outside firm capacity:

- 7

- The forecasted exceedance of load over the firm capacity of the relevant area of the network. Numbers in parenthesis indicate exceedance without network reinforcement.

Constraint management timeline:

- 8

- 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.

Scheme map:

- 9

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

Related SDP:

- 10

- The Strategic Development Plan (SDP) which covers the area referred to in the report is noted.

Reference:

- 11

- The reference number for each DNOA outcome report is included in the index on pages 4 – 5.



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 |
|--|--------------------------------|---------------------------|
| Ref. 0525-06 – Cam Loch and Loch Uriguill area (Drumrunie PSS) – Pg.13 | 2027/28-2034/35 (7 years) | IV27 |
| Ref. 0525-09 – North East Inverness (Raigmore PSS) – Pg.16 | 2027/28 – 2029/30 (2 years) | IV1, IV2, IV3 |

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

| DNOA outcome | Capacity increase from | Indicative postcode areas |
|--|------------------------|---------------------------|
| Ref. 0525-01 – Aberdeenshire (Midmar PSS) – Pg.8 | 2029/30 | AB31. AB32. AB34, AB51 |
| Ref. 0525-02 – Achiltibuie (Grudie Bridge GSP) – Pg.9 | 2029/30 | IV26 |
| Ref. 0525-03 – Ardnamurchan (Salen 2 PSS) – Pg.10 | 2028/29 | PH36 |
| Ref. 0525-04 – Arran (33kV) (Brodick and Machrie PSSs) – Pg.11 | 2027/28 | KA27 |
| Ref. 0525-05 – Broadford (Drynoch PSS and Lower Ollach PSS – New Site) – Pg.12 | 2027/28 | IV42, IV49, IV54 |
| Ref. 0525-07 – Dornoch (Dornoch PSS) – Pg.14 | 2029/30 | IV24, IV25 |
| Ref. 0525-08 – Laxay (Laxay PSS) – Pg.15 | 2028/29 | HS1 |



Index of DNOA outcomes - SEPD

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

| DNOA outcome | Flexibility utilisation period | Indicative postcode areas |
|---|--------------------------------|------------------------------|
| Ref. 0525-14 – Selsey (Selsey PSS) – Pg.25 | 2032/33 -2034/35 (2 years) | PO16, PO18, PO19, PO20, PO21 |
| Ref. 0525-15 - South Chippenham (Rowden PSS) – Pg.26 | 2027/28 -2029/30 (2 years) | BA13, SN8, SN13, SN14, SN15 |
| Ref. 0525-18 - Whitchurch (Whitchurch PSS) – Pg.33 | 2032/33 - 2034/35 (2 years) | RG28, SP11 |
| Ref. 0525-19 - Wiltshire (Netherhampton PSS) – Pg.34 | 2029/30 - 2030/31 (2 years) | SP1 - SP5 |
| Ref. 0525-20 - Wiltshire (Salisbury GSP, Netherhampton PSS) – Pg.35 | 2028/29 - 2029/30 (1 year) | SP1, SP2, SP4, SP5, SP9. |

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

| DNOA outcome | Capacity increase from | Indicative postcode areas |
|--|------------------------|--|
| Ref. 0525-10 - Chippenham (Chippenham PSS) – Pg.21 | 2027/28 | SN4, SN11, SN13-16, GL8 |
| Ref. 0525-11 - Crickdale - Minety (Crickdale PSS & Minety Village PSS) – Pg.22 | 2028/29 | GL7, SN4, SN5, SN6, SN16 |
| Ref. 0525-12 - Felpham (South Bersted PSS) – Pg.23 | 2031/32 | PO21, PO22 |
| Ref. 0525-13 - Malmesbury (Chippenham BSP 33kV ring network) – Pg.24 | 2030/31 | GL8, SN14, SN15, SN16 |
| Ref. 0525-16 - Southampton and Winchester (Nursling GSP) – Pg.27 | 2030/31 | BH23, BH31, SO14-24, SO30-32, SO40-45, SO50-53, SP11, SP3, SP5 |
| Ref. 0525-17 - Whitchurch (33kV circuits feeding Whitchurch PSS) – Pg.28 | 2030/31 | RG28, SP11 |



Cricklade - Minety (Cricklade PSS & Minety Village PSS)

DNOA Outcome Report Related SDP: Minety

DNOA outcome: Asset solution

Scheme description

- The reinforcement of the circuits from Cirencester BSP to Cricklade PSS, and to Minety Village PSS and Kemble RAF PSS will increase capacity in the Cricklade-Minety area. Postcode(s): GL7, SN4, SN5, SN6, SN16.
- Local authority: Cotswold and Wiltshire
- Load related – Circuit voltage issues during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: An additional circuit from Cirencester BSP to Cricklade PSS, two additional circuits from Cirencester BSP to Minety Village PSS, and reconfigure the existing ringed network.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted issues out to 2050.
- Capacity released: 73.3 MVA

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

System need requirement

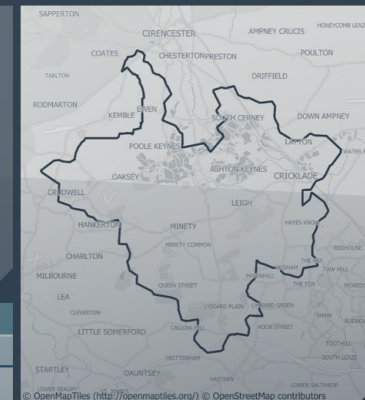
| J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

DNOA History

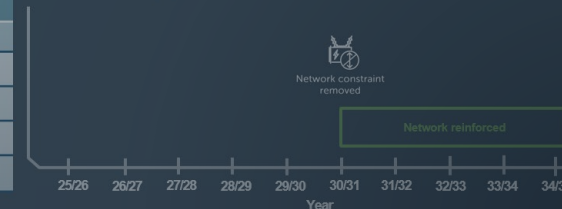
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
|--------------------|---------|---------|---------|---------|
| Initial assessment | | | | |

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |



Constraint management timeline



DNOA OUTCOMES - SHEPD

| Area | Local authority | Number of sites assessed | Percentage of sites situated in vulnerable communities (i.e. classified as very high or high vulnerability) | Percentage of sites recommending flexibility |
|-------|---------------------|--------------------------|---|--|
| SHEPD | Aberdeen City | 56 | 23% | 52% |
| SHEPD | Aberdeenshire | 295 | 36% | 46% |
| SHEPD | Angus | 60 | 52% | 40% |
| SHEPD | Argyll and Bute | 48 | 77% | 21% |
| SHEPD | Clackmannanshire | 1 | 100% | 100% |
| SHEPD | Dundee City | 29 | 55% | 24% |
| SHEPD | Highland | 197 | 78% | 45% |
| SHEPD | Moray | 75 | 65% | 43% |
| SHEPD | Na h-Eileanan Siar | 107 | 55% | 56% |
| SHEPD | North Ayrshire | 3 | 67% | 67% |
| SHEPD | Orkney Islands | 20 | 75% | 25% |
| SHEPD | Perth and Kinross | 126 | 58% | 46% |
| SHEPD | Shetland Islands | 9 | 67% | 11% |
| SHEPD | Stirling | 29 | 52% | 24% |
| SHEPD | West Dunbartonshire | 3 | 100% | 67% |



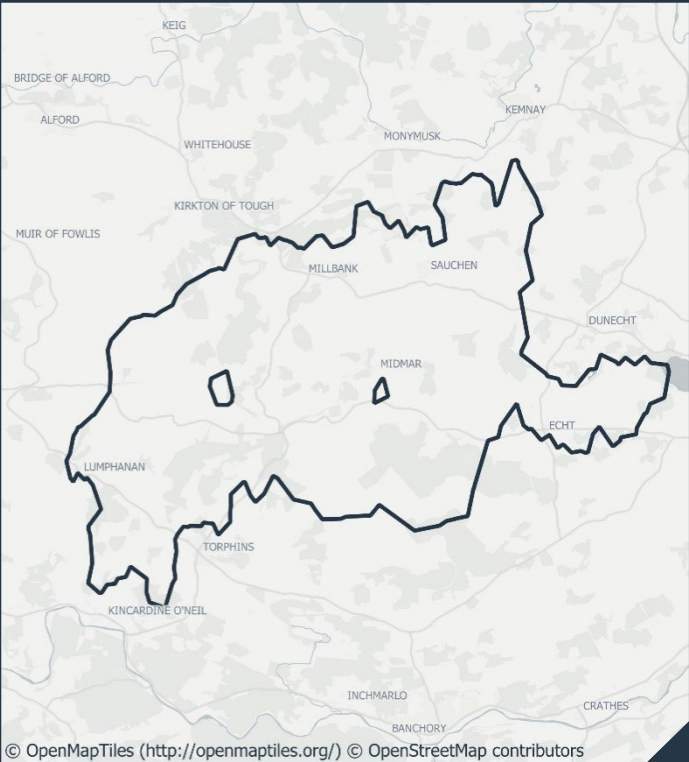
DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Midmar PSS will increase capacity in the Aberdeenshire area. Postcode(s): AB31, AB32, AB34, AB51.
- Local authority: Aberdeenshire
- Load related – substation thermal overload issues during intact conditions due to forecasted demand growth.

Proposed option

- Smart Solution/Asset Solution: Replace the existing transformer with a larger unit and add another transformer to provide redundancy for 33kV FCO.
- Flexibility was unable to be utilised due to insufficient flexible assets.
- This option addresses the forecasted thermal overload at Midmar PSS out to 2050.
- Capacity released: 3.13MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

System need requirement

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

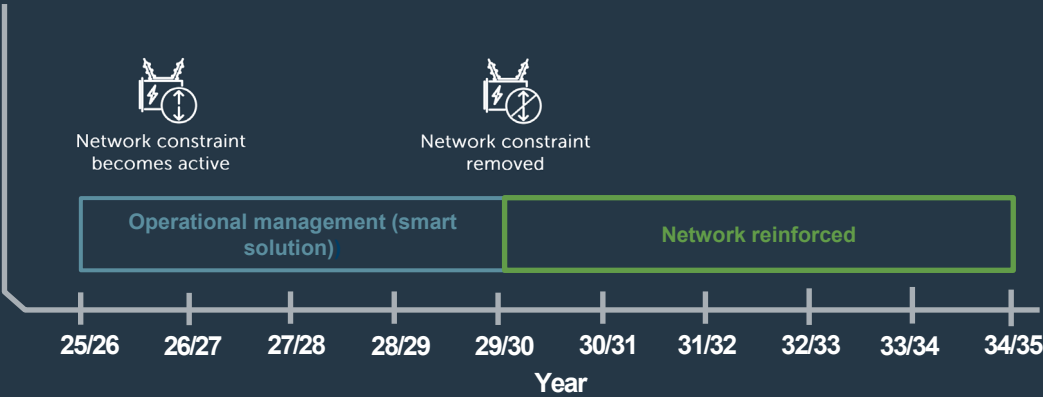
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| CT | 0.32 | 0.47 | 0.63 | 0.82 | (1.03) | (1.19) | (1.29) | (1.39) | (1.49) | (1.60) |
| ST | 0.23 | 0.34 | 0.44 | 0.52 | (0.67) | (0.78) | (0.92) | (1.03) | (1.14) | (1.26) |
| LTW | 0.43 | 0.54 | 0.65 | 0.76 | (0.89) | (1.04) | (1.13) | (1.23) | (1.34) | (1.43) |
| FS | 0.18 | 0.24 | 0.29 | 0.35 | (0.42) | (0.49) | (0.58) | (0.66) | (0.75) | (0.84) |

Constraint management timeline



DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Grudie Bridge GSP will increase capacity in the Achiltibuie area. Postcode(s): IV26.
- Local authority: Highland Council
- Load related – voltage issues during intact condition due to forecasted demand growth.

Proposed option

- Asset Solution: Installation of two 4MVar STATCOMs at Achiltibuie PSS.
- Flexibility is unavailable due to insufficient flexibility assets.
- This option addresses the forecasted voltage issues at Grudie Bridge GSP.
- Capacity released: 1.43 MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

System need requirement

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

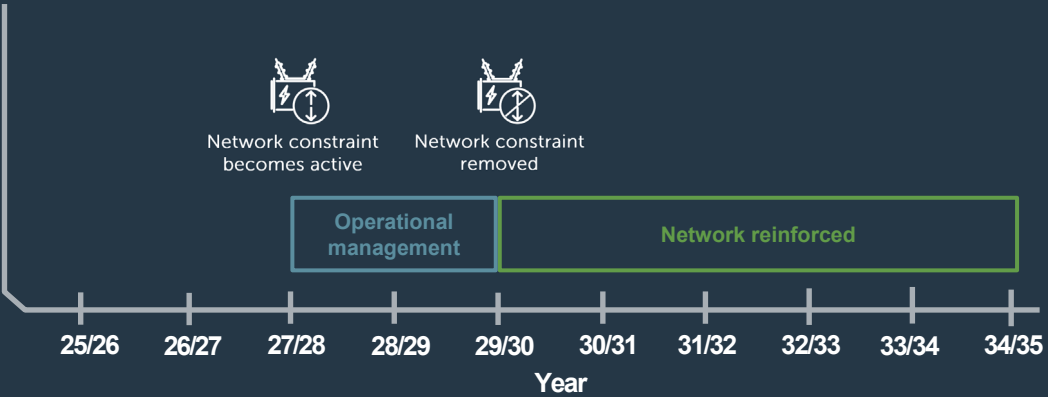
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|---------|--------|--------|--------|--------|--------|
| CT | - | - | 0.01 | 0.02 | (0.02) | (0.03) | (0.04) | (0.05) | (0.06) | (0.07) |
| ST | - | - | - | - | (0.001) | (0.01) | (0.01) | (0.02) | (0.03) | (0.04) |
| LTW | - | - | 0.01 | 0.02 | (0.03) | (0.04) | (0.04) | (0.06) | (0.06) | (0.07) |
| FS | - | - | - | - | - | - | (0.03) | (0.01) | (0.01) | (0.02) |

Constraint management timeline

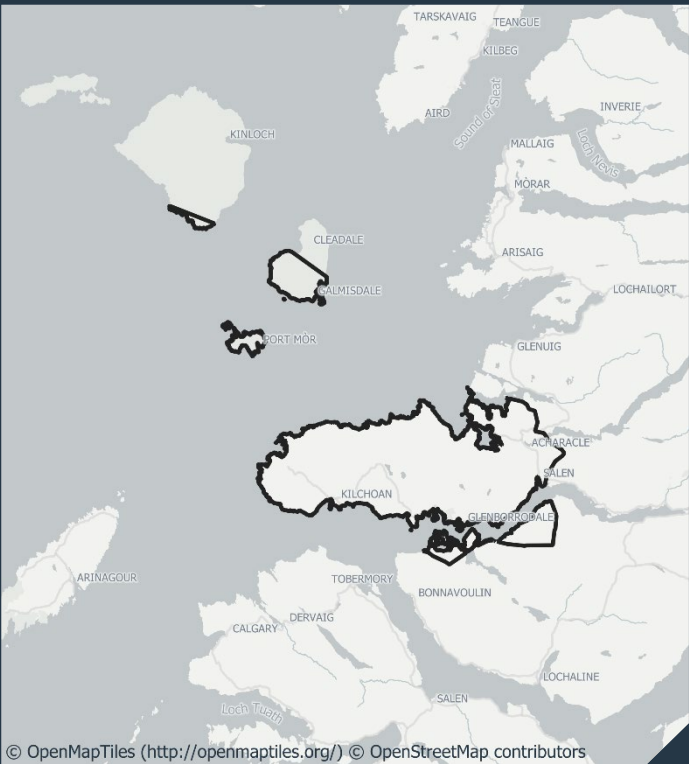


Scheme description

- The reinforcement of the Salen 2 PSS will increase capacity in the Ardnamurchan peninsula area. Postcode(s): PH36.
- Local authority: Highland Council
- Load related – substation thermal overload issues during network intact conditions, with additional increased resilience requirements due to forecasted demand growth.

Proposed option

- Smart/Asset Solution: Reinforcement of 33/11kV transformer at Salen PSS, and installation of a new primary substation near Loch Mudle.
- Flexibility was unable to be utilised due to network resilience requirements.
- This option addresses the forecasted thermal overload at Salen 2 PSS out to 2050.
- Capacity released: 0.65MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h **Utilisation price :** £ N/A /MWh

System need requirement

[illegible]

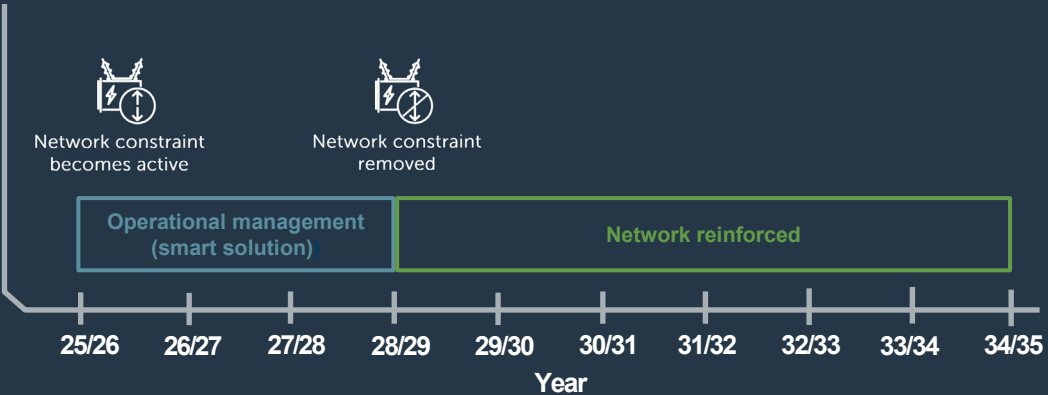
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| CT | 0.43 | 0.53 | 0.63 | (0.73) | (0.73) | (0.83) | (0.93) | (0.93) | (1.03) | (1.03) |
| ST | 0.43 | 0.43 | 0.43 | (0.43) | (0.53) | (0.53) | (0.63) | (0.63) | (0.73) | (0.73) |
| LTW | 0.53 | 0.53 | 0.63 | (0.63) | (0.73) | (0.83) | (0.93) | (0.93) | (1.03) | (1.13) |
| FS | 0.33 | 0.43 | 0.43 | (0.43) | (0.43) | (0.53) | (0.53) | (0.53) | (0.63) | (0.63) |

Constraint management timeline



Arran 33kV circuits (Brodick, Whiting Bay and Machrie PSSs)

DNOA Outcome Report

Related SDP: Port Ann and Carradale

DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Brodick and Machrie PSSs will increase capacity in the Arran area. Postcode(s): KA27.
- Local authority: North Ayrshire Council
- Load related – substation thermal overload during FCO conditions and voltage issues during both intact and FCO conditions due to forecasted demand growth.

Proposed option

- Smart Solution/ Asset Solution: Construction of a new switching station at Brodick PSS including voltage regulating assets and the installation of a second primary transformer at Machrie PSS.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted thermal overload at Machrie PSS and the local voltage issues at Brodick and Whiting Bay PSSs into ED3 (2029-2031).
- Capacity released: 4.46MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h **Utilisation price :** £ N/A /MW/h

System need requirement

[illegible]

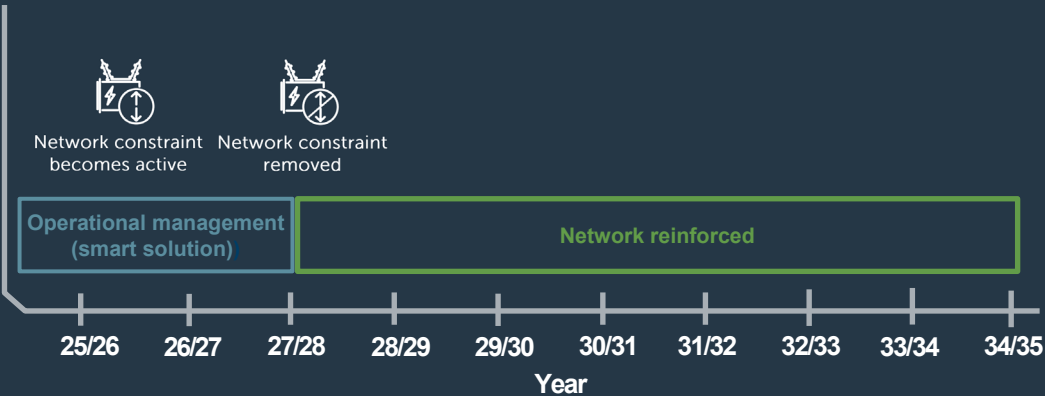
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| CT | 0.21 | 0.34 | (0.48) | (0.59) | (0.71) | (0.82) | (0.91) | (1.03) | (1.16) | (1.26) |
| ST | 0.10 | 0.09 | (0.12) | (0.15) | (0.20) | (0.25) | (0.31) | (0.39) | (0.47) | (0.57) |
| LTW | 0.27 | 0.33 | (0.43) | (0.52) | (0.65) | (0.80) | (0.91) | (1.03) | (1.15) | (1.26) |
| FS | 0.09 | 0.08 | (0.11) | (0.15) | (0.19) | (0.23) | (0.28) | (0.34) | (0.40) | (0.47) |

Constraint management timeline



DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Lower Ollach and Drynoch PSSs will increase capacity in the Highlands and Islands area. Postcode(s): IV42, IV49, IV54.
- Local authority: Highland
- Load related – substation thermal overload and voltage issues during intact conditions due to forecasted demand growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

| System need requirement | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|
| J | F | M | A | M | J | J | A | S | O | N | D |
| | | | | | | | | | | | |

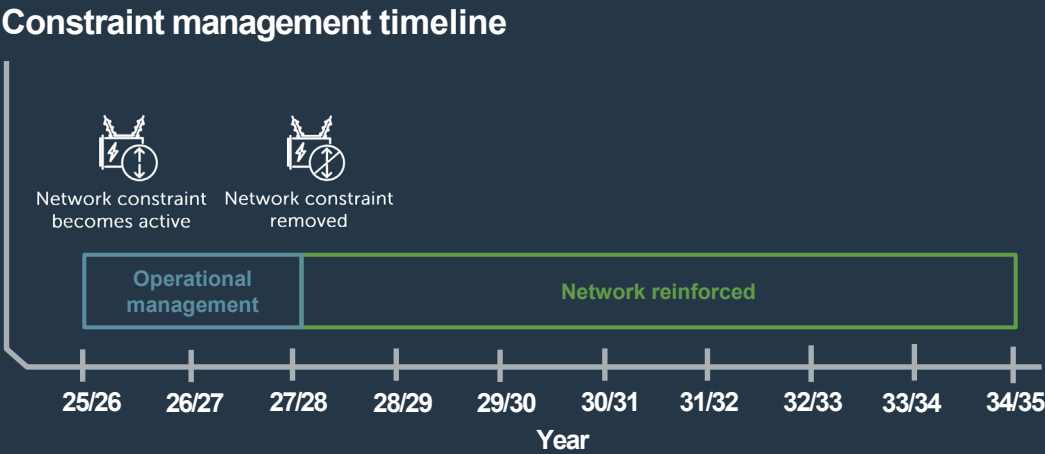
Proposed option

- Smart Solution/Asset Solution: Build a new 4MVA primary substation at Sconser. Reinforce and reconfigure the 11kV network to fix the voltage and thermal issues.
- Flexibility was unable to be utilised due to insufficient flexible assets.
- This option addresses the forecasted thermal overload and voltage issues beyond 2033 (end of ED3). Additional reinforcement of the 11kV network is required within and beyond ED3 for a constraint-free network up to at least 2050.
- Capacity released: 0.05MVA

| DNOA History | | | | |
|--------------------|---------|---------|---------|---------|
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
| Initial assessment | | | | |



| Estimated peak MW outside firm network capacity under each scenario | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |



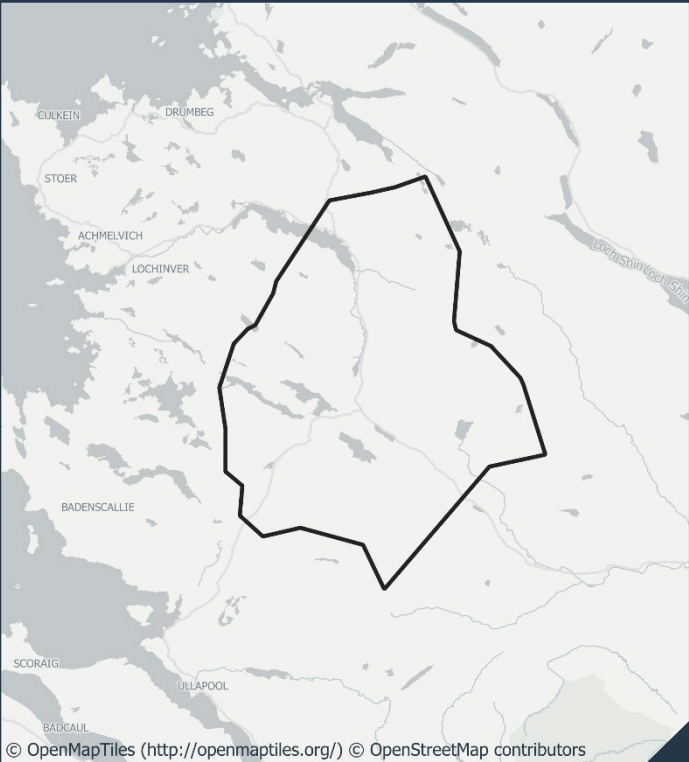
DNOA outcome: Flexibility

Scheme description

- The flexibility utilisation for Drumrunie PSS will increase capacity in the Cam Loch and Loch Uriguill area. Postcode(s): IV27.
- Local authority: Highland
- Load related – substation thermal overload during intact conditions due to forecasted demand growth.

Proposed option

- Flexibility: The peak load is expected to go above the transformer capacity in 2028, flexibility utilisation was found to be the most economic proposal.
- This option addresses the forecasted thermal overload issues at Drumrunie PSS out to 2035.
- Capacity released through flexibility: 0.007MVA by end of ED2, up to 0.068MVA by end of 2035.



Indicative flexibility price (if available)

Availability price: £ 108 /MW/h Utilisation price : £ 133 /MW/h

System need requirement

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

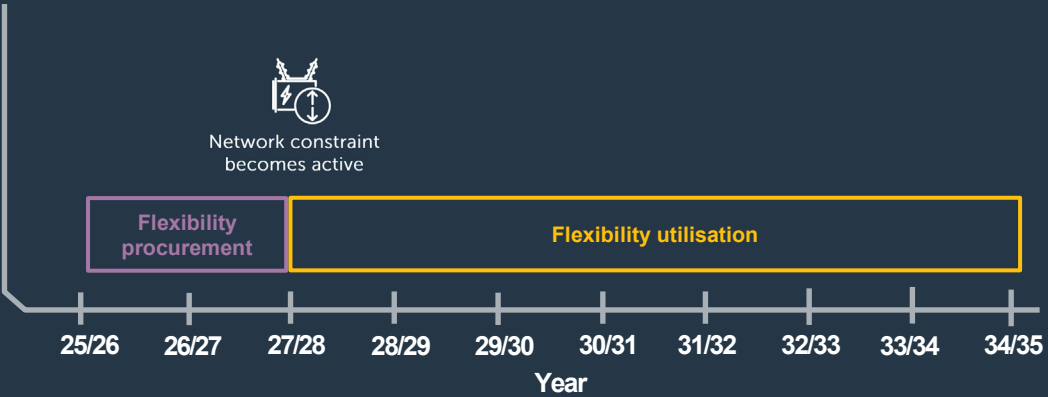
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 |
| ST | - | - | - | - | 0.00 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 |
| LTW | - | - | 0.01 | 0.02 | 0.03 | 0.04 | 0.04 | 0.06 | 0.06 | 0.07 |
| FS | - | - | - | - | - | - | 0.00 | 0.01 | 0.01 | 0.02 |

Constraint management timeline



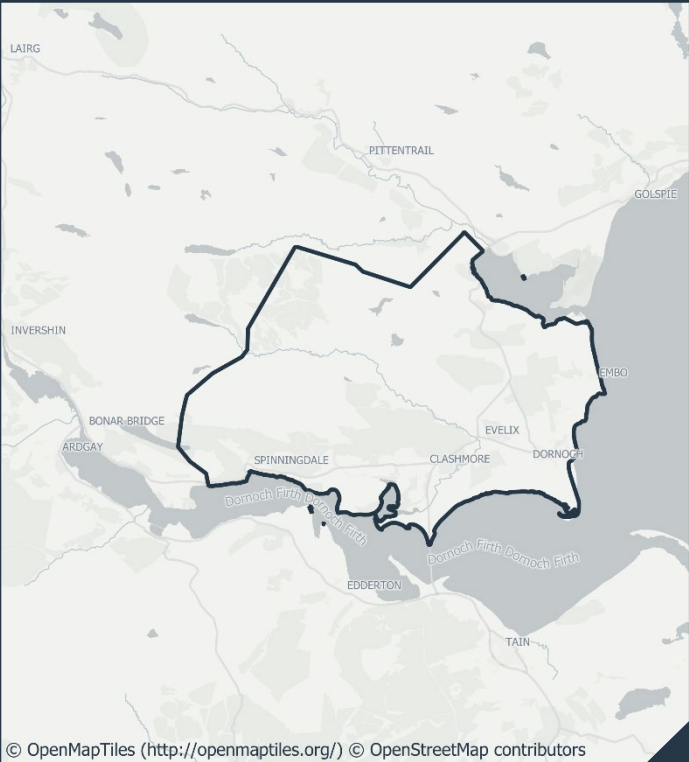
DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Dornoch PSS will increase capacity in the Dornoch area. Postcode(s): IV24, IV25.
- Local authority: Highland Council
- Load related – substation thermal overload issues during network intact conditions due to forecasted demand growth.

Proposed option

- Asset Solution: Installation of an additional 1 x 8MVA primary substation approximately 1km from the original site.
- Flexibility was unable to be utilised due to forecasted insufficient flexible assets.
- This option addresses the forecasted demand growth at Dornoch PSS out to 2035.
- Capacity released: 1.96MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

System need requirement

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

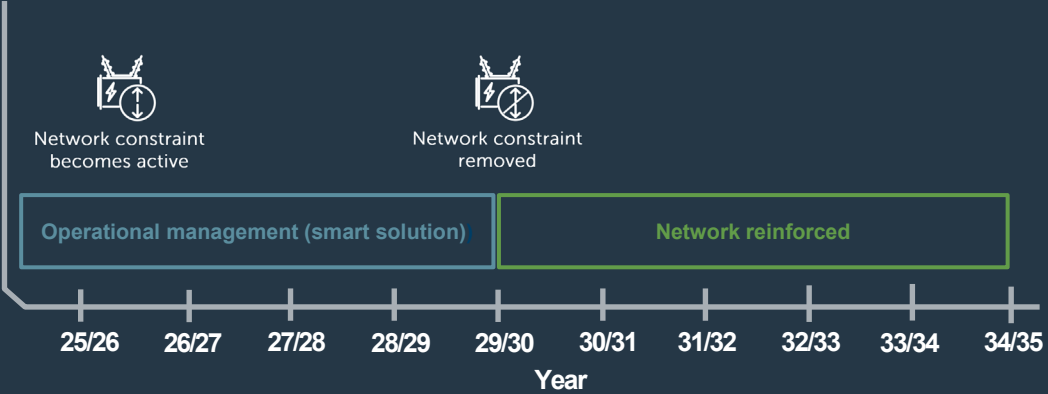
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| CT | 0.97 | 1.16 | 1.36 | 1.58 | (1.87) | (2.05) | (2.14) | (2.22) | (2.30) | (2.40) |
| ST | 0.84 | 0.96 | 1.07 | 1.17 | (1.34) | (1.44) | (1.53) | (1.63) | (1.74) | (1.87) |
| LTW | 1.09 | 1.27 | 1.48 | 1.72 | (2.03) | (2.26) | (2.36) | (2.46) | (2.57) | (2.67) |
| FS | 0.70 | 0.79 | 0.86 | 0.94 | (1.04) | (1.13) | (1.21) | (1.30) | (1.40) | (1.50) |

Constraint management timeline



DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of Laxay PSS will increase capacity in the Laxay area. Postcode(s): HS1.
- Local authority: Na h-Eileanan Siar
- Load related – substation thermal overload during FCO conditions due to forecasted demand growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

Proposed option

- Asset Solution: Upgrade the existing transformer and install an additional transformer at Laxay PSS. Install a 33kV board at Laxay PSS and extend a 33kV circuit from Stornoway to establish a second 33kV supply to Laxay PSS. Install a new 11kV board and reinforce the 11kV network at Laxay PSS.
- Flexibility could not be used as it does not address specific security of supply issues.
- This option addresses the forecasted thermal issues at Laxay PSS out to 2050.
- Capacity released: 3.8 MVA



System need requirement

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

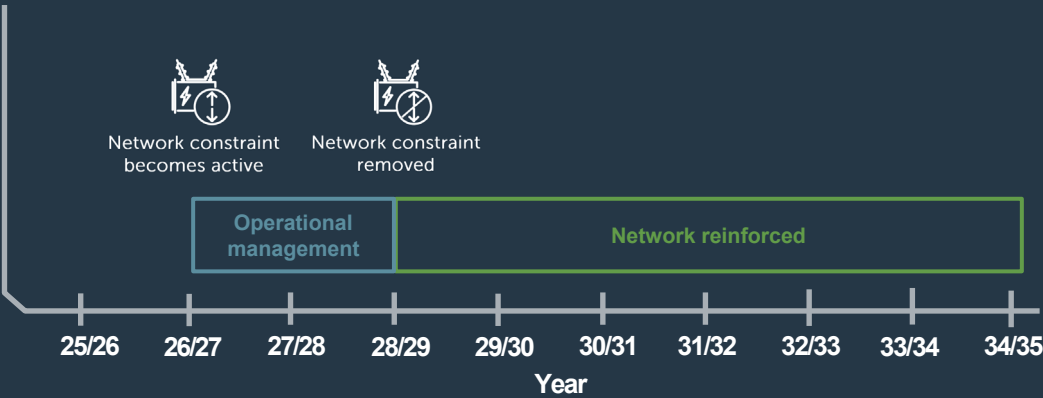
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|--------|--------|--------|---------|---------|---------|---------|
| CT | - | - | 2.23 | (4.56) | (6.93) | (8.98) | (10.51) | (12.26) | (14.24) | (16.11) |
| ST | - | - | - | (0.35) | (1.88) | (3.13) | (4.79) | (6.36) | (8.26) | (10.32) |
| LTW | - | 0.56 | 2.59 | (4.63) | (7.01) | (9.26) | (11.00) | (12.80) | (14.89) | (16.89) |
| FS | - | - | - | - | - | (0.95) | (2.18) | (3.46) | (4.89) | (6.39) |

Constraint management timeline



DNOA outcome: Flexibility followed by asset solution.

Scheme description

- The reinforcement of the Raigmore PSS will increase capacity in the Northeast Inverness area. Postcode(s): IV1, IV2, IV3.
- Local authority: Highland
- Load related – substation thermal overload during FCO conditions due to forecasted demand growth.

Indicative flexibility price (if available)

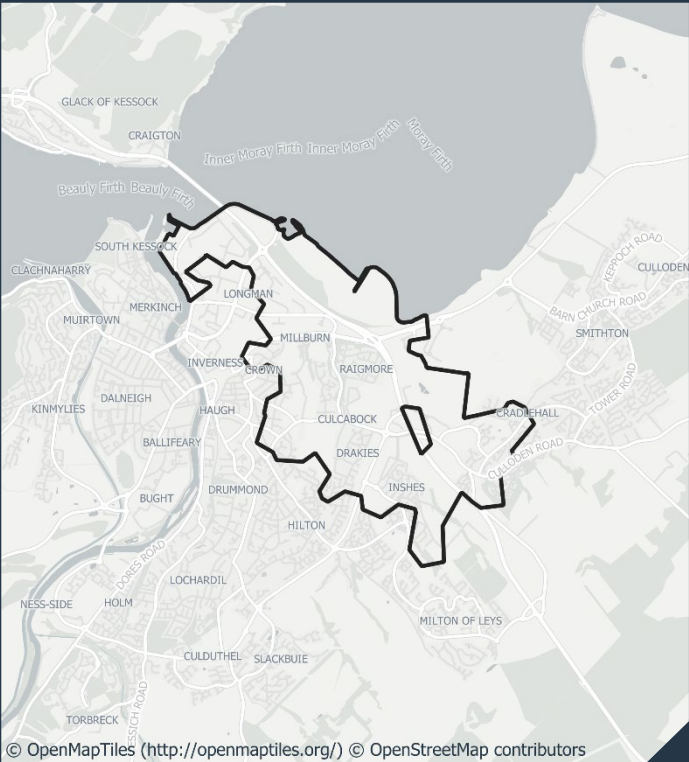
Availability price: £ 123 /MW/h Utilisation price : £ 169 /MWh

System need requirement

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

Proposed option

- Flexibility/Asset Solution: Build a new PSS with new shared 33kV circuits to Raigmore PSS and the new PSS to decrease the load on Raigmore PSS.
- This option addresses the forecasted thermal overload at Raigmore PSS out to 2050.
- Capacity released: 34MVA



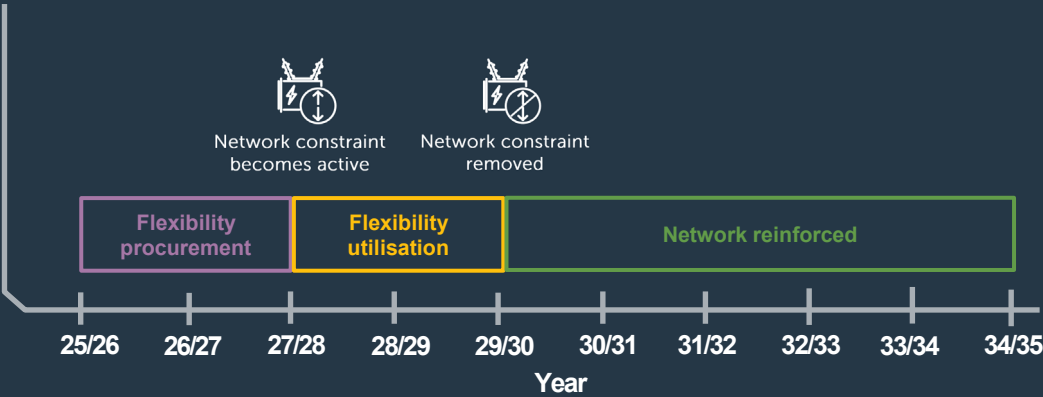
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|---------|---------|---------|---------|---------|---------|
| CT | - | - | 0.55 | 1.13 | (1.97) | (2.63) | (3.33) | (3.99) | (4.62) | (5.31) |
| ST | 6.20 | 6.77 | 7.31 | 7.66 | (8.39) | (8.83) | (9.34) | (10.07) | (10.93) | (11.93) |
| LTW | 12.91 | 13.55 | 14.25 | 15.15 | (16.25) | (17.37) | (18.31) | (19.33) | (20.38) | (21.39) |
| FS | - | - | - | - | - | - | - | - | - | (0.12) |

Constraint management timeline





Cricklade - Minety (Cricklade PSS & Minety Village PSS)

DNOA Outcome Report Related SDP: Minety

DNOA outcome: Asset solution

Scheme description

- The reinforcement of the circuits from Cirencester BSP to Cricklade PSS, and to Minety Village PSS and Kemble RAF PSS will increase capacity in the Cricklade-Minety area. Postcode(s): GL7, SN4, SN5, SN6, SN16.
- Local authority: Cotswold and Wiltshire
- Load related – Circuit voltage issues during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: An additional circuit from Cirencester BSP to Cricklade PSS, two additional circuits from Cirencester BSP to Minety Village PSS, and reconfigure the existing ringed network.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted issues out to 2050.
- Capacity released: 73.3 MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

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 | | | | |

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA OUTCOMES - SEPD

| Area | Local authority | Number of sites assessed | Percentage of sites situated in vulnerable communities (i.e. classified as very high or high vulnerability) | Percentage of sites recommending flexibility |
|------|-------------------------------------|--------------------------|---|--|
| SEPD | Arun | 30 | 57% | 57% |
| SEPD | Basingstoke and Deane | 99 | 15% | 46% |
| SEPD | Bournemouth, Christchurch and Poole | 49 | 53% | 47% |
| SEPD | Bracknell Forest | 30 | 10% | 67% |
| SEPD | Buckinghamshire | 99 | 15% | 61% |
| SEPD | Cherwell | 40 | 30% | 53% |
| SEPD | Chichester | 98 | 43% | 48% |
| SEPD | Cotswold | 53 | 25% | 45% |
| SEPD | Dorset | 274 | 77% | 46% |
| SEPD | Ealing | 12 | 8% | 58% |
| SEPD | East Hampshire | 130 | 18% | 52% |
| SEPD | Eastleigh | 32 | 19% | 31% |
| SEPD | Elmbridge | 1 | 0% | 100% |
| SEPD | Fareham | 38 | 26% | 79% |
| SEPD | Gosport | 3 | 33% | 67% |
| SEPD | Guildford | 22 | 27% | 68% |
| SEPD | Hart | 64 | 9% | 42% |
| SEPD | Havant | 31 | 58% | 48% |



| Area | Local authority | Number of sites assessed | Percentage of sites situated in vulnerable communities (i.e. classified as very high or high vulnerability) | Percentage of sites recommending flexibility |
|------|-------------------|--------------------------|---|--|
| SEPD | Hillingdon | 16 | 38% | 44% |
| SEPD | Horsham | 27 | 4% | 59% |
| SEPD | Hounslow | 14 | 0% | 57% |
| SEPD | Isle of Wight | 97 | 78% | 44% |
| SEPD | New Forest | 137 | 76% | 53% |
| SEPD | Oxford | 12 | 17% | 58% |
| SEPD | Portsmouth | 5 | 40% | 80% |
| SEPD | Reading | 15 | 13% | 53% |
| SEPD | Runnymede | 7 | 29% | 43% |
| SEPD | Rushmoor | 15 | 0% | 67% |
| SEPD | Slough | 11 | 0% | 73% |
| SEPD | Somerset | 91 | 55% | 53% |
| SEPD | South Oxfordshire | 97 | 21% | 63% |
| SEPD | Southampton | 7 | 57% | 43% |
| SEPD | Spelthorne | 11 | 0% | 82% |
| SEPD | Surrey Heath | 26 | 8% | 46% |
| SEPD | Swindon | 43 | 35% | 37% |
| SEPD | Hillingdon | 16 | 38% | 44% |



| Area | Local authority | Number of sites assessed | Percentage of sites situated in vulnerable communities (i.e. classified as very high or high vulnerability) | Percentage of sites recommending flexibility |
|------|------------------------|--------------------------|---|--|
| SEPD | Test Valley | 98 | 34% | 40% |
| SEPD | Vale of White Horse | 91 | 9% | 46% |
| SEPD | Waverley | 81 | 4% | 53% |
| SEPD | West Berkshire | 81 | 12% | 49% |
| SEPD | West Oxfordshire | 79 | 27% | 32% |
| SEPD | Wiltshire | 350 | 46% | 54% |
| SEPD | Winchester | 110 | 21% | 41% |
| SEPD | Windsor and Maidenhead | 38 | 5% | 55% |
| SEPD | Wokingham | 60 | 10% | 47% |



DNOA outcome: Asset solution

Scheme description

- The reinforcement of the Chippenham BSP will increase capacity in the Chippenham area. Postcode(s): SN4, SN11, SN13-16, GL8.
- Local authority: Wiltshire
- Load related – substation fault level issues during intact conditions due to forecasted generation growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

System need requirement

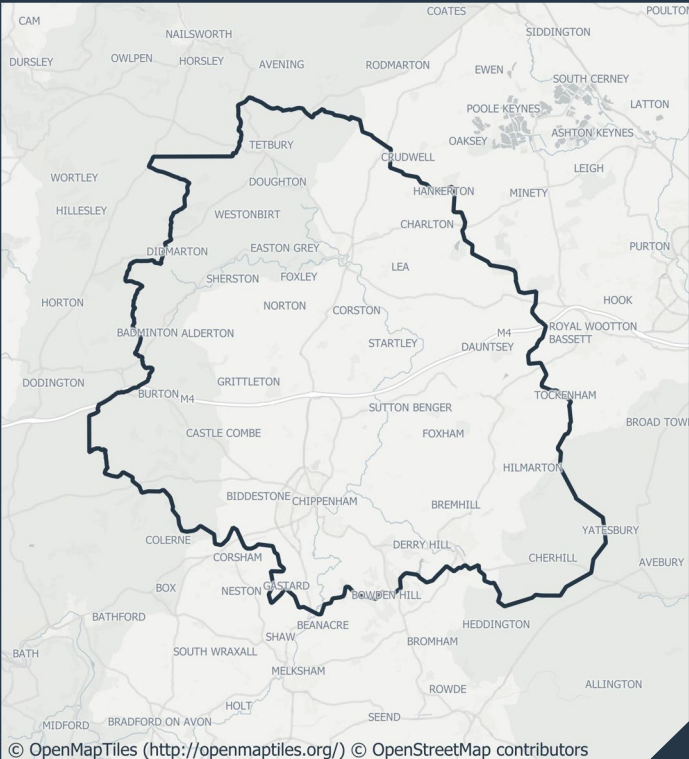
| J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

Proposed option

- Asset Solution: New gas insulated switchboard at Chippenham BSP.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted fault level and land constraint related issues at Chippenham BSP out to 2050.

DNOA History

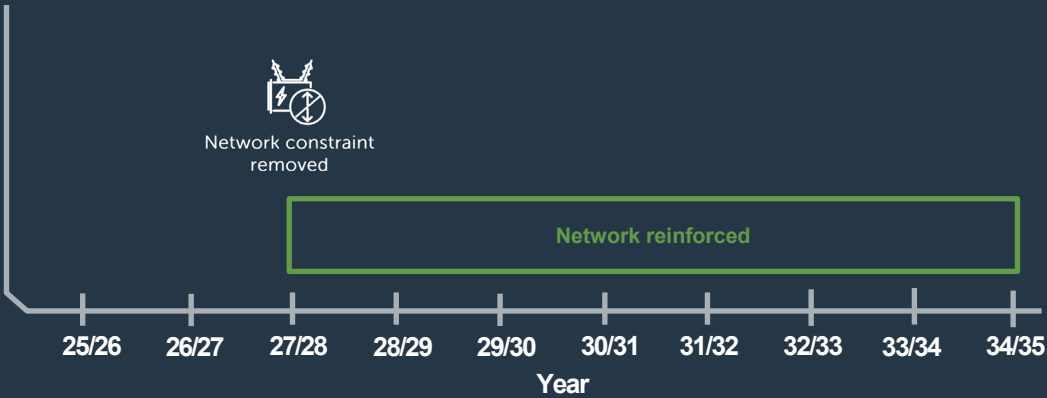
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
|--------------------|---------|---------|---------|---------|
| Initial assessment | | | | |



Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



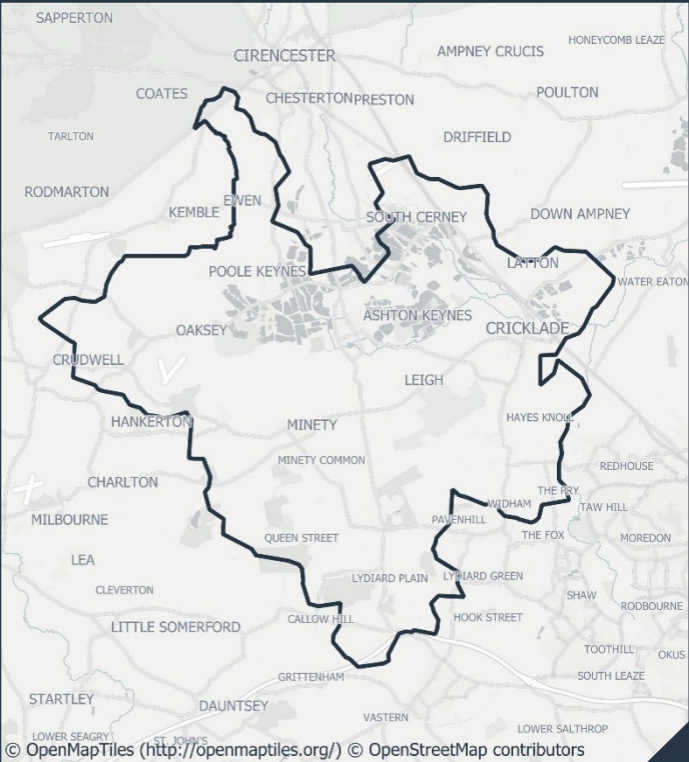
DNOA outcome: Asset solution

Scheme description

- The reinforcement of the circuits from Cirencester BSP to Cricklade PSS, and to Minety Village PSS and Kemble RAF PSS will increase capacity in the Cricklade-Minety area. Postcode(s): GL7, SN4, SN5, SN6, SN16.
- Local authority: Cotswold and Wiltshire
- Load related – Circuit voltage issues during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: An additional circuit from Cirencester BSP to Cricklade PSS, two additional circuits from Cirencester BSP to Minety Village PSS, and reconfigure the existing ringed network.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted issues out to 2050.
- Capacity released: 73.3 MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

System need requirement

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

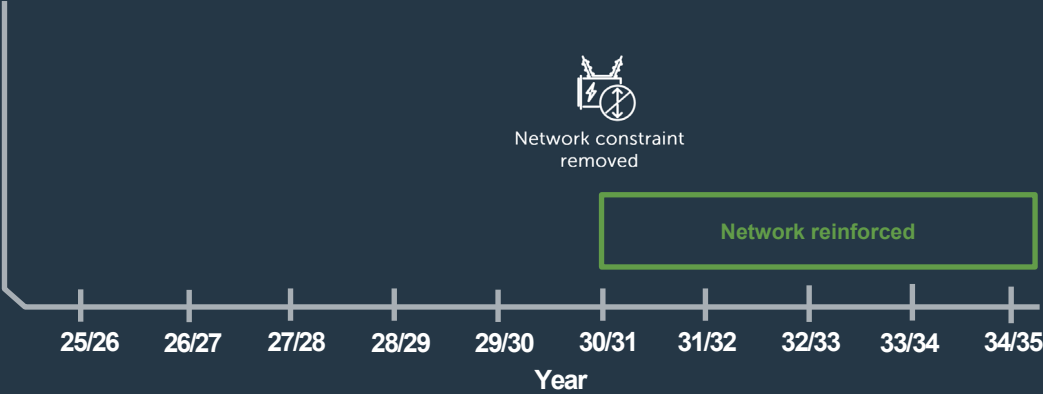
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA outcome: Asset solution

Scheme description

- The addition of the Chalcraft Lane PSS will increase capacity in the Felpham and South Bersted area. Postcode(s): PO21, PO22.
- Local authority: Arun
- Load related – substation thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: Construction of a new primary substation at Chalcraft Lane PSS. Installation of two 20/40MVA transformers, dual 33kV circuit from Shripney switching station, and 11kV switchgear.
- Flexibility was not utilised as the CEM output showed that it was uneconomical to defer reinforcement.
- This option addresses the forecasted thermal overload at South Bersted PSS out to 2050.
- Capacity released: 40MVA



Indicative flexibility price (if available)

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

System need requirement

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

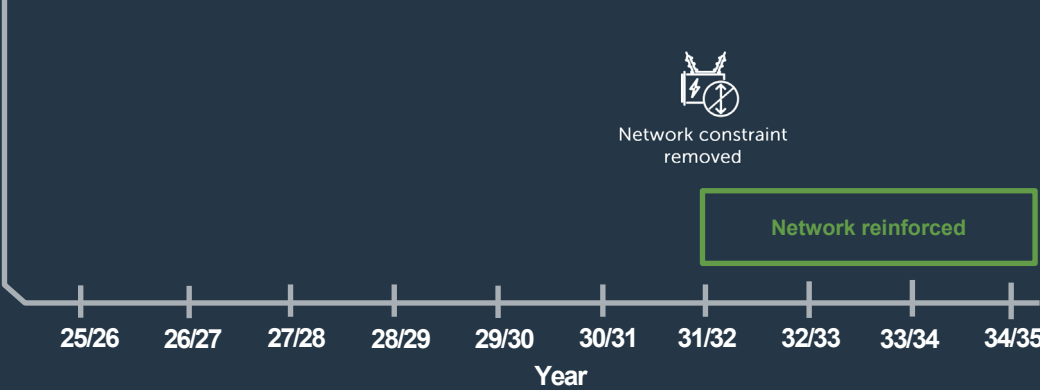
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| CT | - | - | - | - | - | - | (0.55) | (2.44) | (3.70) | (5.19) |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | 0.41 | (2.17) | (3.99) | (5.53) | (6.60) |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA outcome: Asset solution

Scheme description

- The reinforcement of the 33kV circuits supplying the Alderton ring will increase capacity in the Malmesbury area. Postcode(s): GL8, SN14, SN15, SN16.
- Local authority: Cotswold, Wiltshire
- Load related – Security of supply restoration issues during FCO conditions and voltage issues due to forecasted demand growth.

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

System need requirement

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

Estimated peak MW outside firm network capacity under each scenario

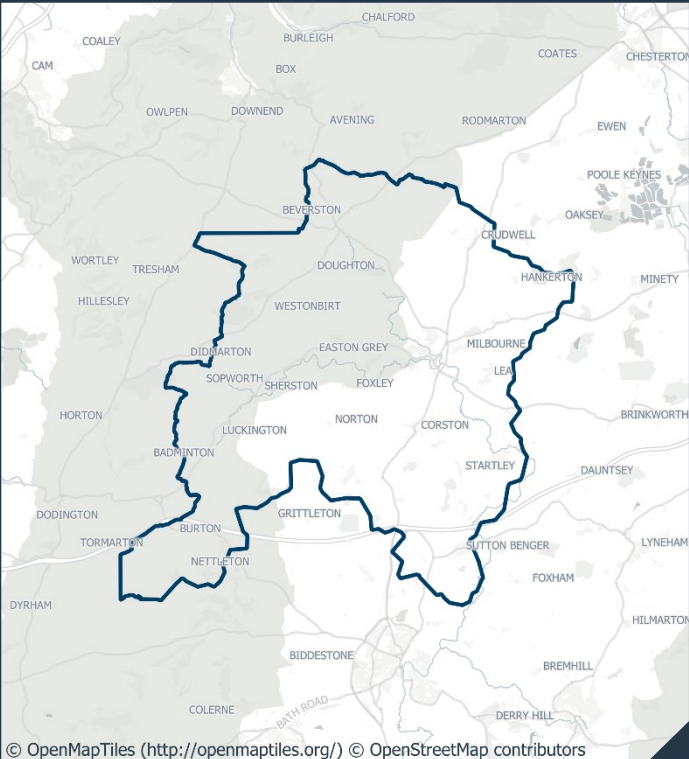
| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Proposed option

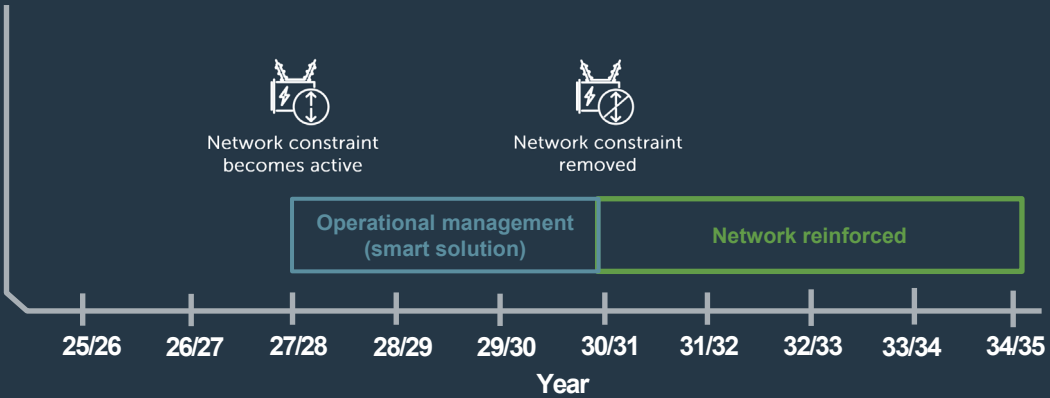
- Asset Solution: Build two new circuits, the first between Yatton Keynell PSS and Alderton PSS to resolve the security of supply issue. The second between Chippenham BSP and Sutton Benger PSS to resolve voltage issues under an FCO condition.
- Flexibility was unable to be utilised as it is not suitable for the constraint type.
- This option addresses the forecasted security of supply issues at Chippenham BSP out to 2050.
- Capacity released: 57.8MVA

DNOA History

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



Constraint management timeline



DNOA outcome: Flexibility services followed by asset solution

Scheme description

- The reinforcement of the Selsey PSS will increase capacity in the Selsey area. Postcode(s): PO16, PO18, PO19, PO20, PO21.
- Local authority: West Sussex
- Load related – substation thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility/Asset Solution: Flexibility solution to defer reinforcement for two years, followed by an asset solution. Addition of a third 33/11kV transformer at Selsey PSS.
- This option addresses the forecasted thermal overload at Selsey PSS out to 2043.
- Capacity released: 15 MVA

Indicative flexibility price (if available)

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

System need requirement

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

DNOA History

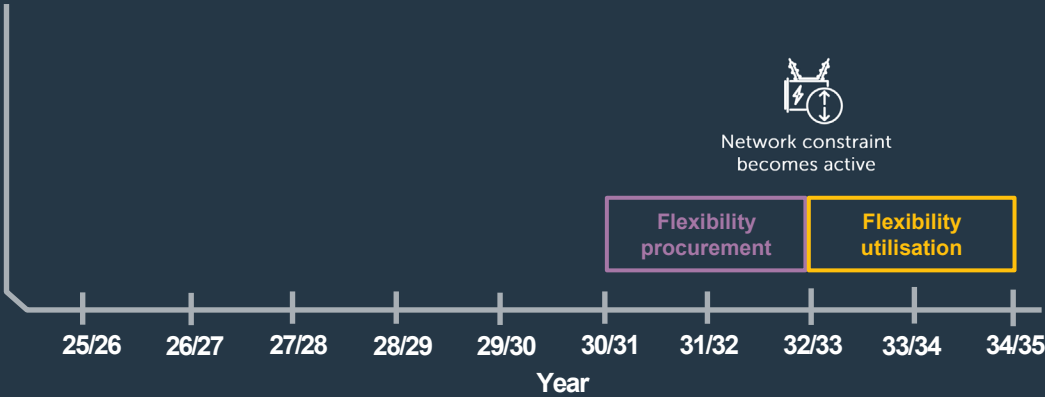
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
|--------------------|---------|---------|---------|---------|
| Initial assessment | | | | |



Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| CT | - | - | - | - | - | - | - | 0.71 | 1.42 | (2.26) |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | 0.69 | 1.57 | 2.43 | (3.01) |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



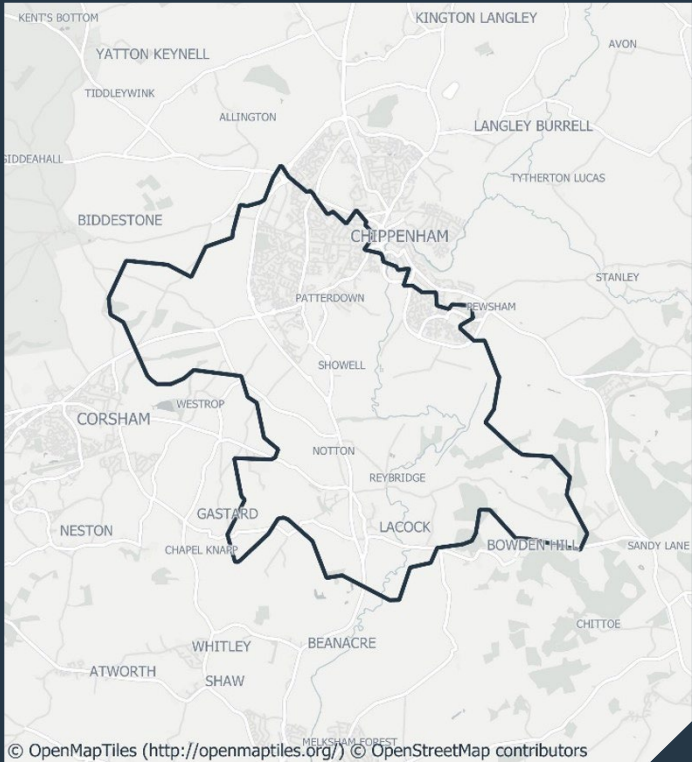
DNOA outcome: Flexibility services followed by asset solution

Scheme description

- The reinforcement of the Rowden PSS will increase capacity in the Chippenham area. Postcode(s): BA13, SN8, SN13, SN14, SN15.
- Local authority: Wiltshire
- Load related – substation and circuit thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility/Asset Solution: Flexibility solution used for two years. Installation of a GIS 33kV busbar at Rowden PSS to enable installation of an additional 33/11kV transformer at Rowden PSS, and an additional 33kV circuit from Chippenham BSP to Rowden PSS.
- This option addresses the forecasted thermal overload at Rowden PSS out to 2050.
- Capacity released: 23 MVA



Indicative flexibility price (if available)

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

System need requirement

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

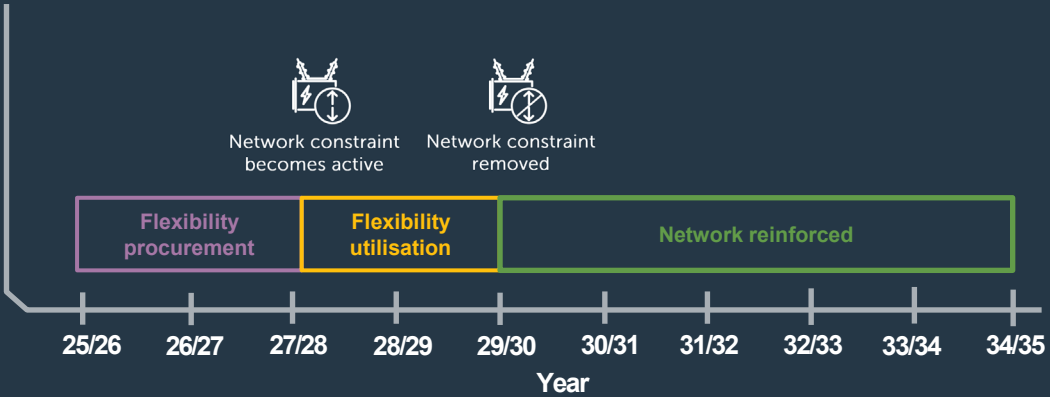
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|--------|--------|--------|--------|---------|---------|
| CT | - | - | 0.83 | 1.75 | (2.76) | (3.96) | (5.73) | (7.44) | (8.93) | (10.54) |
| ST | - | - | - | - | (0.29) | (0.79) | (1.36) | (1.99) | (2.66) | (3.41) |
| LTW | - | 0.13 | 2.14 | 3.24 | (4.56) | (5.98) | (7.57) | (9.20) | (10.86) | (12.09) |
| FS | - | - | - | - | - | (0.34) | (0.89) | (1.47) | (2.12) | (2.75) |

Constraint management timeline



DNOA outcome: Asset solution.

Scheme description

- The reinforcement of the Nursling GSP will increase capacity in the Southampton and Winchester area. Postcode(s): BH23, BH31, SO14-24, SO30-32, SO40-45, SO50-53, SP11, SP3, SP5.
- Local authority: Eastleigh, New Forrest, Southampton, Test Valley, Winchester.
- Load related – substation fault level issue during FCO conditions due to forecasted demand growth

Indicative flexibility price (if available)

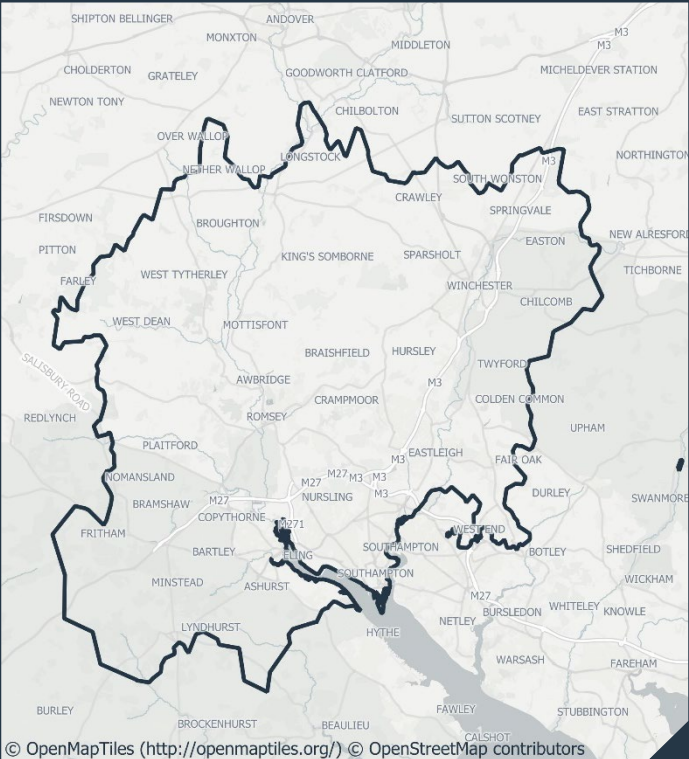
Availability price: £ N/A /MW/h Utilisation price : £ N/A /MWh

| System need requirement | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|
| J | F | M | A | M | J | J | A | S | O | N | D |
| | | | | | | | | | | | |

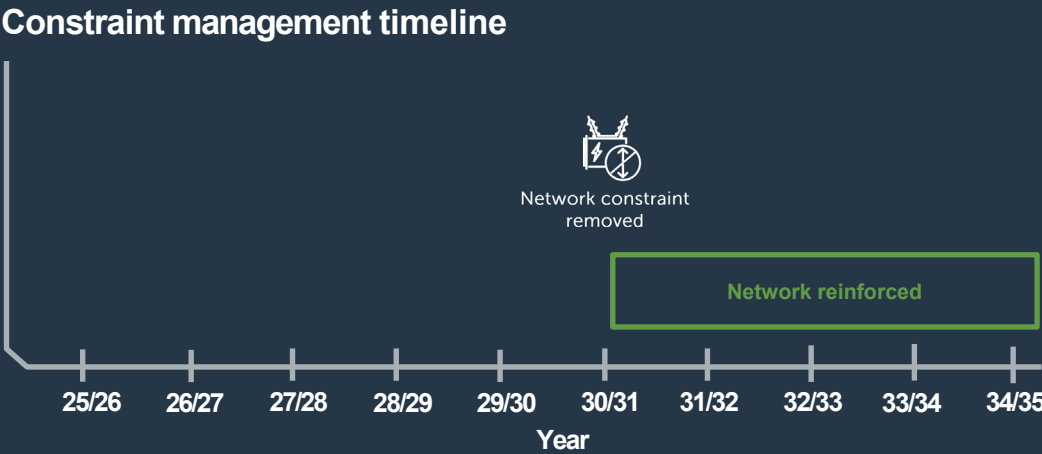
Proposed option

- Asset Solution: Nursling GSP is forecast to exceed the nominal rating of existing plant. To mitigate this, two new indoor GIS switchboards will replace the existing single AIS board.
- Flexibility was unable to be utilised due to not being technically suitable for constraint type.
- This option addresses the forecasted fault level issue at Nursling GSP out to 2050.

| DNOA History | | | | |
|--------------------|---------|---------|---------|---------|
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
| Initial assessment | | | | |



| Estimated peak MW outside firm network capacity under each scenario | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |



Whitchurch

(33kV circuits feeding Whitchurch PSS)

DNOA outcome: Operational management followed by asset solution.

Scheme description

- The reinforcement of the Whitchurch PSS will increase capacity in the Whitchurch area. Postcode(s): RG28, SP11.
- Local authority: Basingstoke and Deane
- Load related – Circuit thermal overload during FCO conditions and voltage issues during both intact and FCO conditions due to forecasted demand growth.

Indicative flexibility price (if available)

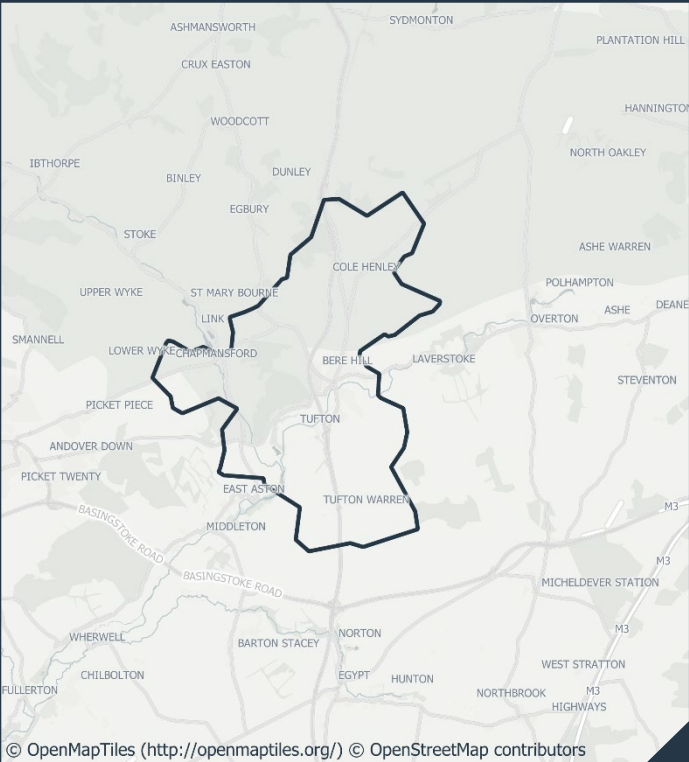
Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

System need requirement

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

Proposed option

- Smart solution / Asset solution: New 33kV circuit from Barton Stacey PSS to Whitchurch PSS to resolve security of supply and voltage issues.
- Flexibility was not technically suitable to resolve the security of supply or the voltage issue.
- This option addresses the supply security and voltage issues of the 33kV network supplying Whitchurch and Barton Stacey PSS. Overall solution addresses overloading issues of this circuit up to 2041.
- Capacity released: 27.1 MVA



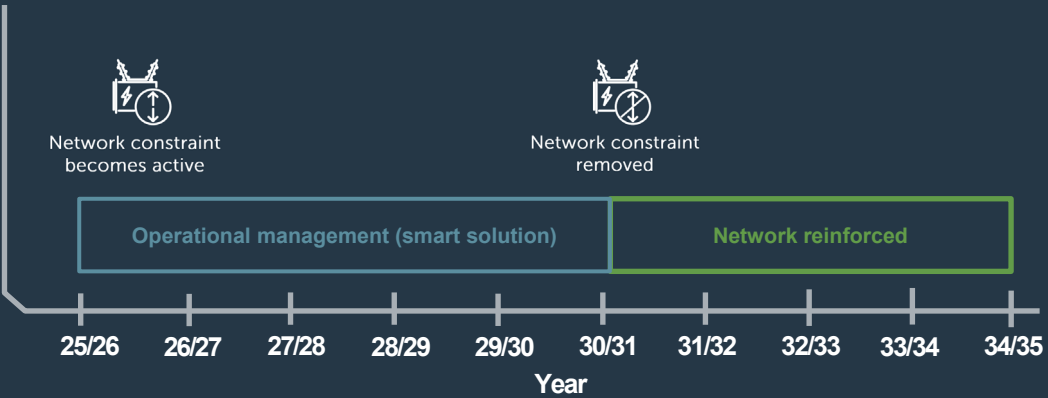
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| CT | 1.20 | 1.37 | 1.56 | 1.73 | 1.91 | (2.14) | (2.49) | (2.83) | (3.12) | (3.45) |
| ST | 1.36 | 1.57 | 1.81 | 2.02 | 2.28 | (2.55) | (2.87) | (3.20) | (3.55) | (3.78) |
| LTW | 1.04 | 1.15 | 1.27 | 1.34 | 1.43 | (1.53) | (1.63) | (1.75) | (1.89) | (2.05) |
| FS | 1.03 | 1.09 | 1.17 | 1.23 | 1.30 | (1.38) | (1.48) | (1.59) | (1.71) | (1.84) |

Constraint management timeline



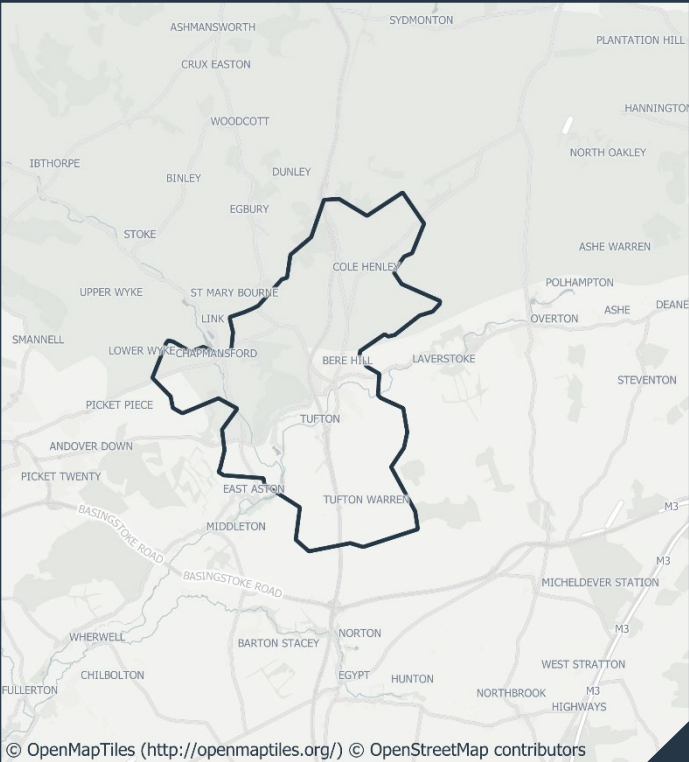
DNOA outcome: Flexibility followed by asset solution.

Scheme description

- The reinforcement of the Whitchurch PSS will increase capacity in the Whitchurch area. Postcode(s): RG28, SP11.
- Local authority: Basingstoke and Deane
- Load related – Substation thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility/Asset Solution: Flexibility used to defer reinforcement for the thermal overload issue by 2 years. Followed by an asset solution: reinforcement of one of the existing primary transformers.
- This option addresses overloading issues at Whitchurch PSS up to 2041.
- Capacity released: 8.5 MVA



Indicative flexibility price (if available)

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

System need requirement

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

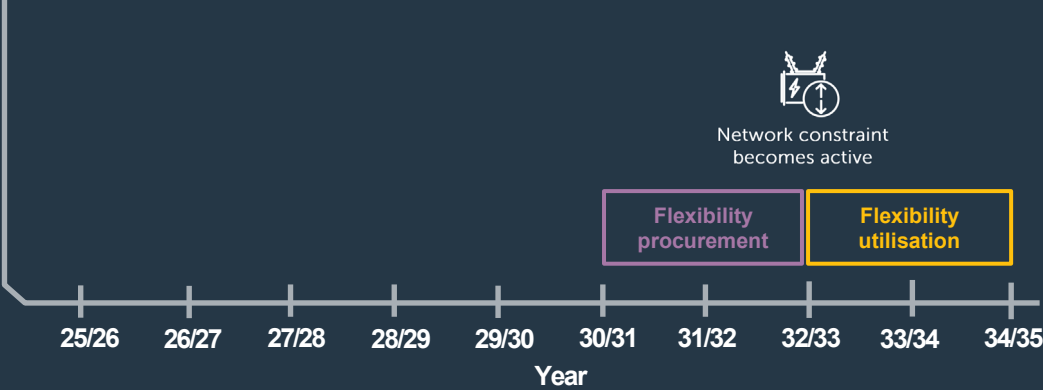
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| CT | - | - | - | - | - | - | - | 0.33 | 0.62 | (0.95) |
| ST | - | - | - | - | - | 0.05 | 0.37 | 0.70 | 1.05 | (1.28) |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA outcome: Flexibility followed by asset solution.

Scheme description

- The reinforcement of the Netherhampton PSS will increase capacity in the Wiltshire area. Postcode(s): SP1 – SP5.
- Local authority: Wiltshire Council
- Load related – substation and circuit thermal overload during FCO conditions due to forecasted demand growth.

Indicative flexibility price (if available)

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

| System need requirement | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|
| J | F | M | A | M | J | J | A | S | O | N | D |
| | | | | | | | | | | | |

Proposed option

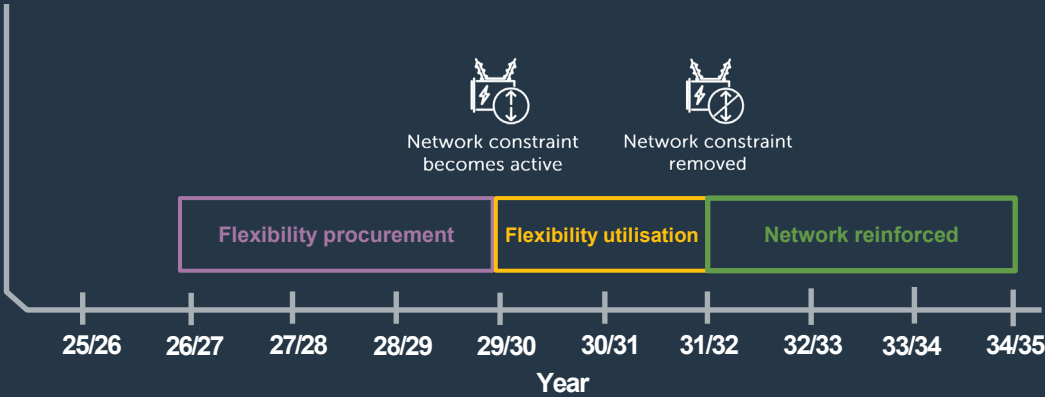
- Flexibility/Asset Solution: Defer reinforcement for two years with flexibility, followed by upgrade of the two Netherhampton 33/11kV transformers.
- This option addresses the forecasted thermal overload issues at Netherhampton PSS out to 2050.
- Capacity released: 17MVA

| DNOA History | | | | | |
|--------------------|---------|---------|---------|---------|--|
| 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | |
| Initial assessment | | | | | |



| Estimated peak MW outside firm network capacity under each scenario | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--|
| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 | |
| CT | - | - | - | - | 0.09 | 0.40 | (0.76) | (0.69) | (0.86) | (1.07) | |
| ST | - | - | - | - | - | - | - | - | - | (0.18) | |
| LTW | - | - | - | - | 0.20 | 0.60 | (0.91) | (0.92) | (1.17) | (1.36) | |
| FS | - | - | - | - | - | - | - | - | - | - | |

Constraint management timeline



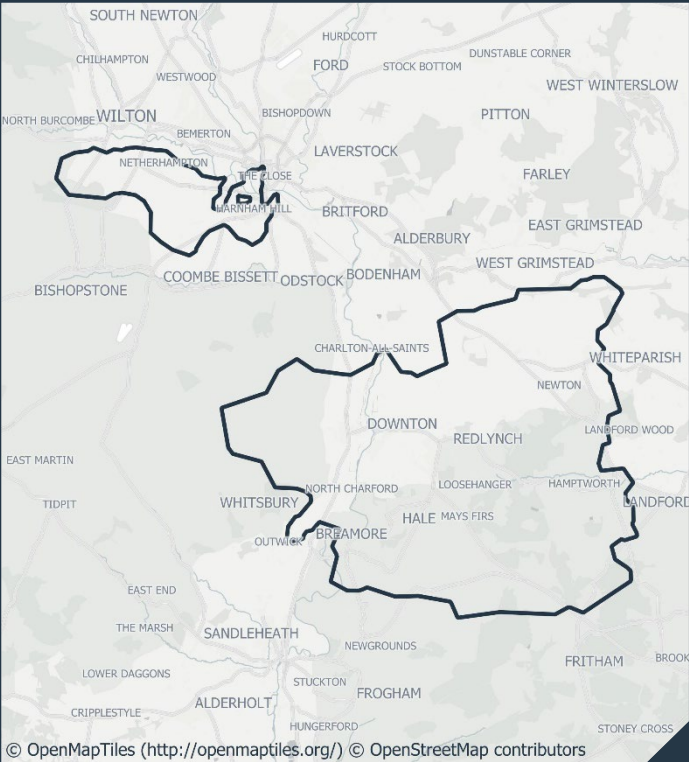
DNOA outcome: Flexibility followed by asset solution.

Scheme description

- The reinforcement of the Netherhampton PSS will increase capacity in the Wiltshire area of Southwest England. Postcode(s): SP1, SP2, SP4, SP5, SP9.
- Local authority: Wiltshire Council
- Load related – circuit thermal overload during FCO conditions due to forecasted demand growth.

Proposed option

- Flexibility/Asset Solution: Install two dual dedicated circuits to Netherhampton PSS from Salisbury BSP.
- This option addresses the forecasted thermal overload issues in the Salisbury BSP to Netherhampton PSS and Redlynch PSS 33kV circuit out to 2050.
- Capacity released: 10MVA



Indicative flexibility price (if available)

Availability price: £ 114 /MW/h Utilisation price : £ 148 /MW/h

System need requirement

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

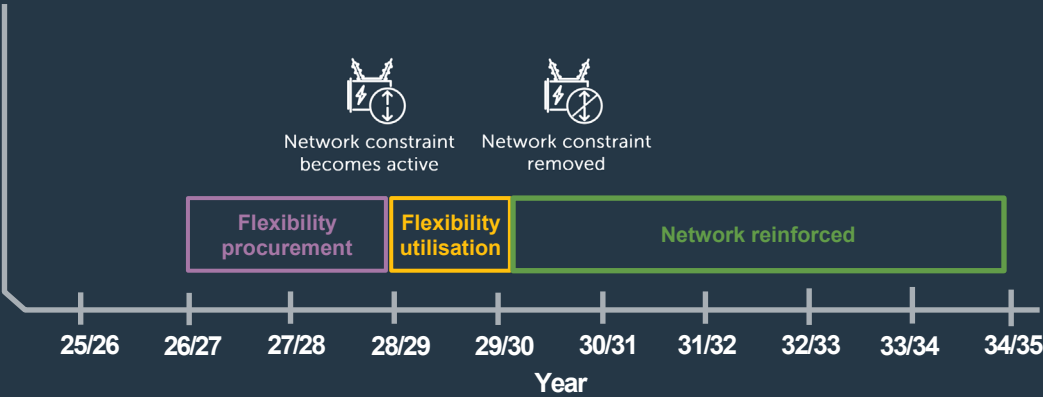
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| CT | - | - | - | 0.21 | (1.27) | (1.47) | (1.85) | (2.26) | (2.41) | (2.77) |
| ST | - | - | - | - | (0.58) | (0.68) | (0.81) | (0.96) | (1.14) | (1.24) |
| LTW | - | - | - | 0.31 | (1.33) | (1.64) | (2.07) | (2.5) | (2.78) | (3.24) |
| FS | - | - | - | - | (0.29) | (0.52) | (0.72) | (0.77) | (0.88) | (0.99) |

Constraint management timeline





Cricklade - Minety (Cricklade PSS & Minety Village PSS)

DNOA Outcome Report Related SDP: Minety

DNOA outcome: Asset solution

Scheme description

- The reinforcement of the circuits from Cirencester BSP to Cricklade PSS, and to Minety Village PSS and Kemble RAF PSS will increase capacity in the Cricklade-Minety area. Postcode(s): GL7, SN4, SN5, SN6, SN16.
- Local authority: Cotswold and Wiltshire
- Load related – Circuit voltage issues during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: An additional circuit from Cirencester BSP to Cricklade PSS, two additional circuits from Cirencester BSP to Minety Village PSS, and reconfigure the existing ringed network.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted issues out to 2050.
- Capacity released: 73.3 MVA

Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

System need requirement

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

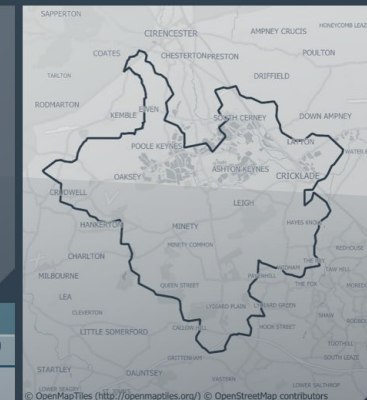
DNOA History

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

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA OUTCOMES REVIEW - SHEPD

| Outcome ID | Outcome name | March 2024 outcome decision | Updated position |
|--------------|------------------------------|---|---|
| Ref. 0324-01 | Aberdeenshire (North Coast) | Asset solution. | Project delivery review recommends flexibility usage for two years to ensure capacity availability. |
| Ref. 0324-02 | Abernethy, Kinross & Dollar | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by two years to ensure capacity availability. |
| Ref. 0324-07 | Culloden (Inverness) | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by one year to ensure capacity availability. |
| Ref. 0324-11 | Errochty – Tummel Bridge | Asset solution. | Project delivery review recommends flexibility usage for one year to ensure capacity availability. |
| Ref. 0324-14 | Inveralmond and Redgorton | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by two years to ensure capacity availability. |
| Ref. 0324-16 | Machrie/Whiting Bay | Asset solution. | Project delivery review recommends operational management for three years to ensure capacity availability. |
| Ref. 0324-17 | North-east Moray | Asset solution. | Review not required in line with DNOA methodology. |
| Ref. 0324-18 | Tarland, Aboyne and Ballater | Asset solution. | Review not required in line with DNOA methodology. |





Cricklade - Minety (Cricklade PSS & Minety Village PSS)

DNOA Outcome Report Related SDP: Minety

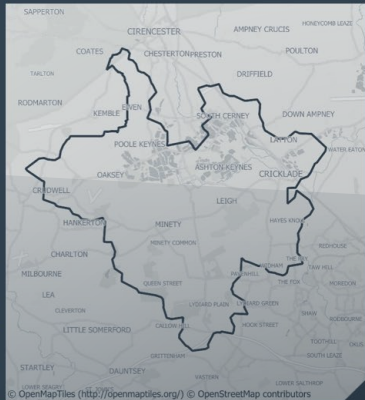
DNOA outcome: Asset solution

Scheme description

- The reinforcement of the circuits from Cirencester BSP to Cricklade PSS, and to Minety Village PSS and Kemble RAF PSS will increase capacity in the Cricklade-Minety area. Postcode(s): GL7, SN4, SN5, SN6, SN16.
- Local authority: Cotswold and Wiltshire
- Load related – Circuit voltage issues during FCO conditions due to forecasted demand growth.

Proposed option

- Asset Solution: An additional circuit from Cirencester BSP to Cricklade PSS, two additional circuits from Cirencester BSP to Minety Village PSS, and reconfigure the existing ringed network.
- Flexibility was unable to be utilised due to it not being suitable for the constraint type.
- This option addresses the forecasted issues out to 2050.
- Capacity released: 73.3 MVA



Indicative flexibility price (if available)

Availability price: £ N/A /MW/h Utilisation price : £ N/A /MW/h

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 | | | | |

Estimated peak MW outside firm network capacity under each scenario

| | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 | 34/35 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CT | - | - | - | - | - | - | - | - | - | - |
| ST | - | - | - | - | - | - | - | - | - | - |
| LTW | - | - | - | - | - | - | - | - | - | - |
| FS | - | - | - | - | - | - | - | - | - | - |

Constraint management timeline



DNOA OUTCOMES REVIEW - SEPD

| Outcome ID | Outcome name | March 2024 outcome decision | Updated position |
|--------------|-----------------------------|---|--|
| Ref. 0324-03 | Beaconsfield | Flexibility utilisation followed by asset solution. | Currently being reviewed with TO given transmission interactions. |
| Ref. 0324-04 | Birdham | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by one year to ensure capacity availability. |
| Ref. 0324-05 | Chiswick | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by one year to ensure capacity availability. |
| Ref. 0324-06 | Chiswick and East Brentford | Asset solution. | Project delivery review recommends operational management for three years to ensure capacity availability. |
| Ref. 0324-08 | Ealing and Hounslow | Asset solution. | Project delivery review recommends operational management for one year to ensure capacity availability. |
| Ref. 0324-09 | East Bedfont | Asset solution. | Project delivery review recommends flexibility usage for three years to ensure capacity availability. |
| Ref. 0324-10 | Egham | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by one year to ensure capacity availability. |
| Ref. 0324-12 | High Wycombe & Marlow | Asset solution. | Project delivery review recommends flexibility usage for two years to ensure capacity availability. |



| Outcome ID | Outcome name | March 2024 outcome decision | Updated position |
|--------------|---------------------------|---|---|
| Ref. 0324-13 | Hunston: Birdham & Selsey | Asset solution. | Project delivery review recommends operational management for two years to ensure capacity availability. |
| Ref. 0324-15 | Lytchett | Flexibility utilisation followed by asset solution. | Project delivery review recommends extension of flexibility usage by three years to ensure capacity availability. |





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 |
| 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 |
| 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 |

| Term | Description |
|-----------|---|
| 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 |
| NESO | National Energy System Operator. The National Energy System Operator for Great Britain, making sure that Great Britain has the essential energy it needs by ensuring supply meets demand. |
| 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) |
| RIIO-ED3 | The next price control for Electricity Distribution (2028-2033) |
| RESP | Regional Energy Strategic Plan |
| 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 |

ENGAGE WITH US

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www.ssen.co.uk



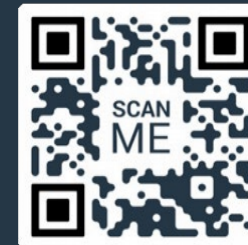
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