



INDEPENDENT ASSURANCE REPORT

for SSEN January 2025 DNOA Outcomes

*May 2025
Version 2.0*





Introduction

Statement of Purpose and Scope of this Report

This Report summarises key findings from independent assurance checks undertaken on a sample of DNOA outcomes taken from the DNOA Outcomes Report January 2025 published by SSEN Distribution. The scope relates to 6 DNOA outcomes (3 in SEPD and 3 in SHEPD). All but two of the schemes have a project value above £2M. The conclusions from these checks have been reviewed by the DSO Advisory Board.

SSEN DNOA Reports

SSEN Distribution publishes a DNOA Outcomes Report on its website each quarter. This describes its plans for meeting network needs for the next 7 years, in the North of Scotland (SHEPD) and South of England (SEPD) distribution licensed areas. These plans (known as schemes) have been taken through the SSEN Distribution Network Options Assessment (DNOA) Methodology, published in its final version in 2023.

Requirement for independent assurance

The DNOA methodology outlines an independent assurance process normally for schemes with a value over £2M. The objective being to ensure that the SSEN DNOA methodology has been applied to the assessment of these schemes and that there is transparency in how outcomes are reached.





Introduction (continued)

Threepwood Consulting and our role

Threepwood Consulting has been appointed by SSEN Distribution to conduct the independent assurance checks required. We are an industry respected consultancy that has expertise in distribution network planning and audit/assurance activities. We have a proven track record in providing independent assurance of network related processes and operations like those required in the DNOA methodology.

Nature of the assurance review

This assurance review is an independent check of a selected number of schemes normally with a value above £2M.

Schemes are selected by Threepwood from a list of schemes provided by SSEN. They ensure that both license areas are covered, different options (flexibility procurement and/or reinforcement) are reviewed and schemes from different planning departments are checked.

There are two types of review: A 'Sample' type review is focused on reviewing the Engineering Justification Papers (EJPs), CBA and CEM deterministic tools associated with each scheme. A 'Deep Dive' type review involves greater scrutiny of the content of the EJPs, CBA and CEM and seeks further evidence of how the process has been applied and decisions have been reached. The 'Deep Dive' includes interviews with engineers that have evaluated the solutions and proposed the recommended solution.

Threepwood independently and randomly choose which schemes are reviewed as Samples or Deep Dives based on achieving a balance of flex and asset solution schemes across both areas.

The assurance review is carried out every quarter to align with the publication of the latest DNOA Outcome Report.





Overall Summary of Findings

DNOA Scheme Reviewed

Findings Topic	1	2	3	4	5	6
Have future forecasts of demand and generation been done and have system needs been suitably identified (capacity)?						
Have suitable flexibility and asset options been identified and developed?						
Have the options been suitably assessed taking into account strategic requirements etc?						
Does the DNOA outcome report adequately reflect the assessment carried out?						

RAG status:	
	Requirement not met (to the degree that the outcome could be materially affected or is inaccurate)
	Requirement partially met (process not robust, opportunities for improvement identified but the deficiency is not material and the outcome wouldn't change or its accuracy not affected)
	Requirement fully met



Overall Summary of Findings (...continued)

General Points:

The schemes checked were found to follow the DNOA process. All of the options proposed (flex and/or assets solutions) were determined as being correctly identified/assessed. In all cases, the “Do nothing” option is ignored in this report, as the requirement to “do something” is a given.

Good practices were common across different licensed areas and planners, including the use of a centrally managed/updated load model and cost database and considering outputs from stakeholder engagement. Several opportunities for improvement were identified in relation to the level of detail and consistency of information in the EJPs, CBA and CEM tools and the DNOA Outcome Reports. However, these do not have a material impact on the outputs. Improvement opportunities include: a more robust document version control and approval process, a need for consistency between scheme names used in EJPs and Outcome Reports (especially where options for multiple schemes are presented in one EJP), greater visibility of liaison and feedback from the DNO (in the EJP), greater visibility of social and economic considerations and alignment of estimated demand and capacity between the DNOA Outcome Report and the EJP.

The DNOA Outcome Report template is somewhat limited, particularly with respect to communicating strategic approaches and investment beyond 2031 and conveying load and generation related schemes. Better use of the limited available space in the report and deleting unused parts of the report, where possible, would improve communication of information. There is scope to improve descriptions in the report to better reflect the constraints and proposed options.

DFES scenario Customer Transformation (CT) has been applied in all cases. This is considered the most likely and realistic future scenario by most DSOs at present.

Throughout the assurance reports, an SSEN process known as DGIF (Distribution Governance Investment Framework) is mentioned. DGIF is a staged process which ensures that DNO input to the scheme proposals is sought at the earliest stages of a project. Meetings will take place between the DNO and DSO, where DNO engineers' local knowledge can be considered and, if necessary, site visits will be organised.

Records of the meetings and any site visits are kept and are available to review as necessary. Outputs from this process are only recorded in the EJP by exception, i.e. high-risk issues, known operational issues, SSSIs, protected species, etc.



Assurance Review Methodology

Summary

- The same methodology applies to the assurance check irrespective of the type of review carried out.
- A standard question set is used to ensure all relevant requirements of the DNOA methodology are checked. There are 32 questions in total. These cover the four steps that make up the decision-making process: 'Identifying Future Load Related System Needs', 'Developing Options', 'Assessing Options' and 'Update Plan & Deliver'.
- For each scheme, an assessor reviews the EJP and supporting information and records findings.
- The findings against each question are recorded in a standard template and the assessor assigns a score depending upon the degree to which the requirement has been met. For 'Deep Dive' type reviews, the assessor documents any further evidence or clarifications required from the SSEN engineer(s).
- Scores are assigned as either 'Red', 'Amber' or 'Green' (RAG status) according to the criteria shown in the 'Overall Summary of Findings' slide in this Report.
- For each 'Deep Dive Review', the assessor conducts a detailed interview with the relevant SSEN engineer(s) to seek further clarification / evidence in order to conclude whether the process has been followed.
- Based on the recorded scores, the assessor concludes whether each key step in the decision-making process has been adequately followed and the outcome is valid.
- The outcomes from these reviews provide assurance that SSEN has followed its own processes. Whilst reviews do not specifically determine whether the correct decisions were reached, they should provide confidence that the most appropriate decisions have been reached based on the DNOA methodology having been correctly followed.
- Opportunities for improvement and enhancement are identified from the Assurance and are assigned the colour Blue to differentiate them from the RAG status. It is for SSEN to consider these suggested areas and take them forward to solutions.



DNOA Outcome Schemes Reviewed

Ref	DNOA Scheme Name	Type	Area	Type of Review
1	Banchory PSS & 33kV Circuits Reinforcement	Procure Flex	SHEPD	Deep
2	Finstown & Hatston 33kV Substation and 33kV Circuits	Asset Solution	SHEPD	Sample
3	Stornoway (Barvas PSS) Reinforcement	Procure Flex	SHEPD	Sample
4	Lovedean GSP 132kV Reinforcement	Asset Solution	SEPD	Deep
5	Faringdon PSS Reinforcement	Asset Solution	SEPD	Deep
6	Watlington PSS Reinforcement	Procure Flex	SEPD	Sample

All SSEN January 2025 DNOA Outcome Schemes reviewed have been developed to Strategic Justification Validation stage. This is prior to a completion of detailed asset optioneering and feasibility design.



Findings - 1. Banchory PSS & 33kV Circuits Reinforcement (Deep Dive Review)

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
1	Banchory PSS & 33kV Circuits	Banchory Primary Transformers and 33kV Circuits Reinforcement	SHEPD

Identifying Future Load Related System Needs

- Future load modelled using DFES scenarios beyond ED2 (up to 2050).
- CT future scenario used for developing and assessing options.
- Future load including committed connections (load and generation) and output from stakeholder engagement accounted for.
- Thermal overload and voltage issues have been identified as key constraints on the Banchory network.
- No fault level issues were identified.

Developing Options

- Two possible reinforcement options were considered in reasonable detail.
- The two options were identical, except one used flexibility to defer and one did not.
- Both options were taken forward to CBA.
- The optimum solution with the lowest NPV was found to be reinforcement with deferral of two years by use of flexibility.
- The Outcome report incorrectly showed deferral for three years.

Developing Options (...continued)

- Engagement with regional councils and community energy groups was conducted to ensure alignment of aspirations.
- Information on the age and condition of existing network assets is included and is available to the DSO via the DNO INVEST asset database.
- A strategic and proactive investment approach was chosen, allowing for future load growth and extension.
- Site input by the DNO was not transparent in the EJP.
- It is assumed that no major issues were raised by the DNO, as issues are usually only reported in EJPs by exception.
- Meeting notes are kept for future reference in any case.

Assessing Options

- The CBA tool was correctly used to support the proposed solution.
- There is scope to populate more detail in the CBA, (i.e. risk tab and baseline costs tab not completed) although this would not materially affect the outcome.

Assessing Options (...continued)

- The CEM tool was correctly used to assess the viability and economic benefit of flexibility.
- Reinforcement with deferral of two years using flexibility was the preferred option.
- Meeting whole system requirements beyond ED2 (up to 2050) was a factor in the proposed solution.
- Social and environmental aspects were not covered in detail. However, it is recognised that SSEN's DGIF process addresses this in more detail at the next stage.
- No social or environmental aspects are believed to materially change the decision.
- DNO feedback on the proposed options was not specifically mentioned in the EJP. However, the planner confirmed that DNO staff had input at the initial stage, as described in the DGIF process.
- The engineer confirmed that the DNO had not highlighted any safety concerns.
- The correct signature protocol for approving the EJP was followed, the provided PDF copy was correctly signed, dated and numbered.
- There were some minor typos and other drafting errors in the EJP, which indicated that the final review process could be more stringent.



Findings - 1. Banchory PSS & 33kV Circuits Reinforcement (Deep Dive Review)

continued...

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
1	Banchory PSS & 33kV Circuits	Banchory Primary Transformers and 33kV Circuits Reinforcement	SHEPD

Update Plan and Deliver

- Key driver correctly identified as thermal overload with associated voltage violations.
- Two practicable options addressing these constraints were brought forward to CBA.
- The preferred and most economic solution was identified as network asset reinforcement deferred by use of flexibility for two years.
- **The constraint management timeline in the Outcome Report incorrectly shows three years deferral, not two years as stated in the EJP.**
- **The planner confirmed that only two years of deferral was feasible.**

Good Practices

- System model includes DFES forecasts, committed connections etc.
- NDR is centrally owned and managed by the Modelling and Reporting Team.
- Stakeholder engagement feeds into load and generation forecasts.
- Future load growth takes account of DFES scenario CT.
- Strategic and whole system aspects have been considered beyond ED2 (up to 2050).
- Flexibility was exploited to defer reinforcement by two years.
- Deliverability and operability issues have been adequately considered.
- No high risks were identified in the EJP.

Opportunities for Enhancement

- Output from DNO liaison under DGIF process and feedback on the proposed network options are not generally shown in the EJP.
- Issues are only reported by exception.
- Capturing DNO feedback in EJP – noting this is recorded in meeting notes, which are available for future reference.
- Better visibility of social and environmental considerations from the DGIF process in the EJP and CBA.
- Completeness of fields and detail in the CBA tools.
- There appears to be an issue with the robustness of final document error checking.

Summary

- Future forecasts of demand and generation beyond ED2 (up to 2050) have been suitably considered and whole system needs (i.e. network capacity) have been suitably identified.
- Flexibility was correctly assessed and was put forward as part of the chosen solution, giving a deferral period of two years.
- The presented options were suitably assessed, considering strategic requirements, etc.
- The DNOA outcome report generally reflects the assessment carried out, although it did state the wrong deferral period.



Findings - 2. Hatston 33kV Reinforcement (Sample Review)

Scheme Details			
Ref:	Scheme Name:	Scheme Title:	Planning Area:
2	Hatston 33kV Reinforcement	Finstown & Hatston 33kV Substation and 33kV Circuits	SHEPD

Identifying Future Load Related System Needs

- Future load modelled using DFES scenarios beyond ED2 (up to 2050).
- CT future scenario used for developing and assessing options.
- Future load including committed connections (load & generation) plus output from stakeholder engagement all accounted for.
- Thermal overload was identified as the key constraint, with no reported voltage violations.
- Any fault level issues will be considered in a future scheme.

Assessing Options

- CBA tool was correctly used but there was only one viable option.
- CEM tool was used to determine that there was insufficient flexibility to defer reinforcement.
- Due to insufficient flexibility, the only viable solution was to reinforce without deferral.
- Deliverability and operability risks have been identified.
- A reinforcement without deferral approach was correctly identified as the only viable option, considering whole system requirements beyond ED2 (up to 2050).

Good Practices

- Stakeholder engagement feeds into load and generation forecasts.
- Future load growth takes account of the forecasted DFES scenario (CT).
- Strategic and whole system aspects have been considered beyond ED2 (up to 2050).
- High level risks have been assessed and documented in the EJP.

Developing Options

- Three reinforcement options, including flexibility procurement to defer reinforcement, were considered in suitable detail.
- A proactive investment, allowing for future growth and extension was selected.
- A new site is required for a new PSS.
- Asset conditions were not shown in the EJP, but it was reported that all affected assets are and still will be in good condition when works start.

Update Plan and Deliver

- Key driver correctly identified as thermal overload.
- The DNOA Outcome Report correctly captures that use of flexibility was not viable.
- Reinforcement only approach correctly stated.
- **There is confusion with scheme names between the Outcome Report and the EJP.**

Opportunities for Enhancement

- More visibility of DNO liaison in EJP.
- Visibility of stakeholder engagements.
- More detail of environmental aspects.
- The naming of schemes in the EJP and Outcome Report should be consistent to avoid confusion.
- Final approval and error checking could be more robust, the EJP copy provided had multiple drafting comments still visible.

Summary

- Future forecasts of demand and generation have been adequately considered and whole system needs have been suitably identified.
- Suitable flexibility and asset options were identified and developed, although insufficient flexibility meant deferral was not possible.
- The options have been suitably assessed, considering strategic requirements etc.
- The DNOA outcome report accurately reflects the chosen reinforcement solution but there is confusion with scheme names.



Findings - 3. Stornoway (Barvas PSS) Reinforcement (Sample Review)

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
3	Stornoway (Barvas PSS) Reinforcement	Barvas 33kV transformer Reinforcement	SHEPD

Identifying Future Load Related System Needs

- Future load modelled using DFES scenarios beyond ED2 (up to 2050).
- CT future scenario used for developing and assessing options.
- Future load including committed connections (load & generation) plus output from stakeholder engagement all accounted for.
- Thermal overload was identified as the key constraint along with some voltage violations.
- No fault level issues identified.

Assessing Options

- CBA tool was correctly used but there was only one viable option.
- CEM tool was used to determine flexibility effects.
- The most beneficial solution was found to be reinforcement deferred by 4 years with flexibility.
- Deliverability and operability risks were identified.
- A deferred reinforcement approach was correctly identified as the preferred option, considering whole system requirements beyond ED2 (up to 2050).

Good Practices

- Stakeholder engagement feeds into load and generation forecasts.
- Future load growth takes account of the forecasted DFES scenario (CT).
- Strategic and whole system aspects have been considered beyond ED2 (up to 2050).
- High level risks have been assessed and documented in the EJP.

Developing Options

- Only two reinforcement options were considered, i.e. reinforcement with and without deferral.
- These were considered in suitable detail.
- A proactive investment, allowing for future growth and extension was selected.
- Existing asset conditions and physical constraints for installing the reinforcement assets were addressed in the options.

Update Plan and Deliver

- Key driver correctly identified as thermal overload with associated voltage violations.
- The DNOA Outcome Report correctly captures that use of flexibility was economic for 4 years.
- A deferred reinforcement approach was correctly reflected in the Outcome Report.

Opportunities for Enhancement

- More visibility of DNO liaison and feedback on the proposed network options, rather than just reporting on aspects by exception.
- However, notes of meetings with DNO are kept for future reference.
- Better visibility of stakeholder engagements and environmental aspects in the EJP.
- Better visibility of social and environmental considerations in the CBA and CEM.
- More robust final error checking; there are several drafting errors in the EJP.

Summary

- Future forecasts of demand and generation have been adequately considered and whole system needs have been suitably identified.
- Suitable flexibility and asset options have been assessed and developed, and flexibility was found to be economic.
- The options have been suitably assessed, considering strategic requirements etc.
- The DNOA outcome report accurately reflects the chosen deferred reinforcement solution.



Findings - 4. Lovedean GSP Reinforcement (Deep Dive Review)

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
4	Lovedean GSP	Lovedean GSP 132kV Switchgear and Circuits Reinforcement	SEPD

Identifying Future Load Related System Needs

- Future load modelled using DFES scenarios beyond ED2 (up to 2050).
- CT future scenario used for developing and assessing options.
- Future load growth including committed connections (load and generation) and output from stakeholder engagement were all accounted for in the process.
- Growth in PV generation, EV charging and heat pump installations is cited.
- Thermal overload of 132kV circuits and fault level constraints on 132kV switchgear at the GSP were identified as the primary drivers on this scheme.
- No voltage issues were reported.
- No operational issues were highlighted.
- Space constraints are an issue leading to a compact indoor 132kV GIS solution.
- The need for an interim operational arrangement to enable works is also cited.
- Some of the assets to be replaced as part of the proposed reinforcement are nearing the end of their expected operational lives and will have high HI and CI scores by the time the works are completed. This further supports the need for investment.

Developing Options

- Three reinforcement options were evaluated, (i.e. phased, non-phased and phased with deferral by flexibility).
- Flexibility was not viable to defer all the investment, as fault level issues cannot be resolved with flexibility.
- Engagement with regional councils and community energy groups was conducted to ensure alignment of aspirations.
- Information on the age and condition of existing network assets is available to the DSO via the DNO INVEST asset database.
- Identified risks include the requirement for a temporary interim operational arrangement at Lovedean GSP to enable works to proceed.
- Strategic and economic aspects were considered for the reinforcement options, i.e. asset ratings and cost.
- Site input by the DNO is not mentioned but would only be captured in the EJP if any high risks had been identified under DGIF.
- It was confirmed that liaison with the DNO had taken place, which comprehensively considered the merits of the options put forward.
- Notes of meetings with the DNO are kept for future reference as part of DGIF.
- Apart from the protected ancient woodland surrounding Lovedean GSP, no environmental issues were mentioned.

Assessing Options

- CBA and CEM tools were used correctly to evaluate the three solutions considered, although a copy of the CEM Tool was not available for scrutiny, the results were clearly reported in the EJP.
- Deliverability and operability risks were identified.
- Reinforcement without deferral was recommended as the optimum solution with the lowest NPV.
- Deferral by flexibility was uneconomical, as it would have only been viable for a small portion of the investment.
- The chosen solution accounts for whole system requirements beyond ED2 (up to 2050).
- Environmental aspects were not covered in detail, however, it is recognised that the DGIF process addresses this in more detail at the next stage.
- No environmental aspects were believed to materially change the decision.
- DNO feedback on the proposed options was not specifically mentioned in the EJP but notes of meetings with DNO staff are kept for future reference.
- It was confirmed that DNO staff had an input at this initial stage, as described in the DGIF process.
- The engineer confirmed that the DNO had not highlighted any safety concerns.
- It was not possible to confirm if the correct document approval protocol for the EJP was followed, as the EJP copy provided was missing an issued date.



Findings - 4. Lovedean GSP Reinforcement (Deep Dive Review)

continued...

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
4	Lovedean GSP	Lovedean GSP 132kV Switchgear and Circuits Reinforcement	SEPD

Update Plan and Deliver

- The outcome report only cites the 132kV switchgear reinforcement at Lovedean GSP, not the associated 132kV circuit works also cited in the EJP.
- That said, the key driver for GSP works is correctly identified in the report as being due to fault level issues on the existing 132kV switchgear.
- Three practicable options that address these constraints were put forward to assessment with CBA.
- The preferred solution did not include flexibility to defer investment, due to flexibility not being feasible for fault level issues.
- Constraint Management Timeline in the Outcome Report correctly shows no deferral with flexibility.

Good Practices

- System model includes DFES, contracted connections, etc.
- The network model is centrally owned and managed by Modelling and Reporting Team.
- Stakeholder engagement feeds into load and generation forecasts.
- Future load growth takes account of DFES CT scenario.
- Strategic and whole system aspects have been considered beyond ED2 (up to 2050).
- Deliverability and operability have been adequately considered.
- High level risks have been assessed and documented in the EJP.

Opportunities for Enhancement

- Better visibility of DNO liaison (site visits, etc.) and feedback on the proposed network options, rather than just reporting on aspects by exception.
- Notes of meetings with DNO are however kept for future reference.
- Greater visibility of stakeholder engagements in the EJP.
- More detail in the EJP of environmental aspects covered.
- Visibility of social and environmental considerations in the EJP and CBA.
- There appears to be an issue with version control and approval protocol, as planners have differing views on when the EJP issued date should be added to the document.

Summary

- Future forecasts of demand and generation have been suitably considered and whole system needs have been suitably identified.
- Suitable asset options have been identified and developed. Deferral using flexibility was not feasible for the GSP works.
- The options have been suitably assessed, considering strategic requirements etc.
- The DNOA outcome report generally reflects the assessment carried out, given the limited space available on the report template.
- Only part of the recommended works which were put forward in the EJP was covered in the Outcome Report.

Findings - 5. Faringdon PSS Reinforcement (Deep Dive Review)

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
5	Faringdon PSS Reinforcement	Faringdon PSS Reinforcement	SEPD

Identifying Future Load Related System Needs

- Predicted load and generation growth, with DFES future scenario (CT), used for developing and assessing options.
- Committed new connections considered.
- Outputs from stakeholder engagement were accounted for in the process.
- Main driver was identified as thermal overload (P2/8 violations) with associated voltage constraints.
- No fault level issues were reported.

Developing Options

- Three options were analysed in adequate detail.
- Options included reinforcement with and without deferral with flexibility.
- Load transfers to defer reinforcement were also considered but ruled out, as sufficient transfer capacity from adjacent networks was not available.
- A proactive investment allowing for future growth and extension was selected.
- Engagement with regional councils and community energy groups was conducted to ensure alignment of aspirations.

Developing Options (...continued)

- The age and condition of existing network assets were considered; this information is available to the DSO via the DNO INVEST asset database.
- Some of the assets are nearing or are already at their expected lifespans.
- Strategic and economic aspects were considered for the reinforcement options (i.e. asset ratings and cost) as part of the stakeholder engagement process.
- Input by the DNO (including site visits) is not mentioned in the EJP, but feedback from the DNO would only be included by exception in any case.
- Any high risks would be highlighted.
- The engineer confirmed that liaison with the DNO had taken place, which considered the merits of the options put forward comprehensively.
- Notes of meetings with the DNO are kept for future reference.
- No environmental issues were reported.
- Flexibility was correctly considered to defer investment but was not included in the preferred option, as insufficient flexibility was available.

Assessing Options

- Two asset investment options were taken to CBA, one with and one without flexibility.
- The CEM tool was correctly applied to check the viability of flexibility.
- Unfortunately, there was insufficient flexibility available for this scheme.
- Deliverability and operability risks were identified.
- Meeting whole system requirements beyond ED2 (up to 2035) were a factor in the proposed future proof solution.
- A rigorous process (DGIF) considers social, economic and deliverability issues (although this was not all recorded in the EJP, as issues are only recorded by exception).
- Environmental impacts, including, for example, land use, protected land, SSSIs, noise mitigation, nearby residential properties, public rights of way, using non-SF6 equipment where possible, etc, are all captured in the DGIF process.
- It was confirmed that the DNO had not highlighted any safety concerns.
- The correct approval protocol does not appear to have been followed, as the EJP copy provided has no document number.



Findings - 5. Faringdon PSS Reinforcement (Deep Dive Review) *continued...*

Scheme Details			
Ref:	Scheme Name:	Scheme Title:	Planning Area:
5	Faringdon PSS Reinforcement	Faringdon PSS Reinforcement	SEPD

Update Plan and Deliver

- Key driver correctly identified as thermal overload. Voltage constraints not mentioned in the Outcome Report.
- Only two of the three options considered fully addressed the network constraints.
- Use of load transfers was not possible.
- Two options were taken to CBA.
- The preferred option, with the better NPV, was found to be reinforcement with no deferral, as there was not enough flexibility to defer investment.
- The constraint management timeline was correctly completed showing operational management of the constraint until the reinforcement is completed.
- The estimated peak load was shown as exceeding the network capacity from 2027, without reinforcement.

Good Practices

- The system model includes all DFES, connection projections and load growth
- The model is centrally owned and managed by the Modelling and Reporting Team.
- Stakeholder engagement feeds into the load and generation forecasts.
- Strategic and whole system aspects have been considered beyond ED2 (up to 2035).
- Sufficient flexibility was not available to defer reinforcement.
- Deliverability and operability issues have been adequately considered.
- No high risks were identified in the EJP.
- Possible environmental impacts were assumed to be considered outside of the EJP, as part of the DGIF process.

Opportunities for Enhancement

- Better visibility in EJP of DNO liaison (site visits, local knowledge, etc.) and feedback on the proposed network options, rather than just reporting on aspects by exception.
- However, notes of meetings with DNO are kept for future reference.
- Better visibility of social and environmental considerations would be beneficial.
- Completeness of fields and more detail in the CBA tool.
- A more robust process for checking of drafting errors in EJPs and CBAs.

Summary

- Future forecasts of demand and generation have been suitably considered and whole system needs have been correctly identified.
- Due to the nature of the scheme, only two practicable asset investment options were taken through to CBA.
- Flexibility was not feasible due to a lack of flexibility to defer investment.
- The DNOA outcome report adequately reflects the chosen asset intervention.

Findings - 6. Watlington PSS Reinforcement (Sample Review)

Scheme Details

Ref:	Scheme Name:	Scheme Title:	Planning Area:
6	Watlington PSS Reinforcement	Stokenchurch (Watlington PSS) Reinforcement	SEPD

Identifying Future Load Related System Needs

- Future load modelled using DFES scenarios beyond ED2 (up to 2050).
- CT future scenario used for developing and assessing options.
- Future load including committed connections (load & generation) plus output from stakeholder engagement all accounted for.
- Thermal overload of various parts of the network was identified as the key constraint.
- Future voltage and fault level issues are cited.

Assessing Options

- CBA tool was correctly used on two options.
- CEM tool was used to determine flexibility effects.
- The most beneficial solution, including deferment of reinforcement using flexibility, was selected as the preferred option.
- Deliverability and operability risks were identified.
- A combined flexibility and reinforcement approach was correctly identified as the preferred option, considering whole system requirements beyond ED2 (up to 2050).

Good Practices

- Stakeholder engagement feeds into load and generation forecasts.
- Future load growth takes account of the forecasted DFES scenario (CT).
- Strategic and whole system aspects have been considered beyond ED2 (up to 2050).
- High level risks have been assessed and documented in the EJP.

Developing Options

- Three reinforcement options, including flexibility procurement to defer reinforcement, were considered in suitable detail for Watlington PSS.
- A proactive investment allowing for future growth and extension was selected.
- Existing asset conditions and physical constraints for installing the reinforcement assets were considered in the options.

Update Plan and Deliver

- Outcome report only addresses works at Watlington PSS.
- Key driver correctly identified as thermal overload.
- The DNOA Outcome Report correctly captures the recommended solution to replace the existing primary transformers at Watlington PSS with 7.5/15 MVA capacity units, along with deferment by flexibility for four years.

Opportunities for Enhancement

- More visibility of DNO liaison and feedback on proposed network options, not just reporting on aspects by exception.
- However, notes of meetings with DNO are kept for future reference, in any case.
- Better visibility of social and environmental considerations and engagements with stakeholders in the EJP.
- There are multiple drafting comments still visible in the EJP copy provided, which suggest a lack of robustness in document checking and approval process.

Summary

- Future forecasts of demand and generation have been adequately considered and whole system needs have been suitably identified.
- Suitable flexibility and asset options have been assessed and developed. Deferment with flexibility was the preferred option.
- The options were suitably assessed, considering strategic requirements etc.
- The DNOA outcome report adequately reflects the assessment carried out for Watlington PSS up to the end of ED2.