

CHAPTER 2 - STRATEGIC CONTEXT



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2. Strategic context

This chapter describes the strategic context for the project, including key locational features, related projects, and the strategic planning directions driving the need for, and development of, the project. The chapter also describes the alternatives to the project as a whole, how the preferred alignment and project has developed, and the options that were considered.

The project has been declared critical State significant infrastructure by the Minister for Planning as the connection between the approved Narrabri Gas Project and the approved Hunter Gas Pipeline. This connection allows the transmission of natural gas extracted and processed at the Narrabri Gas Project to the east coast domestic gas market, helping to address energy security risks.

2.1 Project need

2.1.1 Strategic planning and policy framework

Santos is an important Australian domestic gas supplier and has been working to provide energy to homes and businesses across Australia for 70 years.

Australia’s energy future is shaped by strategic plans and policy frameworks set at the national, state and regional levels. The key strategies, policies and plans that have influenced the need for, and development of the project, are shown in Figure 2.1. A description of these documents, their key directions and priorities, and their relevance to the project, is provided in Appendix C (Strategic planning review).



Figure 2.1 Strategic planning context – key relevant strategies, policies and plans

The consistency of the project with these strategies, policies and plans is summarised as follows.

- The project would provide infrastructure for the transmission of all natural gas produced by the Narrabri Gas Project to the east coast domestic gas market via the Hunter Gas Pipeline, consistent with:
 - The Australian Government’s *Future Gas Strategy* (Department of Industry, Science and Resources (DISR), 2024a), particularly principle 3 of the Strategy (‘Finding new sources of gas to meet demand’)
 - AEMO’s optimal development pathway for Australia’s energy transition (as defined by the *2024 Integrated System Plan* (AEMO, 2024a) and the *Gas Statement of Opportunities* (AEMO, 2025)), the *NSW Electricity Strategy* (NSW Government, 2020), the NSW Government’s 2020 Electricity Infrastructure Roadmap, and the *New England North West Regional Plan 2041* (Department of Planning and Environment (DPE), 2022a), supporting supply of power for gas-powered firming generation in the National Electricity Market
 - the NSW Government’s *Future of Gas Statement* (Department of Regional NSW, 2021), which identifies the Narrabri Gas Project as a critical energy supply project to provide gas for firming capacity.
- The project is consistent with interim findings of the ACCC Gas Inquiry 2017-30 (ACCC, 2025a; ACCC, 2025b; ACCC, 2025c) and the *Future Gas Strategy Analytical Report* (DISR, 2024b) as it involves development of pipeline infrastructure to connect a new natural gas supply to the east coast domestic gas market to ensure domestic sources of gas supply continue to be brought online.
- The project is an investment in gas-related pipeline infrastructure, consistent with Action 4 (‘Enabling gas-related infrastructure’) of the *Future of Gas Statement* (Department of Regional NSW, 2021).
- The project aligns with the greenhouse gas and climate change strategies of the Australian and NSW Governments (see sections C.1.4 and C2.3 in Appendix C (Strategic planning review)) by facilitating gas-powered firming generation in the National Electricity Market, supporting the increased deployment of variable renewable energy.

Further information about the above strategies and plans, and how the project aligns with them, is provided in Appendix C (Strategic planning review).

An overview of how the strategic planning and policy framework has influenced the development of the project is provided in sections 2.1.2 and 2.1.3.

2.1.2 Related Santos projects

Narrabri Gas Project

The Narrabri Gas Project is a State significant development in accordance with Part 4, Division 4.7 of the EP&A Act and was approved by the Independent Planning Commission of NSW in September 2020 (reference SSD 6456). It is located about 20 kilometres south-west of Narrabri and comprises the installation of gas wells, gas and water gathering systems, gas processing and compression facilities, and supporting infrastructure. Once fully operational, the Narrabri Gas Project has the potential to supply up to half of NSW’s natural gas needs, helping put downward pressure on gas and electricity prices for households, manufacturers and businesses.

The Narrabri Gas Project is contained within existing petroleum exploration licence 238 and petroleum assessment lease 2. The Narrabri Gas Project includes petroleum production lease 3. Petroleum production lease applications 13, 14, 15 and 16 have been lodged to facilitate gas production.

The location of Narrabri Gas Project infrastructure presents opportunities to co-locate parts of the Narrabri Lateral Pipeline, which would minimise the overall impact of the project and reduce the need for additional construction workspaces. Potential impacts within these areas would be managed in accordance with the terms of the approval for the Narrabri Gas Project.

Further information about the Narrabri Gas Project is available at: [Narrabri Gas Project](#).

Hunter Gas Pipeline

The Hunter Gas Pipeline is an approved underground gas transmission pipeline between Wallumbilla in Queensland (about 500 kilometres west of Brisbane) and Newcastle in NSW. It was approved (as a Part 3A project under the EP&A Act) on 11 February 2009 (reference MP 06_0286). The approval was subsequently transitioned from Part 3A and declared a critical State significant infrastructure project on 20 July 2018.

The Hunter Gas Pipeline is approved to be constructed in three stages:

- Stage 1 is early works involving establishment of temporary laydown yards at multiple strategic locations along the proposed alignment. This phase of the project commenced in December 2023. Stage 1 also includes undertaking limited impact works to inform pipeline design and construction planning.
- Stage 2 involves construction and operation of the Narrabri to Newcastle section of pipeline. This stage of works will comprise the physical construction and operation of the Hunter Gas Pipeline extending between about 5.5 kilometres south of Baan Baa (where the tie-in point with the Narrabri Lateral Pipeline project is proposed) and terminating in Newcastle where gas produced by the Narrabri Gas Project will be delivered into the NSW domestic natural gas network.
- Stage 3 involves construction and operation of the Narrabri to Wallumbilla section of the pipeline. There is no scheduled timing for this stage of the project.

Further information about the Hunter Gas Pipeline is available at: [Hunter Gas Pipeline](#).

The Baan Baa construction compound, which is proposed to be established and used to construct the Narrabri Lateral Pipeline project (see section 3.6.2), would continue to be used to construct the Hunter Gas Pipeline for a period of about two years.

2.1.3 Project need summary

Gas supply and energy security

Natural gas is and will continue to be a key generation source in Australian energy markets, particularly as a peaking fuel when there is low renewables generation and storage options have been exhausted. As coal-fired power stations retire, renewable energy connected with transmission and distribution, firming with storage, and backed up by gas-powered generation, offers a reliable and efficient way to supply electricity to homes and businesses through Australia's transition to a net zero economy. Gas generation also provides back-up supply during long periods of 'dark and still' renewable droughts and times of extreme peak demand, particularly in winter (AEMO, 2024a).

Natural gas plays a critical role in meeting the ever growing energy demand due to its dependability, versatility and abundance as an energy source. Importantly, gas powers far more than just electricity generation, unlocking a multitude of uses across various sectors. Australia and the world needs gas for manufacturing, agriculture, heating and as a chemical feedstock in the production of fertilisers, detergents, plastics, chemicals, pharmaceuticals, polymers, adhesives, steel, bricks, and cement (DISR, 2024a). The Australian Government's *Future Gas Strategy* confirms the continued need for gas as having a vital role in the renewable energy transition (DISR, 2024a). Further information on this is provided in the following section.

The 2025 Gas Statement of Opportunities (AEMO, 2025) underscores that while future gas consumption, particularly for electricity generation, remains uncertain, every modelled scenario highlights an urgent need for new gas investments to ensure supply adequacy.

Within NSW, natural gas is critical for energy security and reliability. The *Future Gas Strategy* (DISR, 2024a) reports that in 2021/2022 NSW consumed 145 petajoules of gas, with the major gas users being power generation, industry (heat and chemical inputs), and buildings (cooking, heating water and warming and cooling buildings). Currently, NSW does not produce commercial quantities of gas and is reliant on imports from Queensland and South Australia via the Moomba to Sydney Pipeline, and from Victoria via the Eastern Gas Pipeline.

The ACCC noted that gas shortfalls are projected to emerge in the east coast from 2027 unless new sources of gas supply are made available (ACCC, 2025a). The *Future Gas Strategy* (DISR, 2024a) confirms that, to meet forecast domestic demand, new gas supply and connecting infrastructure is needed from undeveloped fields. The *Future Gas Strategy Analytical Report* (DISR, 2024b) notes the key role the Narrabri gas fields will play in increasing domestic supply and helping alleviate shortages at a national, state and regional level.

The Narrabri Gas Project will make a significant contribution to unlocking gas supply and improving energy security for NSW. The Independent Planning Commission of NSW, in its Statement of Reasons approving the Narrabri Gas Project (IPC, 2020), found the Narrabri Gas Project has the potential to meet about half of NSW's gas requirements in circumstances where (without the project) NSW is unlikely to be able to meet its gas needs from its own resources. Santos has committed that 100 per cent of gas from the Narrabri Gas Project will be supplied to the domestic market.

The most effective way to ensure timely delivery of gas from the approved Narrabri Gas Project to the east coast domestic gas market is via the Narrabri Lateral Pipeline and the approved Hunter Gas Pipeline.

The assessment of the Narrabri Gas Project conducted by the former NSW Department of Planning Industry and Environment (DPIE) confirms the need for the Narrabri Gas Project, and therefore the need for gas transport infrastructure. DPIE's Assessment Report (DPIE, 2020a) found that the Narrabri Gas Project is critical for energy security and reliability in NSW as it would:

- *provide essential gas supplies to the domestic market to address forecast shortfalls from 2024*
- *facilitate the extension of the existing gas pipeline network to northern NSW, bringing it closer to the strategic gas supplies in both Queensland and the Northern Territory*
- *support the development of gas-fired power stations in NSW to provide dispatchable energy to the National Electricity Market as it transitions away from a long-term reliance on coal-fired power stations to a greater reliance on renewable energy*
- *put downward pressure on gas prices.*

Supporting energy system decarbonisation

It is recognised that natural gas plays a critical role in the transition to a lower-carbon future, able to flexibly fill market supply gaps as alternative energy sources emerge. As the energy system decarbonises and additional renewable capacity is built, natural gas will continue to play a critical role in responding to fluctuations in supply, by fuelling on-demand firming, particularly during periods of low renewable output and peak demand, ensuring safe and continuous operations (AEMO, 2024a; DISR, 2024a; International Energy Agency, 2023).

The project is also consistent with the NSW Government's climate and energy strategies. The *Net Zero Plan Implementation Update 2022* (Office of Energy and Climate Change, 2022) outlines four priorities to support legislated emissions reduction targets under the *Climate Change (Net Zero Future) Act 2023*. Priority 1 of the plan includes the Electricity Infrastructure Roadmap, which identifies the need for dispatchable electricity infrastructure, including gas, to maintain grid security and reliability.

The *Future of Gas Statement* (Department of Regional NSW, 2021) confirms that the NSW Government has committed to reducing domestic emissions, boosted by investments in renewables as part of the broader energy transition. This change will take several decades to complete and during that time, gas will continue to play an important role in energy supply.

Gas transmission from the approved Narrabri Gas Project

There is no existing pipeline infrastructure to transmit natural gas from the approved Narrabri Gas Project to the east coast domestic gas market. To address this, the project has been declared critical State significant infrastructure by the Minister for Planning, with the purpose of providing a connection between the Narrabri Gas Project and the approved Hunter Gas Pipeline.

As discussed in section 2.1.1 the need for gas transmission infrastructure is supported by a broad range of energy and planning strategies and policies. The *Future Gas Strategy* (DISR, 2024a), the *Future Gas Strategy Analytical Report* (DISR, 2024b) and the ACCC Gas Inquiry (ACCC, 2025a; ACCC, 2025b; ACCC, 2025c) all confirm the role and development of gas pipelines as crucial to securing domestic sources of gas supply to the east coast domestic gas market.

2.2 Location and setting

2.2.1 Regional context

The project is located in north-west NSW (the New England North West region), in the Narrabri LGA and within the traditional Country of the Kamilaroi (Gomeri) People. The Narrabri LGA covers an area of around 13,000 square kilometres and includes the Nandewar Ranges, Namoi River Valley and the Pilliga forests.

The Narrabri LGA is known for its rich agricultural heritage and expanding industrial, resource and energy activities. The Narrabri LGA is predominantly rural, with agricultural land uses (dominated by cropping and grazing) accounting for the majority of land within the LGA. Other key land uses include production native forestry and nature conservation. The two main economic activities are mining and agriculture/forestry (DPE, 2022a).

The town of Narrabri is the administrative centre of the LGA. The town is located on the Namoi River and the junction of the Newell and Kamilaroi highways. Boggabri and Wee Waa are the other larger towns in the LGA, with smaller villages including Baan Baa, Bellata, Edgeroi, Pilliga and Gwabegar.

At its closest point, the project is located about 20 kilometres south-west of the town of Narrabri. The eastern end of the project, at the tie-in with the Hunter Gas Pipeline, is located about 5.5 kilometres south-east of Baan Baa and about 10 kilometres north-west of Boggabri.

The project extends through, and is surrounded by, the Pilliga East and Bibblewindi State forests (see Figure 1.1) and agricultural land. Other State forests and reserves located within 20 kilometres of the project include:

- Jacks Creek State Forest (about one kilometre east)
- Leard State Conservation Area (about six kilometres north-east)
- Leard State Forest (about seven kilometres east)
- Pilliga East State Conservation Area (about eight kilometres south)
- Willala Aboriginal Area (about 11 kilometres south)
- Pilliga State Conservation Area (about 17 kilometres west)
- Pilliga Nature Reserve (about 18 kilometres south of the project site).

State forests and reserves in the Narrabri LGA are shown in Figure 2.2.

Other regional features and infrastructure close to and/or crossed by the project site include the Newell Highway, Kamilaroi Highway, Mungindi railway line, the Namoi River, and Wilga Park Power Station (see Figure 2.2).

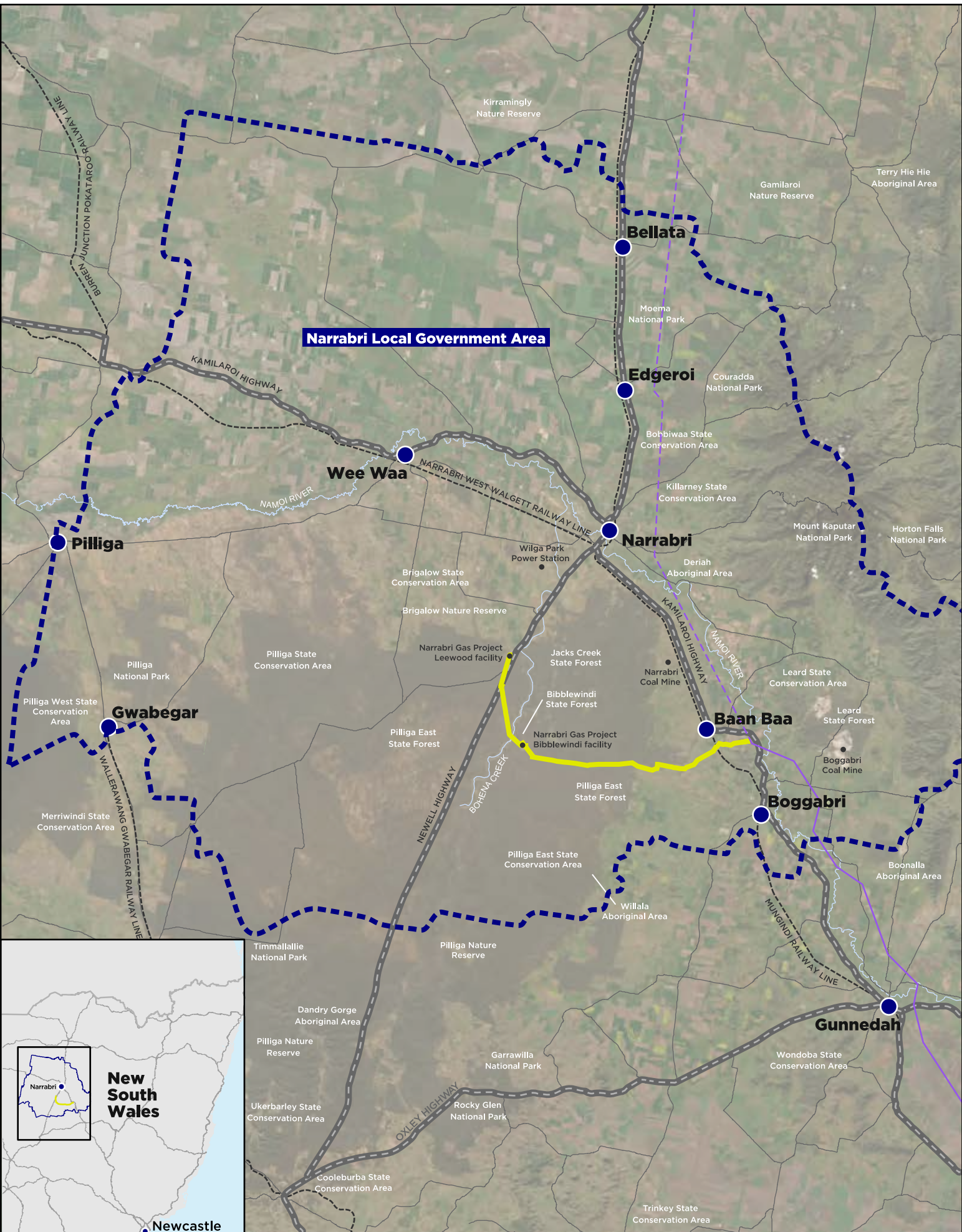


Figure 2.2 Regional context

2.2.2 The project site

The term 'project site' is used in the EIS to refer to the area required to construct and operate the project. It includes the location of:

- the construction right of way
- construction ancillary facilities
- new access tracks and upgrades to existing local roads, access tracks and intersections
- the permanent easement for the underground pipeline
- permanent surface operational infrastructure.

The project site includes areas of land that will be disturbed for the Narrabri Gas Project and Hunter Gas Pipeline (see section 2.1.2) in accordance with their respective approvals. These areas (shown on Figures B.4.1 to B.4.13 and Figure B.4.25 in Appendix B (Map Book)) would be used by the project temporarily during construction and/or permanently during operation. The project site also includes locations where no surface disturbance or clearing is proposed, such as areas of trenchless crossings.

The project site extends between the Narrabri Gas Project central gas treatment and compression facility (the 'Leewood facility') in the west, and the Hunter Gas Pipeline in the east, via the Narrabri Gas Project Bibblewindi facility (the 'Bibblewindi facility') (see Figure 1.1). The project site traverses two distinct landscapes, characterised by the dominant land use of each. The western section is located within State forests, and the eastern section extends through agricultural/rural properties.

The two sections of the project site are described below. The key features are shown in the figures in Appendix B (Map Book). Further information on the existing environment is provided in the chapters in Part B of the EIS.

Western section – between the Leewood facility and the eastern boundary of Pilliga East State Forest

The western section of the project site extends for a distance of about 34.5 kilometres from the Leewood facility through the Pilliga East and Bibblewindi State forests.

The north-western extent of the project site is located at the Leewood facility, immediately west of the Newell Highway, and about 20 kilometres south-west of Narrabri. This location includes the Leewood facility to support construction (see section 3.6.2) and a proposed scraper station used for access to the pipeline for internal cleaning and inspection (see section 3.2.2). From this location (referred to as kilometre point zero (KP 0)) the project site extends in an approximate southerly direction on the western side of the Newell Highway through the Pilliga East State Forest for a distance of about five kilometres.

The project site then extends east and under the Newell Highway (at about KP 5.4) and continues south-east, through Pilliga East State Forest, under Bohena Creek and an adjacent unnamed watercourse and the associated riparian vegetation (at about KP 13.6).

From Bohena Creek, the project site continues in a south-easterly direction through the Bibblewindi State Forest to the Bibblewindi facility (at about KP 16.1). The project site is located adjacent to the approved Narrabri Gas Project infrastructure corridor between the Leewood facility and about KP 15.5 to the Bibblewindi facility.

Areas within the approved Narrabri Gas Project infrastructure corridor are proposed to be used as temporary workspaces to support construction (see section 3.6.2).

The Bibblewindi facility would be used to support construction of the project (see section 3.6.2) and would include a cathodic protection system. From this location (at about KP 16.1) the project site extends to the south-east and then east through the Bibblewindi State Forest and Pilliga East State Forest (around KP 22.1), adjacent to the southern side of X-line (a forestry track) and proposed Narrabri Gas Project infrastructure, to about KP 23.7.

The project site continues within the Pilliga East State Forest and extends in an easterly direction, generally following Beehive Road between KP 25.8 and the eastern boundary of Pilliga East State Forest at about KP 34.5.

The project site crosses Bibblewindi Creek (at about KP 20.7), Pine Creek (at about KP 23.7), and Yellow Spring Creek (at about KP 27.9).

The western section of the project site would cross about:

- 20 unsealed forestry tracks
- 13 unnamed ephemeral watercourses.

The project site also includes:

- a number of temporary workspaces, some of which would be established as part of the approved Narrabri Gas Project
- new access tracks at about KP 30.4 and KP 32.5.

No services or utilities would be crossed in this section.

Eastern section – between the eastern boundary of the Pilliga East State Forest and the Hunter Gas Pipeline

The eastern section of the project site extends for a distance of about 20.5 kilometres from the eastern boundary of the Pilliga East State Forest to the Hunter Gas Pipeline, through land occupied by private landholdings dominated by rural/agricultural land uses.

From the eastern boundary of Pilliga East State Forest (at about KP 34.5), the project site extends in a generally easterly direction to KP 43.7, crossing two unsealed public roads (Towri Road and under Delwood Road) at about KP 41.3 and KP 43.1, respectively. Another cathodic protection system is proposed at about KP 40.6.

The project site extends under Little Sandy Creek and Tulla Mullen Creek (including two adjacent unnamed watercourses) using trenchless construction methods at about KP 38.8 and KP 43.2, respectively.

The project site then crosses the unsealed Caloola Road at about KP 43.9, and extends under (using trenchless construction) the Mungindi railway line and the unsealed Curracubah Road at about KP 49.8. The project site continues to the tie-in point to the Hunter Gas Pipeline, located at about KP 54.7. This location includes a proposed scraper station (see section 3.2.2). A construction compound (the Baan Baa construction compound – see section 3.6.2) is located about 4.5 kilometres to the west of the tie-in point, and forms part of the project site.

This section of the project site also crosses (using trenching):

- Sandy Creek (KP 35.3)
- Little Sandy Creek (two additional crossing locations at KP 37.7 and KP 40.5)
- Baan Baa Creek (KP 47.4)
- Curracubah Creek (KP 51.2)
- 15 unnamed ephemeral watercourses.

In the eastern section, the project site also includes:

- new access track at KP 38.4 and new access tracks, including upgrades to intersections with public roads, at KP 39.3 and KP 45.9
- upgrades to existing property access tracks and their intersections with public roads at Caloola Road (KP 42.7) and Curracubah Road at (KP 49.8)
- upgrades of Caloola Road (KP 41.3 to KP 43.9), Towri Road (KP 41.3) and Delwood Road (KP 43.1)
- upgraded intersections at Caloola Road/Baan Baa Road (near KP 43.9), Caloola Road/Curracubah Road, and the property access on the Kamilaroi Highway providing access to the Baan Baa construction compound.

The eastern section also crosses a number of utilities, including:

- communications cables at various locations
- 11 kilovolt (kV) electricity transmission lines (above ground) at about KP 47.5 and KP 49.1
- 66kV electricity transmission line (above ground) supplying the Narrabri Coal Mine at about KP 49.7
- 132kV electricity transmission line (above ground) at about KP 53.9.

2.3 Alternatives to the project as a whole

2.3.1 Do nothing option

The 'do nothing' option would involve not constructing and operating the project.

The project is needed to provide transmission infrastructure for natural gas to be supplied from the approved Narrabri Gas Project to the approved Hunter Gas Pipeline. Once constructed, the project would supply natural gas to the east coast domestic gas market, strengthening energy security in NSW, putting downward pressure on gas prices, and supporting the energy transition. The need for these projects was demonstrated in their respective EISs and project approvals.

Section 2.1 outlines the project's need, detailing the critical role of gas in energy security and decarbonisation, as well as the need for gas transmission infrastructure. This need, and the strategic directions confirmed by the policies and strategies listed in section 2.1.1, would not be met without the project. This is affirmed by the Statement of Reasons for the declaration of State significant infrastructure and critical State significant infrastructure for the project by the Minister for Planning, which recognises that the Narrabri Lateral Pipeline is essential to NSW for economic reasons as it would:

- supply natural gas into the NSW gas market from the Narrabri Gas Project
- strengthen the reliability of the east coast domestic gas market by providing additional gas supply security to users in NSW
- support the development of a local gas supply to place downward pressure on natural gas prices.

As such, the 'do nothing' option is not considered to be a viable alternative.

The reasons for choosing connection to the Hunter Gas Pipeline are discussed below.

2.3.2 Connections to existing gas pipeline infrastructure

There is no existing pipeline network that could transport the gas from the Narrabri Gas Project to the east coast domestic gas market.

There is an existing gas transmission pipeline network around 140 kilometres south-east of the Narrabri Gas Project. This network connects to the Moomba-Sydney Pipeline at Marsden and comprises the Central West Pipeline and the Central Ranges Pipeline, servicing regional towns in western NSW and terminating at Tamworth.

The Central Ranges Pipeline and Central West Pipeline are much smaller diameter pipelines (150 millimetres and 200 millimetres, respectively) than that proposed for the project (DN 500 or about 508 millimetres). These pipelines do not have the available capacity to transport the volume of gas proposed to be produced by the Narrabri Gas Project. Use of these pipelines is therefore not a feasible alternative.

Figure 2.3 shows the relationship of the project to the existing east coast gas transmission network.

2.3.3 Proposed/approved east coast grid connection options

In August 2022, Santos acquired Hunter Gas Pipeline Pty Ltd, owner of the approved but not yet constructed Hunter Gas Pipeline (see section 2.1.2). The approved Hunter Gas Pipeline, which is located in close proximity to the Narrabri Gas Project, will provide a connection to the existing NSW gas supply network near Newcastle.

The approved Hunter Gas Pipeline provides the quickest opportunity to connect the Narrabri Gas Project to the east coast domestic gas market. The Narrabri Lateral Pipeline is required to connect the Narrabri Gas Project to the Hunter Gas Pipeline.

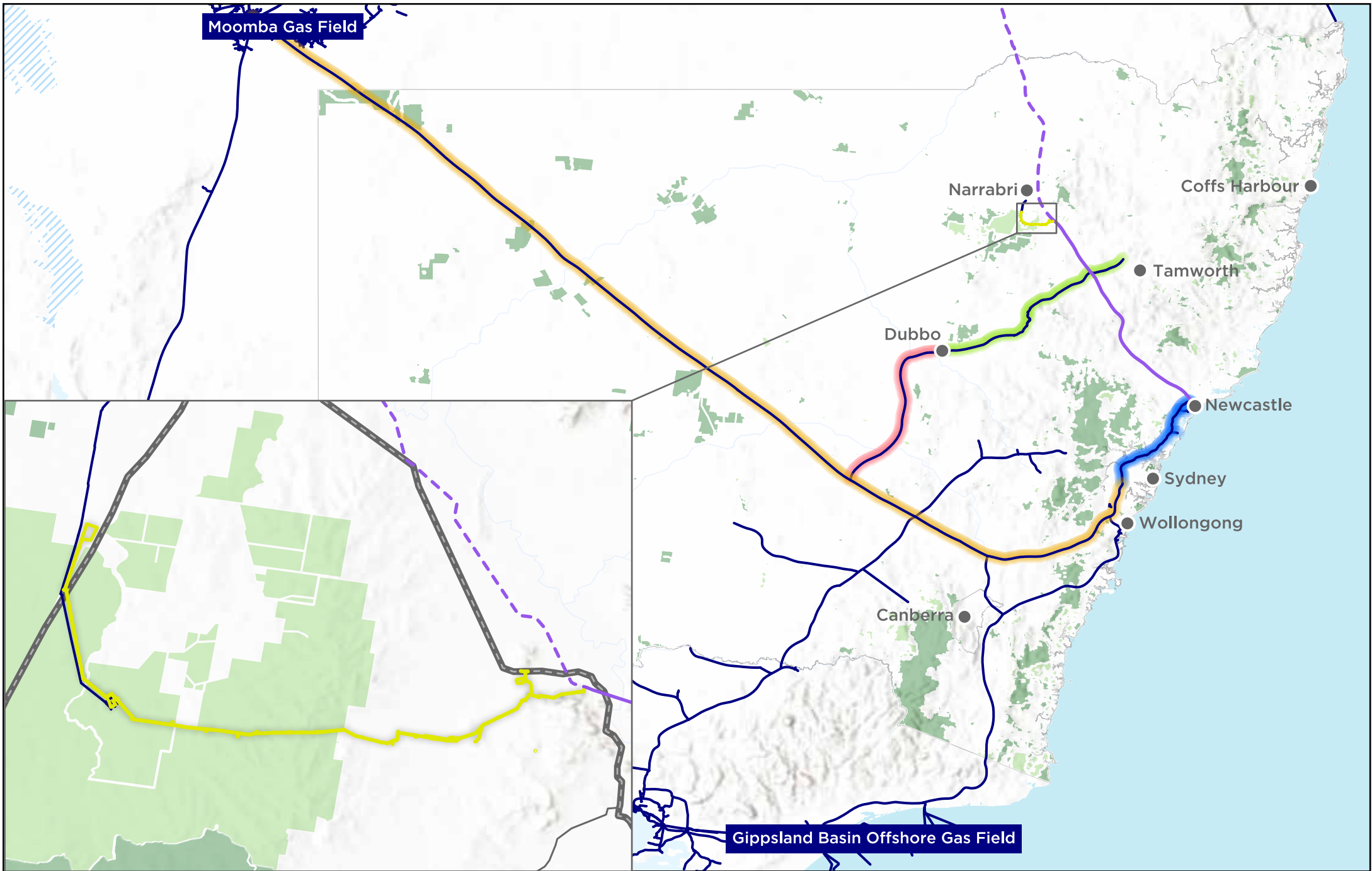


Figure 2.3 Relationship of the project to the east coast gas network



2.4 Design and option development

The project's concept design and construction planning has been informed by consideration of project objectives and requirements, design and constructability considerations, and potential environmental and social impacts.

This included a process of strategic corridor option assessment to develop and test a preferred corridor for the project (see section 2.4.1), followed by further refinement within the preferred corridor to identify the proposed alignment (see section 2.4.2).

2.4.1 Strategic corridor option assessment

Corridor study area – design constraints and considerations

To deliver natural gas produced by the Narrabri Gas Project, the project needs to:

- commence at the Narrabri Gas Project gas processing facility (at Leewood)
- connect to the Hunter Gas Pipeline.

The Leewood facility provides the western extent of the project, with the northern end of Stage 2 of the Hunter Gas Pipeline (identified during further design development of the Hunter Gas Pipeline) providing the eastern extent and tie-in point. These locations were used as the start and end points for all corridor options.

The study area for the identification of potential corridor options is shown on Figure 2.4.

Key environmental and land use constraints, features and design considerations that influenced the identification and assessment of strategic corridor options are summarised below:

- Existing properties and agricultural land uses – including private properties and agricultural land uses, lifestyle and agricultural blocks, areas of large lot residential development (R5 zoning) south of Narrabri, the townships of Baan Baa and Boggabri, and biophysical strategic agricultural land.
- Approved Santos projects – existing infrastructure and areas subject to the approval for the Narrabri Gas Project and Hunter Gas Pipeline, including opportunities to connect with these facilities and co-locate construction and operational infrastructure, to minimise additional areas of disturbance and fragmentation as far as possible and to maximise operational efficiencies.
- Biodiversity – including areas of remnant vegetation (including in the Pilliga forests) supporting threatened flora and fauna and endangered ecological communities.
- Other land uses – including productive State forests, future residential growth areas and commercial/business properties.
- Heritage – including areas and sites of Aboriginal and historic cultural heritage.
- Areas with increased construction complexity – including steeper topography and/or shallow rock.
- Existing and future mining operations – including current and potential future mining operations of the Narrabri Mine, an underground longwall coal mine operated by Whitehaven Coal. Current operations occur within mining lease (ML) 1839 and ML1609, with future expansion possible into areas encompassed by exploration licence (EL) 9456, EL9455 and EL6243. Surrounding these areas subject to exploration licences (to the east, north and west) is the Gorman North release area, identified by AUTH216, where future coal exploration could occur. Active subsidence generated by longwall underground mining is generally incompatible with a high-pressure gas transmission pipeline.

Key regional features and constraints are shown on Figure 2.2 and Figure 2.4.

Corridor development process

A three-stage process was adopted to confirm the preferred location for the project between the Leewood facility and the Hunter Gas Pipeline:

1. A one kilometre wide corridor base case was identified that maximised proximity to, and use of, approved Narrabri Gas Project infrastructure at and between the Leewood and Bibblewindi facilities, and minimised impacts on private landholders.
2. Two alternative corridor options were identified to test the base case.
3. Confirmation of the preferred corridor based on a comparative assessment of the base case with the alternative corridors using assessment criteria.

The base case and corridor options are shown on Figure 2.4. The options and results of the assessment process is described below.

Corridor options considered

Base case (southern) corridor

The base case corridor extends for a distance of about 55 kilometres between the Leewood facility, via the Bibblewindi facility, to the northern extent of Stage 2 of the Hunter Gas Pipeline. Between the Leewood and Bibblewindi facilities, the corridor is located adjacent to Santos' existing infrastructure corridor, which is approved to be expanded to a width of 30 metres for the Narrabri Gas Project.

The base case was developed to minimise the cumulative impact of the Narrabri Lateral Pipeline and Narrabri Gas Project on the Pilliga forests and to maximise construction and operational efficiencies through use of common areas and Santos facilities. As much of the corridor as possible would be located directly adjacent to the Narrabri Gas Project infrastructure corridor, and facilities (including permanent surface facilities and construction ancillary facilities) would be located within Narrabri Gas Project areas approved for disturbance where practicable.

The location of the base case corridor also sought to minimise the number of private properties affected and minimise impacts on existing mining exploration leases and active mining areas.

Two alternative corridors were identified to provide a comparison to the base case and determine if there would be a feasible alternative would better meet the project objectives (see section 1.4). The alternative corridors start and finish at the same locations as the base case and are described below.

Northern corridor

The northern corridor is about 61 kilometres long. The corridor traverses in a northerly direction from the Leewood facility generally following the existing gas pipeline to Wilga Park Power Station and boundaries of broad acre grazing and dryland cropping paddocks. The corridor then extends east following Nuabe Road and crosses Bohena Creek prior to extending north-east adjacent to the Newell Highway.

The corridor then turns east to cross the Newell Highway and through cleared land, then follows unsealed lanes and forestry tracks, including a short section through Jacks Creek State Forest. The corridor stays to the south of areas zoned for large lot residential or identified as future residential growth areas.

The corridor follows the western and northern boundaries of the Narrabri Fish Farm, through an area subject to mining exploration leases, prior to crossing Jacks Creek Road. The corridor then traverses in a south-easterly direction following Jacks Creek Road, the Mungindi railway line and Kamilaroi Highway. After crossing these features, it extends south-east to the northern end of Stage 2 of the Hunter Gas Pipeline.

The corridor avoids large lot residential areas and active mining areas and leases south of Narrabri. However, it traverses numerous smaller private properties, forested areas and areas of biophysical strategic agricultural land on land zoned for primary production (RU1).

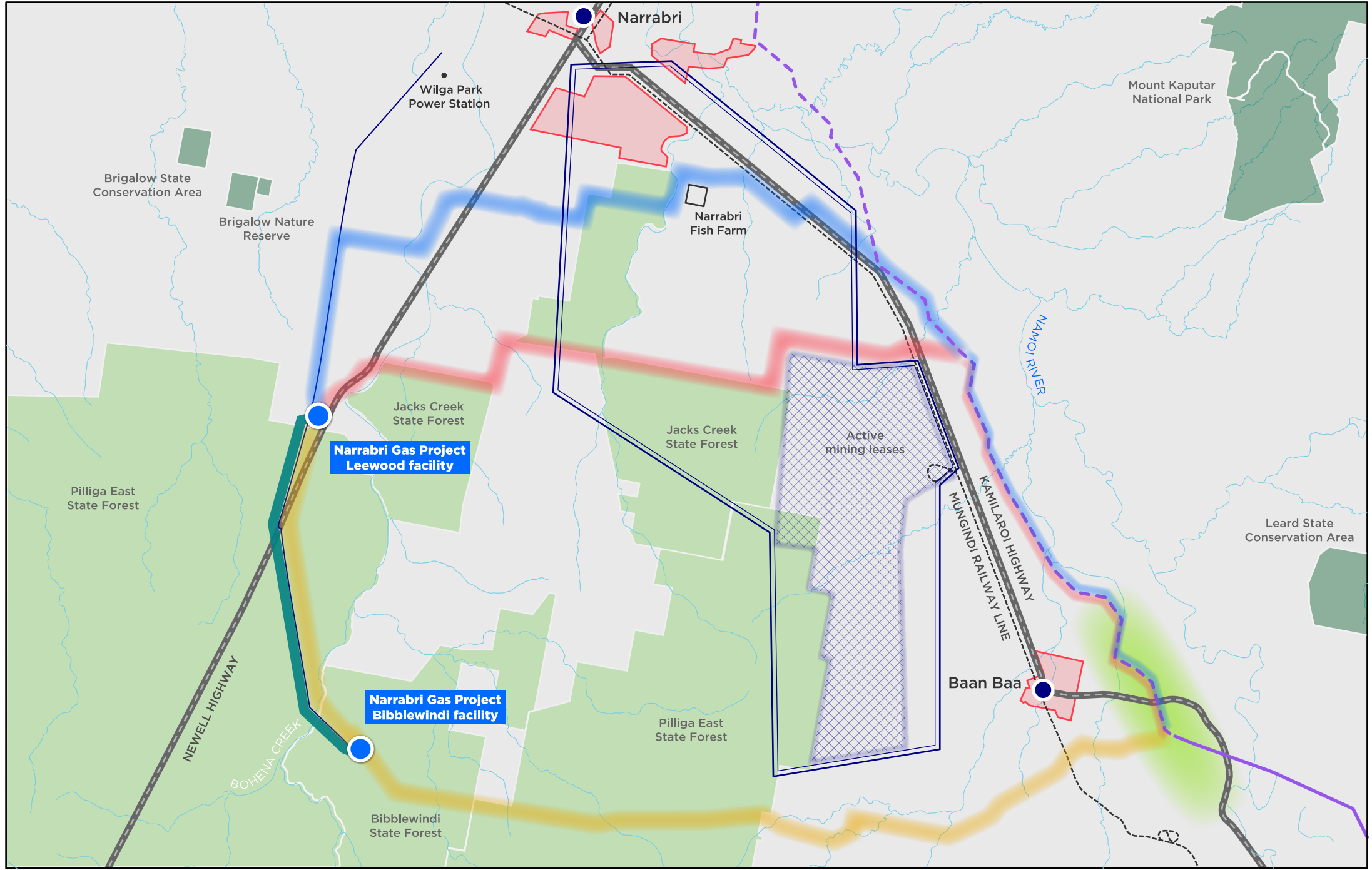


Figure 2.4 Project corridor options

Legend

- Base case (southern corridor)
- Central corridor
- Northern corridor
- Existing gas infrastructure
- Narrabri Gas Project infrastructure corridor
- Mining exploration lease area
- Stage 2 Hunter Gas Pipeline – Indicative pipeline route
- Stage 3 Hunter Gas Pipeline – Indicative pipeline route
- Residential land zone
- Stage 2 Hunter Gas Pipeline tie-in location
- Gas facility
- Rural land zone
- Town
- Highway
- Railway line
- Watercourse

0 1 2 3 4
Kilometres

Central corridor

The central corridor is about 52 kilometres long. It initially traverses in a north-easterly direction from the Leewood facility following the boundaries of cropping paddocks on the western side of the Newell Highway. The corridor then extends east to cross the Newell Highway and Bohena Creek, following forestry tracks and public road corridors (McCanns Road, Foxglen Lane, Scratch Road) prior to reaching the western boundary of ML 1609. Swamp Creek, Killen Creek, Jacks Creek and a number of minor unnamed watercourses are crossed in this section, as is the northern boundary of Jacks Creek State Forest.

The corridor then traverses along the northern boundary of operational mining lease ML 1609 and through an area designated for mining exploration leases, continuing east into cleared agricultural land to cross Greylands Road, the Mungindi railway line, the Kamilaroi Highway and Pine Creek. The corridor then extends south-east to the northern end of Stage 2 of the Hunter Gas Pipeline.

This corridor also traverses numerous smaller private properties and forested areas on land zoned on land zoned for primary production (RU1), as well as areas of biophysical strategic agricultural land.

Evaluation of corridor alternatives and preferred corridor

The base case was identified as the preferred corridor as it offers a balanced outcome across multiple criteria despite potentially higher impacts on biodiversity. The base case:

- minimises impacts on private properties and landholders, with significantly fewer properties potentially affected than alternative corridors
- optimises use of existing and approved Narrabri Gas Project disturbance areas, maximising opportunities to co-locate parts of the Narrabri Lateral Pipeline with other approved Santos infrastructure, and operational and safety systems and processes, reducing the area of additional disturbance and contributing to efficient delivery
- minimises impacts on land zoned for primary production (RU1), including biophysical strategic agricultural land, supporting continued agricultural productivity
- avoids exploration mining leases and active mines, reducing potential conflicts with existing and future resource operations
- addresses safety and operational requirements
- performed similarly to the other corridor options in relation to protection of heritage and watercourse crossings, avoidance of conservation reserves, proximity to occupied residences, constructability and logistics, schedule duration and approvals.

2.4.2 Preferred corridor investigations, design and alignment refinement

Investigation area

Local knowledge and desktop review of opportunities and constraints (including existing environmental and heritage databases and mapping) within the corridor supported the identification of an approximate 100 metre wide investigation area. The investigation area became the focus for more detailed site investigations, including in relation to biodiversity and cultural heritage.

Refining the alignment

Further refinement was undertaken to confirm the proposed indicative location of the 30 metre wide permanent easement within the investigation area. This involved discussions with affected landholders and detailed consideration of environmental, cultural heritage and land use constraints.

For the western section (within the State forests), the alignment was refined to:

- maximise opportunities to co-locate project facilities (permanent surface infrastructure and construction ancillary facilities) with existing Santos infrastructure and proposed Narrabri Gas Project facilities
- minimise impacts (as far as practicable) on watercourses, existing gas infrastructure (including gas supply lines to the Wilga Park Power Station, significant ecological values, Aboriginal heritage, and Forestry Corporation of NSW infrastructure).

For the eastern section, within private properties, this involved working closely with landholders to identify an alignment that would minimise impacts on existing property uses, structures and facilities (including property improvements such as farm dams, fencing, areas of cropping, location of dwellings etc). In a number of locations, the alignment closely follows property boundaries / fence lines to minimise potential impacts. The alignment has also been refined in this section to avoid or minimise impacts on remnant stands of vegetation, threatened species, watercourses and known Aboriginal cultural heritage sites as far as practicable.

Further information about how Santos has engaged with landholders to develop the project as described in chapter 3 (Project description) is provided in chapter 5 (Engagement) and Appendix E (Community and stakeholder consultation outcomes report).

Other project options considered

Siting of construction facilities and temporary workspaces

Construction facilities and temporary workspaces would be located within approved facilities/disturbance areas for the Narrabri Gas Project and Hunter Gas Pipeline or within the construction right of way wherever possible. Outside these areas, they would be located to avoid or minimise impacts on environmentally sensitive land, agricultural land, residences and other land uses.

Further detail is provided in section 3.6.2.

Methods for watercourse crossings

Options for trenchless technology include:

- surface launched horizontal directional drilling
- other trenchless methods – auger bores, pipe jacking, pipe hammers, track bores, slip bores, guide bores and micro tunnelling.

The choice of crossing methodology would be made on a case-by-case basis taking into account constructability and minimising impact.

Further detail about watercourse crossings is provided in sections 3.4.2 and 3.4.3.

2.4.3 Future design refinements

As part of the design development process, further refinements to minimise environmental and social impacts and improve outcomes are anticipated. Key areas for ongoing design and construction planning refinement include:

- fine scale route adjustments in consultation with landholders
- access arrangements
- water sourcing
- design and construction planning to minimise impacts on infrastructure and land use.

Section 20.1 describes the process that would be followed where refinements result in a final design that varies from that described in the EIS.