Public

SSEP Transparency Update

Further detail on data sources and assurance for the Strategic Spatial Energy Plan

Document last updated: March 2026

NESO
National Energy System Operator

Public

Contents

Version History

Version	Date	Updates
V1.0	November 2025	
V2.0	February 2026	The following additions have been made to the SSEP Transparency Update overview document: • SSEP zones - updated to include marine publication zones • Stakeholder engagement supporting material • SSEP policy considerations The following updates have been made to the SSEP Transparency Update data sources list: • Electricity Network Cost Assumptions - WACC allowance values • Economic land zones • Onshore and offshore publication zones Updates to the Spatial Evaluation Framework as set out in 'Spatial Evaluation Framework Overview' on page 5.
V2.1	March 2026	In response to stakeholder feedback, we have updated the onshore and offshore publication zones, and associated GIS files.

Introduction

This document aims to increase transparency in developing the Strategic Spatial Energy Plan (SSEP) and assure stakeholders of the robustness of our modelling inputs.

Given the role the SSEP will play in underpinning the future of energy in Great Britain (GB), we understand the importance of giving stakeholders greater visibility of our data inputs and the assumptions that underpin the SSEP methodology. For this reason, and in response to feedback from stakeholders, this update includes information on data sources, further detail on elements of the SSEP that build on the methodology published in May 2025, and further detail on our technical and data assurance processes.

Over recent months, we have assessed and refined modelling inputs. This update explains how spatial restrictions and opportunities were considered, decisions taken on how to present zones and capacity ranges for technologies in the final SSEP, and how we have defined the 'low regret' pathway option.

This document and supporting data will be updated on a regular basis as further information and data are published.

More information can be found on our website. If you would like to speak to us about the SSEP, please contact box.ssep@neso.energy

SSEP Data and Information

Overview

On our website we have published an overview of the data sources used for inputs to the SSEP, including links to datasets where possible and explanations where this is not possible. This will be updated regularly to reflect any new data that is published.

neso.energy/document/371386/download

Spatial Evaluation Framework Overview

The Spatial Evaluation Framework (SEF) is the primary input for the SSEP's geospatial modelling, helping to identify areas that are potentially suitable for energy infrastructure development. It is applied across four spatial pillars; environment, societal, technical engineering design requirements and other spatial uses with categories, subcategories, indicators and their associated metrics sitting within this structure.

Indicators are classified as either a spatial exclusion, constraint or opportunity. While exclusions are removed as potential developable areas, opportunities and constraints are scored based on their magnitude of effect and importance for each type of energy infrastructure.

More information is available in our SSEP methodology Section 4.1.

Engagement with SSEP expert working groups and key stakeholders has been ongoing during the development and finalisation of the SEF, beginning in May 2024 and continuing through 2025. A summary of the engagement activities and the main themes of stakeholder feedback is available here: neso.energy/document/371236/download

The full list of indicators used within the SEF, and the publicly available data sources used in its development, can be viewed here: neso.energy/document/371256/download

Updates to the SEF can be found in the 'Version History' tab in the above document.

SSEP Policy Considerations

To help shape and assess SSEP pathway development we consider current government policy ambitions this includes both UK Government and Devolved Government policy.

Some government policy sets out future ambitions for particular technologies. These government policy ambitions are considered when we assess our pathways to understand whether each pathway aligns to these ambitions. The following table lists the government policies that are considered in our pathway assessment process (see Chapter 5 in the SSEP methodology for more information on this process neso.energy/document/360501/download):

Technology	Policy Considerations
Solar	UK Solar Roadmap 2025. Considering 75 GW of installed capacity by 2035 in GB, including all large-scale ground-mount, commercial and domestic rooftops.
Offshore Wind	Update to the 2020 Offshore Wind Policy Statement Considering the Scottish Government offshore wind policy ambition of up to 40 GW of new offshore wind capacity by 2040.
Unabated Gas	Net Zero Wales Carbon Budget 2 (2021-2025): Summary document Considering no new unabated gas in Wales.
Unabated Gas	Draft Energy Strategy and Just Transition Plan Considering no new unabated gas in Scotland.
Unabated Gas	The Decarbonise Readiness Legislation New or substantially refurbished unabated gas plants to be capable of being decarbonised in the future.

Technology	Policy Considerations
Hydrogen Power	Industrial Strategy: Clean Energy Industries Sector Plan Considering build of hydrogen to power. The plan outlines the commitment made to launch the new Hydrogen to Power Business Model.
Hydrogen Production	Industrial Strategy: Clean Energy Industries Sector Plan Considering levels of hydrogen production. The plan outlines the aim to launch Hydrogen Allocation Rounds 3 and 4.
Hydrogen Production	Hydrogen action plan Considering 25 GW of low carbon hydrogen production in Scotland by 2045.
Gas CCS Hydrogen	Wales Fourth Carbon Budget Considering 17% of electricity or dispatchable power comprised gas and CCS or hydrogen by 2033 in Wales.
Hydrogen production CCS CCUS	Net Zero Wales Carbon budget 2 Considering the inclusion of projects in the South Wales Industrial Cluster
Nuclear	Draft Energy Strategy and Just Transition Plan Considering no new nuclear in Scotland

SSEP Economic and Publication Zones

To support the Strategic Spatial Energy Planning (SSEP) analysis and provide accessible outputs for stakeholders, two zone structures are being used: 17 land economic zones for economic modelling and 19 land and 19 marine publication zones for the publication of the draft and final SSEP.

As the SSEP incorporates geospatial analysis, it is essential that published outputs are mapped to recognisable geographical regions and key electricity system boundaries. While the modelling itself is undertaken using the economic zones, results will be converted into the publication zones for the draft SSEP.

GIS files for the zones can be found here: neso.energy/data-portal/ssep-onshore-publication-zone-shapefile.*

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17 Economic Zones - Land

The economic land zones form the basis of the complex economic modelling undertaken in the energy market simulation engine used for economic modelling in the SSEP. These are designed to capture locational variation in network costs and constraints.

Key characteristics of the economic zones:

- Developed using the transmission network structure and informed by previous NESO studies, including Future Energy Scenarios[1] and the transitional Centralised Strategic Network Plan (tCSNP).
- Deliberately aligned to known transmission constraints and boundaries.
- Optimised to support energy system planning rather than geographic or administrative coherence.
- Provide the minimum level of granularity required for robust and meaningful modelling outputs.

19 Publication Zones - Land

For publication and stakeholder engagement purposes, modelling results are translated into 19 zones that are more intuitive and relevant for planning processes.

Key characteristics of the publication zones:

- Created by subdividing the 11 Regional Energy System Plans (RESPs) regional zones, taking account of key underlying electricity network boundaries.
- More closely aligned with democratic, administrative, and local planning geographies as well as aligning with the RESPs.

[1] Our Future Energy Scenarios publication provides an independent view of a range of future pathways to net zero for Great Britain. NESO, *Future Energy Scenarios (FES)* - https://www.neso.energy/publications/future-energy-scenarios-fes

- Designed to support integration with local development, consenting, and decision-making frameworks.
- Strike a balance between system optimisation and practical usability for external audiences.

Marine Zones

In addition to the land publication zones, we also have 19 marine zones. Further information can be found in the methodology updates and please refer to Figure 3 (page 16) for the map.

Updates to the publication zones

Following the release of the data transparency update v2.0 in February, we received stakeholder feedback regarding the boundary between the land and marine zones. Initially, the marine zone reached 40km inland from the coast. However, stakeholders suggested that this boundary should extend to mean high-water instead. In response to this feedback, we've created a data set aligned with the UK coastline as defined by the current simplified RESP zones, supporting the distinction between onshore and offshore areas in the geospatial model. This was the best approach when balancing environmental and geospatial requirements.

We have also updated the onshore publication zones to reflect this change. The boundaries, zone areas and attributes have not changed.

Stakeholder Engagement Supporting Material

After each Strategic Energy Plan (SEP) Industry Working Group meeting, we produce a written summary capturing the key discussion points and updates from the session. These summaries help maintain transparency, support ongoing engagement, and provide stakeholders with a clear record of progress. They are published on our website and can be accessed here: neso.energy/what-we-do/strategic-planning/strategic-energy-planning-sep-publications-consultations-and-updates#SEP-engagement.

The terms of reference for the group can be found here: neso.energy/document/349216/download

In addition to meeting updates, we also publish quarterly summaries for our governance groups, bringing together strategic developments, programme milestones, and

cross-group insights in one place. These quarterly updates are available here: neso.energy/what-we-do/strategic-planning/strategic-energy-planning-sep-publications-consultations-and-updates#SSEP-External-Governance-Groups

Additional resources, such as introductory materials, recorded presentations, and key documents, can also be accessed on our website. You can view these materials here: neso.energy/what-we-do/strategic-planning/strategic-spatial-energy-planning-ssep

SSEP Assurance Processes

Introduction

SSEP programme and technical assurance is guided by accepted standards and principles. It is designed to provide, through a systematic set of actions, confidence to senior leaders and stakeholders that work is controlled and supports safe and successful delivery of programme strategy and objectives. SSEP assurance is weaved into programme activities with a culture that supports continual improvement.

Principles

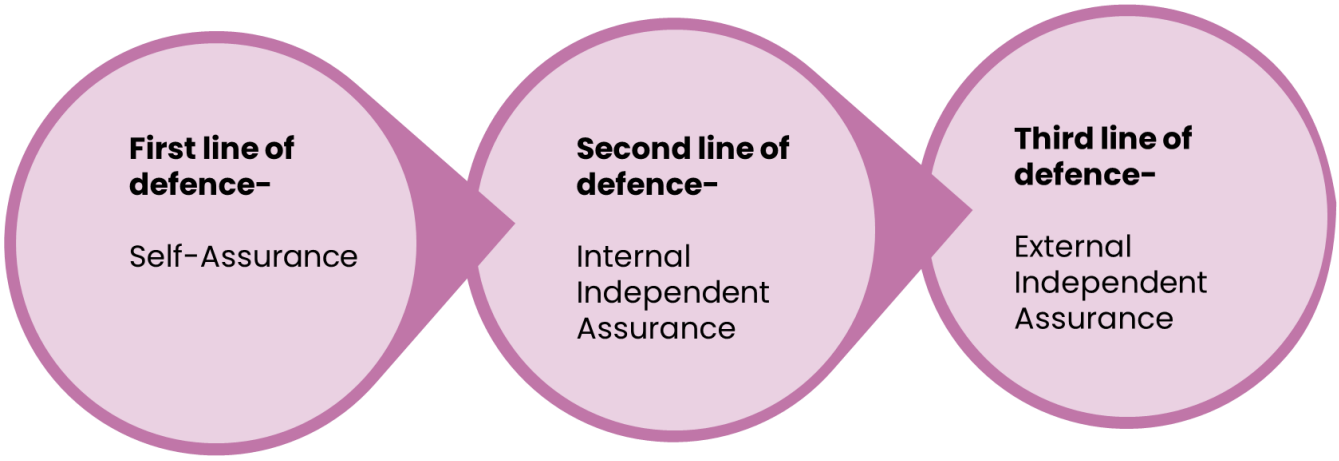
SSEP assurance applies recognised standards of programme and technical assurance. This includes "Government Functional Standard 002"2 which informs our programme delivery assurance. For analysis and modelling we apply the standards of the DESNZ model QA log and the application of HM Treasury's Aqua Book standards.

We foster a culture where all workstreams and individuals take ownership of assurance responsibilities. In each workstream, either Analytical Assurers or Assurance Leads guide these assurance responsibilities. The programme has a learning culture that is open to constructive criticism and supports continual improvement. Everyone has a role to play in creating and maintaining this culture.

The SSEP assurance is led and supported by an Assurance Function, which ensures that assurance is consistently applied across the programme. Additionally, it is promoted through close collaboration and guidance between the SSEP workstreams and the Assurance Lead.

[2] HM Government, *Government Functional Standard GovS002: Project Delivery* (2025) - https://www.gov.uk/government/publications/project-delivery-functional-standard

3 Lines of Defence



- Ownership of risk and controls
- Health checks
- Quality checks
- Assurance frameworks
- Periodic reviews
- Deep dives & lessons learned

- Governance (internal & external)
- Challenge & review
- Monitoring & evaluation
- NESO Engineering Assurance (supported by Accenture)

- PwC Assurance reviews (SEP portfolio procured)
  - Programme management
  - Methodology
  - Green/Aqua Book

First line assurance is delivered within the programme organisation led by the Programme Assurance Lead. It consists of the following:

1. Health checks to assess maturity across all key functions. These use the NESO Change Management Health check as the basis and cover the entire breadth of programme delivery activities. The health check will assess programme performance in multiple areas. It will be achieved through interviews with key personnel, led by the Programme Assurance Lead. Health checks will be conducted on a frequency of every 6 months or less.
2. Periodic reviews following stages of activity; these will include retrospectives on how effective programme processes were and identify areas for improvement and other lessons that can be captured.
3. Maintenance of key documents such as Data and Assumptions Lists, and records of all modelling and testing activity.

4. Checks on activity and version control as overseen by the Analytical Assurers and Assurance Leads.
5. Internal peer review from Assuring Analysts.
6. Internal Programme-level review at appropriate points in delivery schedule.
7. Deep dives into areas in response to identified concerns, near-misses, or adverse events.

Second line assurance utilises NESO subject matter experts. It consists of the following:

1. 'Challenge and Review' sessions where interim findings and the methods used are presented to a selected group of peers (with appropriate skills and experience) from across NESO to provide feedback and challenge.
2. Oversight and review of methods, assumptions and modelling design decisions through the Analytical Working Group (AWG) and Analytical Evidence Advisory Group (AEAG)[3].
3. The Chief Economist's office provides consultation and advice as needed and conducts periodic audits.
4. NESO Engineering Assurance provides integrated technical assurance. Accenture, with whom NESO has a competitively awarded Engineering Services Framework, performs an independent review using NESO-prepared test criteria. This review covers the end-to-end SSEP pathway development process, leading to the submission of the SSEP Pathways Options Report to DESNZ. Oversight is provided by NESO's functionally independent Engineering Assurance Team.
5. A schedule of ongoing and extended Monitoring and Evaluation has been developed by the programme and approved by the SSEP Committee.

Third line assurance is delivered by an independent third party (PwC). Competitively procured, this specialist provider performs an assurance role on SSEP processes and the resulting analysis. This will be achieved through audits, including specific scheduling ahead of the release of major deliverables. At the point of writing, the schedule of PwC's assurance activity is:

- April 2025 - SSEP Methodology, a review of NESO's SSEP methodology to evaluate its alignment with DESNZ's requirements and identify any gaps or areas of improvement

[3] A governance forum that oversees the analytical and modelling process, chaired by the NESO Chief Economist, with representation from the UK, Scottish, and Welsh governments, and Ofgem.

- May 2025 - Green/Aqua Book alignment
- June 2025 - SSEP Programme Management, a review of the Programme management within the SSEP Programme to assess whether it is set up for success ahead of the next phase of delivery
- November 2025 - SSEP economic data ingestion, modelling, and assumptions development.

Data sources and review

Alongside the assurance activities described above, we have placed particular emphasis on the integrity of SSEP data. This has involved a thorough review and challenge of data provided by DESNZ, supported by a structured process for clarifying, tracking, and resolving any data-related queries with DESNZ. Each data item was evaluated for quality, impact, and risk, with high-risk issues discussed and addressed through NESO's internal governance processes. Updates to data are systematically recorded in a programme assumptions log. Additionally, NESO's Chief Economist conducted a comprehensive review of SSEP cost assumptions, benchmarking them against Future Energy Scenario (FES) assumptions and highlighting any areas of risk.

SSEP Methodology Updates

Since the SSEP methodology was published in May 2025, NESO has made the following updates:

Topic	Update
SSEP zones	We have confirmed the 19 land zones that will be used in the publication of the draft SSEP (see Figure 1). These zones align with the Regional Energy Strategic Plan nations and regions, which reflect common geographical boundaries and key electricity system boundaries. These take a more balanced view of the planning and energy system principles. Additionally, we have confirmed the 19 marine zones that will be used for publication. These zones have aligned to, or are adaptations from, current marine zones used for spatial marine planning (see Figure 1). The zones have been updated in response to stakeholder feedback and to improve modelling efficiency as outlined in the **SSEP Economic and Publication Zones** section.

Topic	Update
SSEP ranges	SSEP will have a single CSNP planning line for all technologies for all zones, with a range over the time period (see Figure 2). The CSNP planning line provides certainty for network planning and the pathway ranges provide clear direction for industry and planning authorities while allowing flexibility for future changes.
Low regrets definition	Our methodology describes the development of a low regrets pathway, defined in the SSEP commission as having a higher level of consistency in the pathway elements across the plausible futures considered. We have a more detailed description of the low regrets pathway, involving two steps: **Step 1** - Assessing common levels of capacity deployment across the shortlisted pathways. We will identify the capacity for each technology that appears in a majority of the shortlisted pathways. **Step 2** - Assessing the pathway against key risks and adapting it to mitigate those risks.
Spatial Evaluation Framework - Weighting at pillar level	The methodology stated: If modelling outputs are not deliverable due to the degree of impact on any of the SSEP pillars, we may undertake a process of 'swing' or 'pairwise' weighting to achieve a deliverable outcome. It has since been agreed not to use weighting. The design of our Spatial Evaluation Framework, and additionally the criteria used to assess and evaluate potential pathways within our Appraise Framework, ensures that no pathway developed requires the use of spatially excluded areas. Therefore, every pathway is considered theoretically deliverable. Application of the Spatial Evaluation Framework (SEF) has optimised geospatial inputs to the economic model, and robust quality assurance of the geospatial outputs has been undertaken, ensuring the SEF has been accurately applied.
Pathway down selection	A down selection methodology has been developed to determine the shortlist of pathways that will be appraised in full. A down selection process is required to select a shortlist of pathways from a longlist of pathway options. A longlist results from the modelling of policy and energy system sensitivities. The down selection process is designed to align to the appraisal principles of HM Treasury's Green Book. Appraise and the down selection process

Topic	Update
	remain guided by the Appraise principles referred to in our published methodology and the ability of pathways to achieve SSEP objectives.
Societal approach	We have conducted a second societal survey. Establishing two data points for survey data provides greater insight into societal views to assess if any change in public opinion has taken place.

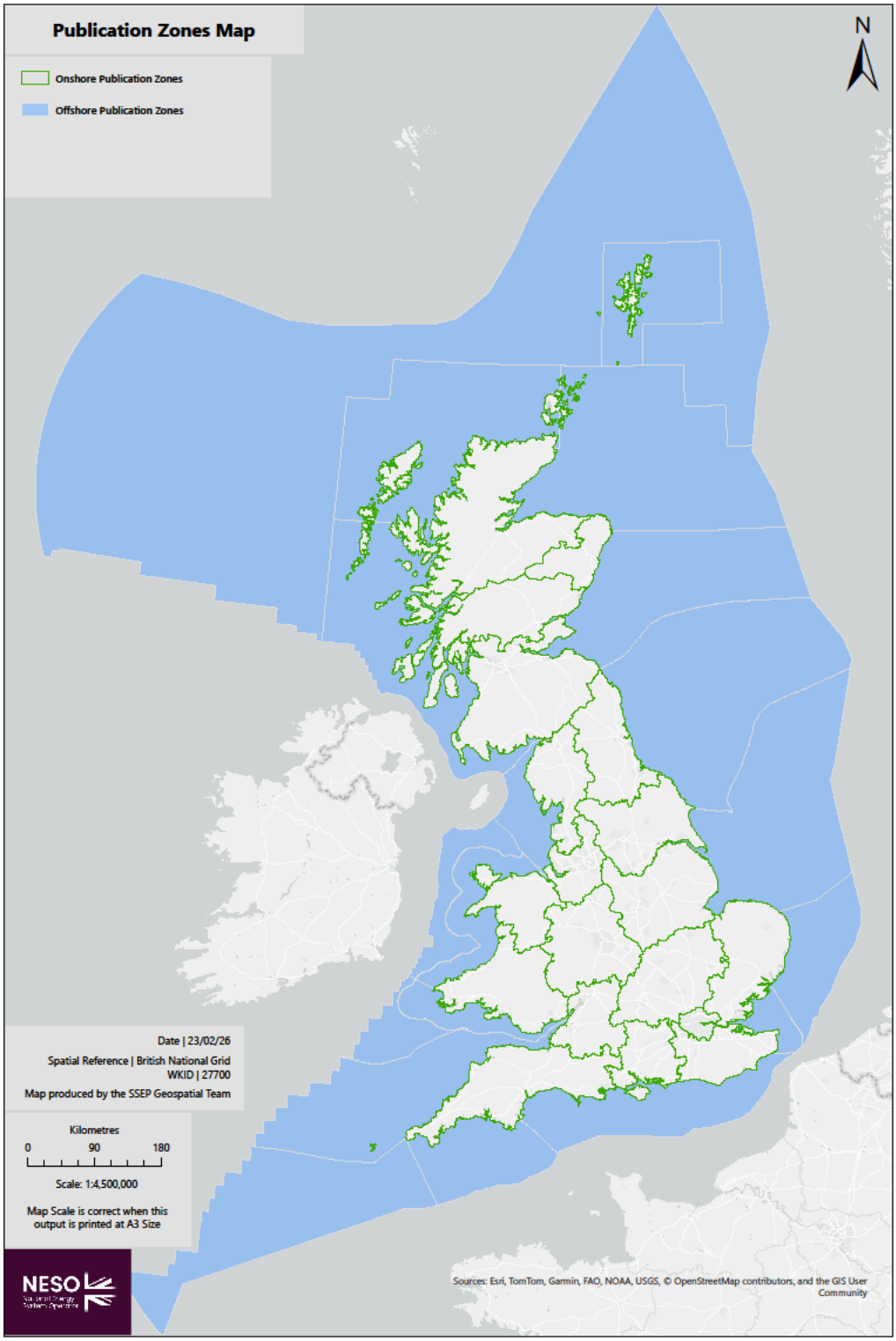


Figure 1: The 19 marine and 19 land zones that will be used in the publication of the draft SSEP

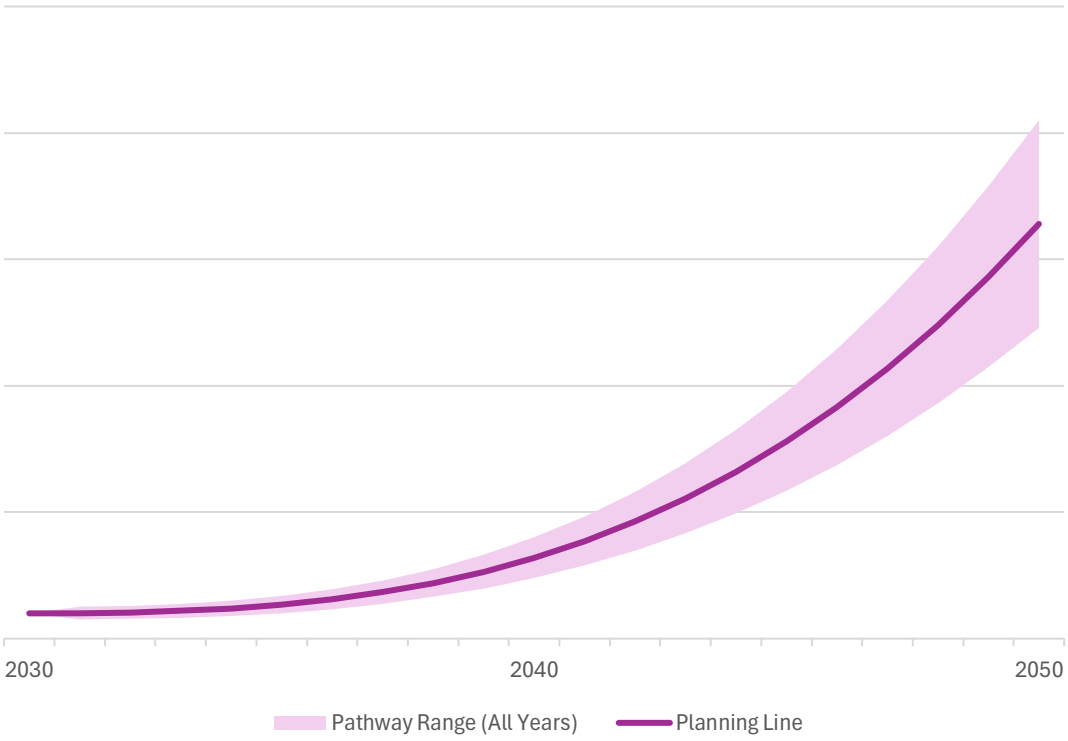


Figure 2: An illustrative example of the SSEP planning line with ranges over time