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NSW GOVERNMENT

Bulk Corridor Design Refinement Report

New England Renewable Energy Zone network infrastructure project

November 2025

Acknowledgement of Country

The Energy Corporation of New South Wales acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past and present through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Bulk Corridor Design Refinement Report

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Version control

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0.1	Cara Inia, Project Development & Strategy Director	Draft document – Sections 6,7,8 and Appendix A (constraints, considerations and comparative assessment)	Jul-25
0.2	NE REZ project team leads	Review	Jul-25
0.3	Doug Parris, Project Director	Reviewed and endorsed with comments to be addressed	Jul-25
0.4	Cara Inia, Project Development & Strategy Director	Draft document – addition of sections 1,2,3 and 9	Aug-25
0.5	NE REZ project team leads	Review	Aug-25
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1.1	Cleo Andrews, Communication & Engagement Lead	Updated with foreword (p. 4) and redactions prior to public release in November 2025.	Nov-25

November 2025 foreword

Background

EnergyCo prepared this report for internal governance purposes in September 2025. It outlines the findings of EnergyCo's bulk corridor refinement process between Muswellbrook and the central south hub near Walcha. Based on the findings outlined in this report, EnergyCo released a new 3km-wide study area for public consultation on 2 October 2025.

Following requests from the community, EnergyCo committed to publishing this report in November 2025 to provide further detail on why the bulk corridor was moved and how the new study area will deliver improved outcomes over the previous study corridor.

Indicative corridor analysis

The analysis contained in this report is based on a notional 250m-wide corridor for both the previous study corridor and the new study area. This is indicative only for comparison purposes and the final corridor has not yet been determined. EnergyCo expects to narrow the new study area to a 1km-wide corridor in early 2026 following consultation and further assessment, with a proposed 250m-wide corridor to be included in the environmental impact statement (EIS) in the second half of 2026.

The findings in this report will therefore be subject to change as the corridor is refined. It should not be interpreted as a predictive or exhaustive assessment of the corridor impacts over time.

REZ network design refinements

EnergyCo published refinements to the REZ network design in October 2025 after this report was prepared. As a result, the maps included in this report do not show the increased number of energy hubs as a result of splitting central hub into two 500kV substations (central hub A and central hub B). Further details are available online: Refining the New England REZ network | EnergyCo. Some additional footnotes have been added as clarification through the document.

Redactions

Some sections of the report are redacted due to information relating to project costs, risks and other factors which are commercially sensitive and may affect the competitive process currently underway to procure a network operator for the New England REZ network infrastructure project.

Other redactions have been made in the multi-criteria analysis to remove detailed information about localised impacts of the indicative corridor that may be subject to change as the corridor refinement process continues, including specific locations and points of interest. These redactions do not affect the overall findings of the report.

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Executive summary

Overview

The New England Renewable Energy Zone (REZ) was declared in 2021, with early corridor planning beginning in 2022. The design development process follows a standard, staged approach — progressing from early planning and strategic design, through reference design, and ultimately to a final corridor, which narrows from a broad study area to a permanent 140-metre easement (generally) for the dual 500 kilovolt (kV) lines, or energy hub footprint (requiring the acquisition of freehold land).

This process takes several years and requires ongoing review, assessment, and validation as new information becomes available such as technical studies, field investigations, and landowner feedback. From the outset, it was known that steep terrain would be an issue, however, early planning and strategic design development suggested these challenges could be managed and were factored into the project timeline.

During the development of the reference design, a number of key technical and environmental studies were undertaken. These studies identified several issues, particularly in relation to constructing transmission lines through steep terrain between Bayswater Power Station near Muswellbrook and Central South Energy Hub. The issues needed to be addressed to ensure the project remained feasible, efficient, and responsive to community and environmental considerations.

While some of these issues could be managed through localised design refinements, the cumulative effect of multiple refinements introduced increasing complexity and potentially unmanageable risks, while only partially addressing the constraints. For the purpose of this document, the existing preferred study corridor (PSC) with localised refinements will be referred to as the **Refined PSC.** As localised refinements were identified, it became clear that the topography east of the Refined PSC offered more favourable conditions and the potential to deliver reduced impacts for the community, environment, and energy consumers, while also meeting the electricity needs of NSW.

Given the potential material impacts of proceeding with the Refined PSC, a new corridor option was identified east of the existing corridor which will be referred to as the **new study corridor**. The bulk corridor refinement process was initiated – comparing the two corridors using a Multi-Criteria Analysis (MCA).

This report outlines the outcomes of that assessment and **recommends proceeding with the new study corridor** to ensure the project is delivered in a way that best balances technical, environmental, and community considerations, while also meeting NSW's energy requirements and providing long-term benefits for consumers.

Introduction

The Energy Corporation of NSW (EnergyCo) is planning the construction and operation of new transmission infrastructure to connect energy generation and storage projects within the REZ to the NSW transmission network.

The New England REZ network infrastructure project (the project) is a critical energy project for NSW that will provide clean and reliable electricity to consumers for generations to come. The project is required to support the Commonwealth and NSW governments' energy security, cost and sustainability objectives and will help ensure network reliability and security as coal-fired power stations retire in the early 2030s.

The project is currently about 350 kilometres in length, with the transmission corridor extending from the Bayswater Power Station in the Hunter region of NSW, up and into the New England REZ located in the Northern Tablelands region of NSW. The project includes the development of high voltage transmission lines, energy hubs within the REZ, as well as supporting infrastructure.

Since 2022, EnergyCo has been developing the transmission corridor for the project through a structured, staged design process, which is outlined in the next section.

Design development process

The development of large-scale transmission infrastructure follows a standard, staged process that progressively narrows from a broad study area to a defined corridor and, ultimately, the final easement and infrastructure footprint.

At each phase, the level of technical studies and landowner and community engagement increases from high-level desktop analysis to site-specific engineering design. This information is continuously reviewed, assessed, and validated to confirm whether the project can progress to the next stage. Where information cannot be validated before progressing; earlier design phases are revisited to re-examine assumptions.

This staged approach ensures the design becomes progressively more refined and robust, with each stage building on new data, studies, and engagement:

- **Early planning (2022–2023):** Desktop analysis and evaluation were undertaken to identify broad corridor options based on key planning criteria and major constraints. Multiple options were considered for feasibility, including the Western corridor (closer to Tamworth) and the Mid-Western corridor (near Ellerston). Following evaluation, the Western corridor was selected as the preliminary study corridor and announced publicly in Jun-2023.
- **Strategic design development (mid-2023 – mid-2024)**: At this stage, the corridor remained broad (about one kilometre). Technical investigations, field studies, and early engagement with landowners and communities were carried out to refine the corridor and validate assumptions. Because this phase relied on high-level investigations and datasets, not all constraints could be fully understood. This work informed further refinements and underpinned key milestones, including the preferred study corridor (PSC) as outlined in the project's Scoping Report (Jul-24).

- **Reference Design development (mid-2024 – present**): With more detailed technical assessments, modelling, and extensive landowner engagement, the corridor has been refined into a Reference Design which aims for a 250-metre corridor. This provides greater specificity, including indicative tower sitings, access arrangements, and construction methodologies. The Reference Design represents a critical step, balancing technical feasibility while aiming to minimise environmental, property, heritage, and community impacts. Once finalised, it will inform the project's Environmental Impact Statement (EIS) and be provided to bidders in the network operator procurement.
- **Final Design (future state):** The final phase will translate the Reference Design into a detailed design and construction specifications. This includes finalising property agreements, planning approvals, and detailed site investigations. The design will be resolved to the level of individual components (e.g. towers, conductors, substations) and construction methodologies, ensuring compliance with Australian Standards and project requirements. Micro-level refinements may still occur during construction as on-site optimisation opportunities are identified.

This structured and comprehensive route selection and design development process provides confidence that the project will be delivered safely and efficiently.

Reference Design: Identifying issues and proposed solutions

This section provides an overview of the detailed technical assessments carried out to develop the Reference Design. It also outlines the constraints identified through these assessments and the solutions considered. These solutions included refining the PSC through localised design adjustments (Refined PSC), alternatively, relocating a substantial section of the bulk corridor to an alternative location.

Technical investigations

In early 2025, the project advanced site investigations and engineering analysis into construction-level considerations. Engineers modelled individual tower siting and foundations, which allowed other constructability assessments to be carried out. These investigations provided the most detailed technical information to date and included:

- **Assessing bushfire management strategies** including potential conflicts with aerial firefighting operations at Chaffey Dam and Lake Glenbawn.
- **Determining tower pad siting and civil design** to confirm construction feasibility and the extent of earthworks.
- **Planning access track arrangements** to enable safe delivery of heavy plant and equipment and transportation of workers to site.
- **Review co-location with existing transmission lines** in areas of very steep terrain to identify safety risks and required equipment.
- **Identifying extent of non-conventional construction** methods, such as heavy-lift helicopters for assembling towers.

- **Quantifying earthworks** based on confirmed tower locations, access track designs and construction methodologies.
- **Reviewing road access and impacts** associated with tower locations and management of excess spoil.

Challenges

The technical and environmental investigations confirmed there were significant and compounding constraints between Bayswater and the Central South Energy Hub; largely driven by very steep terrain.

While these challenges were identified in the strategic design, detailed assessments quantified the scale and demonstrated that the project could not continue under the original approach without targeted refinements to address each constraint.

Importantly, the outcomes of each study flowed into the next, with findings on tower siting informing access track design, which in turn influenced construction methods, earthwork volumes and ultimately road impacts.

The findings, which are interrelated, included:

- **Increased bushfire risks** – aerial firefighting operations would be impacted around Chaffey Dam and Lake Glenbawn, requiring a change to the corridor. Relocation to avoid this impact was previously publicly committed but the assessment further informed the extent of the required change (about 30 kilometres). There are also significant constraints and challenges involved in making local alignment changes, including increasing the number of dwellings in proximity to the corridor.
- **Tower pad siting and civil designs –** a significant number of towers would need to be located on very steep terrain (with access tracks with grades over 18 per cent), requiring bespoke tower pads. This materially increases spoil volumes, safety risks and construction program length, and cost.
- **Access tracks –** extensive new access tracks would be required in very steep terrain (hundreds of kilometres). This compounds construction difficulty and, by undertaking earthworks to reduce the gradient of the access tracks, creates additional impacts on landowners and the environment, including increased vegetation clearing and large volumes of trucks removing surplus spoil. The steep grades also increase safety risks for moving heavy plant and equipment and transporting workers to site.
- **Construction methods –** delivery would rely heavily on non-conventional approaches including heavy lift helicopters for tower construction in very steep and remote locations. In areas of co-location with operational transmission lines, this increased the safety risks of construction activities.
- **Safety and program risks –** rugged terrain, limited road access, and proximity to live transmission lines (co-location) increases risks to workers and equipment, extends construction timelines and adds to cost pressures.

- **Earthworks and vegetation clearing –** substantial increases in earthworks and vegetation clearing would be required to create safe access and construct towers. Initial findings suggest required clearing may be significantly more than originally anticipated.
- **Haulage and disposal impacts –** large volumes of excess spoil would require off-site disposal, generating increased heavy vehicle movements on constrained regional roads and increasing community impacts.
- **Limited public road access –** over 500 kilometres of local roads would be utilised in construction. Large portions these local roads were identified as being narrow, winding, and substandard, being potentially unsafe or inefficient for construction transport.

Taken together, these constraints highlighted the magnitude and interdependency of challenges along a large portion of the bulk corridor. To progress, the project examined opportunities for localised refinements and identified a new study corridor, which are outlined in the following section. A visual representation of the key constraints identified within the PSC is provided in Part B.

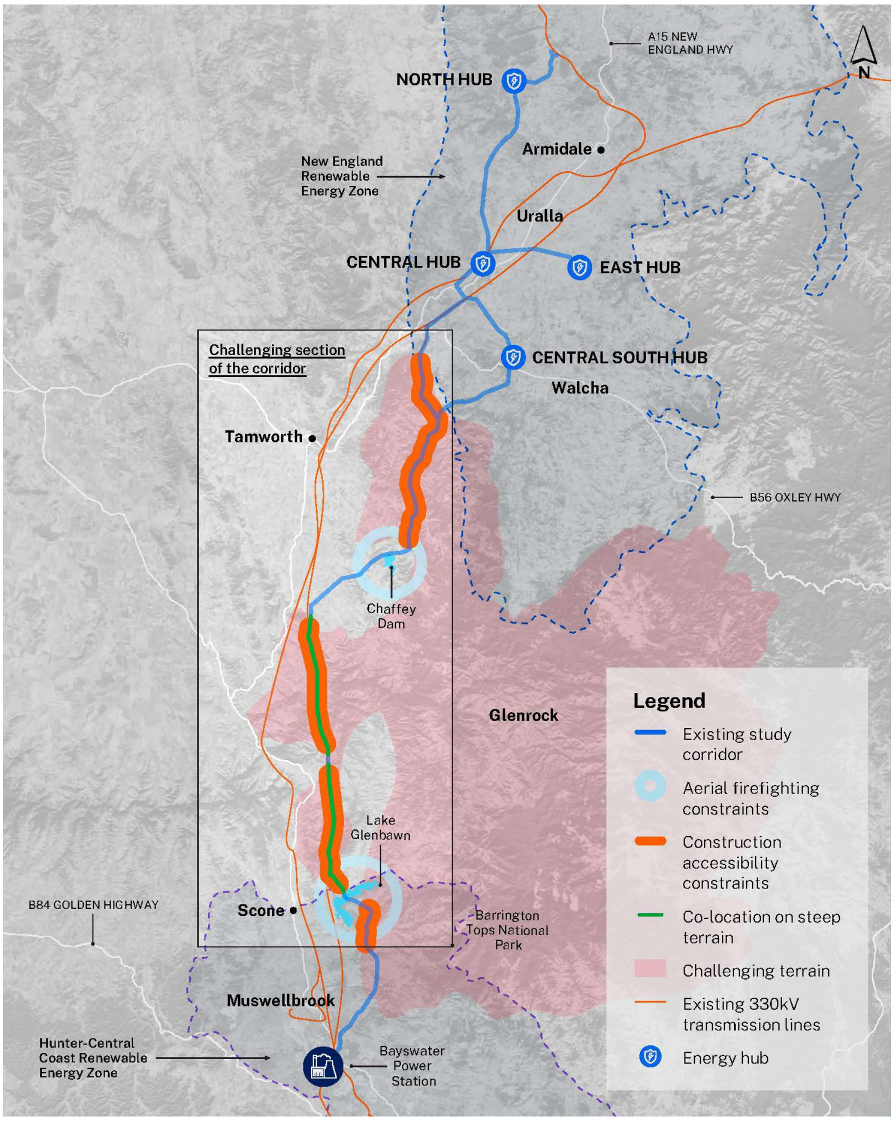


Figure E-1: Key constraints for the PSC

Local design refinements for the PSC (Refined PSC)

The project explored a range of localised design refinements for the PSC to address access, construction, and environmental constraints, including:

- adjusting tower locations locally (typically within or in the vicinity of the one-kilometre corridor)
- modifying span arrangements or tower foundation types
- employing specialised construction techniques, including heavy-lift helicopter tower delivery.

While these measures addressed some constraints, their cumulative effect across long sections of the corridor was limited; meaning the refinements only partially resolved the issues.

For example, realignments around Chaffey Dam and Lake Glenbawn avoided impacts to aerial firefighting operations but introduced constraints in new areas such as steep terrain, difficult access, and additional impacts to communities and landowners. Realignment around Chaffey Dam and Lake Glenbawn also increased the overall transmission line length for the project.

Shifts to flatter terrain in other sections improved constructability in isolation but other areas of the corridor still required complex tower pad construction, extensive access tracks and non-conventional construction methods.

Overall, significant constraints remained – very steep terrain, heightened bushfire risk (crossing Category 1 (high-risk) bushfire land) and extended construction timelines that increased environmental and community impacts and risked project delivery. These interdependent challenges highlight the need to test alternative corridor options.

Analysis indicated that areas east of the Refined PSC may deliver more favourable outcomes, such as generally flatter terrain, improved site access, and fewer and less steep access tracks. Given the material limitations of the Refined PSC, it was prudent to find an alternative corridor and carry out a **strategic reassessment of the bulk corridor.** This would determine whether an alternative corridor may provide greater overall benefits on balance.

Identification of an alternative corridor

EnergyCo carried out a detailed review to identify an alternative corridor that could better balance constructability, environmental, and community considerations. This included reassessment of early route options to **the east of the Refined PSC**, including the Mid-Western corridor and Aberbaldie-Niangala Travelling Stock Reserve (TSR) route.

The Mid-Western corridor, which was the next preferred option to the PSC at the time of the initial route selection work, was not progressed during the early route selection process due to accessibility challenges, higher environmental and heritage impacts, limited co-location opportunities, and increased program and cost risks.

Updated technical, environmental and design data confirmed that the corridor still presented steep terrain, limited access, complex tower pad requirements, and extensive earthworks and was not considered a viable alternative.

Similarly, the TSR route remained largely unsuitable for the same reasons outlined in the earlier route assessment (2024) including high conservation value biodiversity impacts, proximity to homes, and other land use constraints, although the report did note the more favourable topography and access.

Options to the west of the Refined PSC were not progressed as it would materially lengthen the transmission line and significantly increase impacts to regional hubs like Tamworth and Scone.

A **new study corridor** was therefore identified east of the Refined PSC and west of the Mid-Western corridor, passing towns such as Waverly and Barry. Supporting technical considerations for this location include:

- **Topography advantage**: Predominantly flatter terrain, with fewer steep sections generally, reducing tower pad complexity and access track construction challenges.
- **Shorter corridor:** decreasing impacts, delivery time, and cost.
- **Constraint avoidance**: Bypasses major regional hubs such as Tamworth and Scone, reduces bushfire risks by crossing less Category 1 (high-risk) bushfire land, and avoids aerial firefighting operations at Chaffey Dam and Lake Glenbawn.
- **Reduced co-location requirements:** Minimises overlap with existing transmission lines, reducing high-risk work adjacent to live infrastructure.
- **Land use optimisation**: Maximises use of suitable public land while avoiding National Parks, high-value biodiversity areas, and minimises impacts to Aboriginal land tenure parcels which have complex acquisition requirements.
- **Improved access and constructability**: Traverses near existing roads and through flatter terrain, enabling safer delivery of construction equipment and reducing reliance on non-conventional methods, including heavy-lift helicopters.
- **Reduced community and environmental impacts:** Simpler construction methods and tower pads are expected to lessen noise, vegetation clearing, excess spoil and disruption to landowners, road users and the broader community.

The corridors for comparative assessment are shown on Figure E-2. These constraints were comparatively assessed as outlined in the next section.

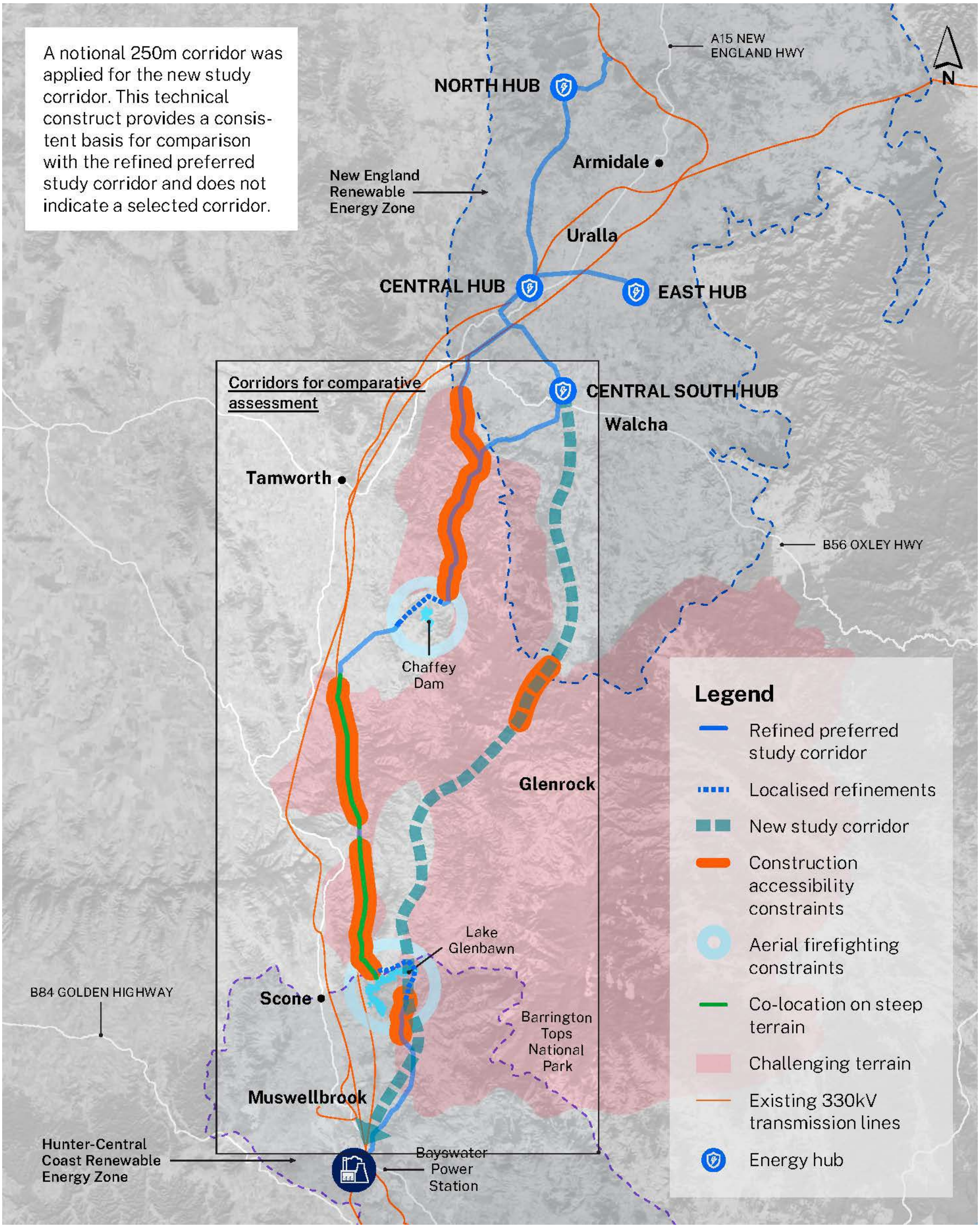


Figure E-2: Corridors for comparative assessment

Comparative bulk corridor assessment

Introduction

Following our internal change management process, EnergyCo carried out a comparative assessment of **two corridors:**

1. The existing PSC with localised refinements (**Refined PSC**), and
2. A new study corridor to the east, via Waverly and Barry (**new study corridor**).

If the new study corridor were to be progressed as the preferred bulk corridor, it would initially be announced publicly as a three-kilometre study area and subsequently refined to a 250-metre corridor through detailed on-site investigations and engagement with landowners and communities.[1]

For the purposes of this comparative assessment, a **notional 250-metre corridor** was applied for the new study corridor. This technical construct provides a consistent basis for comparison with the Refined PSC and does not indicate a selected corridor.

The comparative assessment was carried out using an MCA based on the foundational principles in the NSW Transmission Guideline (Department of Planning, Housing and Infrastructure, 2024) and EnergyCo's planning pillars noting the MCA is consistent with that used in earlier route selection processes and refinements. The foundational principles of the MCA include:

1. Efficiency and deliverability
2. Environment and land use
3. People and communities.

Supporting evidence for the assessment

Key considerations that informed the MCA assessment, including constructability, environmental and energisation, are outlined below. These metrics are current as of July 2025.

Constructability considerations

Key constructability statistics for both corridors, including factors such as corridor length, environmental and road impacts, are outlined in Table E-1. These metrics highlight the relative challenges of constructing in steep terrain and provide a foundation for the MCA.

[1] The 250m-wide corridor is used for environmental assessment and construction. The corridor would be eventually narrowed to a final permanent easement of around 140m wide (generally 70m for each 500kV line).

Table E-1: Key constructability statistics for the Refined PSC and new study corridor (Jul-25)

Metric	Refined PSC	New study corridor
Length	346 km	305 km
Aggregated elevation change	19,535 m	14,047 m
Complex tower pad construction required (Type C)	254	116
Number of transmission towers	1,335	1,318
Surplus earthworks	2.5 million m^3	1 million m^3
Spoil truck movements on local roads	~320,000 movements	~126,000 movements
Access tracks	~810 km (76 km exceeding 21% gradient)	~670 km (28 km exceeding 21% gradient)
Number of towers serviced by access tracks exceeding 18%	~574	97
Co-location with Transgrid	80 km (64 km situated in steep terrain) 13 crossings with existing lines	4 km (non-steep terrain) 9 crossings with existing lines

Project milestones

Project milestones for each corridor, demonstrating how each corridor aligns with efficiency and deliverability requirements, are outlined in Table E-2. These milestones form another input into the MCA.

Table E-2: Project milestones for the Refined PSC and new study corridor (Jul-25)

Stream	Milestone	Refined PSC	New study corridor
Procurement	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
Planning approvals	[redacted]	[redacted]	[redacted]

Stream	Milestone	Refined PSC	New study corridor
Delivery	[redacted]	[redacted]	[redacted]
Energisation (P50)	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

MCA summary

Based on key considerations outlined above, the MCA results are summarised in Table E-3. Overall, the new study corridor performed as well as, or better than the Refined PSC across all assessment criteria, particularly efficiency and deliverability.

Table E-3: Summary of MCA results (Jul-25)

Foundational principle	Planning pillar	Refined PSC	New study corridor
Efficiency and deliverability	Technical	Worse constructability outcomes and access challenges due to steep terrain. Significant number of access tracks required to be constructed to reach tower locations. For example, the Refined PSC would require: • about 810 kilometres of access tracks, with about 76 kilometres of access tracks exceeding 21 per cent gradient • about 574 towers to be serviced by access tracks exceeding 18 per cent grade • about 320,000 spoil truck movements on local roads (from tower pad earthworks). Increased construction and safety risk.	Improved constructability outcomes due to flatter terrain. Requires less complex establishment work including more standard tower pads, and shorter and less steep access tracks. For example, the new study corridor would require: • about 670 kilometres of access tracks, with about 28 kilometres exceeding 21 per cent gradient • about 97 towers to be serviced by access tracks exceeding 18 per cent grade • about 126,000 spoil truck movements on local roads (from tower pad earthworks). More conventional construction methods making it safer, quicker and easier to build.
	Economic	Requires significant use of unconventional construction methods like helicopter construction which increases	Simpler and easier to build. Reduced need for unconventional construction methods resulting in lower risk

Foundational principle	Planning pillar	Refined PSC	New study corridor
		construction time and safety risks.	and more efficient construction.
	Strategic	Higher risks to meeting NSW energisation targets. Includes co-location with an existing Transgrid 330kV transmission line in predominantly steep terrain for about 64 kilometres.	Lower overall risk and better meets NSW energy targets. Avoids co-location in steep terrain.
Environment and land use	Environmental	Greater impact on the environment, including amount of vegetation clearing, due to increased earthworks needed for enabling work like access tracks and tower pads. Reduced bushfire resilience, with larger area of high category bushfire prone land. Contains over 500 hectares more forest/woodland compared to the new study corridor.	Fewer impacts to the environment due to less earthwork required for enabling work. Reduced clearing of native vegetation. Avoids biodiversity offset site at Chaffey Dam. Avoids aerial firefighting zones identified in aviation assessments around Chaffey Dam and Lake Glenbawn, and smaller area of high category bushfire prone land. Avoids about 100 hectares of land set aside by WaterNSW as a biodiversity offset site.
People and communities	People	Closer to town centres with a greater number of dwellings located closer to the corridor. Greater impact on local communities due to greater heavy vehicle movements on local roads. Unconventional construction methods (e.g. helicopters) would increase noise for nearby landowners and towns.	Located further away from town centres and impacts fewer dwellings. Less heavy vehicle movements required.

Independent review panel

In mid-2025, a three-member independent peer review panel with specialist expertise in transmission line construction and large civil infrastructure projects was appointed to provide a comparative assessment of the two corridors.

The findings indicated the **new study corridor to be the preferred option** as it was found to:

- generally allow for better access, both from existing public roads and for the construction of access tracks
- is significantly less reliant on non-conventional construction methods for transmission tower construction
- results in a reduction of the risks associated with the construction of transmission towers including the safety of workers and enable improved program and cost outcomes compared with the Refined PSC.

Feedback from the constructability review was considered when conducting the MCA enhancing the overall confidence and credibility of the assessment outcomes.

Recommendation

The MCA found that the new study corridor performed better overall when considered against the foundational principles.

It is recommended that the project **proceed with the new study corridor** for stakeholder engagement, detailed environmental assessment and Reference Design development. If approved, this corridor will underpin the EIS and be provided to bidders in the network operator procurement.

The MCA concluded that the new study corridor has:

- **Improved constructability and technical performance** – the new study corridor outperforms the Refined PSC on nearly all technical and constructability criteria. It offers simpler and more efficient construction, reduced construction and safety risks, reduced impacts from excess spoil and improved flexibility for design optimisation and refinement.
- **Reduced environmental impacts** – the new study corridor reduces overall environmental impacts compared to the Refined PSC. The new study corridor contains less woodland/forest vegetation, crosses less Category 1 (high risk) bushfire land, avoids impacts to aerial firefighting operations and crosses less land mapped as biophysical strategic agricultural land (BSAL). It would also require less vegetation clearing for the construction of new access tracks in mountainous terrain.
- **Reduced community impacts** – the new study corridor is more accessible to key local roads decreasing access tracks built on private property, and less vehicles on roads carting excess spoil. By reducing the use of heavy-lift helicopters, the impacts of noise on nearby communities and livestock are also reduced.
- **A stronger delivery profile** – the new study corridor provides greater timing certainty and the potential for earlier energisation. It is also considered to be more financeable due to its more efficient and flexible design.
- **Decreased risk** – the new study corridor offers a more robust and adaptable delivery program and, while it does carry some transitional risks, these are outweighed by the much higher strategic risks associated with continuing with the Refined PSC. The Refined PSC presents a constrained and rigid design with limited scope for optimisation, tight construction windows, and exposure to complex terrain. These factors reduce the

project's ability to absorb delays or respond to unforeseen challenges, significantly increasing the risk to overall delivery.

Figure E-3 illustrates the proposed public-facing map that would support the announcement.

Figure E-3: Proposed public-facing map to support announcement

Authorisation and implementation

In line with the project's change management process:

- Extensive internal engagement was carried out prior to approval, including:
  - regular weekly (twice per week) meetings with the EnergyCo Executive Leadership Team (ELT)
  - briefings to the Board including a joint meeting with the Board and Independent Peer Review Panel.
- This change requires formal Board approval, supported by a comprehensive package of supporting evidence. This includes an overarching Briefing Note seeking approval to move the bulk corridor, along with supporting material such as the how the community, landowners and stakeholders will be engaged and briefing packs that incorporate the information contained in this report.
- If approved, the standard process for a project announcement will commence including stakeholder engagement and progress to public announcement.

A

Part A – Introduction and background

1 Introduction

1.1 Objectives

This Bulk Corridor Design Refinement Report (this report) details the bulk corridor design refinement process which was carried out. The objectives of this report are to:

- Outline the key issues and challenges associated with the PSC which were identified during development of the Reference Design.
- Identify and assess potential solutions to avoid or minimise the key issues and challenges.
- Recommend a preferred solution which will inform further stakeholder engagement, detailed environmental assessment, the Reference Design and be provided to bidders for the network operator procurement.

1.2 Background

The New England REZ is a key part of NSW's clean energy future, offering high-quality renewable resources and strong investor interest. Formally declared under the *Electricity Infrastructure Investment Act 2020* (EII Act) on 17 December 2021, the New England REZ is in the New England and Hunter regions of NSW. It has an intended network capacity of eight gigawatts, with an initial transfer capacity of six gigawatts to be delivered in two stages:

- Stage 1: 2.4 gigawatts by 2032-2033
- Stage 2: An additional 3.6 gigawatts by 2034-2035.

An additional Stage 3, providing at least two gigawatts, may be developed in the future, subject to energy demand and relevant approvals.

The location of the New England REZ is shown on Figure 1-1. Centrally located between Sydney and Brisbane, the New England REZ covers an area of about 15,500 square kilometres situated on the land of the Biripi, Dainggatti, Nganyaywana, Ngarabal, and Gumbainggir people, and will provide opportunities to increase NSW's energy resilience in future years.

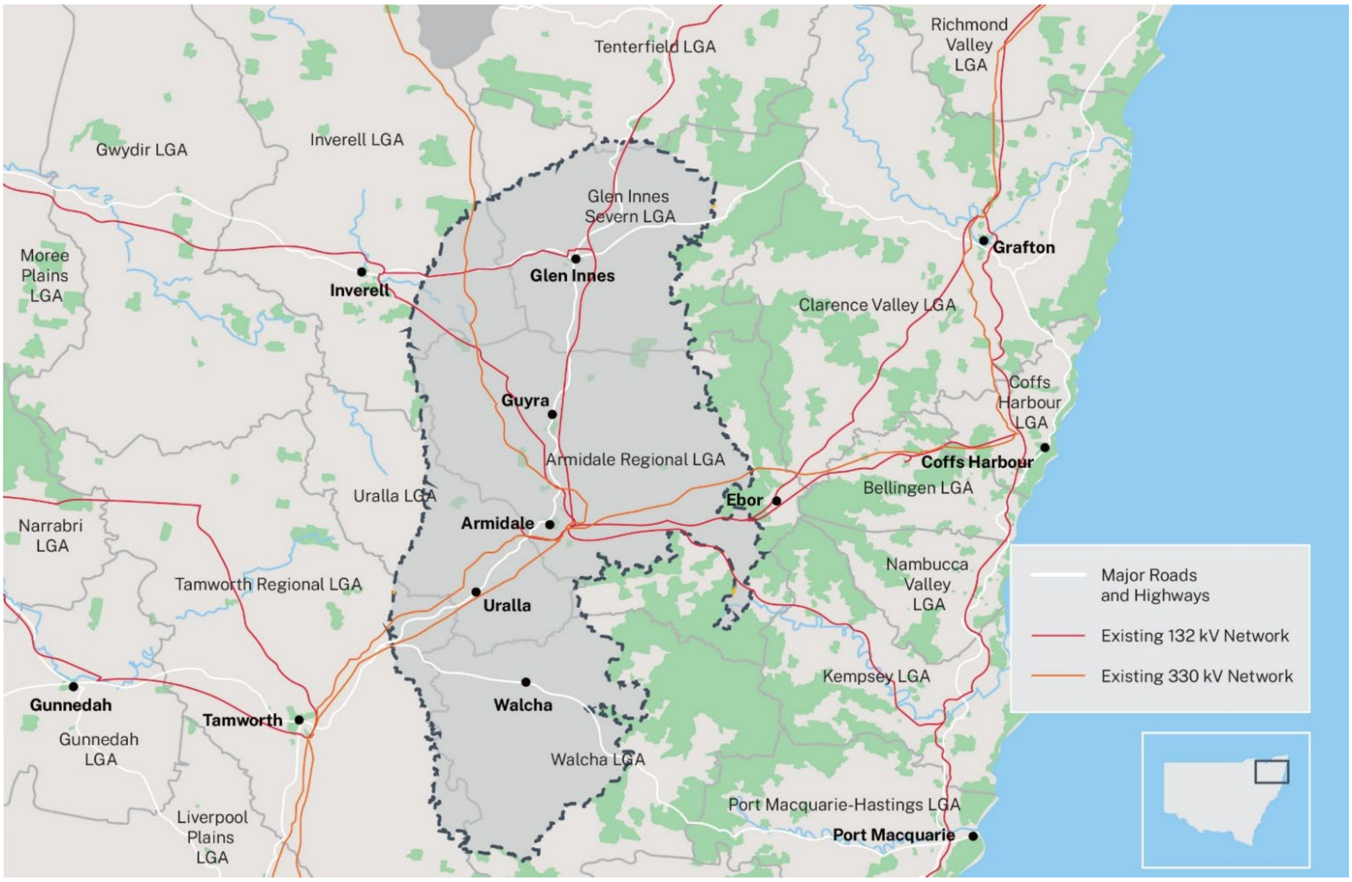


Figure 1-1: New England REZ

1.2.1 The project

The Energy Corporation of NSW (EnergyCo) is planning the construction and operation of new transmission infrastructure to connect energy generation and storage projects within the New England REZ to the NSW transmission network (the project). The project was declared Critical State Significant Infrastructure in June 2024 in accordance with section 5.13 of the *Environmental Planning and Assessment Act 1979*.

The project is a critical energy project for NSW that will provide clean and reliable electricity to consumers for generations to come. The project is required to support the Commonwealth and NSW governments' energy security, cost and sustainability objectives and will help ensure network reliability and security as coal-fired power stations retire in the early 2030s.

The project is about 350 kilometres in length, with the transmission corridor extending from the Bayswater Power Station in the Hunter region of NSW, up and into the New England REZ located in the Northern Tablelands region of NSW.

The project comprises the following key features:

- New transmission infrastructure including new dual 500 kilovolt (kV) transmission lines and associated infrastructure to connect the New England REZ to the NSW transmission network (as part of the National Electricity Market) near Muswellbrook NSW and new single 500 kV and 330 kV transmission lines to connect to energy hubs and one switching station within the New England REZ.

- Four energy hubs[2] to connect future energy generation and storage projects within the New England REZ to the new 500 kV network infrastructure and a northern connection switching station to link the North Hub with Transgrid's existing 330 kV transmission line.
- Ancillary development to support the project, including:
  - establishment or upgrade of access tracks and public roads
  - upgrade and/or augmentation to existing electricity and utility infrastructure
  - installation and operation of communications infrastructure and facilities.

1.3 Design development process and route selection

1.3.1 Design development process

The development of large-scale transmission infrastructure follows a standard, staged process that progressively narrows from a broad study area to a defined corridor and, ultimately, the final easement and infrastructure footprint.

At each phase, the level of technical studies moves from high-level desktop analysis to site-specific engineering design and landowner and community engagement increases. This information is continuously reviewed, assessed, and validated to confirm whether the project can progress to the next stage. Where information cannot be validated before progressing; earlier design phases are revisited to re-examine assumptions.

This staged approach ensures the design becomes progressively more refined and robust, with each stage building on new data, studies, and engagement:

- **Early planning (2022–2023):** Desktop analysis and evaluation were undertaken to identify broad corridor options based on key planning criteria and major constraints. Multiple options were considered for feasibility, including the Western corridor (closer to Tamworth) and the Mid-Western corridor (near Ellerston). Following evaluation, the Western corridor was selected as the preliminary study corridor and announced publicly in Jun-2023.
- **Strategic design development (mid-2023 – mid-2024):** At this stage, the corridor remained broad (about one kilometre). Technical investigations, field studies, and early engagement with landowners and communities were carried out to refine the corridor and validate assumptions. Because this phase relied on high-level investigations and datasets, not all constraints could be fully understood. This work informed further refinements and underpinned key milestones, including the PSC as outlined in the project's Scoping Report (July 2024).
- **Reference Design development (mid-2024 – present):** With more detailed technical assessments, modelling, and extensive landowner engagement, the corridor has been refined into a Reference Design which aims for a 250-metre corridor. This provides greater specificity, including indicative tower sitings, access arrangements, and construction

[2] The total number of energy hubs has increased to five following the splitting of central hub into two substations (central hub A and central hub B) in October 2025.

methodologies. The Reference Design represents a critical step, balancing technical feasibility while aiming to minimise environmental, property, heritage, and community impacts. Once finalised, it will inform the project's Environmental Impact Statement (EIS) and be provided to bidders in the network operator procurement.

- **Final Design (future state):** The final phase will translate the Reference Design into detailed design and construction specifications. This includes finalising property agreements, planning approvals, and detailed site investigations. The design will be resolved to the level of individual components (e.g. towers, conductors, substations) and construction methodologies, ensuring compliance with Australian Standards and project requirements. Micro-level refinements may still occur during construction as on-site optimisation opportunities are identified.

This structured and comprehensive route selection and design development process provides confidence that the project will be delivered safely and efficiently.

1.3.2 Route selection historical context

As outlined above, the route selection process for the project began in early 2022, following the formal declaration of the New England REZ in December 2021. Since then, a structured and iterative approach has been applied to identify and refine a corridor that is technically feasible, environmentally responsible, and aims to leave a positive legacy for the community.

Strategic and project objectives were established from the outset to guide corridor development based on EnergyCo's five Planning Pillars, which are people, environment, economic, strategic and technical.

To ensure a consistent and transparent evaluation process from early planning stages, a structured Multi-Criteria Analysis (MCA) framework was applied at each stage of the assessment.

An overview of the corridor selection and refinement process for the project is provided in Table 1-1, while the initial bulk corridor process is shown on Figure 1-2. Further detail regarding the route selection process for the project is provided in the project's Scoping Report (July 2024).

Table 1-1: Corridor selection and refinement process

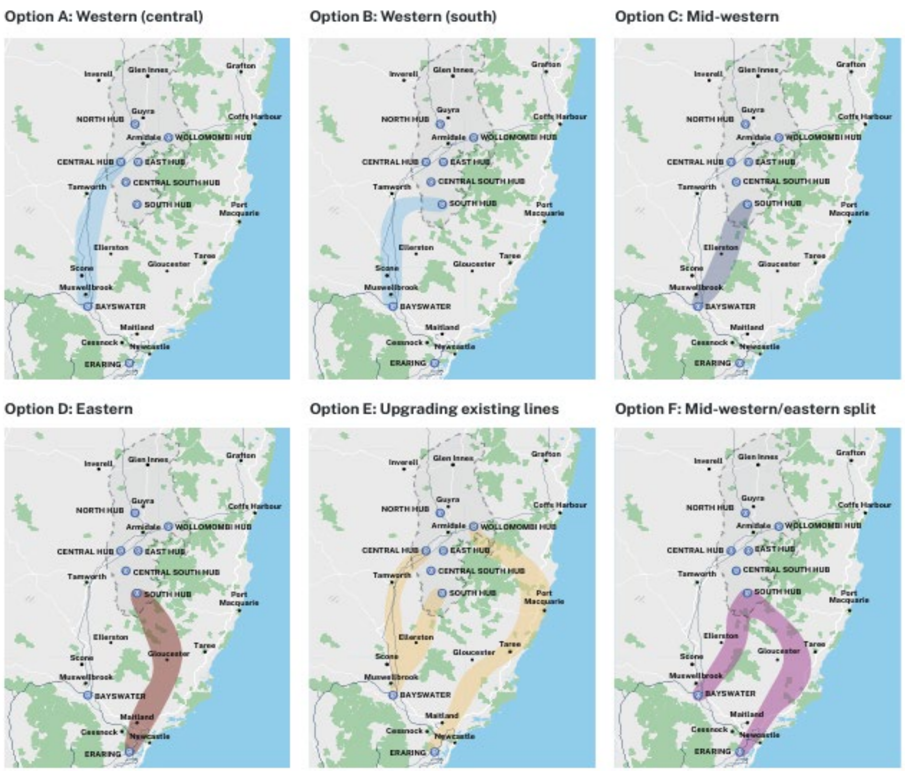
Corridor selection and refinement process	Description
Early planning 2022 – 2023	The early planning and corridor selection process for the project commenced in 2022, and progressively increased in level of detail from: • **Route design options:** A long list of six corridors were identified for transmission routes based on potential hub locations, land use planning, community, environmental and technical constraints. • **Options feasibility:** Assessed the feasibility of four corridor options that were derived and refined from the long list, including revised energy hub options. Two options (Western and Mid-Western) were recommended to further progress.

Corridor selection and refinement process	Description
	• **Options evaluation:** Assessed the two options through desktop analysis and recommended the Western option as the preliminary study corridor.
Strategic Design development Mid-2023 – mid-2024	The preferred Western corridor was further refined during the development of the Strategic Design through technical and environmental studies, landowner consultation, and community and stakeholder engagement. This led to the development of the following study corridors: • **Preliminary study corridor:** A one-kilometre corridor was released for community, landowner and stakeholder engagement. Field studies were conducted to validate the desktop assessment and gather additional information including feedback from the community and stakeholders. About 320 landowners affected by the preliminary study corridor • **Revised study corridor**: Following community and landowner engagement and further technical studies, an updated one-kilometre corridor was announced which minimised impacts to the environment and community, including reducing the number of landowners affected to 240. The number of energy hubs was also reduced from five to four with the deferral of the South Hub, announced in January 2024. • **Preferred study corridor**: In July 2024, the preferred study corridor was released with the project's Scoping Report. It generally followed the one-kilometre revised study corridor with some narrowed sections.
Reference Design development Mid-2024 to Q1 2026	The EIS will be developed within a preferred corridor about 250 metres wide, expanding at energy hubs and workforce accommodation camps. This is the corridor that will be used to inform environmental and technical surveys and will be presented in the EIS.
EIS exhibition Second half of 2026	EIS exhibition including displaying a Reference Design with a 250-metre-wide preferred corridor.[3]
Final Design 2027 – 2028	Developed by the successful network operator.

[3] The 250m-wide corridor is used for environmental assessment and construction. The corridor would be eventually narrowed to a final permanent easement of around 140m wide (generally 70m for each 500kV line).

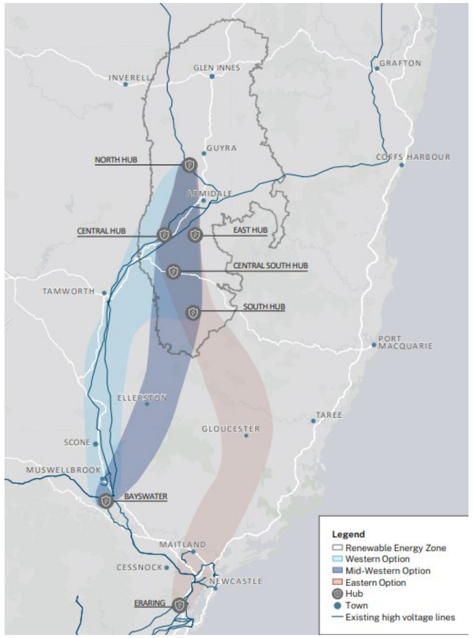
Options development	Feasibility	Evaluation

Options development



Six corridor options identified.

Feasibility



Refined options to two corridors, including the Western corridor and Mid-Western corridor (with an Eastern corridor discontinued due to identified significant constraints).

Evaluation

Assessed the two corridors and progressed the Western corridor as the preferred option.

Figure 1-2: Initial bulk corridor selection process for the project

1.3.3 The existing Preferred Study Corridor (PSC)

In 2024, EnergyCo announced the PSC which has since underpinned key project milestones, including the Scoping Report (July 2024) and been the basis for the project's Reference Design. The existing PSC for the project is shown on Figure 1-3.

Details regarding the development of the project's Reference Design is provided in Section 3.1.

Figure 1-3: Existing PSC for the project

1.4 Managing change

Corridor selection and refinements are carried out within the framework of the project's change management process. Operating within the change management framework ensures decisions are made in line with EnergyCo's statutory obligations as outlined in the EII Act and specifically, ensure decisions are in the best interest of our communities, NSW energy requirements and consumers. The framework includes five key phases which are reflected in the structure of this report, including:

- **identify** the issue and potential solutions (refer to **Part B** of this report)
- **verify** the proposed change is valid and should be investigated further (refer to **Part B** of this report)
- **assess** the change and recommend a preferred option (refer to **Part C** of this report)
- **authorise** by seeking approval for the change (refer to **Part D** of this report)
- **implement** the change (refer to **Part D** of this report).

B

Part B – Reference Design: issue identification and verifying potential solutions

2 Chapter B overview

This chapter outlines the **detailed technical investigations** that were carried out to develop the Reference Design, **issues identified** mostly relating to steep terrain and, **potential solutions**.

To support understanding of the analysis that follows, the two corridors that will be assessed (the Refined PSC and the new study corridor) are shown on Figure 2-1.

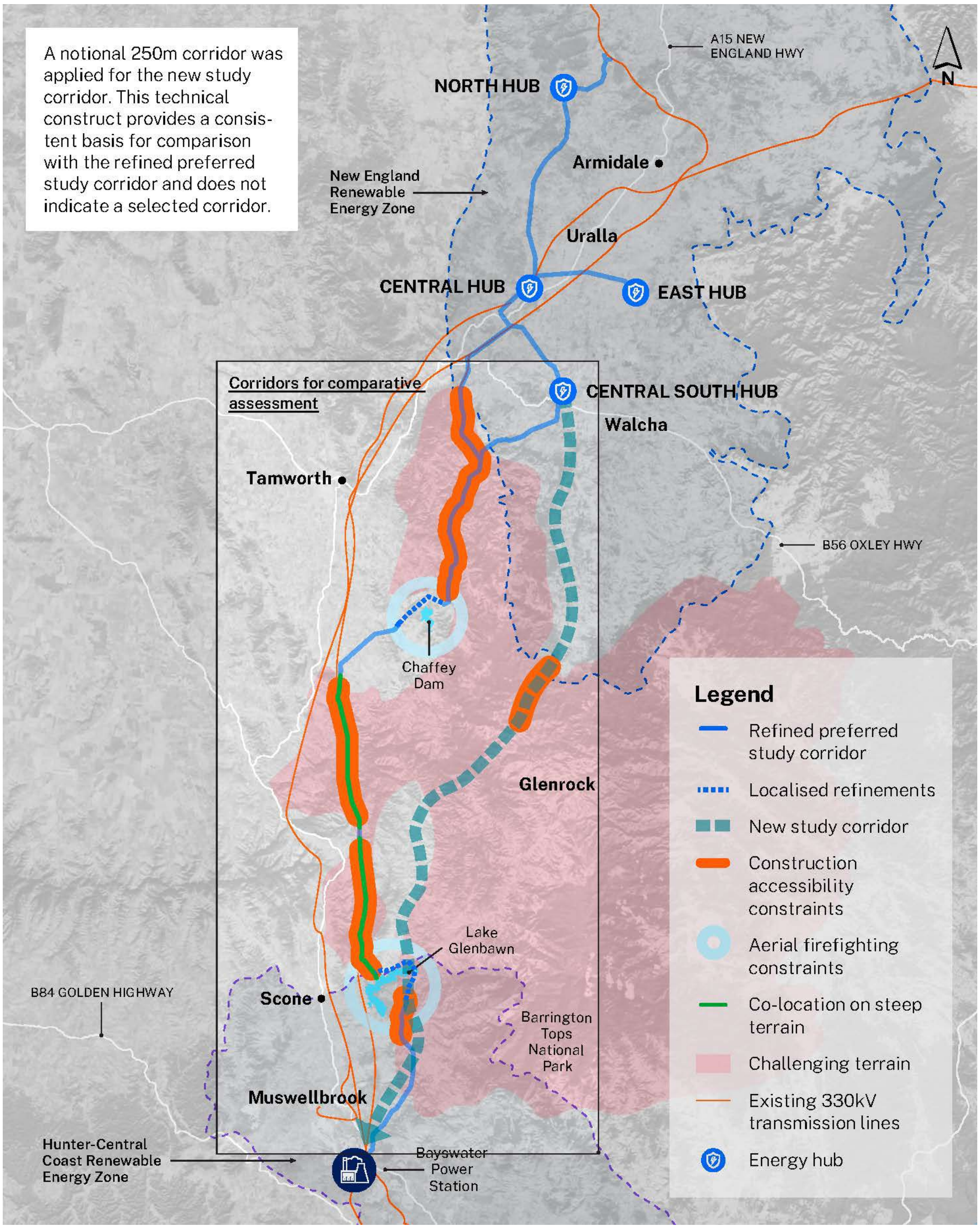


Figure 2-1: Corridors for comparative assessment

3 Technical investigations identify constraints

This section outlines the technical investigations carried out to develop a robust Reference Design from the project's PSC and, the issues identified through the process.

In early 2025, site investigations and engineering analyses advanced construction-level considerations, providing detailed input for design decisions. Individual tower siting and foundation modelling enabled a range of constructability assessments, which highlighted substantial constraints with the design, which are further explored in Section 3.2.

3.1 Technical investigations for the Reference Design

In development of the Reference Design, several design inputs have materially progressed including site investigations, engineering analysis and stakeholder and landowner engagement.

These investigations provided the most detailed technical information to date and included:

- **Assessing bushfire management strategies** including potential conflicts with aerial firefighting operations at Chaffey Dam and Lake Glenbawn.
- **Determining tower pad siting and civil design** to confirm construction feasibility and the extent of earthworks.
- **Planning access track arrangements** to enable safe delivery of heavy plant and equipment and transportation of workers to site.
- **Review co-location with existing transmission lines** in areas of very steep terrain to identify safety risks and required equipment.
- **Identifying extent of non-conventional construction** methods, such as heavy-lift helicopters for assembling towers.
- **Quantifying earthworks** based on confirmed tower locations, access track designs and construction methodologies.
- **Reviewing road access and impacts** associated with tower locations and management of excess spoil.

3.2 Problem identification

Although the corridor selection process identified and considered areas of steep terrain, in-depth assessments and modelling provided a comprehensive understanding of the scale of these risks and challenges. A summary of the in-depth assessments and modelling which was carried out to inform the Reference Design includes:

- **Assessment of bushfire management strategies** – additional analysis and stakeholder engagement has identified potential impacts to the operation of fixed-wing aerial firefighting aircraft at both Chaffey Dam and Lake Glenbawn. The assessment included the development of transmission exclusion areas to avoid impacts to aerial firefighting operations.
- **Tower pad civil designs** – this is required for any transmission project and due to the steep terrain, this investigation was critical to understand constructability considerations. Findings showed that construction would require a large number of bespoke tower pads which have large impacts on the environment (including excess spoil), and the requirement to use specialised equipment to build the transmission towers.
- **Access track arrangements** – this assessment could only be carried out once the towers had been sited, based on landholder engagement and design of the tower pads. This assessment found that an extensive amount of access tracks would be required on landowner's properties and in steep terrain.
- **Review of co-location with existing transmission lines** – co-location was a key determining factor in selecting the PSC and is a good outcome in flatter terrain. However, as the findings of these in-depth assessments and modelling became available, co-location in sections of steep terrain needed to be reviewed. The review identified risks and challenges (including safety issues and impacts to program and cost) associated with construction near existing operational Transgrid infrastructure in areas of steep terrain.
- **Constructability methodology** – the findings of the above assessments demonstrated that a mix of non-conventional and conventional construction methodologies would be required (such as cranes and heavy lift helicopters for tower construction).
- **Earthworks quantification** – further design work carried out for the tower pads and the access tracks identified significant excess spoil from the earthworks, which would require off-site disposal. This would require a substantial amount of heavy vehicle movements on local and State roads.
- **Review of road impacts** – the impact of the truck movements on local roads was assessed following quantification of the earthworks. Due to the steep terrain, the existing local roads include a high number of geometric and safety non-conformances at many locations. The significant increase in construction traffic on these roads would result in large quantity of road upgrades. The impact of these upgrades would be extensive.
- Further details regarding the key issues and risks identified during these assessments for the PSC are outlined in Table 3-1.

Table 3-1: Overview of key issues and risk identified for the PSC

Assessment	Key issues	Key risks
Assessment of bushfire management strategies	• Constraints Identified around Chaffey Dam and Lake Glenbawn requiring about 30 kilometres of the corridor to be relocated.	• Corridor changes are required to mitigate potential impacts.
Tower pad civil designs	• Require a large number of bespoke tower pads which have large impacts on the environment (including excess spoil).	• Large quantities of excess material generated from earthworks with limited opportunities for reuse on site. • Excess material not able to be reused on site would need to be transported off site, which would generate large quantities of heavy vehicle movements on local roads, which would interact with local traffic. • Some existing local roads are not suitable for large numbers of heavy vehicle movements. Opportunities to upgrade are limited/not feasible due to topographic constraints.

Assessment	Key issues	Key risks
Access track arrangements	• Limited opportunity for access along the easement (on-easement access track) due to topography. • Significant number of access tracks required to be constructed to individual tower locations (rather than staying in corridor). • Significant earthworks and clearing required to develop access tracks due to topography. • Maximum grade of an access track for road-going plant is around 18 per cent, which can be increased over short distances by exception. • Many access tracks would be steep: • about 61 kilometres of tracks with greater than 14 per cent grade and up to 18 per cent grade • about 33 kilometres of tracks with greater than 18 per cent grade and up to 21 per cent grade • about 76 kilometres of tracks with more than 21 per cent grade. • Require the use of specialised equipment to build the transmission towers.	• Significant regrading earthworks required for access tracks, much of which is proposed in geology with shallow granite. • Significant cost and programme impacts. • Safety risks and increased weather risks associated with steep gradients of access tracks. • Many access tracks at or beyond theoretical operating limits for heavy plant.
Review of co-location with existing transmission lines	• About 64 kilometres of PSC co-located with existing transmission lines in steep terrain, with a further 16 kilometres on flatter terrain north of Bendemeer.	• Safety risks associated with construction near a live transmission line. • Impacts to programme and cost.
Constructability methodology	• Safe access for heavy plant not viable for significant number of towers. • More than 570 towers are serviced by access tracks exceeding 18 per cent grade. These would require non-conventional construction, which would include helicopters.	• Significant reliance on non-conventional construction methods including helicopters. • Significant cost increase per tower. • Heavy lift aircraft availability. • Greater exposure to weather risks (such as fog and wind). • Proximity to existing high voltage lines.

Assessment	Key issues	Key risks
Earthworks quantification	• Pads are required at tower construction locations for the tower foundation, tower assembly, crane setup and operation. • Significant earthwork volumes for tower and access track construction due to steep topography.	• About 2.5 million cubic metres of surplus earthworks from tower pad construction requiring offsite disposal. • Significant cost and programme item. • Limited opportunity to use excess material on-site due to topography. • About 320,000 spoil truck movements alone for the tower pad construction on substandard local roads with steep access tracks.
Review of road impacts	• Limited public road access, which generally runs east-west of the New England Highway. • Unsealed, narrow, and winding roads, which include existing geometric and safety non-conformances. • Local traffic generally uses the roads as primary access routes.	• Impacts to construction productivity. • Limited public road crossings require the use of a large number of local roads. • Safety risks associated with significant number of heavy vehicle movements on sub-standard (condition and geometry) roads. • Many roads located near dwellings.

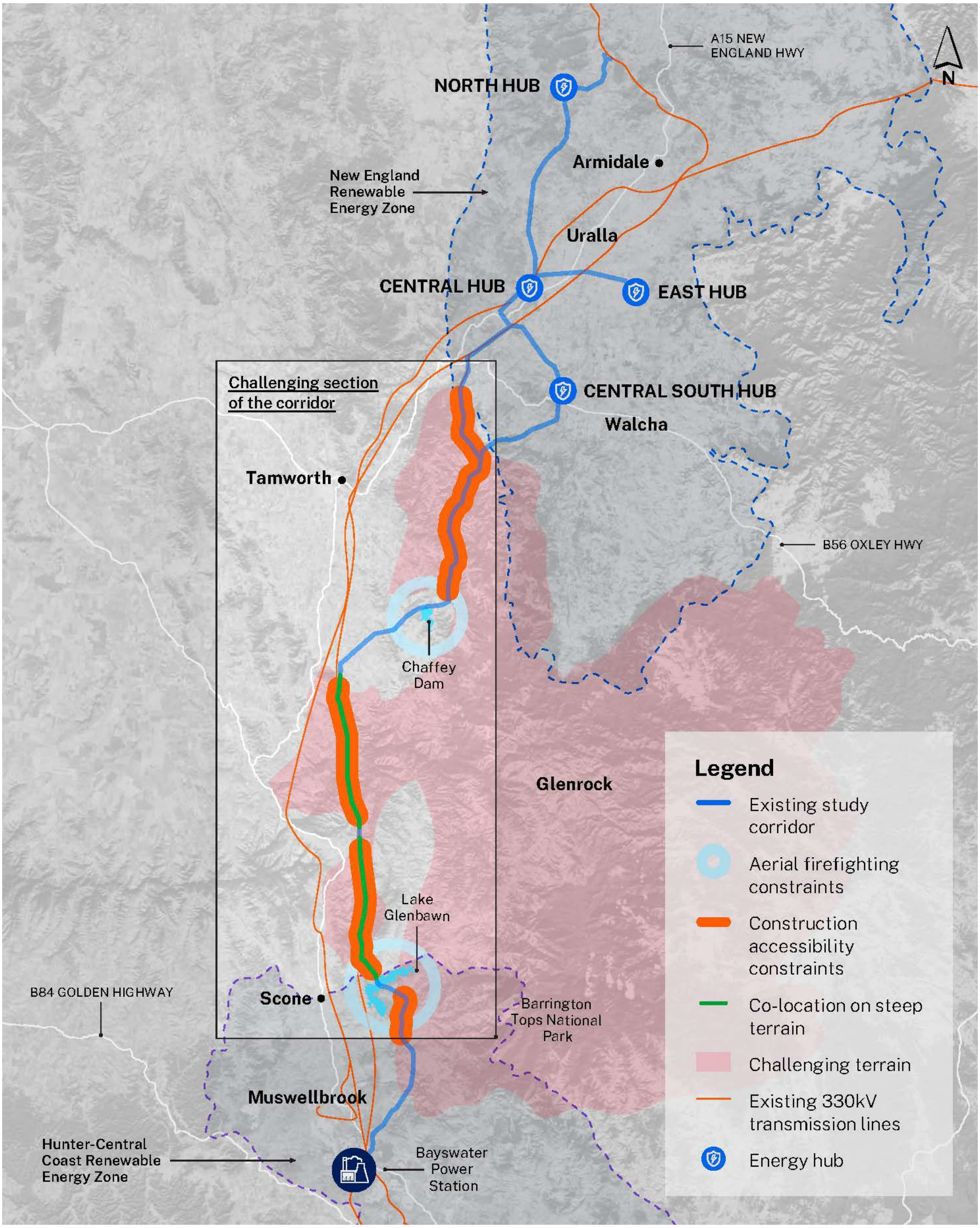


Figure 3-1: Key constraints for the PSC

4 Potential solutions

This section outlines potential solutions EnergyCo considered to address challenges identified through earlier assessments, studies and stakeholder engagement.

The first option included identifying local design refinements to the existing PSC (referred to as the Refined PSC). While these measures addressed some constraints, their cumulative effect across long sections of the corridor was limited.

Given the material limitations of the Refined PSC, it was prudent to identify a new study corridor that could better balance constructability, environmental, and community considerations.

A **strategic reassessment of the bulk corridor** was prepared for each of these options. This would determine whether a new study corridor may provide greater overall benefits on balance.

4.1 Option one: Localised design refinements to the existing corridor

Investigations initially considered the potential for **localised solutions** to address access, construction and environmental constraints including:

- changing the corridor to improve bushfire management
- adjusting tower locations locally (typically in the vicinity of the existing corridor)
- modifying span arrangements or tower foundation types
- employing specialised construction techniques, including heavy-lift helicopter tower delivery.

4.1.1 Localised refinement: Improving bushfire management

Over the past several months we've been carrying out assessments and engaged with key industry stakeholders including the NSW Rural Fire Services (RFS) and two of their key contractors to understand how bushfires are managed in the region specifically, the importance of Chaffey Dam and Lake Glenbawn as water sources for aerial firefighting.

Relocation of the existing PSC around Chaffey Dam and Lake Glenbawn had been previously publicly committed; however, the assessment further informed the extent of the required change (about 30 kilometres) and transmission line exclusion areas were developed following consultation with industry stakeholders. Local design refinements to improve bushfire management are outlined below.

Chaffey Dam

Two localised design refinements were identified to improve bushfire management at Chaffey Dam including moving the corridor to the south-east of the dam, or, north-west of the dam (preferred option). It is important to note, that although bushfire management could be improved by avoiding the exclusion zone(s), it introduced constraints in new areas such as difficult access due to steep terrain and additional impacts to landowners.

- **Moving the corridor to the south-east of Chaffey Dam** – initial investigations of this option found that it may not feasible due to the siting of tower pads and constructability issues in areas of steep terrain. This option would also result in potential direct impacts to dwellings along Nundle Road and River Road.
- **Moving the corridor to the north-west of Chaffey Dam** – although this was the preferred local solution, this option would move the corridor closer to the township of Woolomin.

The Refined PSC includes the north-west corridor around Chaffey Dam which improves bushfire management but still presents material risks in other areas such as impacts to towns and safety to workers.

Lake Glenbawn

Two localised design refinements were identified to improve bushfire management at Lake Glenbawn including moving the corridor to the west or east (preferred) of the lake. As with the refinement for Chaffey Dam, both options only presented a partial solution by avoiding the exclusion zone however, impacts increased to towns, dwellings, and construction constraints including safety, access, and overall risk.

- **Moving the corridor to the west of Lake Glenbawn** – this option would co-locate with the existing Transgrid line, traverse extreme mountain ranges to the north, and result in potential impacts to a greater number of dwellings (such as at Segenhoe).
- **Moving the corridor to the east of Lake Glenbawn** – although this was the preferred local solution, this would require the corridor to reconnect with the existing PSC near the township of Gundy, and traverse steep terrain to the north.

The Refined PSC includes the eastern corridor around Lake Glenbawn, however constraints were highlighted including impacts to townships, and safety concerns in the north.

4.1.2 Localised refinement: Adjusting tower locations, span arrangements and/or tower foundation types

From the outset of corridor development, it was recognised that steep terrain would present challenges. However, initial planning and strategic design work indicated these could be managed and were incorporated into the project timeline.

During the development of the Reference Design, a number of technical and environmental studies were carried out, as outlined above. These studies identified several issues, particularly relating to the construction of transmission lines through steep terrain between Bayswater Power Station near Muswellbrook and the Central South Energy Hub. Very steep terrain in general terms refers to areas that would require new access tracks to access the tower sites with grades exceeding 18 per cent.

Two areas were specifically identified as requiring refinements: Bendemeer to Ogunbil, and Wallabadah to Gundy. The refinements included adjusting tower locations, modifying span arrangements, and varying tower foundation types.

- **Adjusting tower locations** generally involved siting towers within or in close proximity to the PSC, on areas of more favourable terrain, with the aim of reducing the grades of the access tracks servicing towers.
- **Modifying span arrangements** involved introducing very long spans between towers with the aim of eliminating intermediate towers with poor access.
- **Varying tower foundations** involved refining the pad designs required for construction of each tower, from large, flat pads, to smaller, stepped pads where tower legs would be founded at differing levels relative to each other.

Although these refinements provided some resolution, they only partially addressed the constraints and raised other constraints such as safety, program delays, environmental and community impacts and cost. For example:

- There were instances where adjusting tower locations to site them on more favourable terrain, either within or just outside the PSC, would conflict with existing land use constraints, including proximity to dwellings or other improvements on the landholding.
- Even though the introduction of very long spans would eliminate the overall number of towers required, it would generally involve relocating towers to peaks, which would be inherently difficult to access.
- Introduction of very long spans would require wider easements, which would result in more impacts to landowners.
- Varying tower foundation types was successful in reducing the overall quantity of earthworks required at each tower, though because this generally involved adoption of smaller, stepped pads, it would introduce additional risks and constraints in construction.

Further investigation identified that shifting the corridor eastward into flatter terrain may offer additional benefits.

4.1.3 Localised refinement: Modifying methodologies and equipment to improve safety and decrease environmental impacts

As the project design progressed, opportunities were identified to refine construction methodologies and equipment selection to reduce potential impacts and improve safety outcomes that were driven by the cumulative impact of earlier investigations, specifically constructing in steep terrain. This included consideration of alternative approaches for tower installation, such as using a combination of cranes and heavy-lift helicopters in difficult terrain. While this approach could reduce the need for extensive access tracks and limit ground disturbance, it also carries consequences that must be carefully weighed.

For example, the use of helicopters would generate significant noise, which could affect nearby residents, workers, and livestock. In some circumstances, livestock may need to be temporarily relocated to minimise disturbance and stress. Helicopter-based construction may also result in longer overall construction durations, as it requires highly specialised equipment, strict safety protocols, and favourable weather conditions to operate effectively.

Balancing these trade-offs forms a critical part of assessing the feasibility of such refinements. The project must ensure that any shift in methodology achieves a net improvement to environmental outcomes and worker safety without introducing disproportionate impacts to communities or construction timeframes.

4.1.4 Key findings

While the Refined PSC reduced some constraints in specific locations, their benefits were only partial and often introduced new issues elsewhere. For example, realignments around Chaffey Dam and Lake Glenbawn avoided impacts to aerial firefighting operations but created new challenges with steep terrain, difficult access, and further landowner impacts. Realignment around Chaffey Dam and Lake Glenbawn also increased the overall transmission line length for the project.

Similarly, shifts to flatter terrain in other sections improved constructability in isolation but other areas of the corridor still required complex tower pad construction, extensive access tracks and non-conventional construction methods.

The Refined PSC was assessed in detail and found to have material impacts not only on community and environmental considerations, but also on project risk, cost, and energisation dates. These interdependent challenges highlighted the need to test alternative corridor options and carry out a strategic reassessment of the bulk corridor. This would determine whether an alternative corridor may provide greater overall benefits on balance (refer to Section 4.2).

4.2 Option two: Identifying a new study corridor

In addition to considering refinements within the existing corridor as outlined above, EnergyCo carried out a detailed review to identify an alternative corridor that could better balance constructability, environmental and community considerations.

The following subsections outline the approach taken to identify a new study corridor and develop a potential new study corridor between Bayswater Power Station near Muswellbrook and the Central South Energy Hub. They describe how prior investigations were built upon, how areas of high sensitivity and conflict were avoided, the definition of the study corridor itself, the benefits identified and the key findings that informed the project's next steps.

4.2.1 Considerations in identifying a new location

Building on prior route selection and applying technical assessments

Extensive route selection work had already been carried out before this stage, providing a strong foundation for further investigation. The eastern study area was identified as the most suitable option for closer consideration as:

- The earlier planning process (2022-23) had identified the Mid-Western route as the second preferred route

- Updated technical investigations and designing localised refinements suggested area to the east was flatter terrain and better access to local roads, which may have cumulative benefits i.e. less construction impacts and therefore less impacts on the community and environment
- The Aberbaldie-Niangala Traveling Stock Reserve (TSR) route which is to the east of the existing corridor noted areas of more favourable topography and access.

It is important to note, the level of design work in key areas (e.g. roads, tracks, pads, earthworks) are more advanced than at the time of previous route selection evaluations, which helped to increase the confidence in potentially moving the corridor eastward.

Transmission guidelines

The project sought to ensure that all reasonable alternatives were explored. Drawing on the foundational principles of the MCA and the Transmission Guidelines, the assessment considered whether shifting further west would be appropriate. The guidelines provide direction on many subjects particularly by reducing visual amenity impacts, avoiding direct interaction with town centres, and limiting effects on sensitive land uses.

In applying these principles, the project examined options to the west of the existing corridor. These were not progressed, as they would materially lengthen the transmission line and, in doing so, significantly increase impacts on major regional hubs such as Tamworth and Scone.

4.2.2 Identifying an eastern corridor

Following the Reference Design investigations, EnergyCo carried out a detailed review to identify an alternative corridor (to the east of the existing corridor) that could better address constructability, environmental, and community impacts.

We revisited our shortlisted corridors from our early planning process. This included the Mid-Western corridor to the east which was the second preferred corridor option outlined in the scoping report (July 2024). At that time, the Mid-Western corridor was not progressed due to accessibility challenges, higher environmental and heritage impacts, limited co-location opportunities, and increased program and cost risks.

In 2024, the TSR route (which is located nearby to the Mid-Western corridor) was assessed following a community request to maximise the use of public land by using the TSR, but was found to have significant biodiversity, landholder, and land tenure constraints.

With the detailed technical, environmental, and design data now available from the Reference Design investigations, these earlier eastern options were reassessed:

- The Mid-Western corridor - while partially addressing some constraints, still presented steep terrain, limited access, complex tower pad requirements, and extensive earthworks and was not considered a viable alternative.
- The TSR route - remained largely unsuitable due to high conservation value biodiversity, proximity to homes, and other land use constraints.
- Going further east past the Mid-Western corridor, for example, the Gloucester route as assessed in earlier planning phase process. This route remained unsuitable in line with earlier assessments due to having the most significant environmental constraints

(including impacts to National Parks and high value biodiversity), most impacts to communities and would likely have highest time and cost factors.

4.2.3 The new study corridor

Based on the above, a new study corridor was identified between the existing corridor and Mid-Western corridor. The new study corridor initially follows a similar corridor as the existing corridor from Bayswater Power Station but deviates south of Lake Glenbawn near Rouchel. Crossing Rouchel Brook, the corridor bisects Upper Rouchel and Rochel Brook settlements in a predominantly cleared agricultural landscape set amongst rolling to steeply undulating hills. The corridor then spans around Lake Glenbawn to the east and avoids impacting aerial firefighting activities at Lake Glenbawn.

The corridor then diverts north-east, near the Scone Polo Club, maintaining a general north-east alignment and running to the east of Waverly Road and Crawney Road before crossing Isaacs Creek. This section of the corridor is in a predominantly agricultural landscape with rolling hills and vegetated ridgelines. The corridor then heads north-east and follows a section of steep terrain either side of Sergeants Creek Road, the corridor then runs north, passing to the east of Ben Halls Gap National Park, to the west of Tomalla Nature Reserve, and through a section of Nundle State Forest. This section follows steeply vegetated terrain with limited public road crossings. From Nundle State Forest, the landscape transition into an open agricultural land use that is flatter and associated with the plateau.

The corridor heads north, crossing the Travelling Stock Reserve at two separate points. To the west of Niangala Road, the corridor then joins the Central South Hub near Walcha Road and then follows the preferred study corridor.

A review of the land use across the corridor shows that agricultural grazing is the dominant land use, followed by grazing, and then State Forest land uses. The corridor also traverses mapped areas of equine CIC and BSAL.

The new study corridor adopts part of the Mid-Western corridor but follows a more direct route along more accessible and constructable terrain, requiring less construction and earthworks for tower pads and access tracks.

In comparison to the existing corridor, the new study corridor:

- follows easier and flatter terrain as much as possible
- requires less access tracks built on private property
- is more accessible to key local roads
- avoids major regional hubs and impacts to aerial firefighting operations
- maximises the use of public land and avoids National Parks
- reduces overall community and environmental impacts.

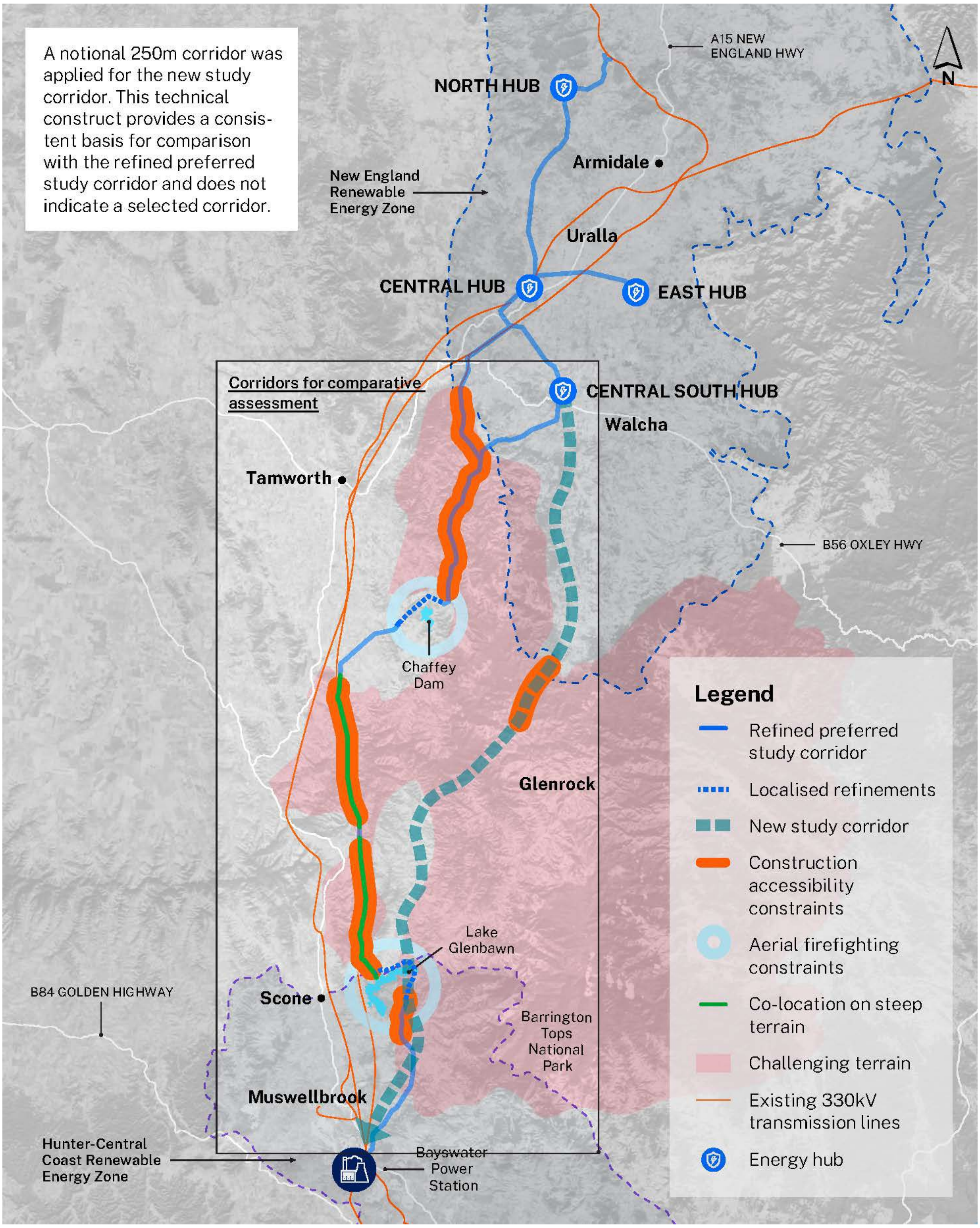


Figure 4-1: Corridors for comparative assessment

4.3 Next steps

The two corridors, the Refined PSC and the new study corridor were assessed using an MCA which is outlined in the next chapter.

C

Part C – Comparative corridor assessment

5 Chapter C overview

Chapter C presents the evidence and analysis that underpin the comparative assessment of two potential transmission corridors, and the outcome of the comparative assessment.

As outlined above, the comparative assessment was carried out on two corridors - the **Refined PSC**, which incorporates localised refinements, and a **new study corridor** via Waverly and Barry

If the new study corridor were to be progressed as the preferred bulk corridor, it would initially be announced publicly as a three-kilometre study area and subsequently refined to a 250-metre corridor through detailed on-site investigations and engagement with landowners and communities.[4]

For the purposes of this comparative assessment, a notional 250-metre corridor was applied for the new study corridor. This technical construct provides a consistent basis for comparison with the Refined PSC and does not indicate a selected corridor.

The assessment was undertaken using a Multi-Criteria Analysis (MCA), based on the foundational principles in the NSW Transmission Guideline (Department of Planning, Housing and Infrastructure, 2024) and EnergyCo's planning pillars. This MCA approach is consistent with previous route selection and refinement processes and evaluates corridors against three key principles: efficiency and deliverability, environment and land use, and people and communities.

Chapter C also draws on Section 6, which outlines constructability, schedule, cost and risk, and procurement considerations, providing the context for the comparative assessment. The comparative MCA analysis is presented in Section 7, and the methodology and outlines the role of the independent review panel, ensuring transparency and robustness.

[4] The 250m-wide corridor is used for environmental assessment and construction. The corridor would be eventually narrowed to a final permanent easement of around 140m wide (generally 70m for each 500kV line).

6 Supporting evidence

This section outlines the key supporting evidence on both corridors, including constructability, schedule, cost and risk, and procurement factors. The purpose of presenting this information is to provide context and transparency around the considerations that informed the subsequent **Comparative Assessment**. These considerations underpin the evaluation process and ensure that a like for like assessment is carried out.

6.1 Constructability considerations

Table 6-1 illustrates key constructability metrics for both corridors that was used in the MCA assessment as outlined in Section 7.

Table 6-1: Key constructability metrics for the Refined PSC and new study corridor (Jul-25)

	Metric	Refined PSC	New study corridor	Guiding notes
Extent	Total length of transmission corridor	**346km**	**305km**	
Elevation	Net elevation change	945 metres		
	Aggregated elevation change[5]	• Gain: 10,240m • Loss: 9,295m • Total change: 19,535m	• Gain: 7,496m • Loss: 6,551m • Total change: 14,047m	Elevation change measures the cumulative rise and fall of the terrain, providing an indication of overall undulation along the corridor.
Transmission tower pads	Total number of towers	**1,335**	**1,318**	
	Type A[6] tower pads *(preferrable)*	415	589	Type A pads are preferred as they are the simplest and quickest to construct but can

[5] Based on publicly available Light Detection and Ranging [LiDAR] information

[6] Type A pads are 70m x 50m in size

	Metric	Refined PSC	New study corridor	Guiding notes
	Type B[7] tower pads *(second preference)*	666	613	only be used where the terrain is flat and unobstructed. Type B and C pads are used in more undulating or steep terrain, with Type C being the least preferred option, they are smaller, on multiple levels, and reserved for areas with very steep slopes
	Type C[8] tower pads *(least preferrable)*	254	116	
	Volume of surplus earthworks	2,587,308 m^3	1,011,487 m^3	Type A and B pads are preferred as they involve minimal earthworks and can often be reused on-site. Type C pads, used in very steep terrain, generate excess spoil with limited options for local reuse or disposal
	Number of spoil truck movements	320,000 number	126,000 number	
Access tracks	Total length of access tracks	**810.9km**	**669.9km**	Gradients up to 14% are generally suitable for conventional construction methods. Slopes exceeding 18% typically require non-conventional approaches, such as specialised cranes and foundation equipment. In areas of very steep terrain, heavy-lift helicopter construction may be necessary
	Length of access tracks within the corridor	301km	330km	
	Length of access tracks outside of the corridor	510km	340km	
	Track grades: 0% to 10%	555.5km	444.4km	
	Track grades: >10% to 14%	85.1km	105.4km	
	Track grades: 14% to 18%	61.4km	63.0km	
	Track grades: >18% to 21%	32.5km	29.2km	
	Track grades: over 21%	76.4km	27.9km	

[7] Type B pads are 50m x 40m in size

[8] Type C pads split across different levels due to size constraints on steep gradients

	Metric	Refined PSC	New study corridor	Guiding notes
	Towers serviced by access tracks >18%	574	97	
Transgrid interface	Total length of line co-located with Transgrid and area in steep terrain	80km / 64km	4km / 0km	
	Number of new lines crossing over existing Transgrid lines	13	9	
Rail crossings	Aerial crossings of existing railway lines	8	8	Licence agreements are required with Australian Rail Track Corporation Limited (ARTC) and Country Rail Network (CRN).
	At grade (road) crossings of existing railway lines	6	4	

6.2 Schedule, cost and risk considerations

A summary of the key considerations for schedule, cost and risk for both corridors is outlined in in Section 6.2.1 to Section 6.2.3.

6.2.1 Project milestones

Table 6-2 and Table 6-3 outline strategic milestones and key workstream milestone respectively. [redacted]

- [redacted]
- [redacted]

Table 6-2: Key considerations: strategic project milestones (Jul-25)

Metric	Considerations	Refined PSC	New study corridor
Time	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
Cost	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
Risk	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

Table 6-3: Key considerations: key workstream milestones (Jul-25)

Stream	Milestone	Refined PSC	New study corridor
Procurement	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
Planning approvals	[redacted]	[redacted]	[redacted]
Delivery	[redacted]	[redacted]	[redacted]
Energisation (P50)	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]

6.2.2 Cost

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

6.2.3 Risk

[redacted]

[redacted]

Table 6-4: Key considerations: risk (Jul-25)

Risk category	Residual Risk [9] (Deterministic Cost & Time in addition to current allowance)	
	Refined PSC	New study corridor
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

9 [redacted]

Risk category	Residual Risk[9] (Deterministic Cost & Time in addition to current allowance)	
	Refined PSC	New study corridor
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

6.3 Procurement considerations

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
  - [redacted]
  - [redacted]

[redacted]

7 Comparative assessment

This section outlines the Multi-Criteria Analysis (MCA) assessment that was carried out to determine the bulk corridor that will be progressed to Reference Design.

The MCA provided a transparent and balanced comparison of the Refined PSC and the new study corridor and provides a structured assessment across a wide range of technical and non-technical considerations.

The assessment demonstrated that the new study corridor performed more strongly than the Refined PSC, offering better outcomes against the weighted criteria. Detailed MCA results are provided in Appendix A.

For completeness, an independent review panel was established to provide assurance that the assumptions, methodology and findings are robust.

7.1 Objectives

The objectives of the comparative assessment were to:

- test the relative performance of the Refined PSC and the new study corridor by applying a MCA
- consider the findings of a constructability independent peer review, including proposed recommendations
- recommend a bulk corridor that will be progressed to Reference Design, inform the project's EIS and be provided to bidders for the network operator procurement process.

7.2 Methodology

The comparative assessment was carried out using a structured MCA. For consistency, the MCA framework was adopted from the project's options evaluation process. The framework applies weighted criteria that are aligned to EnergyCo's Planning Pillars, ensuring a transparent and robust evaluation process. The MCA is structured around the three foundational principles from the *Transmission Guideline* (Department of Planning, Housing and Infrastructure, 2024), including:

- **Efficiency and deliverability** – ensuring the project is efficient from an economic, technical and power-systems perspective.
- **Environment and land use** – maximising the use of public lands and avoid and/or minimise environmental impacts.

- **People and communities** – minimising impacts to landowners and community through construction and leave lasting benefits.

A total of 12 criteria underpin the foundational principles, one of which is new, Criteria 1.5 (Impact on procurement process & contestability). This was added given the project is currently in a live procurement process, and maintaining contestability is critical to ensuring value for money outcomes and regulatory acceptability to the Australian Energy Regulator (AER).

Each criterion was informed by the latest available data, including updated technical inputs e.g. earthworks modelling, access track design, constructability reviews), environmental constraints identified through investigations carried out for the EIS and feedback from the Network Operator EOI process, and the findings of an independent expert review panel.

Scoring was carried out through a collaborative workshop involving project specialists across engineering, environment and planning, property, stakeholder engagement and commercial disciplines. Oversight was provided by EnergyCo project leadership, supported by the independent peer review panel to ensure objectivity and rigour. Scores were assigned from a scale of 1 (much worse than best performing) to 4 (same as best forming); with 0 being assigned where there is no material difference or not applicable. See the next section for scoring.

Table 7-1: Applied Multi-Criteria Analysis

Foundational principle	Criteria	Rating	Relevant Planning Pillar
Principle one: Efficiency and Deliverability	1.1. Co-locate infrastructure	Moderate	Strategic
	1.2 Mining and industrial lands	Moderate	Economic
	1.3 Constructability (inc. access, safety and programme)	Critical	Economic, Strategic & Technical
	1.4 Cost and financeability	Critical	Economic
	1.5 Impact on procurement process & contestability (new)	High	Economic & Strategic
Principle two: Environment and land use	2.1 Biodiversity and heritage	High	Environment
	2.2 Land uses	Moderate	Environment
	2.3 Network resilience	High	Technical
Principle three:	3.1 Visual amenity	Moderate	People
	3.2 Public land	Moderate	Environment

Foundational principle	Criteria	Rating	Relevant Planning Pillar
People and Communities	3.3 Community impacts	Critical	People
	3.4 Landowner impacts	Moderate	People & Strategic

Table 7-2: Applied scoring guide for MCA

Score	Assessment
4	Same as best performing
3	Slightly worse than best performing
2	Noticeably worse than best performing
1	Much worse than best performing
0	No material difference or not applicable

7.3 Assessment findings

This section presents the outcomes of the MCA assessment, outlining both a high-level summary of results and the key differentiators by foundational principle. The analysis highlights the relative performance of the Refined PSC and the New study corridor against the weighted.

The full MCA documenting the relative scores across all weighted criteria is included in **Appendix A**.

7.3.1 Assessment summary

A summary of the MCA results for each of the foundational principles is provided in Table 7-3.

Table 7-3: Summary of MCA results for each foundational principle

Foundational principles	Refined PSC	New study corridor
Principle one: Efficiency and deliverability	• Traverses more mountainous and undulating terrain, which makes construction more complex and increases safety risks. • Longer corridor length by about 50 kilometres. • Significant non-conventional methods required for tower construction – substantial community and environmental impacts.	• Has some challenging areas of steep terrain – doesn't eliminate challenges but greatly reduces the highest risk areas. • Provides more scope for design optimisation, flexibility and ability to recover from future issues that may cause a delay. • Substantially less earthworks required for tower pads, reducing quantity of material to be removed

Foundational principles	Refined PSC	New study corridor
	• Significantly more earthworks and spoil movements. • Extensive access tracks required – further adding to community and environmental impacts. • Co-location with Transgrid in steep terrain increases safety and constructability issues.	from site – less spoil truck movements on local roads. • Less access tracks required, minimising impacts to landowners, environment and road users. • No co-location in steep terrain with Transgrid and limited in flat terrain around Kentucky.
Principle two: Environment and land use	• Traverses three recorded Koala clusters (including one mapped ARKS). • Traverses land set aside for a WaterNSW biodiversity offset. • Contains larger area of land mapped as highest classification of bushfire prone land. • Greater extent of woodland/forest vegetation in corridor. • Lessor extent of Equine CIC.	• Traverses two recorded Koala clusters (including two mapped ARKS). • Traverses near Timor Caves which contains a large population of Eastern Bent-winged bat. • Contains smaller area of land mapped as highest classification bushfire prone land. • Lower number of AHIMS sites, but additional local heritage items. • Lessor extent of BSAL.
Principle three: People and communities	• Greater community impacts due to more complex construction in mountainous and less accessible terrain generating impacts such as: • more spoil truck movements on roads • noise impacts from heavy lift helicopters • excess vehicles near properties • longer construction period due to complex construction required • higher number of landowners.	• Reduced community impacts due to standard construction. • Likely to be a shorter construction period. • Lower number of landowners, which will continue to reduce as the corridor is narrowed. • Maximises use of public land.

7.3.2 Key differentiators by foundational principle

Table 7-4 to Table 7-7 presents the key differentiators for each foundational principle. Where no material difference was observed for a criterion, a summary is not provided. For a full breakdown of scores across all criteria, refer to Appendix A.

Principle one: Efficiency and deliverability

Key differentiators between the Refined PSC and the New study corridor are discussed in Table 7-4.

Table 7-4: Key differentiators for efficiency and deliverability

Principle one: Efficiency and deliverability			
1.1 Co-location in steep terrain		1.3 Constructability (inc. access, safety and programme)	
Moderate		Critical	
Refined PSC = 1	New study corridor = 4	Refined PSC = 1	New study corridor = 4
Although co-location is a guiding principle, further investigations show that it introduces significant risks when building in steep terrain. The Refined PSC includes about 64 kilometres alongside the existing Transgrid 330 kV line in predominantly steep terrain, with a further 16 kilometres in flatter terrain, between Bendemeer and Uralla. The access tracks on the steep terrain cross Transgrid's easement, creating reliance on Transgrid's easement conditions and approval processes for access to their easement under certain conditions. These dependencies can cause delays, limit construction flexibility, and may necessitate changes to standard methodologies. The long spans on the existing Transgrid line also increase the easement width for the Transgrid line (compared to the standard 60 metre easement), necessitating the new 500 kV lines to shift further west into steeper terrain, exacerbating construction complexity from the associated side slope locations. There would be operational interfaces with Transgrid's 330 kV line that would need to be managed if either blasting was required for the tower pads or heavy lift helicopter construction for the towers. Construction near live high-voltage assets further heighten interface and operational challenges. In contrast, the new study corridor is co-located for about four kilometres where the terrain is flatter between Bendemeer and Uralla. The new study corridor avoids co-locating on steep terrain. It offers comparatively flatter terrain, fewer dependencies, and simpler construction — resulting in a safer, more flexible, and lower-risk delivery option.		The difference in topography between the corridors has significant implications for constructability, safety, and on-going maintenance. The new study corridor is generally located where there is a more gradual change in elevation and with closer proximity to local roads. It requires about 1.58 million cubic metres less spoil disposal off-site, avoiding about 194,000 spoil truck movements by comparison. This translates to reduced construction and environmental impacts and improved safety for both workers and road users. The less constrained topography also provides greater flexibility for the successful network operator to optimise the final design. While access track layouts are still being finalised, the overall access scope is expected to be reduced. Ultimately, these benefits lead to a quicker energisation date (by about 18 months). The Refined PSC traverses steeper and more rugged terrain, with limited public road access, substantially increasing the access track scope, and the reliance on non-conventional construction methods such as helicopters and operating plant in steep and narrow terrain. These conditions elevate safety risks, increase construction complexity and reduce flexibility in design and access. Steep terrain also compounds weather-related risks during both construction complexity and operations.	

Table 7-5: Key differentiators for efficiency and deliverability (continued)

Efficiency and deliverability (continued)			
1. 4 Cost and financing		1.5 Impact on procurement process & contestability	
Critical		High	
Refined PSC = 1	New study corridor = 4	Refined PSC = 1	New study corridor = 4
[redacted]		[redacted]	

Principle two: Environment and land use

Key differentiators between the Refined PSC and the new study corridor for environment and land use are discussed in Table 7-6.

Table 7-6: Key differentiators for environment and land use

Environment and land use			
2.1 Biodiversity & Heritage		2.3 Network resilience	
High		High	
Refined PSC = 3	New study corridor = 4	Refined PSC = 2	New study corridor = 4
The Refined PSC intersects extensive areas of high biodiversity value, including around 100 hectares of land set aside by WaterNSW for a biodiversity offset. About 4,099 hectares of koala habitat (three known clusters and one mapped Area of Regional Koala Significance), about 6,898 hectares of Box Gum Woodland, and habitat for threatened species such as the Greater Glider, Spotted-tailed Quoll, and Squirrel Glider, Austral toadflax and Bluegrass. The Refined PSC includes 16 Aboriginal Heritage Information Management System (AHIMS) sites, two local heritage-listed items and one unlisted item. A review of the State Type Vegetation Mapping for both alignments found the Refined PSC contains over 500 hectares more forest/woodland compared to the new study corridor. While field surveys are yet to be completed, the new study corridor is currently assessed to traverse about 3,601 hectares of koala habitat (including two known clusters and two ARKS areas). It passes over a portion of Timor Caves, a karst environment supporting a significant population of Eastern Bent-winged Bats, listed as vulnerable. The new study corridor includes 13 AHIMS sites and four local heritage-listed items (three local, one unlisted state), but avoids World, National, and State heritage listings — consistent to Refined PSC. The lack of survey data means these impacts remain indicative and require future validation. Whilst agriculture remains the main land uses for both corridors, Refined PSC traverses about 70 kilometres of the equine CIC whilst the new study corridor traverses about 60 kilometres. In terms of BSAL, the Refined PSC traverses about 3.5 kilometres whereas the new study corridor traverses about 0.6 kilometres.		Bushfire resilience is a key consideration for both corridors given the prevalence of bushfire-prone land across the project area. The Refined PSC traverses about 2,901 hectares of land classified as the highest bushfire risk category. The corridor passes through rugged terrain with dense vegetation in several locations, which may pose challenges for emergency access and asset protection. In contrast, the new study corridor traverses about 1,871 hectares of land mapped as highest-risk bushfire-prone. The flatter terrain, closer proximity to public road networks, and generally more accessible landscape offer improved conditions for bushfire management and emergency response. Both corridors would need to be regularly maintained to minimise the potential fuel load and Asset Protection Zones would be established and maintain around the energy hubs to minimise bushfire risk. Overall, the new study corridor demonstrates greater bushfire resilience due to more favourable topography, easier access, and the absence of known constraints on aerial firefighting operations.	

Principle three: People and communities

Key differentiators between the Refined PSC and the new study corridor for people and communities are discussed in Table 7-7.

Table 7-7: Key differentiators for people and community

<table>
<tr><th colspan="4">People and communities</th></tr>
<tr><th colspan="2">3.3 Community impacts</th><th colspan="2">3.4 Landowner impacts</th></tr>
<tr><td colspan="2">Critical</td><td colspan="2">Moderate</td></tr>
<tr><td>Refined PSC = 1</td><td>New study corridor = 4</td><td>Refined PCS = 3</td><td>New study corridor = 4</td></tr>
<tr><td colspan="2">The Refined PSC is expected to have greater community impacts due to more complex construction in steep, less accessible terrain. With about 320,000 spoil truck movements, there would be significant heavy vehicle traffic on local roads, raising concerns about safety, noise, dust, and disruption to rural communities. With over 500 towers sited on very steep terrain, the use of heavy-lift helicopters would be significantly greater than for the Refined PSC, increasing noise and visual impacts, particularly in otherwise quiet areas.

With 194,000 fewer truck movements and less earthworks for the new study corridor, there would be less disruption to traffic and local amenity. The flatter terrain and proximity to existing roads minimise the need for new access tracks, reducing clearing, noise, and the construction footprint. Heavy-lift helicopter use is also expected to be minimal. While the alignment passes near Upper Rouchel, Rouchel Brook, and two polo clubs, impacts are more localised.

Although some community groups have raised concerns in the broader region, they have not been engaged on the new study corridor. A targeted engagement approach will be needed to support a potential corridor shift. Overall, the new study corridor offers a lower-risk, lower-impact option from a community perspective.</td><td colspan="2">Based on a 250-metre corridor (notional corridor for the new study corridor), the overall number of private landowners impacted is 161 and 120; Refined PSC and new study corridor respectively.

The new study corridor results in a notably reduced impact on private landowners with 41 fewer properties however while there are less landowners impacted by the new study corridor, most of these landowners would be ‘newly impacted’.

If the new study corridor was approved, there would be several key changes including:
98 private landowners previously in the PSC (1km) would no longer be impacted
24 private landowners previously in the PSC (1km) would have a ‘changed impact’ i.e. the corridor will slightly change on their property
105 private landowners would be ‘newly impacted’.
These changes would require careful and sensitive engagement to manage potential concerns and ensure transparent communication.

Of great significance, the new study corridor intersects with only 10 ALC claims, compared to 17 claims under the Refined PSC – representing a substantial improvement in the project impacts on ALC land.</td></tr>
</table>

7.4 Independent review panel

In mid-2025, a three-member independent peer review panel with relevant experience in transmission line construction and large civil infrastructure projects was appointed to review the two corridors. The objectives of the independent peer review panel included:

- evaluating the proposed constructability methodologies for both corridor options
- reviewing assumptions underpinning cost estimates and delivery timeframes
- identifying opportunities for refinement or alternative approaches
- offering expert input to validate, refine, or challenge MCA conclusions.

The review panel visited the site and observed the existing terrain at locations along both corridors that were visible from public access roads. The panel also reviewed data provided by the project team to validate observations from the site, enabling an informed comparison of the two corridors regarding constructability, program and cost.

The comparative assessment indicated the new study corridor to be the preferred option. The new study corridor generally allows for better access, both from existing public roads and for the construction of access tracks and is significantly less reliant on non-conventional construction methods for transmission tower construction. These factors result in a reduction of the risks associated with the construction of transmission towers and enable improved program and cost outcomes compared with the Refined PSC.

Feedback from the constructability review was considered when conducting the MCA, enhancing the overall confidence and credibility of the assessment outcomes.

The findings will be presented to the EnergyCo Board and form part of the approval process.

D

Part D – Recommendation, authorisation and implementation

8 Recommendation

The MCA found the **new study corridor performed better overall** when considered against the foundational principles.

It is **recommended that the project proceed with the new study corridor** for stakeholder engagement, detailed environmental assessment and Reference Design development. If approved, this corridor will underpin the EIS and be provided to bidders in the network operator procurement.

The MCA concluded that the new study corridor has:

- **Improved constructability and technical performance** – the new study corridor outperforms the Refined PSC on nearly all technical and constructability criteria. It offers simpler and more efficient construction, reduced construction and safety risks, reduced impacts from excess spoil and improved flexibility for design optimisation and refinement.
- **Reduced environmental impacts** – the new study corridor reduces overall environmental impacts compared to the Refined PSC. The new study corridor contains less woodland/forest vegetation, crosses less Category 1 (high risk) bushfire land, avoids impacts to aerial firefighting operations and crosses less land mapped as biophysical strategic agricultural land (BSAL). It would also require less vegetation clearing for the construction of new access tracks in mountainous terrain.
- **Reduced community impacts** – the new study corridor is more accessible to key local roads decreasing access tracks built on private property, and less vehicles on roads for excess spoil.
- **Decreased risk** – the new study corridor offers a more robust and adaptable delivery program and, while it does carry some transitional risks, these are outweighed by the much higher strategic risks associated with continuing with the Refined PSC. The Refined PSC presents a constrained and rigid design with limited scope for optimisation, tight construction windows, and exposure to complex terrain. These factors reduce the project's ability to absorb delays or respond to unforeseen challenges, significantly increasing the risk to overall delivery.
- **A stronger delivery profile** – the new study corridor provides greater timing certainty and the potential for earlier energisation. It is also considered to be more financeable due to its more efficient and flexible design.

9 Assurance, authorisation and implementation

This section sets out the governance and approval process that will be followed to formalise the recommended bulk corridor (new study corridor). It outlines the assurance steps taken, the authorisation requirements for Board approval, and the implementation pathway if approved.

Extensive internal engagement supported this process, including weekly meetings with the Executive Leadership Team (ELT) and Board briefings, with input from the Independent Review Panel. Formal Board approval is required, supported by a comprehensive package of evidence comprising an overarching Briefing Note and detailed materials such as engagement plans and briefing packs.

If approval is granted, the project will move into implementation, following EnergyCo's standard announcement process including extensive landowner, stakeholder and broader community engagement.

9.1 Review and assurance

To support decision-making and ensure the robustness of the process, a series of structured reviews and assurance activities were carried out as outlined in Table 9-1.

Table 9-1: Review and assurance process

Review title	Scope	Reviewer
Reference Design development	Technical and environmental investigations to inform the development of the project's Reference Design (PSC)	New England Technical team and contracted SME suppliers engaged to carry out investigations
Reference Design constraint identification and quantification	Following constraint identification, reassessment was carried out on the PSC to determine potential solutions	New England technical team
MCA scoring	Scoring of the bulk corridor refinement options using the MCA	New England Project team

Review title	Scope	Reviewer
Independent peer review panel	Refer to Section 7.4.	Independent review panel comprising: [redacted]
ELT briefings	To inform the ELT of the latest findings from the reassessment and comparative assessment	New England Executive and ELT members
Board briefings	Briefings and ultimately approval to be sought on recommendation	New England Executive and EnergyCo Board

9.2 Authorisation

In line with the project's internal change management framework, this change (new study corridor) requires the approval of the EnergyCo Board, and endorsement from the Chief Executive Officer and Chief Project Officer. The approval will include:

- Board briefings on key considerations and MCA findings (Jun-25 to Jul-25)
- Briefing note seeking formal approval to the bulk corridor to the new study corridor and a comprehensive package including:
- how the community, landowners and stakeholders will be engaged (see further details on implementation plan below in Section 9.3)
- independent review panel findings
- key considerations as presented to the Board.

To note, as of the latest revision of this document (Sep-25), the Board approval was granted based on the approval package outlined above.

9.3 Implementation

If the change is approved, EnergyCo will enact the communication and stakeholder engagement implementation plan, which sets out the overall strategy for announcing the change, engaging with communities and landowners, and deploying the full suite of supporting tools.

The plan outlines a staged announcement process, beginning with the initial public release of the three-kilometre study area. This will be followed by a formal community feedback period including community information sessions, leading to the progressive narrowing of the corridor to one kilometre in early 2026. A tailored engagement approach will be applied to landowners, ensuring that individual circumstances and concerns are appropriately addressed.

To support these activities, a comprehensive package of collateral will be developed. This includes project updates with maps, fact sheets, letters to landowners, ministerial and executive talking points, internal and external FAQs, a media strategy, a social media strategy, and updated website content. In addition, extensive internal resources will be prepared to support staff, including team briefings for stakeholder relationship leads, phone and email scripts, and external slide decks for use in stakeholder briefings.

This will provide a clear and structured pathway for communicating the change, ensuring that stakeholders are well informed and have meaningful opportunities to engage throughout the process.

Separate to the communication strategy to announce the change, several technical and environmental studies will commence post announcement. This includes but is not limited to technical investigations such as geotechnical and LiDAR, and environmental studies such as ecological and heritage surveys, groundwater and contamination investigations, and visual and social assessments.

Figure 4-1 illustrates the new broad study area that would be publicly released for community and stakeholder engagement (generally around three kilometres wide).

Figure 9-1: New study corridor

Appendices

Appendix A: Multi-Criteria Analysis (detailed)

Appendix A presents the detailed outcomes of the MCA carried out to compare the Refined PSC corridor and the new study corridor. While the main body of this report summarises the comparative findings, this appendix provides the full set of results across all weighted criteria.

The information includes the relative scores assigned under each criterion, showing how the two corridors performed against the foundational principles of the MCA: efficiency and deliverability, environment and land use, and people and communities. These results build on the methodology and key differentiators outlined in Chapter C, providing the technical evidence base that supports the conclusions of the comparative assessment.

Scores were assigned from a scale of 1 (much worse than best performing) to 4 (same as best forming); with 0 being assigned where there is no material difference or not applicable. Table A-1 provides the scoring framework.

Table A-1: Applied scoring framework for MCA

Score	Assessment
4	Same as best performing
3	Slightly worse than best performing
2	Noticeably worse than best performing
1	Much worse than best performing
0	No material difference or not applicable

Principle one: Efficiency and deliverability

Table A-2 presents the comparative scores for both corridors against all criteria under efficiency and deliverability, while Table A-3 and Table A-4 provides the detailed breakdowns for the Refined PSC and the New study corridor, respectively.

Table A-2: Criteria and overall score for efficiency and deliverability

		Principle one: Efficiency and deliverability							
Multi-Criteria Analysis	Rating	Moderate	Moderate	Critical				Critical	Critical
Multi-Criteria Analysis	Criteria	1.1 Co-locate transmission infrastructure with existing infrastructure where practicable	1.2 Maximise the use of mining and industrial lands where practicable	1.3 Follow alignments that are technically viable and constructable and which optimise the long-term efficiency and reliability of the network				1.4 Deliver cost effective solutions for energy consumers	1.5 Impact on procurement process & contestability[10]
Multi-Criteria Analysis	Measure	Opportunity to co-locate with existing and proposed energy projects, including transmission[11]	Opportunity to co-locate with mining and industrial lands	(a) Overall project/program timeline (including contingency)	(b) Risks to timeline	(c) Constructability and accessibility concerns for steep slopes	(d) Safety risks are avoided or minimised [12]	Overall cost of Program, including lines and hubs (e.g. D&C, O&M, offsets) and financeability	Minimises impact to procurement process
Pillar(s)	Relevant EnergyCo Planning pillar	*Strategic*	*Economic*	*Economic & Strategic*		*Technical*	*Technical*	*Economic*	*Economic*
Scores	Refined PSC	1	0	1	1	1	2	1	1
Scores	New study corridor	4	0	4	4	4	4	4	4

[10] A new criterion was added to account for procurement given the project has commenced the transaction process

[11] Investigations found that co-locating with existing transmission lines on steep slopes is problematic due to conducer blow out and using non-convention construction methods adjacent to live electricity

[12] In the Project's OER, this criterion was Impacts on hub design and flexibility. The refinement does not impact hubs so this criterion has been replaced with 'Safety'

Table A-3: Comparative assessment for efficiency and deliverability

		Principle one: Efficiency and deliverability							
Criteria		1.1 Co-located infrastructure	1.2 Mining & industrial lands	1.3 (a) Project Program / Energisation[13]	1.3 (b) Risks to timeline[14]	1.3 (c) Constructing in steep slopes	1.3 (d) Safety risks	1.4 Cost and finance	1.5 Procurement risks
Refined PSC	Score	1	0	1	1	1	2	1	1
	Details	Around 64km of the project corridor is co-located with Trangrid's (TG) lines in steep terrain, with a further 16km on flatter terrain north of Bendemeer. Investigations show that building near a live transmission line in steep terrain raises two risks; blowout of conductor and using non-conventional construction methods such as blasting and heavy-lift helicopters.	Same for both options	[redacted]	[redacted]	About 574 towers would be accessed on tracks with grades exceeding 18%. Construction of these towers would require non-conventional methods such as heavy-lift helicopters Estimated quantity of spoil disposal from tower pads of 2.59 million m3, which equates to around 320,000 number of spoil truck movements The project corridor has overall elevation gain of 10,240 metres with elevation loss of around 9,295 metres.	Given the significant number of steep gradients, heavy construction plant and equipment will need to use these tracks, which has a significant safety issue. Transporting machinery and materials on steep slopes that are at or beyond the operating limits for heavy plant ~570 towers require non-conventional construction – this would require construction with bespoke plant, some of which would include heavy-lift helicopters (there have been several incidents in recent times involving helicopters used on construction projects). Around 64km of 500kV line would be constructed adjacent to live 330kV Transgrid line in steep terrain. There is a risk of contact with Transgrid lines during tower construction, and risk of induction during stringing.	[redacted]	[redacted]

[13] Energisation is based on P50

[14] Energisation allowance is based on P50

Table A-4: Comparative assessment for efficiency and deliverability

		Principle one: Efficiency and deliverability							
Criteria		1.1 Co-located infrastructure	1.2 Mining & industrial lands	1.3 (a) Project Program / Energisation[15]	1.3 (b) Risks to timeline[16]	1.3 (c) Constructing in steep slopes	1.3 (d) Safety risks	1.4 Cost and finance	1.5 Procurement risks
New study corridor	Score	4	0	4	4	4	4	4	4
	Details	Co-located for 4km north of Bendemeer	Same for both options	[redacted]	[redacted]	Preliminary investigations suggest ~97 towers would be accessed on tracks with grades more than 18%. Construction of these towers would require non-conventional methods such as helicopters. Estimated quantity of spoil disposal from tower pads of 1.01 million m^3, which equates to around 126, 000 number of spoil ruck movements This corridor has an overall elevation gain of 7,496 metres with elevation loss of 6,552 metres.	Significantly superior from a safety in design perspective. Minimises plant incidents associated with use of heavy plant on steep access roads. Significantly less non-conventional construction including helicopter usage. Tower construction adjacent to live 330kV lines is significantly reduced, with the requirement to string adjacent to Transgrid's live 330kV line limited to a 4km length of corridor north of Bendemeer on flatter terrain.	[redacted]	[redacted]

[15] Energisation is based on P50

[16]Energisation allowance is based on P50

Principle two: Environment and land use

Table A-5 presents the comparative scores for both corridors against all criteria under environment and land use, while Table A-6 and Table A-7 provides the detailed breakdowns for the Refined PSC and the new study corridor, respectively.

Table A-5: Criteria and overall score for environment and land use

		Principle two: Environment and land use						
Multi-Criteria Analysis	Rating	High				Moderate		High
	Criteria	2.1 Minimise impacts on unique or sensitive biodiversity and cultural values and offset unavoidable biodiversity impacts				2.2 Minimise direct interactions with high value agricultural land where possible and seek to locate infrastructure in consideration of agricultural practices		2.3 Mitigate hazards and risks and promote network resilience
	Measure	(a) National Parks and other protected areas (including flora reserves)	(b) Minimising impact on sensitive biodiversity (ECC intersection)	(c) Local, State, and National Heritage items	(d) Impacts on use of Aboriginal cultural heritage, including use of Native Title land	(a) Land uses (grazing, cropping, and intensive agriculture)	(b) Critical land uses	Bushfire resilience
Pillar(s)	Relevant EnergyCo Planning pillar	*Environment*	*Environment*	*Environment*	*Environment*	*Environment*	*Environment•*	*Technical*
Score	Refined PSC	0	3	0	3	0	0	2
	New study corridor	0	4	0	4	0	0	4

Table A-6: Comparative assessment for environment and land use

Principle two: Environment and land use									
Criteria		2.1 (a) National Parks & Flora	2.1 (b) Biodiversity	2.1 (c) Heritage items	2.1 (d) Aboriginal cultural heritage	2.2 (a) Land uses	2.2 (b) Critical land uses	2.3 Network resilience (bushfire)
Refined PSC	Score	0	3	0	3	0	0	2
	Details	Avoids national parks and flora reserves Traverses 100ha of land set aside by WaterNSW for a biodiversity offset	Traverses three recorded Koala clusters, 1 mapped Area of Regional Koala Significance (ARKS) and ~ 4,099ha (360km) or koala habitat Recorded species included 6,898ha of Box Gum woodland, spotted tail quoll, squirrel glider, bluegrass, austral toadflax, Greater glider. Greater gliders are likely to occur in forests of higher elevation and will be impacted through habitat clearing. Contains 500ha more woodland/forest vegetation than the new study corridor	Avoids World, National & State heritage items and intersects 1 local listed and 1 unlisted state item	Contains 16 sites listed on the Aboriginal Heritage Information Management System (AHIMS)[17]	Land uses mapped across the corridor include about 8,970ha grazing, about 365ha cropping, and about 118ha other minimal uses.	Traverses around 1,654 ha of land mapped as equine CIC[18] and 236 ha of mapped BSAL[19] No facilities directly impacted and equine and agricultural operations can largely continue	About 2,901 hectares is located through the highest classification of bushfire prone land

[17] The group noted that AHIMS sites are not an indication of the extent of Aboriginal cultural occupation in a landscape

[18]Equine Critical Industry Clusters

[19]Biophysical Strategic Agricultural Land

Table A-7: Comparative assessment for environment and land use

Principle two: Environment and land use								
Criteria		2.1 (a) National Parks & Flora	2.1 (b) Biodiversity	2.1 (c) Heritage items	2.1 (d) Aboriginal cultural heritage	2.2 (a) Land uses	2.2 (b) Critical land uses	2.3 Network resilience (bushfire)
New study corridor	Score	0	4	0	4	0	0	4
	Details	Avoids national parks and flora reserves Traverses Timor caves which contains a large population of Eastern Bent-winged bat, and Barry Station with anecdotal records of caves	Traverses two recorded Koala clusters, two mapped ARKS and ~ 3,601ha (305km) or koala habitat BioNet records of threatened flora and fauna species are generally consistent with the West reassessed corridor.	Avoids World, National & State heritage items and intersects 3 local listed and 1 unlisted state item	Contains 13 sites listed on the AHIMS	Land uses mapped across the corridor include about 8,092ha grazing, about 284ha cropping, about 258ha forestry, and about 127ha minimal uses	Traverses around 1,826 ha of land mapped as equine CIC and about 98 ha of mapped BSAL. No facilities directly impacted and equine and agricultural operations can largely continue	Around 1,871 hectares is located through the highest classification of bushfire prone land

Principle three: People and communities

Table A-8 presents the comparative scores for both corridors against all criteria under people and communities, while Table A-9 and Table A-10 provides the detailed breakdowns for the Refined PSC and the New study corridor, respectively.

Table A-8: Criteria and overall score for environment and land use

		Principle three: People and communities				
Multi-Criteria Analysis	Rating	Moderate	Moderate	Critical		Moderate
	Criteria	3.1 Minimise visual amenity impacts through thoughtful design and application of mitigation measures	3.2 Maximise the use of suitable public land where practicable [20]	3.3 Minimise direct interactions with town centres, residential areas, and sensitive community locations		3.4 Follow alignments that optimise infrastructure layout, having regard to landowner preferences and land practices.
	Measure	Total building points within 1km	Available public land (e.g. Crown land, State forest, travelling stock reserves)	(a) Distance from town centres/settlements (excluding projects in urban areas)	(b) Risks associated with local communities and stakeholders' approval.	Minimising the number and nature of properties affected, and the effect of easement acquisition on property use
Pillar(s)	Relevant EnergyCo Planning pillar	*People*	*Environment*	*People*	*People*	*People & Strategic*
Score	Refined PSC	0	0	0	1	3
	New study corridor	0	0	0	4	4

[20] The criteria was adjusted to include 'suitable public land' as there are unresolved Aboriginal land claims ay attached to Crown Land, and biodiversity/conversation issues related to WaterNSW, Crown Land and State Forests

Table A-9: Comparative assessment for people and communities

Principle three: People and communities							
Criteria		3.1 Visual amenity[21]	3.2 Public lands	3.3 (a) Distance from town centres	3.3 (b) Community impacts (amenity)[22]	3.4 Landowner impacts
Refined PSC	Score	0	0	0	1	3
	Details	Based on publicly available data (SEED), there are 27 dwellings within 500m and 72 dwellings within 1km Refer to criteria 3.4 for the number of landowners	Traverses 449ha of public land which comprises of 96 ha of Crown Land [23]and 353 ha of WaterNSW[24]	[redacted]	Substantial extent of heavy-lift helicopter use with associated noise impacts Significant volumes of spoil to be moved on local roads, which normally have low volumes of traffic and are characteristic of the rural environment they're located in Over 500km of access tracks are required beyond the corridor, increasing impacts beyond the corridor	161 affected landowners within 250m corridor, and 185 landowners within 1km This is not based on sentiment, but rather the number of landowners impacted

[21] NSW Government dataset used, and the results have not been ground truthed

[22] The group agreed to assess this criterion using metrics as perceived impacts are problematic to measure

[23]19 unresolved Aboriginal Land Claims attached to Crown Land

[24]Water NSW Land at Lake Glenbawn contains a biodiversity offset site

Table A-10: Comparative assessment for people and communities

Principle three: People and communities							
Criteria		3.1 Visual amenity[25]	3.2 Public lands	3.3 (a) Distance from town centres	3.3 (b) Community impacts (amenity)[26]	3.4 Landowner impacts
New study corridor	Score	0	0	0	4	4
	Details	Based on publicly available data (SEED), there are 25 dwelling within 500m and 75 dwellings within 1km Refer to criteria 3.4 for the number of landowners.	Traverses 475ha of public land which comprises of 261ha of State Forest[27], 10ha of Crown Land[28] and 204ha of WaterNSW land	[redacted]	Reduced extent of heavy-lift helicopter use and associated noise impacts Reduced volumes of spoil to be moved via trucks on local roads, which normally have low volumes of traffic and are characteristic of the rural environment they're located in 340km of access tracks required beyond the corridor, which is substantially less than the West reassessed corridor.	120 affected landowners within 250m corridor, and 148 landowners affected within 1km This is not based on sentiment, but rather the number of landowners impacted

[25] NSW Government dataset used, the results have not been ground truthed

[26] The group agreed to assess this criterion using metrics as perceived impacts are problematic to measure

[27] The State Forest includes land zoned for conservation

[28] 10 unresolved land claims attached to Crown Land

Data sources

Data sources

The following datasets were applied in this assessment:

- **Dwellings:** The number of dwellings (general cultural point) was sourced from the Spatial Collaboration Portal https://portal.spatial.nsw.gov.au/server/rest/services/NSW_Features_of_Interest_Category/FeatureServer/2
- **Biophysical strategic agricultural land / Critical industry clusters (equine / viticulture)**: Sourced from NSW SEED at https://mapprod3.environment.nsw.gov.au/arcgis/rest/services/EDP/SRLUP/MapServer
- **National Parks and Protected Areas** (including Nature Reserves, Regional Parks, State Conservation Areas, Aboriginal Areas, Historic Sites and Karst Conservation Reserves): Sourced from the Spatial Collaboration Portal https://portal.spatial.nsw.gov.au/server/rest/services/NSW_Administrative_Boundaries_Theme/FeatureServer
- **Land use (general):** Sourced from NSW SEED at https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017-v1p5-f0ed-clone-a95d
- **State Forests:** Sourced from the Spatial Collaboration Portal https://portal.spatial.nsw.gov.au/server/rest/services/NSW_Administrative_Boundaries_Theme/FeatureServer/3
- **Biodiversity – threatened species records:** Data sourced online at BioNet Species Sightings data | NSW Environment and Heritage
- **Mapped Areas of Regional Koala Significance (ARKS):** Sourced from NSW SEED at NSW Koala Prioritisation Project - Areas of Regional Koala Significance (ARKS) | Dataset | SEED
- **State Vegetation Type Map:** Sourced from NSW SEED at NSW State Vegetation Type Map | Dataset | SEED
- **Crown land:** https://mapprod3.environment.nsw.gov.au/arcgis/rest/services/ePlanning/Planning_Portal_Crown_Land/MapServer/258
- **Named Waterways**: Sourced from the Spatial Collaboration Portal https://portal.spatial.nsw.gov.au/server/rest/services/NSW_Water_Theme/FeatureServer/2
- **Aboriginal heritage:** Data gathered from searches on the Aboriginal Heritage Information Management System (AHIMS) carried out in June 2025
- **Historical heritage:** Commonwealth, State and Local heritage item datasets gathered online at Dataset | SEED (nsw.gov.au)
- **Bushfire prone land:** Sourced from NSW SEED at NSW Bush Fire Prone Land | Dataset | SEED

- **Mine subsidence:** Sourced from the Spatial Collaboration Portal https://portal.spatial.nsw.gov.au/server/rest/services/NSW_Administrative_Boundaries_Theme/FeatureServer/7

Limitations

The data used for this assessment is based on publicly available information and provides a high-level understanding of the study area only. The data used has not been verified by field investigations apart from site inspection from publicly accessible areas and should only be used for an indicative comparison between the route options.