EnergyCo

Scoping report

Hunter Transmission Project

May 2024

NSW GOVERNMENT

Acknowledgement of Country

We acknowledge that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia, and the oldest continuing culture in human history.

We would like to respectfully acknowledge the Wonnarua, Awabakal and Darkinjung people as the Traditional Custodians of the land on which we deliver our project to the community. We pay our respects to Elders past, present and emerging and to all Aboriginal people of these communities.

We acknowledge the work that Aboriginal people have done to maintain land and water and will show respect through thoughtful and collaborative approaches to engage with the Aboriginal community to ensure local priorities and values inform and influence decision making.

We reflect on the continuing impact of government policies and practices and recognise our responsibility to work together, with and for Aboriginal and Torres Strait Islander peoples, families and communities towards improved economic, social and cultural outcomes.

Contents

1 Introduction

The Hunter Transmission Project (HTP) is critical State significant infrastructure (CSSI). It must be built by the end of 2028 to protect energy security in NSW as the remaining coal-fired power stations close.

The HTP involves:

- a new overhead 500 kilovolt (kV) double circuit transmission line of around 100 kilometres
- 2 new substations (Bayswater and Olney)
- associated works including upgrades to the existing Bayswater and Eraring substations, adjustments to existing transmission lines, road upgrades, access tracks, temporary construction facilities such as laydown areas, stringing sites, construction support sites and workers accommodation.

The new transmission line will connect the existing 500 kV transmission line at Bayswater to the existing 500 kV transmission line in the Olney State Forest near Eraring.

This will strengthen the State's core electricity grid and supply clean and reliable energy to NSW consumers for generations to come.

It will also unlock the supply of electricity from the Central-West Orana and New England Renewable Energy Zones (REZs).

After extensive investigations, EnergyCo has selected a corridor for the HTP that seeks to avoid or minimise impacts on people and the environment, striking a reasonable balance between different land uses in the Hunter.

To achieve this, the HTP corridor runs mostly though power station, mining and government land between Bayswater and Broke. It then heads into the Pokolbin, Corrabare, Watagan and Olney State forests where it joins the existing 500 kV transmission line running between Eraring and Kemps Creek in Western Sydney (see Figure 1.1).

Using the forests is a key strategy to minimise the HTP's impacts. For example, EnergyCo proposes building a substation on a former timber plantation site in the Olney State Forest to avoid the residential communities of Martinsville and Cooranbong.

The HTP needs approval from both the NSW Government and Australian Government before it can proceed.

Due to its strategic importance, the NSW Minister for Planning and Public Spaces has declared the HTP to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Australian Minister for the Environment and Water is also likely to declare the HTP to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because it could have a significant impact on matters of national environmental significance (MNES) and Commonwealth land.

This means the HTP will need the approval of both ministers before it can go ahead.

Under the existing Bilateral Agreement, the NSW Department of Planning, Housing and Infrastructure will co-ordinate a detailed assessment of the impacts of the HTP under both the EP&A Act and EPBC Act. This will happen in a single, integrated approvals process that includes extensive community consultation before both ministers make a final decision on the HTP.

Under this process, EnergyCo is required to prepare an environmental impact statement (EIS) of the HTP for public exhibition in accordance with the requirements of both NSW Government and Australian Government agencies.

This report has been prepared to help these agencies set the Secretary's environmental assessment requirements (SEARs) for the EIS.

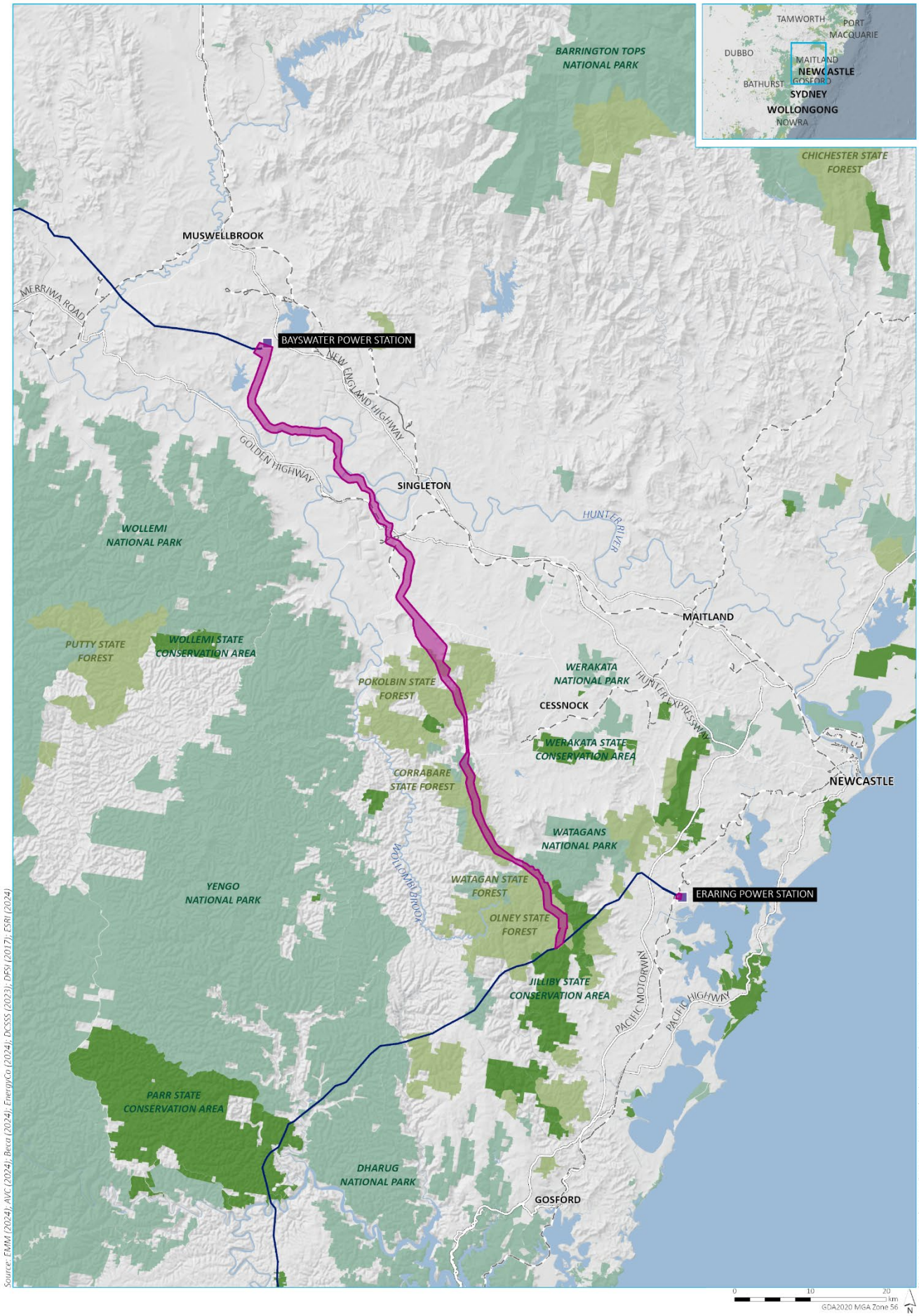


Figure 1.1 The Hunter Transmission Project

2 Strategic context

2.1 The HTP is essential

To ensure energy security as our coal-fired power stations close, the HTP must be built by 2028.

The HTP:

- is an urgent NSW Actionable Project under the Australian Energy Market Operator's 2022 Integrated System Plan for the transition of the National Electricity Market to renewable energy over the next 20 years
- will receive part of the $4.7 billion allocated to the NSW Government to modernise the electricity grid under the Australian Government's Rewiring the Nation program
- is a 'Deliver Now' project under the Network Infrastructure Strategy for NSW to support the delivery of the NSW Electricity Infrastructure Roadmap (the Roadmap)
- is a priority transmission infrastructure project (PTIP) under the NSW *Electricity Infrastructure Investment Act 2020* (EII Act) because it is essential for energy security and avoiding breaches of the NSW Energy Security Target.

This means the NSW Minister for Climate Change, Energy, the Environment and Heritage is responsible for appointing a network operator to carry out the project under the EII Act and ensuring the HTP is in the best interests of electricity consumers.

Coal-fired power stations currently provide most of NSW's electricity supply as well as the firming capacity that keeps the grid stable during peak periods such as summer heat waves.

Most of these power stations are reaching the end of their life and are due to shut in the next 10 years.

At the same time, our electricity demand is increasing as our population grows and we electrify our vehicles, homes, businesses and industry. This means NSW needs new electricity supply urgently.

The NSW Government has developed the Roadmap to transition NSW to a cleaner future and ensure this new supply comes from renewable energy.

The Roadmap involves:

- generating electricity (wind and solar) in 5 new Renewable Energy Zones (REZs) across NSW
- improving the reliability of the grid with new storage capacity such as batteries and pumped hydro
- building new transmission lines such as the HTP to deliver clean energy to consumers.

EnergyCo is responsible for coordinating the delivery of the Roadmap, minimising impacts on people and the environment, and maximising the benefits for regional communities including income and employment opportunities.

2.2 Creating the 500 kV Ring

The HTP will help create a ring of 500 kV transmission infrastructure that will be the backbone of the State's electricity grid for generations to come (see Figure 2.1).

The existing 500 kV electricity grid is built around the coal-fired power stations at Bayswater, Eraring and Mount Piper.

In the east there are 2 existing 500 kV transmission lines connecting the power stations on the Central Coast (Eraring and Vales Point) via Eraring to the Kemps Creek substation in Western Sydney.

In the west there are 2 existing 500 kV transmission lines connecting Bayswater Power Station (in the Upper Hunter) to Mount Piper Power Station (in the Central Tablelands) and Bannaby substation (in the Southern Tablelands). This is where electricity from Snowy Hydro and Victoria feeds into the grid.

The HTP will close the northern gap between these existing 500 kV transmission lines by connecting Bayswater to a new substation in the Olney State Forest, near Eraring.

It will then continue to the existing 500 kV line between Eraring and Kemps Creek.

The HTP will provide 5 gigawatts (GW) of additional transfer capacity in the region and unlock the supply of electricity from the Central-West Orana and New England REZs. This electricity will be imported to the core grid via the 500 kV Ring and then delivered via the existing transmission network to NSW consumers, particularly in the Hunter, Sydney and Illawarra where 80% of the State's electricity is used.

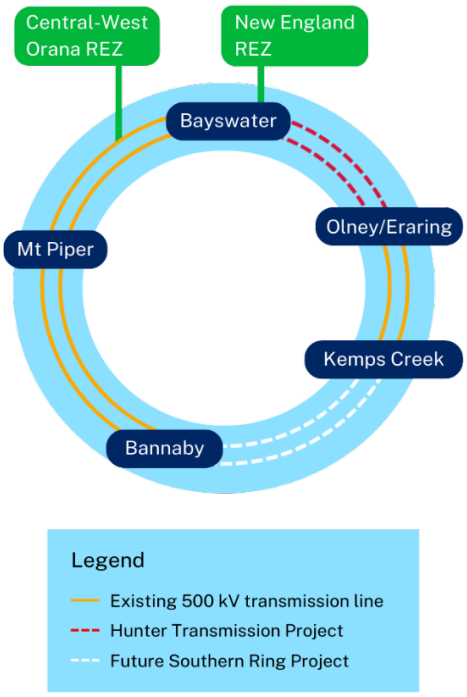


Figure 2.1 The 500 kV Ring

2.3 Selecting the HTP corridor

In a region as diverse as the Hunter, it is difficult to find a suitable route for the HTP.

After detailed evaluation of multiple options, EnergyCo selected a preliminary corridor for the HTP that sought to strike a balance between different land uses in the Hunter, and minimise impacts on people and the environment.

Between Bayswater and Broke, the HTP preliminary corridor was located mostly on power station, mining and government land. It then headed into the Pokolbin, Corrabare, Watagan and Olney State forests before following the existing 500 kV transmission line through Martinsville and Cooranbong to Eraring (see Figure 2.2).

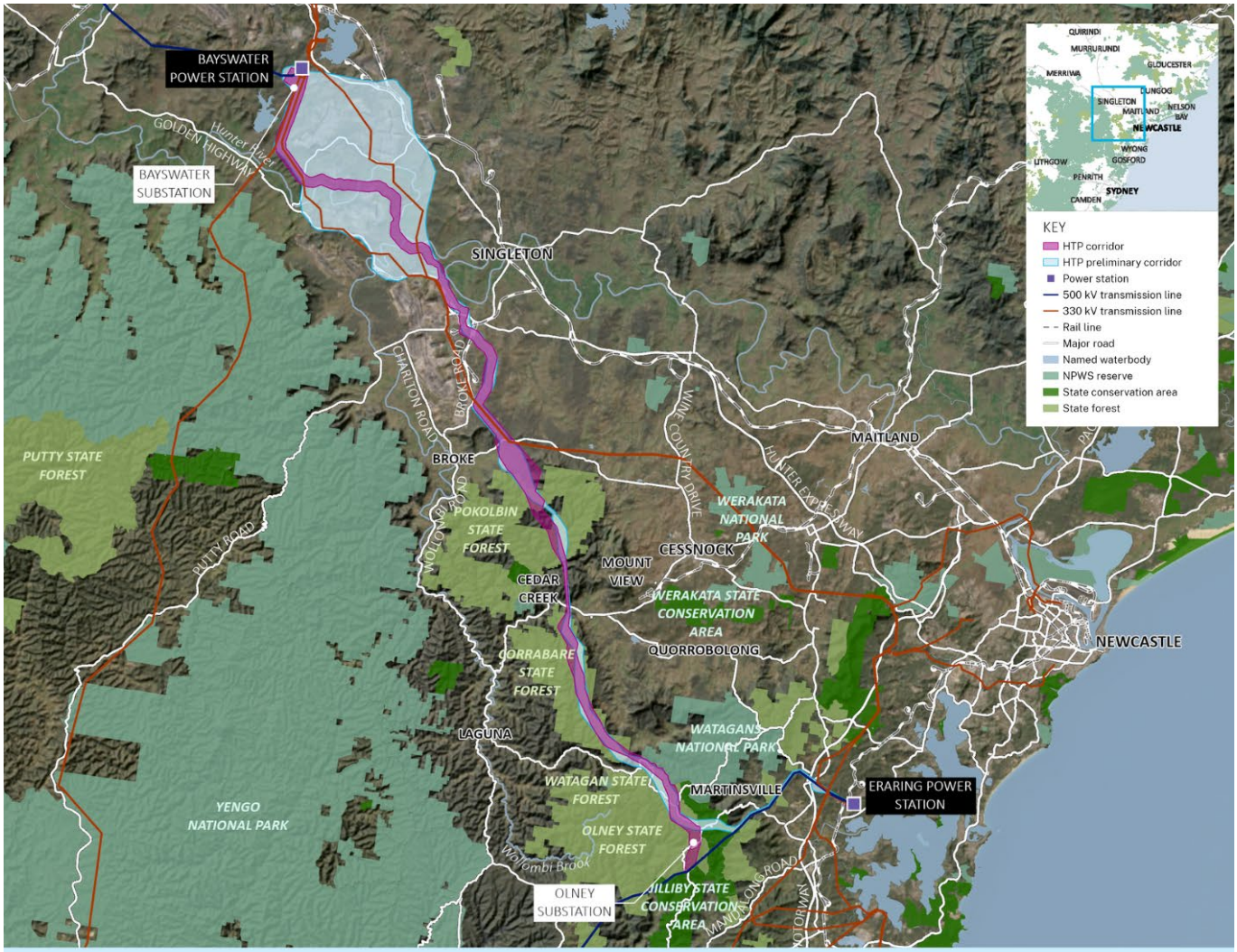
In late 2023, we published the **HTP Overview** (see Appendix A) which described why the project is urgently needed, outlined how the HTP preliminary corridor was selected, and sought community feedback on the preliminary corridor.

This consultation included:

- engagement with affected landowners in the preliminary corridor, including local communities in Maison Dieu, Gouldsville, Mt Thorley, Cedar Creek, Laguna, Millfield, Congewai, Martinsville and Cooranbong
- meetings with key stakeholders including Aboriginal, environment, recreational and industry groups
- placing the HTP preliminary corridor on public exhibition between 20 November and 18 December 2023
- community drop-in sessions in Cooranbong, Millfield and Singleton.

EnergyCo received 257 submissions and 20 completed surveys on the HTP preliminary corridor.

In response to the community feedback and further technical investigations, we made several changes to the preliminary corridor. The revised HTP corridor is generally 1 kilometre wide and runs from Bayswater to a new substation in the Olney State Forest before joining the existing 500 kV transmission line between Eraring and Kemps Creek in Western Sydney (see Figure 2.2).



HTP corridor at a glance

- Fastest way to deliver the HTP and maintain energy security
- Over 85% of the HTP will be on power station, mining, industrial and government land
- Avoids most of the Hunter community, including major towns, villages and tourist areas
- No development in the Martinsville or Cooranbong communities
- Refined corridor through the mining areas
- Revisions to the corridor in the State forests to reduce biodiversity, Aboriginal cultural heritage and recreation impacts
- Avoids Werakata National Park, Watagans National Park and Jilliby State Conservation Area
- Avoids the Pokolbin wine/tourist area and other strategic agricultural land
- Minimises the impacts of the HTP on scenic landscapes
- Further scope to reduce the impacts on people and the environment during preparation of the EIS

Figure 2.2 The HTP corridor

Changes to the HTP corridor include:

- moving the substation from Eraring to a former timber plantation site in the Olney State Forest to reduce the impacts of the HTP on the Martinsville and Cooranbong communities
- removing the transmission line corridor from the Jilliby State Conservation Area
- relocating the transmission line corridor further away from the major recreation areas in the Olney State Forest
- minimising impacts on NSW Forestry Corporation's hardwood plantations in the Watagan State Forest
- refining the transmission line corridor through private properties in Cedar Creek, Millfield and Laguna to minimise the impacts on landowners
- pushing the transmission corridor further west in the Pokolbin and Corrabare State forests to:
  - reduce the extent of vegetation clearing
  - avoid impacts on threatened plants and animals such as the sooty owl, brush-tailed rock wallaby and scrub turpentine
  - avoid major ridgelines and sightlines that have cultural significance for traditional owners and the local Aboriginal community
  - minimise visibility of transmission towers in areas such as Congewai
- narrowing the corridor around the coal mines and confirming the transmission line will run through the Hunter Valley Operations coal mine, which minimises impacts on the Maison Dieu community.

In May 2024, EnergyCo published **Shaping the Hunter Transmission Project** (see Appendix B). This report explains how we sought community feedback on the HTP preliminary corridor, what the community told us, how community feedback has helped to shape the HTP so far, and how the community can continue to help refine the design of the project during the upcoming environmental approvals process.

EnergyCo will now:

- start the detailed design of the project within the revised HTP corridor
- prepare a comprehensive EIS for the HTP that assesses the potential economic, social and environmental impacts
- start discussions with landowners to secure easements for the project
- carry out further community consultation
- continue investigations to find a suitable network operator to deliver the project.

2.4 Key features of the Hunter region

2.4.1 Land use

The Hunter is a diverse region covering over 22,500 square kilometres with a broad mix of land uses (see Figure 2.3) including:

- an urban corridor stretching from Singleton to Newcastle and along the coast
- extensive rural and rural-residential areas
- major coal mines in the Upper Hunter Valley such as Hunter Valley Operations, Mt Thorley Warkworth and Bulga
- Mt Thorley industrial estate
- Singleton Military Area
- several State forests such as the Pokolbin, Corrabare, Watagan and Olney State forests which are also used for public recreation
- large conservation areas such as the Werakata and Watagans national parks, the Greater Blue Mountains World Heritage Area, and the Mount Sugarloaf and Jilliby State conservation areas.

2.4.2 People

The HTP corridor crosses 5 local government areas: Muswellbrook, Singleton, Cessnock, Central Coast and Lake Macquarie (see Figure 2.3).

These areas have a population of around 655,000, including around 40,000 Aboriginal people.

While the corridor avoids all major Hunter towns (Singleton, Cessnock, Maitland, Newcastle) and villages (Jerrys Plains, Broke, Martinsville and Cooranbong), it passes through several small communities near Maison Dieu, Gouldsville, Mt Thorley, Cedar Creek, Millfield and Laguna. Further work is required to minimise the impacts on people in the vicinity of the HTP corridor.

2.4.3 Key infrastructure

Key infrastructure in the Hunter (see Figure 2.3) includes:

- the Port of Newcastle
- major roads such as the M1 Motorway, Hunter Expressway, New England Highway and Golden Highway
- Hunter Valley rail network that connects the coal mines to the port
- Bayswater, Eraring, Vales Point, Colongra and Kurri Kurri power stations
- the existing electricity transmission network (including 500 kV, 330 kV and 132 kV transmission lines).

The HTP is unlikely to significantly affect this key infrastructure.

2.4.4 Biodiversity

The Hunter forms part of the Sydney Basin bioregion and has 2 distinct landscapes: the Hunter Valley floor and the forested plateau.

The valley floor has been heavily cleared over the last 200 years. Consequently, remnant vegetation is highly fragmented and has a high conservation value. It includes several threatened ecological communities as well as important habitat for critically endangered species such as the swift parrot and regent honeyeater.

In contrast, the forested plateau is largely intact and forms part of a highly protected landscape stretching all the way to the Blue Mountains. While the vegetation in these areas provides significant habitat for threatened species, it is relatively common in NSW, highly protected in national parks and State conservation areas, and has lower conservation value compared to valley floor vegetation.

In selecting the HTP corridor, EnergyCo has avoided and minimised biodiversity impacts where possible however some vegetation must be cleared from both landscapes to build the HTP.

Strategic biodiversity offsets will be developed as part of the HTP to enhance conservation values in the region.

2.4.5 Water

Most of the project is located in the Hunter River catchment (21,500 square kilometres) but the southern end of the HTP corridor extends into the Lake Macquarie and Tuggerah Lakes catchments (1630 square kilometres).

Between Bayswater and Broke, the project will cross the Hunter River and associated tributaries including Wollombi Brook, and traverse at least 15 kilometres of the Hunter River floodplain. Work will be required during the detailed design of the project to avoid or minimise impacts on these watercourses and any flooding risks for the transmission line and nearby landowners.

The Hunter forms part of the Permian-Triassic Sydney Basin, which has 3 main groundwater systems: shallow alluvial groundwater, and the regional groundwater systems associated with the Triassic-aged and Permian-aged porous sedimentary rock units. The extraction of groundwater for the HTP is likely to be minor and temporary, so there are unlikely to be any adverse impacts on these groundwater systems or any associated groundwater dependent ecosystems.

2.4.6 Landscape

The Hunter landscape is characterised by undulating coastal plains and rugged terrain associated with exposed Hawkesbury sandstone outcrops (see Figure 2.3).

The Hunter Valley floor is relatively wide with rolling hills carved by waterways such as the Hunter River. While it was originally dominated by open woodland it is now a highly modified landscape with extensive coal mining, industrial, agricultural and urban development.

The southern edge of the Hunter Valley is defined by forested sandstone plateaus intersected by steep ravines and gorges, which form part of the region's State forests and national parks.

EnergyCo has sought to minimise the project's impacts on the Hunter landscape by maximising the use of:

- power station, mining and government land on the valley floor
- the State forests on the plateau.

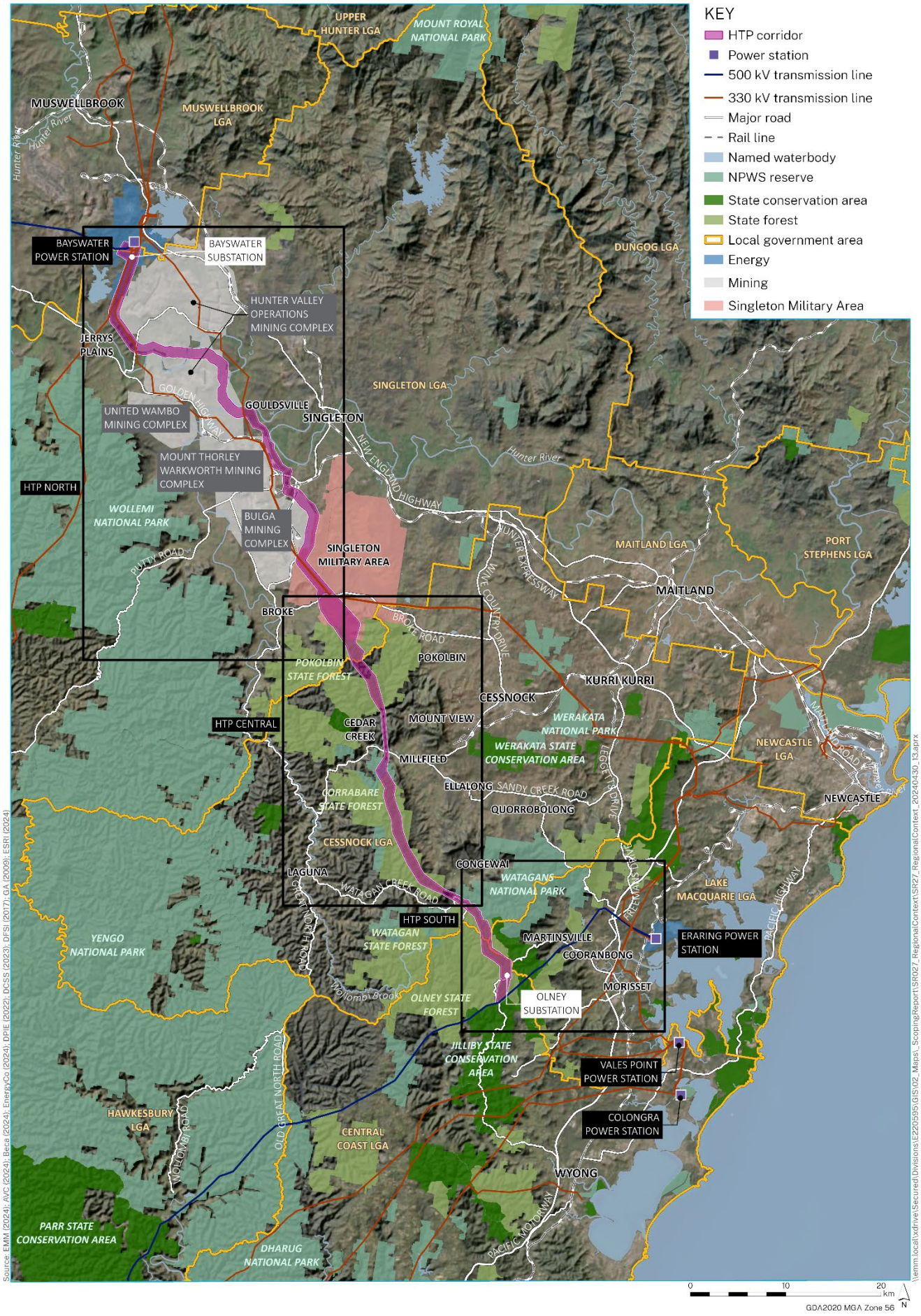


Figure 2.3 Regional context

2.5 Key issues associated with the HTP corridor

To bring greater focus to community engagement and the assessment of project impacts, we divided the HTP corridor into 3 distinct zones:

- **HTP North** – Bayswater to Broke, including the Bayswater Power Station, major coal mining complexes in the Upper Hunter Valley, Mount Thorley Industrial Estate, Singleton Military Area and several rural properties generally on the alluvial floodplains of the Hunter River (see Figure 2.4)
- **HTP Central** – Pokolbin to Corrabare, including the Pokolbin and Corrabare State forests and the rural residential areas between these forests at Cedar Creek, Millfield and Laguna (see Figure 2.5)
- **HTP South** – Olney to Eraring, including the Watagan and Olney State forests, Watagans National Park, Jilliby State Conservation Area, the residential areas in Martinsville and Cooranbong, and Eraring Power Station (see Figure 2.6).

These align with the 3 major local government areas affected by the project (Singleton, Cessnock and Lake Macquarie) as well as the 5 Local Aboriginal Land Council boundaries (Wanaruah, Mindaribba, Awabakal, Darkinjung and Biraban).

Table 2.1 summarises the key features and issues associated with each HTP zone.

Table 2.1 Key features and issues associated with the HTP corridor

Key features	HTP North	HTP Central	HTP South
Local government area	Singleton and Muswellbrook (small area – Bayswater)	Cessnock	Lake Macquarie and Central Coast (small area – Olney)
Local Aboriginal Land Council	Wanaruah	Mindaribba and Awabakal	Darkinjung and Biraban
Major land uses	Bayswater Power Station Major mining complexes: Hunter Valley Operations, Mt Thorley Warkworth and Bulga Mt Thorley industrial estate Singleton Military Area	State Forests: Pokolbin and Corrabare Austar coal mine	State Forests: Watagan and Olney Watagans National Park, Jilliby State Conservation Area and Warrawolong Flora Reserve
Major towns/villages	Singleton, Jerrys Plains, Maison Dieu, Gouldsville, Mount Thorley and Broke	Cessnock, Cedar Creek, Millfield, Laguna and Congewai	Martinsville and Cooranbong
Key waterbodies	Hunter River, Wollombi Brook, Loder Creek and Monkey Place Creek	Congewai Creek, Cedar Creek and Sweetmans Creek	Dora Creek
Key issues	Manage interaction with operations at Bayswater Power Station; Hunter Valley Operations, Mt Thorley Warkworth and Bulga mining complexes; Mt Thorley industrial estate and Singleton Military Area	Minimise impacts on private landowners in Pokolbin, Cedar Creek, Millfield and Laguna	Minimise biodiversity impacts, including potential indirect impacts on the Watagans National Park, Jilliby State Conservation Area and Warrawolong Flora Reserve
	Minimise impacts on Hunter Valley Gliding Club	Minimise traffic impacts of getting materials and equipment into the State forests using local roads	Minimise impacts on key Aboriginal cultural heritage sites and landscape features in the State forests
	Crossing Hunter River, Wollombi Brook and associated floodplain	Manage interaction with the proposed upgrades to Wollombi Road	Minimise impacts on recreational areas in the Watagan and Olney State forest
	Minimise clearing of endangered valley floor vegetation and critical habitat for key species	Manage interaction with forestry operations, reduce bushfire risks and minimise water pollution during construction	Minimise the environmental risks of the Olney substation, including bushfire and water pollution
	Minimise impacts on private landowners in Maison Dieu, Gouldsville, Mt Thorley and Broke	Minimise biodiversity impacts in the State forests, including the Corrabare North Flora Reserve	Manage interaction with forestry operations, particularly existing hardwood plantations
	Minimise demand for infrastructure and services	Minimise impacts on key Aboriginal cultural heritage sites and landscape features in the area	Minimise traffic impacts of getting materials and equipment into the State forest using local roads
	Minimise cumulative impacts with other projects	Minimise demand for infrastructure and services	Minimise demand for infrastructure and services

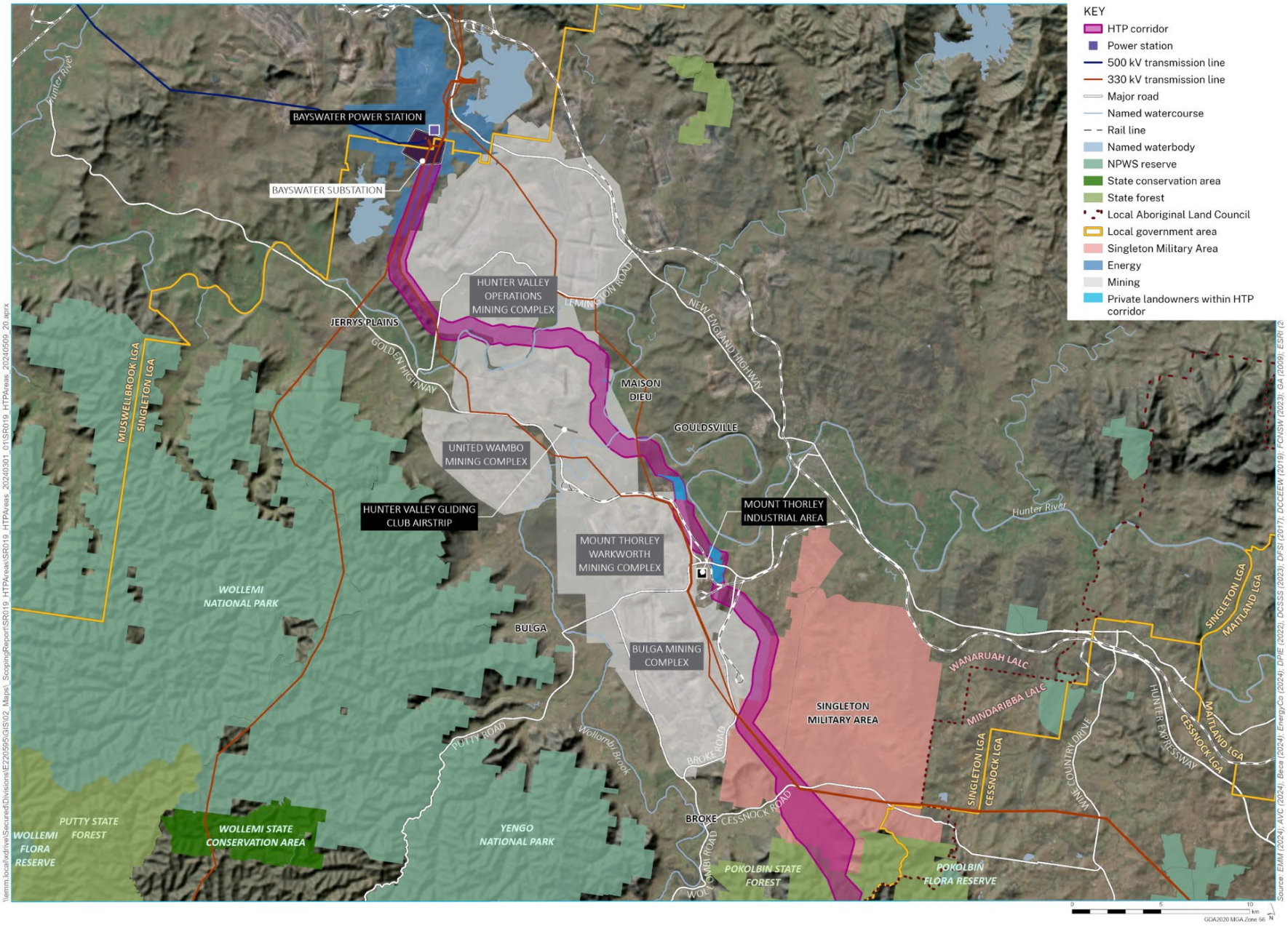


Figure 2.4 HTP North

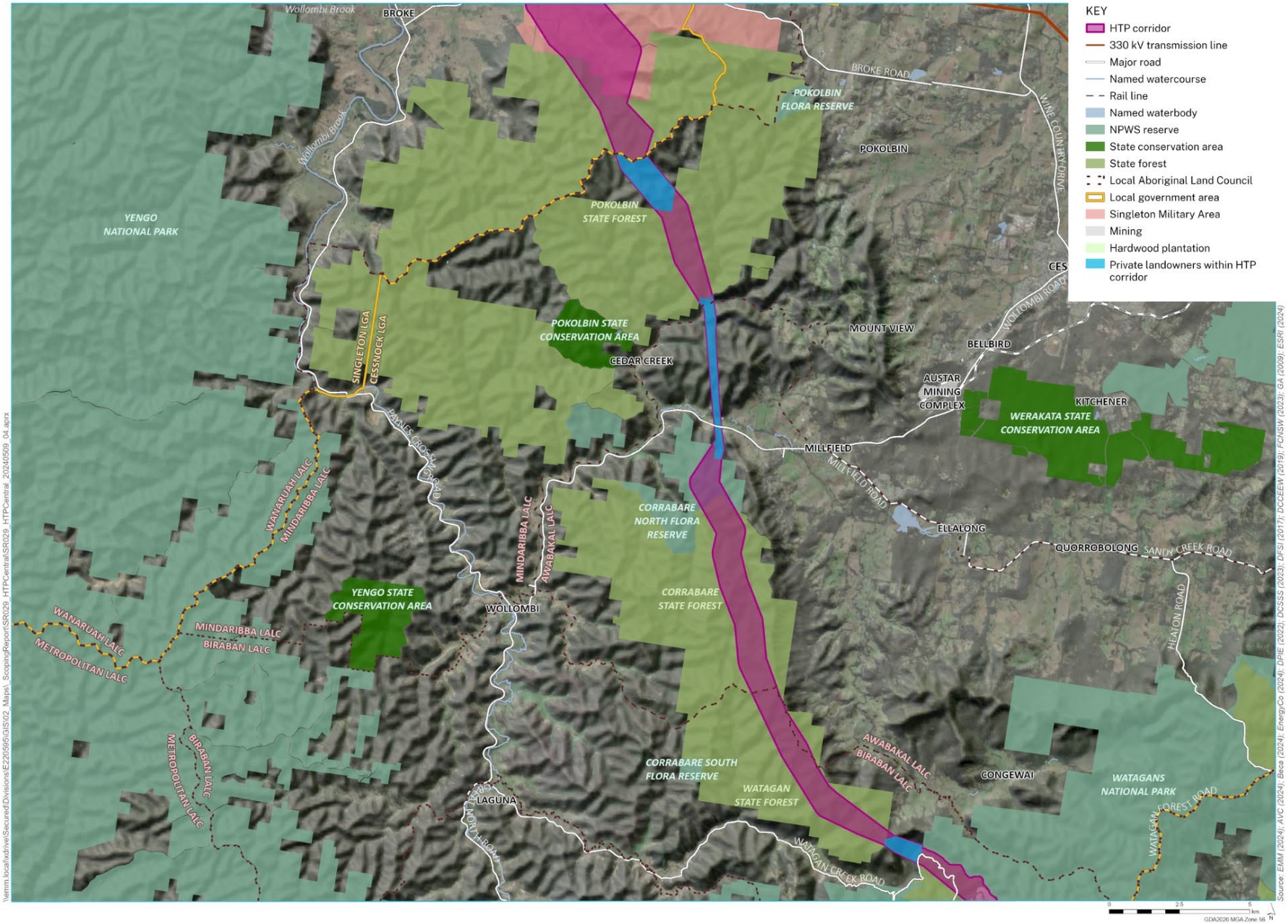


Figure 2.5 HTP Central

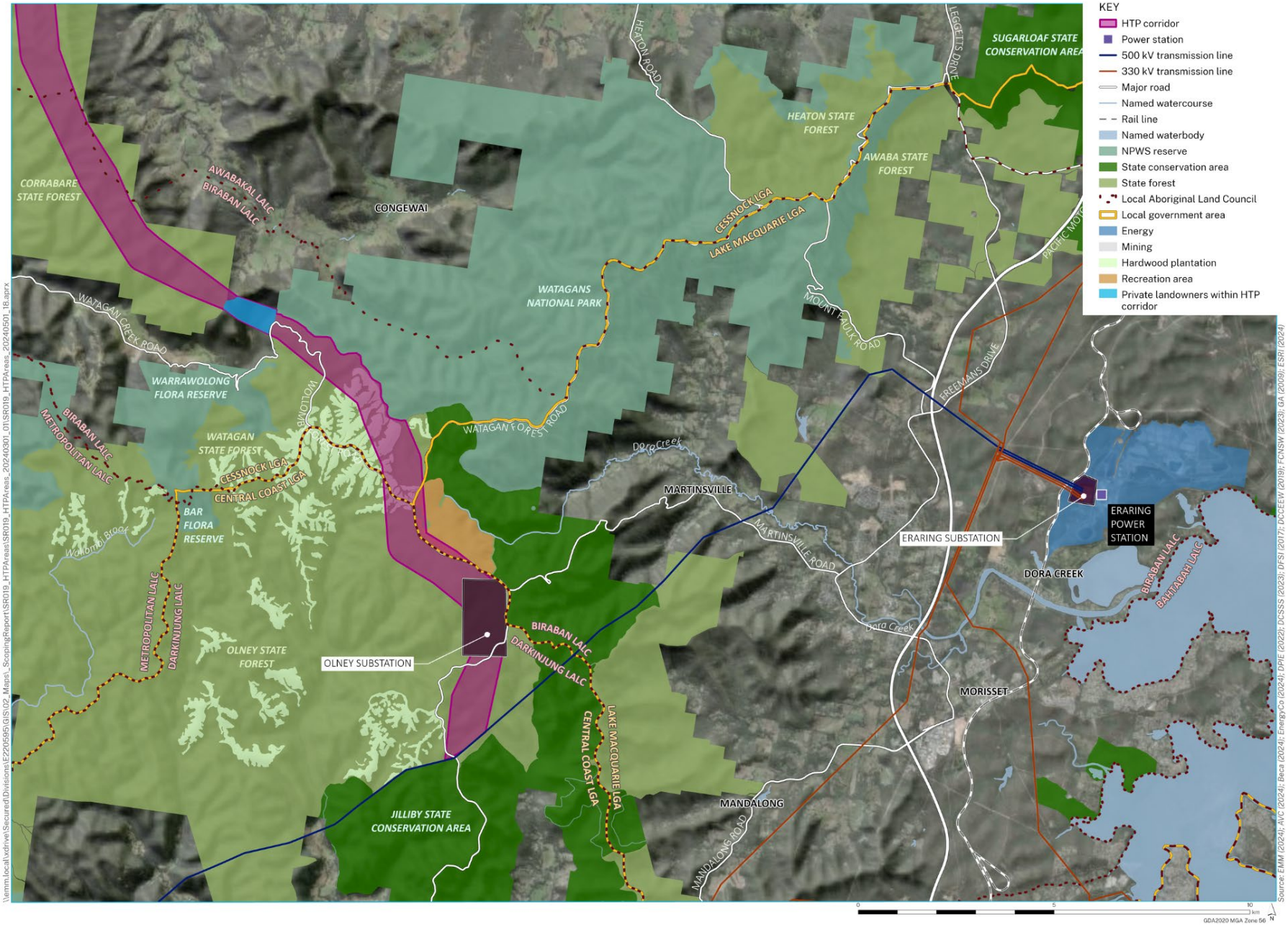


Figure 2.6 HTP South

2.6 Relevant projects for cumulative impact assessment

EnergyCo has identified the relevant and potentially relevant projects that may be developed concurrently with the HTP and may result in cumulative impacts on people and the environment (see Figure 2.7).

Most of these projects are in HTP North, in and around Singleton and Muswellbrook. So the major focus of any cumulative impact assessment will be on HTP North.

Significant cumulative impacts in HTP Central and HTP South are unlikely due to the small number and scale of projects in these areas, and because these are spread out and some distance from the HTP corridor. In these areas, the only key issue is likely to be potential cumulative traffic impacts in HTP Central associated with the proposed upgrade of Wollombi Road, Cessnock. This issue will be considered in detail in the EIS traffic assessment.

Most cumulative impacts of the HTP are likely to be confined to the construction period. This includes disruption to people caused by project traffic, dust, noise and vibration. Very few cumulative impacts such as visual, noise and bushfire are likely once the HTP is operational.

In HTP North, the key projects to consider are located close to the HTP corridor:

- Bayswater Power Station: upgrade and continuation of the power station, demolition and rehabilitation of the old Liddell Power Station, and establishment of an energy hub on the site
- Hunter Valley Operations (HVO) mining complex: expansion and continuation of HVO North and HVO South
- Maison Dieu Solar Farm
- restart of the Redbank Power Station.

Of these projects, there will be significant interactions between the HTP and the existing and proposed operations at the Bayswater Power Station and HVO mining complex. Most of these interactions can be managed through agreements with AGL and Glencore/Yancoal. EnergyCo has started engaging with both parties about these matters.

The Maison Dieu Solar Farm is on the other side of the Hunter River to the HTP and is unlikely to result in any significant cumulative impacts apart from potentially increasing visual impacts on the rural properties in Maison Dieu. This will be considered further in the EIS landscape and visual impact assessment.

The restart of the Redbank Power Station involves limited construction works. The HTP involves limited construction works in the vicinity of the power station so there are unlikely to be any significant cumulative impacts between these projects.

Most other projects are located too far away from the HTP corridor or will be out of sync with its construction to cause any significant cumulative impacts, apart from the potential impacts on traffic and people (demand for infrastructure and services). This includes:

- transmission and generation projects associated with the establishment of the Central-West Orana and New England REZs
- renewable energy projects around Muswellbrook: Hunter River Solar Farm, Muswellbrook Solar Farm, Muswellbrook Battery Energy Storage System, Bowmans Creek Wind Farm, Maxwell Underground Coal Mine Maxwell Solar Farm
- Hunter Gas Pipeline.

During the preparation of the EIS, EnergyCo will continue to monitor development in the area surrounding the HTP for other relevant projects that may arise and include them in any cumulative impact assessments in the EIS.

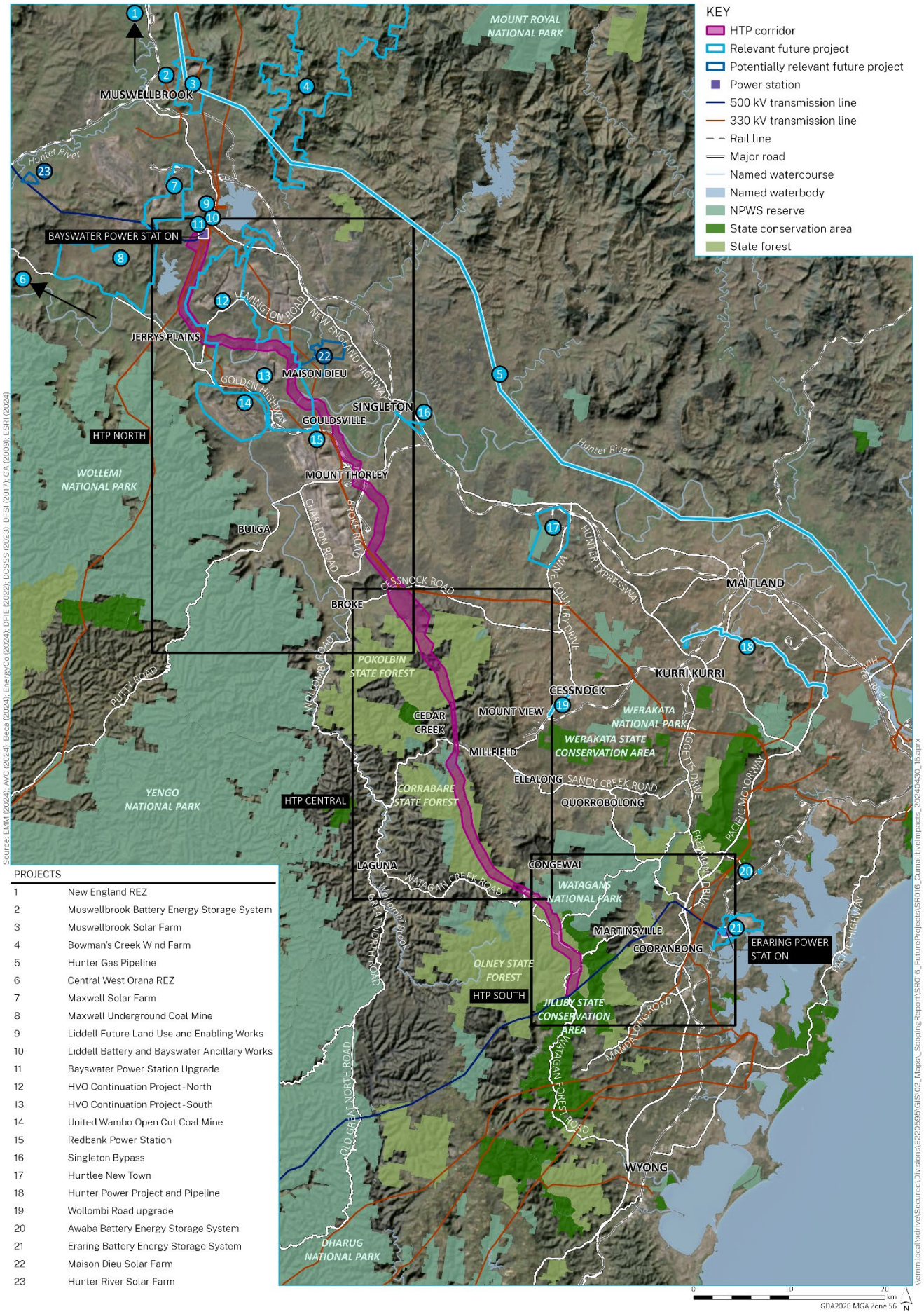


Figure 2.7 Relevant projects for cumulative impact assessment

3 Hunter Transmission Project

3.1 Objectives

The HTP will:

- close the northern gap in the 500 kV Ring, creating the backbone of the State's electricity grid for generations to come
- provide 5 GW of additional transfer capacity between Bayswater and Eraring
- unlock the supply of electricity from the Central-West Orana and New England REZs
- strengthen the supply of clean and reliable electricity to consumers – particularly in the Hunter, Sydney and Illawarra where 80% of the State's electricity is used
- avoid breaches of the NSW Energy Security Target
- minimise impacts on people and the environment
- harness and build on the region's diverse skill base and provide opportunities for the community to share in the project's benefits
- be delivered by 2028 at a reasonable cost to electricity consumers.

3.2 Overview

The HTP includes:

- a new overhead 500 kV double circuit transmission line of around 100 kilometres connecting the existing 500 kV transmission line at Bayswater to the existing 500 kV transmission line in the Olney State Forest near Eraring
- 2 new substations (Bayswater and Olney)
- associated works including upgrades to the existing Bayswater and Eraring substations, adjustments to existing transmission lines, road upgrades, access tracks, temporary construction facilities such as laydown areas, stringing sites, construction support sites and workers accommodation.

The key elements are summarised in Table 3.1 and shown in Figure 3.2.

During the preparation of the EIS, EnergyCo will develop the HTP's detailed design.

Figure 3.1 HTP at a glance

Table 3.1: Project overview

Summary	• The HTP involves building a new overhead 500 kV double circuit transmission line of around 100 km and ancillary infrastructure • The existing 500 kV transmission line at Bayswater will connect to the existing 500 kV transmission line in the Olney State Forest near Eraring • The project will protect energy security in NSW by closing the northern gap in the 500 kV Ring and strengthening the core electricity grid in NSW for generations to come • The HTP will unlock electricity supply from the Central-West Orana and New England REZs. This will enable a clean and reliable electricity supply for consumers particularly in the Hunter, Sydney and Illawarra where 80% of the State's electricity is used
Project area	• The critical State significant infrastructure application for the HTP covers 5 local government areas • Most development will be concentrated in and around the HTP corridor. Some ancillary development such as construction support sites, road upgrades and laydown areas will be outside the corridor • Current HTP project area around 10,713 ha • Indicative construction footprint around 1785 ha • Indicative operational footprint around 810 ha
New transmission line	• Overhead 500 kV double circuit transmission line of around 100 km • Steel lattice towers up to 75 m high that are typically spaced about 300 m to 600 m apart – but could extend to over 1 kilometre in some cases • 500 kV transmission lines with a minimum ground clearance of 13.5 m • Ancillary infrastructure such as earth wire and communications systems • Construction easement up to 140 m wide • Operational easement around 70 m wide
Adjustments and crossings -existing transmission lines	• Line 5A3: Bayswater – Mt Piper 500 kV • Line 5A4: Bayswater – Wollar 500 kV • Line 31: Bayswater – Regentville 330 kV • Line 32: Bayswater – Sydney West 330 kV • Line 81: 330 kV: Newcastle – Liddell 330 kV • Line 82: 330 kV: Tomago – Liddell 300 kV • Line 5A1 and 5A2: Eraring – Kemps Creek 500 kV • Other lower voltage lines • Upgrades to existing earth wire and communications systems
Substation works	• New Bayswater 500 kV substation • Upgrades at the existing Bayswater substation • New Olney 500 kV substation • Upgrades at the Eraring substation, including installation of 2 new 1500 MVA transformers
Road works	• Modifications to the existing public road network • New and upgraded access tracks for construction and operation
Ancillary works	• construction support facilities, including workers accommodation • Laydown areas • Stringing sites • Third party utility and property adjustments
Timing	• Construction to start in 2026 • Operation by the end of 2028

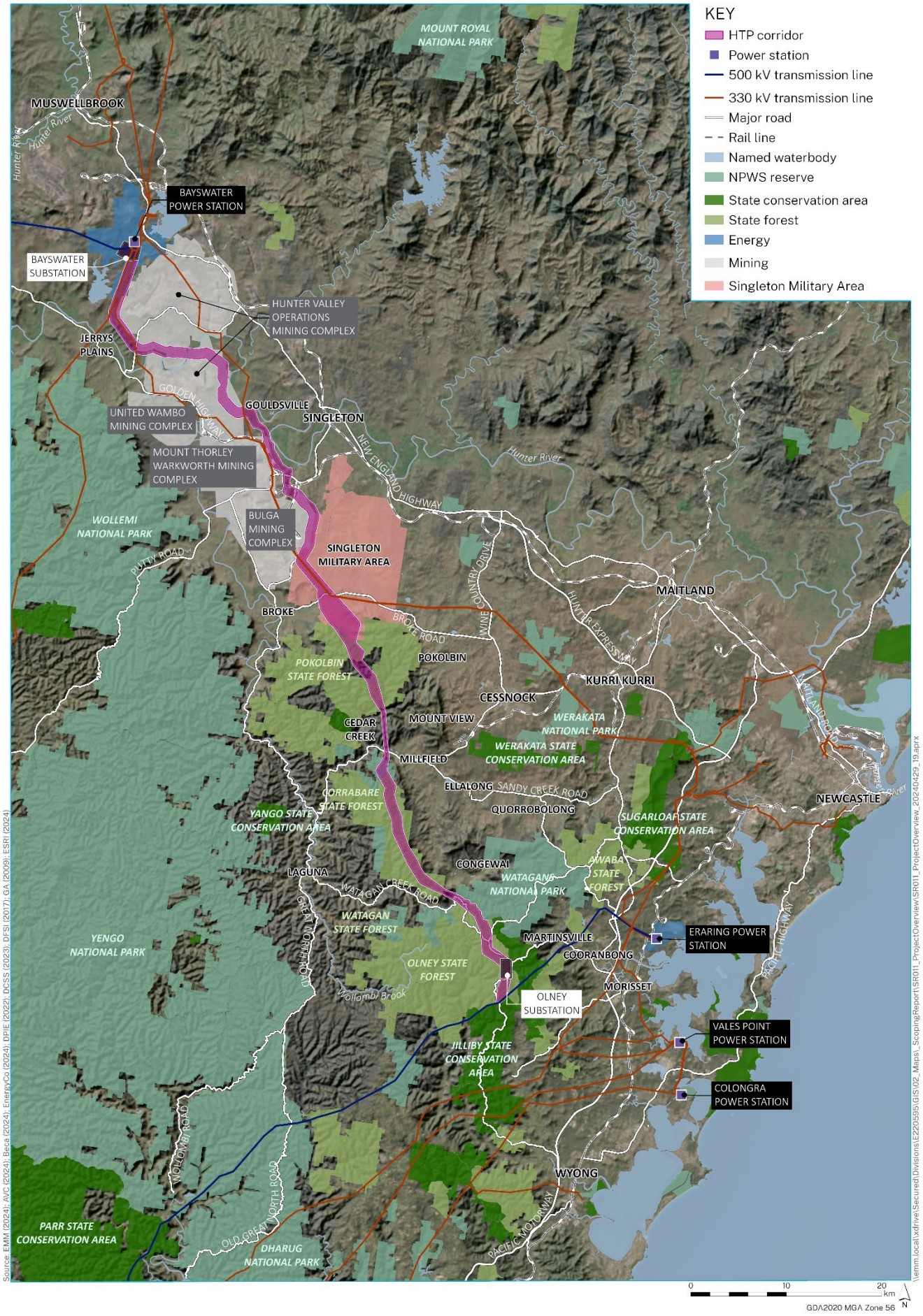


Figure 3.2 Hunter Transmission Project

3.3 HTP project area

3.3.1 Critical State significant infrastructure (CSSI) application area

The CSSI application for the HTP covers 5 local government areas (Muswellbrook, Singleton, Cessnock, Central Coast and Lake Macquarie). Most development will be concentrated in and around the HTP corridor. Some ancillary development such as construction support facilities, road upgrades and laydown areas will be outside the HTP corridor.

3.3.2 HTP project area

The current HTP project area is around 10,713 hectares.

The HTP project area is a small subset of the CSSI application area. It includes the HTP corridor as well as sites outside the corridor where ancillary development will be carried out, such as the construction support facilities.

At this stage, EnergyCo is yet to finalise the location of some ancillary infrastructure so cannot define the project area precisely. For example, the HTP is likely to require 4 construction support facilities. EnergyCo has identified the general location of these facilities but is still in discussions with various landowners to secure specific sites.

The general locations are:

- near Bayswater and near Mt Thorley (in HTP North)
- off Wollombi Road near Cessnock (in HTP Central)
- off Freemans Drive near Cooranbong (in HTP South).

These facilities are likely to require between 60 and 70 hectares of land in total so this figure has been included in the current estimate of the HTP project area.

During the preparation of the EIS, EnergyCo will develop a detailed design of the project. This will include reducing the size of the HTP project area and accurately defining the full project scope.

3.3.3 HTP corridor

The current HTP corridor is around 1 kilometre wide and comprises:

- Bayswater and Olney substation sites
- the transmission line corridor connecting the Bayswater substation to the Olney substation
- the transmission line corridor connecting the Bayswater substation to the existing 500 kV transmission line near the Baywater power station and the Olney substation to the existing 500 kV transmission line between Eraring and Kemps Creek
- upgrades to existing Bayswater and Eraring substations.

During the preparation of the EIS, EnergyCo will refine the width of the HTP corridor to less than 250 metres and develop an indicative layout of both substations, the 500 kV transmission line, the adjustments to existing transmission lines and all ancillary infrastructure within the refined HTP corridor.

3.4 Development of the HTP

The HTP will be developed in accordance with strict technical standards to ensure it is structurally sound, safe and operates efficiently and effectively.

3.4.1 Key phases and steps

Development will occur in 3 phases. Each phase will have several steps and some steps will be carried out concurrently.

For construction:

- enabling works, including adjustments to existing transmission lines
- construct the transmission line
- construct the new substations and upgrade the existing substations
- connect the transmission line to the new and existing substations
- test the transmission line and substations to ensure the construction works have been carried out to the right standard
- commission the project.

For operation:

- operate the project to transmit electricity
- maintain the transmission line, substations and ancillary infrastructure
- replace or upgrade components of the project to extend the life of the HTP.

For decommissioning:

- remove all transmission infrastructure
- rehabilitate the site.

3.4.2 Development of the transmission line

Construction of the transmission line will typically occur in an easement of around 140 metres, although this will be restricted to around 70 metres in the State forests. Some works will occur outside this easement.

The easement will be reduced to 70 metres once the project is commissioned and all temporary disturbance has been rehabilitated.

The transmission line is expected to operate for at least 50 years and potentially well beyond this with regular maintenance and upgrades. The steps involved in developing the transmission line and associated infrastructure are summarised in Table 3.2.

Table 3.2 Summary of transmission line development

Construction	• Enabling works, including: – geotechnical and pre-clearance surveys – vegetation clearing – site establishment including demolition; installing environmental controls; building access tracks; setting up laydown areas, construction pads and stringing sites; delivering equipment and materials to site – adjustments to existing transmission lines – third party utility and property adjustments • Develop the foundations of the transmission towers. Most of the HTP's towers will have standard foundations. Special foundations will be required in some areas to address geotechnical risks (such as mine subsidence and fill, floodplain and steep slopes) • Assemble and install the transmission towers • String the transmission line between towers • Connect the transmission line to the substations • Test the transmission line • Commission the project • Demobilise the construction site and rehabilitate temporary disturbance
Operation	• Use transmission line to transmit electricity • Maintain the transmission line • Manage vegetation in and around the transmission line easement to protect the transmission line • Fix, replace or upgrade components of the transmission line to extend its life
Decommissioning	• Remove the transmission line and towers along with any ancillary infrastructure • Rehabilitate the site

3.4.3 Development of the substations

The steps involved in developing the substations and associated infrastructure are summarised in Table 3.3.

Table 3.3 Summary of substation development

Construction	• Enabling works, including: – geotechnical and pre-clearance surveys – vegetation clearing – site establishment, including demolition; installing environmental controls; building access tracks; setting up laydown areas, construction pads and stringing sites; and delivering equipment and materials to the site – third party utility and property adjustments • Civil works to establish the pad for the new substations and associated infrastructure and services • Construct the new substations • Upgrade the existing Bayswater and Eraring substations • Connect the new transmission line to the new substations, and the new substations to the existing transmission network • Test the new substation and upgrades to the existing substation • Commission the project • Demobilise the construction site and rehabilitate temporary disturbance
Operation	• Use new substations to receive and transmit electricity • Maintain the substations • Fix, replace or upgrade components of the substations to extend their life
Decommissioning	• Remove the substations and any ancillary infrastructure • Rehabilitate the site

3.4.4 Development of ancillary infrastructure

Most ancillary infrastructure required for the HTP will be developed in conjunction with the new transmission line and substations within the HTP corridor, but some such as the construction support facilities will be developed separately outside the corridor.

This includes:

- permanent works such as modifications to the existing public road network
- temporary works such as the construction support facilities.

To minimise impacts on local infrastructure and services, dedicated workers accommodation will be provided at the construction support facilities in HTP North, HTP Central and HTP South. The accommodation required will be determined in studies for the EIS but will be greater in HTP North and HTP South where the new substations will be built.

These works will be developed using standard construction methods.

Following construction, the temporary works will be removed (unless there is an alternate use for them) and the sites will be rehabilitated.

3.4.5 Key inputs and outputs during construction

The resources and materials required for the HTP's construction include people, plant and equipment, materials, water and waste as outlined in Table 3.4.

Table 3.4 Resources and materials required for construction

	**Workforce** Around 700 people but this could change following detailed studies
	**Plant and equipment** Such as bulldozers, cranes (various sizes), dump trucks, transport trucks, screening plants, rigid tippers, trenchers, concrete pump, concrete agitator, elevated work platforms, excavators (various sizes), bobcats, air compressors, flatbed trucks, semi-trailers, fuel trucks, generators, graders, piling rigs, rollers, semi-trailers, helicopters and watercarts
	**Materials** Concrete and steel reinforcement for tower foundations, steel for the transmission towers and substation gantry, densely graded base and crush rocks; conductors, insulators and cabling for the transmission line, electrical components for the substations, PVC conduits, metal fencing and gates, stormwater drainage materials, general building materials and fire system materials
	**Water** Potable and non-potable water for workers accommodation and construction activities such as concrete batching, dust suppression, vehicle washdown, earthworks and pavement compaction
	**Waste** Such as green waste (timber, shrubs, grasses); spoil from excavations; concrete waste; steel and other metals; conductor, earthing and tower waste, pipe and conduit; electrical cabling; hazardous waste; transportation and packaging waste (plastic, paper, carboard, pallets, cable drums); general domestic waste (food waste, paper, plastic and glass); wastewater

Waste generated during the project construction and operation will be managed through standard waste management procedures and a waste management plan will be included in the EIS.

This will identify, quantify and classify the waste streams likely to be generated throughout all stages of the project.

It will also describe the measures to be implemented to reduce waste generation and manage, reuse, recycle and safely dispose of waste.

3.5 Timing

Construction of the HTP is expected to start in early 2026 with commissioning and completion in 2028, as outlined in Figure 3.3. This timing is only indicative and will be updated in the EIS.

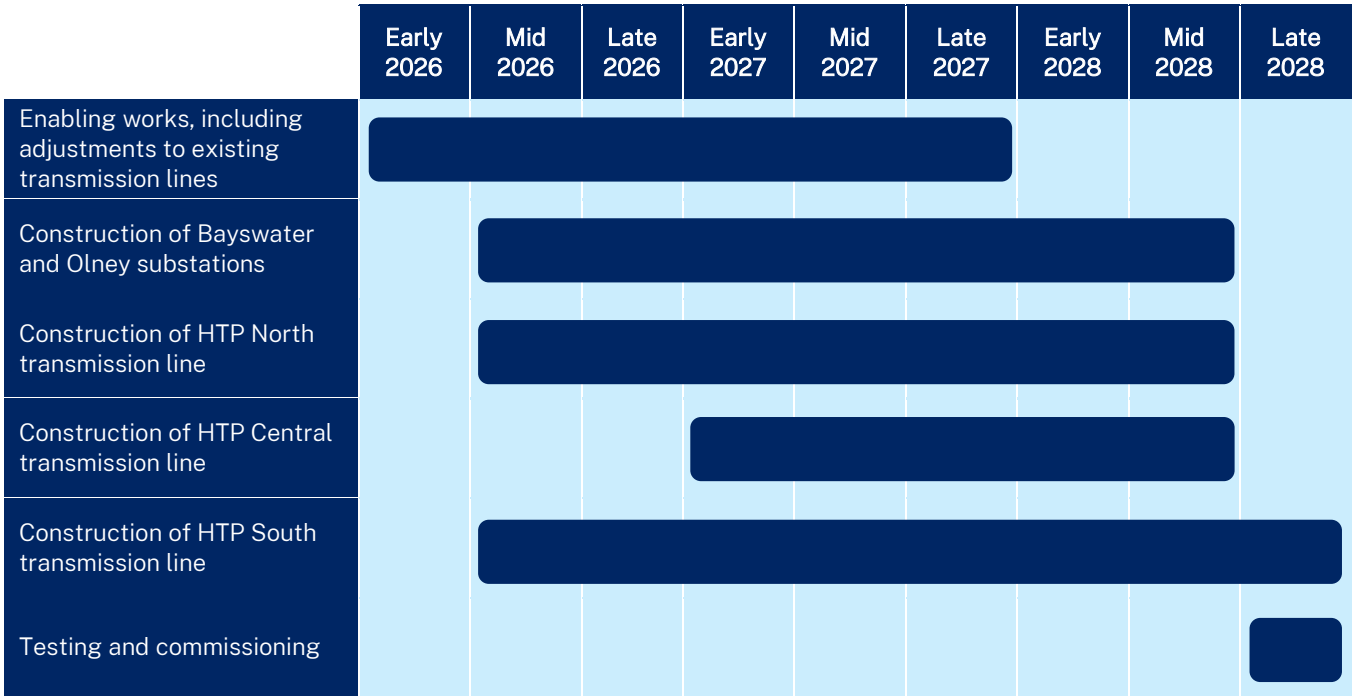


Figure 3.3 Indicative timing

4 Statutory context

4.1 NSW approval

4.1.1 Critical State significant infrastructure (CSSI)

Under the EP&A Act, the Minister for Planning and Public Spaces may declare certain projects to be CSSI provided they consider them essential for the State for economic, environmental or social reasons.

In July 2022, the minister declared the HTP to be CSSI under section 5.13 of the EP&A Act and clause 2.15 of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

The full declaration is in clause 30 of Schedule 5 of the Planning Systems SEPP and includes:

Development for the purposes of the Hunter Transmission Project, including the following—

(a) construction and operation of up to 150km of new high voltage 500 kV transmission lines between the existing substations at Bayswater Power Station and Eraring Power Station,

(b) upgrading and replacing existing transmission line infrastructure between the existing substations at Bayswater Power Station and Eraring Power Station,

(c) the construction and operation of new electrical substation infrastructure,

(d) augmentation of the existing substations at Bayswater Power Station and Eraring Power Station,

(e) ancillary development, including the following—

(i) the carrying out of works to upgrade or augment existing transmission lines and substation infrastructure,

(ii) the upgrade, construction and operation of access tracks and roads,

(iii) the installation and operation of communication infrastructure and facilities, excluding microwave technology,

(iv) the installation and operation of construction accommodation, compounds and power supplies,

(v) the installation and operation of construction crane pads, helicopter landing pads and brake and winch sites.

Consequently, the HTP requires the approval of the Minister for Planning and Public Spaces. The approval process is set out in section 5.2 of the EP&A Act and summarised in Figure 4.1.

4.1.2 Exempt approvals

Under section 5.23 of the EP&A Act the following approvals are **not** required for the HTP:

- a permit under section 201, 205 or 219 of the Fisheries Management Act 1994
- an approval under part 4 or an excavation permit under section 139 of the Heritage Act 1977
- an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974
- a bushfire safety authority under section 100B of the Rural Fires Act 1997
- a water use approval under section 89, a water management work approval under section 90, or an activity approval (other than an aquifer interference approval) under section 91 of the Water Management Act 2000.

4.1.3 Consistent approvals

Under section 5.24 of the EP&A Act, certain approvals that may be necessary for the HTP cannot be refused if the HTP is approved. Further, those approvals must be substantially consistent with any CSSI approval.

At this stage, it is anticipated that the HTP will require 2 approvals identified in this section:

- parts of the project will be located in the Patrick Plains Subsidence District and West Lakes Mine Subsidence District and require the approval of Subsidence Advisory NSW under part 3 of the *Coal Mine Subsidence Compensation Act 2017*
- the project involves road works that will require consent from the relevant authority under section 138 of the *Roads Act 1993*.

Although the project may require an environment protection licence under chapter 3 of the *Protection of the Environment Operations Act 1997* for temporary construction activities (concrete works, crushing, grinding or separating, and helicopter-related activities) this currently appears to be unlikely given none of these activities are expected to exceed the relevant thresholds in schedule 1 of the Act.

4.1.4 Application of the Biodiversity Conservation Act 2016

Part 8 of the *Biodiversity Conservation Act 2016* (BC Act) applies to the HTP and includes the biodiversity assessment requirements for the project and the matters that the Minister for Planning and Public Spaces must consider prior to determining any CSSI application for the project under the EP&A Act.

Under section 7.9 of the BC Act, the CSSI application for the HTP must be accompanied by a Biodiversity Development Assessment Report (BDAR).

Under section 7.14 of the BC Act, the Minister for Planning and Public Spaces is then required to consider the likely impact of the HTP on biodiversity values as assessed in the BDAR before determining the CSSI application. However, this section does not limit matters the minister may take into consideration in relation to the impact of the project on biodiversity values, the measures that the minister may require to avoid or minimise those impacts or the power of the minister to refuse to grant approval because of those impacts.

Finally, if the minister is of the opinion the HTP is likely to have serious and irreversible impacts on biodiversity values (as determined under section 6.5 of the BC Act and section 6.7 of the associated regulation), then under section 7.16 of the BC Act the minister is required to:

- take those impacts into consideration
- determine whether there are any additional and appropriate measures that will minimise those impacts if approval is granted to the project.

4.1.5 Environmental planning instruments

Under section 5.22(2) of the EP&A Act, environmental planning instruments do not apply to or in respect of the HTP given it is CSSI. This includes the:

- Biodiversity and Conservation State Environmental Planning Policy (SEPP) 2021
- Resilience and Hazards SEPP 2021
- Resources and Energy SEPP 2021
- Primary Production SEPP 2021
- Transport and Infrastructure SEPP 2021
- all local environmental plans.

4.2 Australian approval

4.2.1 Controlled action

The HTP is likely to be a controlled action under the EPBC Act because it could have a significant impact on several listed threatened species or communities, which is one of the nine matters of national environmental significance (MNES). These threatened species and communities include the Central Hunter Valley eucalypt forest and woodland, Warkworth sands woodland, slaty red gum, Singleton mint-bush, scrub turpentine, native guava, brush-tailed rock-wallaby, regent honeyeater, swift parrot, koala and Littlejohn's tree frog.

The HTP may also be a controlled action because a small section of the transmission line (around 13 kilometres) crosses the Singleton Military Area, which is Commonwealth land, and may have a significant impact on certain plant communities. Many of these plant communities form part of the listed threatened species and communities above.

Under section 68 of the EPBC Act, EnergyCo has referred the HTP to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to confirm whether or not it is a controlled action.

4.2.2 Minister for the Environment and Water

If the HTP is confirmed to be a controlled action, it will require the approval of the Australian Government Minister for the Environment and Water under section 133 of the EPBC Act.

4.3 Single integrated approval process

Although the HTP is likely to require the approval of both the NSW Minister for Planning and Public Spaces under the EP&A Act and the Australian Government Minister for the Environment and Water under the EPBC Act, the merits of the project will be assessed under the existing NSW Assessment Bilateral Agreement.

Under this agreement, the NSW Department of Planning, Housing and Infrastructure will co-ordinate the detailed assessment of the impacts of the HTP under both the EP&A Act and EPBC Act in a single, integrated approvals process that includes extensive community consultation (see Figure 4.1.)

At the end of this process, the department will produce an assessment report for both ministers to consider before they make a final decision on whether to grant approval to the HTP.

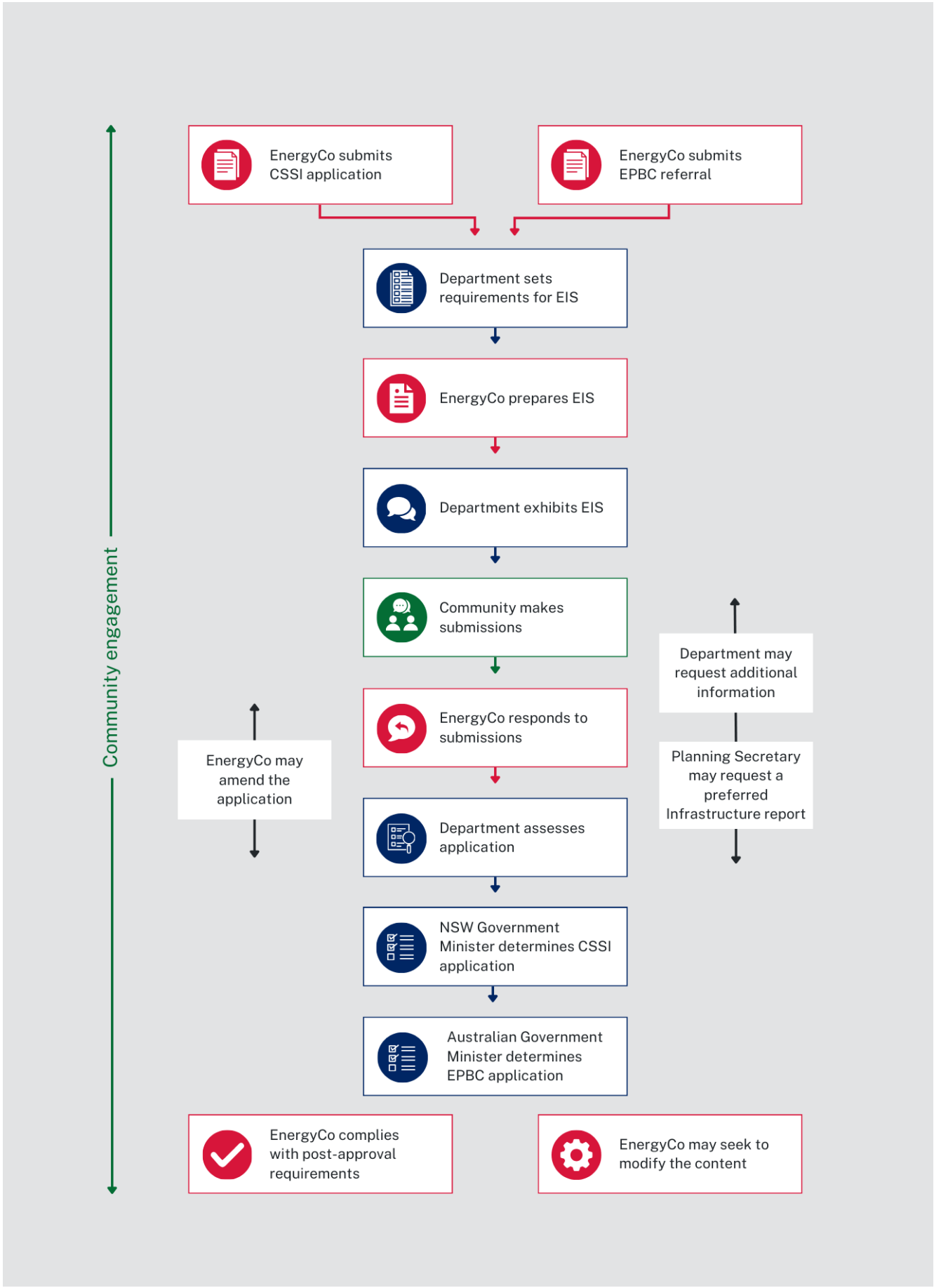


Figure 4.1 Assessment process – Critical State significant infrastructure

4.4 Related statutory matters

4.4.1 Priority transmission infrastructure project (PTIP)

The HTP is a PTIP under the NSW *Electricity Infrastructure Investment Act 2020* (EII Act), which seeks to:

- improve the affordability, reliability, security and sustainability of electricity supply
- co-ordinate and encourage investment in new network infrastructure
- foster local community support for this investment.

EnergyCo is currently investigating who should be the network operator for the HTP.

Under section 32 or 36 of the EII Act, the Minister for Energy may direct or authorise a network operator to carry out the HTP as a PTIP:

- after consulting with various parties, including the Minister for Planning and Public Spaces
- considering various matters under section 34 of the Act, including views of the local community, land use planning, and environmental and heritage matters
- being satisfied that the project is an appropriate response to a target breach identified in an Energy Security Target Monitor and is in the public interest.

Once a network operator is appointed to carry out the HTP, under section 38 of the Act the Australian Energy Regulator will calculate the prudent, efficient and reasonable costs of delivering the project and determine the amount payable to the network operator.

This process will run in parallel with the environmental approvals process under the EP&A Act.

4.4.2 Public safety

Under clause 5 of the *Electricity Supply (Safety and Network Management) Regulation 2014*, the network operator of the HTP must take all reasonable steps to ensure the design, construction, commissioning and decommissioning of the project is safe.

This includes taking steps to support the:

- safety of members of the public
- safety of persons working on networks
- protection of property (whether or not belonging to a network operator)
- management of safety risks arising from the protection of the environment (for example, preventing bushfires that may be ignited by network assets)
- management of safety risks arising from loss of electricity supply.

The network operator must have a detailed safety management system in place to deal with these matters that complies with Australian Standard AS 5577-2013 *Electricity safety management systems*.

The Independent Pricing and Regulatory Tribunal oversees the implementation of these statutory obligations.

4.4.3 Easements and land

To deliver the HTP, EnergyCo will need to:

- secure temporary easements for construction
- secure permanent easements for operation
- acquire land for new infrastructure, such as the new Bayswater and Olney substations
- lease land for ancillary construction infrastructure
- secure access to easements.

Wherever possible, EnergyCo will try to reach a suitable agreement with landowners.

However, in some cases EnergyCo may need to acquire land under the *Land Acquisition (Just Terms Compensation) Act 1991*.

4.4.4 Aquifer interference approval

During the construction of transmission towers in the Hunter River floodplain, the HTP may extract more than 3 megalitres from groundwater sources where a water sharing plan applies. In this case, an aquifer interference approval will be required under section 91(3) of the *Water Management Act 2000*.

Groundwater extraction of the HTP and its potential impacts on aquifers will be considered further in the EIS.

4.4.5 Biosecurity

Under section 22 of the *Biosecurity Act 2015*, EnergyCo has a general duty to prevent, eliminate and minimise any risks posed by any biosecurity matter encountered during the carrying out of the HTP.

Potential biosecurity risks will be investigated further during the preparation of the EIS.

5 Community engagement

5.1 Objectives

When the project started, EnergyCo developed guiding principles for the HTP. These set the scene for our early engagement and will continue to govern the way we interact with all stakeholders during the environmental impact assessment process.

The principles are:

- **Critical for energy security** – clearly explain why the project is critical for energy security in the Hunter, Sydney and Illawarra.
- **Work closely with the community** – talk to affected individuals and groups, value their opinions, try to address their concerns and strike a reasonable balance between competing interests.
- **Hunter-first** – harness and build on the region's diverse economic skill base and provide opportunities for the community to share in the benefits of the project.
- **Tread lightly** – minimise the impacts of the project on people and the environment.
- **Act with integrity** – be open, inclusive, fair, respectful and do what we say we will do.

Identifying stakeholders and engaging with the community early in the planning process has enabled us to collect valuable local knowledge that has significantly influenced the design of the revised HTP corridor.

It also gave us insight into what the community sees as the issues and impacts of greatest interest and concern, setting the foundations for meaningful engagement when we prepare the environmental impact statement (EIS).

This early engagement is described in our report **Shaping the HTP** (see Appendix B). Its purpose was to demystify the project including its criticality, strategic context and the EIS process for the benefit of all community stakeholders – so they can participate in a meaningful way.

Our EIS engagement objectives remain firmly grounded in the guiding project principles. They are to:

- provide regular information about the HTP to affected landowners, communities near the HTP corridor, environmental and recreational groups, the broader Hunter community and other stakeholders so people have timely and accurate information
- provide interested people and groups the opportunity to share feedback through different platforms or tools so they can have their say on the HTP
- clearly communicate what can and cannot be influenced about the HTP so people can provide meaningful feedback
- continue to work closely with the community to refine the design of the HTP and assess the project's impacts.

The **HTP Community Engagement Plan** (see Appendix C) provides more detail about how we will continue engaging with all stakeholders during the preparation of the EIS.

5.2 Key stakeholders

Early engagement has helped identify key stakeholders for the HTP (see Table 5.1) and this will evolve as the project continues.

Table 5.1 Summary of key stakeholders

Group	Stakeholders
Members of the Australian Parliament	Hunter, Paterson, Newcastle, Dobell and Shortland electorates
Members of NSW Parliament	Upper Hunter, Cessnock, Lake Macquarie, Maitland, Newcastle, Wallsend, Swansea and Wyong electorates
Local government	Singleton, Cessnock, Lake Macquarie, Central Coast, Muswellbrook, Maitland and Newcastle councils
Australian Government agencies	Department of Climate Change, Energy, the Environment and Water; Department of Defence; Australian Energy Infrastructure Commissioner; Australian Energy Market Operator; Australian Energy Regulator; Civil Aviation Safety Authority; Airservices Australia
NSW Government agencies	Department of Planning, Housing and Infrastructure; Department of Climate Change, Energy, the Environment and Water; National Parks and Wildlife Service; NSW Forestry Corporation; Transport for NSW; Regional NSW; Rural Fire Service; Fire and Rescue NSW; Environment Protection Authority; Safework NSW; NSW Consumer Trustee; NSW Renewable Energy Sector Board; Electricity Infrastructure Jobs Advocate
Affected landowners	Landowners in HTP North, HTP Central and HTP South who are affected by the project. Includes both private and organisational landowners as well as owners, occupiers, leaseholders and other interest holders
Community members	Local communities in HTP North, HTP Central and HTP South; the Hunter community and NSW community
Traditional owners and Aboriginal Groups	Local Aboriginal Land Councils (Wanaruah, Mindaribba, Awabakal, Biraban and Darkinjung), traditional owners and knowledge holders, registered Aboriginal parties
Interest groups	Peak environmental, recreational, business and industry groups
Network service providers	Transgrid, Ausgrid, Endeavour Energy, Essential Energy
Education and training	Includes the University of Newcastle, TAFEs, Hunter Valley Training Company and Hunter Jobs Alliance
Unions and jobs advocates	Relevant unions and jobs advocates, including Hunter Jobs Alliance

5.3 Regional Reference Group

EnergyCo has established a Regional Reference Group for the HTP.

The group will provide a forum for strategic discussions between EnergyCo and the broader Hunter community about the HTP including:

- the project design
- community views
- actions to avoid and minimise impacts on people and the environment
- actions to maximise the benefits for the Hunter community
- actions to reduce the cumulative impacts of the HTP with other projects in the region.

It has an independent chair and comprises 9 members who include 3 local government representatives (the mayors of Singleton, Cessnock and Lake Macquarie); 3 local community representatives from HTP North, HTP Central and HTP South; and 3 regional community representatives.

The group will meet regularly, invite community members to attend meetings, and share information about the project with the broader community.

5.4 Engagement carried out

Our approach has been to engage early and consistently. Initially this involved working with local Hunter councils, elected representatives and government agencies. We also spoke with local industry, environment and business groups to understand any early concerns, help determine where the HTP preliminary corridor should be located, and identify opportunities to deliver benefits to the Hunter region.

We then focused on identifying and engaging with potentially affected landowners (in the preliminary corridor) and Aboriginal stakeholders before seeking feedback from the general community.

5.4.1 Potentially affected landowners

Introducing the project to potentially affected landowners was a critical step. In mid-October 2023 we started creating awareness of the HTP and its strategic importance with a series of targeted mailouts, which invited contact with EnergyCo's HTP community team and the HTP website for more information. Using the guiding principle of 'act with integrity', our goal was to ensure potentially affected landowners and communities first learned about the HTP from EnergyCo and not a secondary source such as social or traditional media.

Project information was general and relatively limited in the first instance but the aim was to establish a relationship where EnergyCo could be trusted to provide further information as it became available – and listen to suggestions and feedback.

Members of the HTP community team and project team attended in-person and virtual meetings.

5.4.2 Aboriginal stakeholders

Early engagement with Local Aboriginal Land Councils, traditional owners and the local Aboriginal community was an important opportunity to gather feedback on likely issues and opportunities, including income and employment opportunities for local communities and potential impacts on Aboriginal cultural heritage. This included working with registered Aboriginal parties to undertake cultural mapping exercises in the State forests and is described in the **Preliminary Aboriginal Cultural Heritage Assessment** (see Appendix G).

Before the project, started very few Aboriginal cultural heritage surveys had been carried out in HTP Central and HTP South. A number of important places for Aboriginal people have been identified during our early community consultation. Several Aboriginal groups have now formally registered to participate in the detailed assessment of the project's impacts on Aboriginal cultural heritage for the EIS.

Another important issue for Aboriginal stakeholders is HTP's potential impact on cultural sightlines (views).

5.4.3 General community

In November 2023, we introduced the project to the broader community through a ministerial announcement and media campaign. This included radio, print and digital advertising. The HTP website was launched to provide a source of truth for the community and we invited feedback on the HTP preliminary corridor from 20 November to 18 December 2023.

Figure 5.1 EnergyCo community drop-in session at Millfield

During this early community consultation we published the **HTP Overview** (see Appendix A) to provide clear information about the project and preliminary corridor. We asked for feedback on:

- the strategic need for the project and the role it will play in the transition to a cleaner future
- the HTP preliminary corridor (where the new transmission line should be located)
- ways to minimise the project impacts
- opportunities to maximise the project benefits.

During the public exhibition we hosted 6 drop-in sessions (see Figure 5.1) over 3 days, with 3 specifically for landowners and 3 for the general community. More than 200 people attended these sessions. A total of 257 submissions were received (177 online and 80 via email) along with 20 completed surveys.

5.5 Community views

Early engagement has provided valuable insight into community views, issues and opportunities from both a regional and local perspective – and this has certainly helped to shape the revised HTP corridor ahead of the environmental impact assessment process.

Among other changes described in **Shaping the HTP** (see Appendix B) we've been able to exclude around 50 potentially affected landowners from the transmission corridor.

At a local level, feedback is broken down into the 3 project zones: HTP North, HTP Central and HTP South.

5.5.1 Regional perspective

A popular theme in the feedback we received was criticism of the HTP preliminary corridor route. Many potentially affected private landholders told us they didn't want the transmission line built on or near their properties and questioned why the HTP can't be built on existing easements.

There was a region-wide interest in protecting the Hunter Valley's environment and biodiversity.

There was also broad interest in the protection of Aboriginal cultural heritage in the State forests and impacts to private property (such as potential devaluation, fragmentation and changes to the way people can use their land).

5.5.2 HTP North

This part of the corridor is characterised by highly disturbed mining and industrial land – but there are important pockets of biodiversity, particularly on Department of Defence land (the Singleton Military Area).

Our early engagement confirmed that protecting endangered 'valley floor vegetation' and habitat is very important to the community. This includes the Warkworth sands woodland and Central Hunter Valley eucalyptus forest and woodland. Both are listed as critically endangered ecological communities under the Environment Protection and Conservation Act 1999.

The Singleton Military Area is subject to quarterly surveys by Birdlife Australia and is home to the critically endangered swift parrot and regent honeyeater.

The HTP corridor seeks to minimise further impacts to the 'valley floor' landscapes but further studies will be done for the EIS to ensure the HTP avoids and minimises impacts to biodiversity as much as possible. The results will be shared as part of continued engagement with environment groups such as BirdLife Australia and the NSW National Parks Association.

During the preparation of the HTP's EIS we will also continue working closely with Singleton Council and relevant State agencies on construction and traffic impacts, as well as benefit sharing.

Engagement with mining companies will focus on minimising impacts on their operations.

5.5.3 HTP Central

This part of the corridor runs through State forests and some privately owned land. HTP Central is the most complex zone because of its geographical features with many steep hills and ridgelines that are several hundred metres high.

Early engagement told us that protecting biodiversity in HTP Central is a key concern for the local community, environmental groups and the wider region. Potential impacts to old growth forest, koala habitat and endangered or threatened species, including the glossy black cockatoo, are of particular interest.

Relatively few Aboriginal cultural heritage surveys had been completed in this zone before the project started. The early feedback identified protection of scenic views (or sightlines) as a high priority for the Aboriginal community and the local community in general. Residents in the Congewai valley are particularly concerned about the potential visual impact of transmission towers.

HTP Central and particularly the Millfield community will form a large focus for EIS engagement on matters including: forest access; roads, traffic and transport impacts; environmental impacts; visual amenity; Aboriginal cultural heritage; impacts to landowners; benefit sharing and strategic biodiversity offset opportunities.

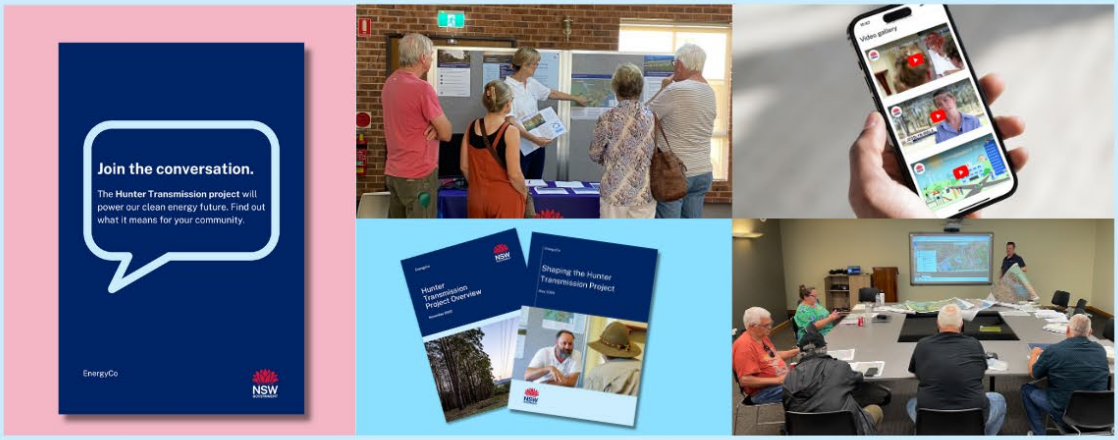
5.5.4 HTP South

Much of the feedback we collected through early engagement with the HTP South community focused on potential impacts to private land and landholders (in the preliminary corridor). Concerns included liveability, potential devaluation of properties, and the prospect of compulsory acquisition.

These concerns are no longer relevant because of significant design changes that made it possible to remove all private land from the revised HTP South corridor.

Potential impacts to biodiversity and recreation in the Olney State Forest are of great importance to the local community, along with protection of Aboriginal cultural heritage sites. These issues will continue to be investigated through the EIS engagement process.

We will also continue working closely with the local community, Lake Macquarie City Council, the Forestry Corporation of NSW and other stakeholders on matters including: access roads, traffic and transport impacts; potential temporary disruptions to State forest recreational use, and strategic biodiversity offsets.



How stakeholders can stay informed and be involved

2024 at a glance

Early 2024

Start of the EIS

Shaping the HTP

Mid 2024

Mid year update and feedback

Refining the HTP

Late 2024

Exhibit the EIS

Have your say

Visit our website to see details of upcoming local drop-in sessions as well as maps, project documents, frequently asked questions, videos and more
energyco.nsw.gov.au/htp

Sign up to our newsletter using this QR code to stay up to date on the HTP

Contact our local community team to arrange a meeting, provide feedback or ask questions

Phone: 1800 645 972
Email: htp@energyco.nsw.gov.au

Contact the HTP Regional Reference Group who will facilitate collaborative discussions between EnergyCo and the Hunter community on crucial aspects of the project

Email: bob.htprrg@gmail.com

6 Proposed assessment of impacts

6.1 Approach

EnergyCo has carried out extensive investigations to select the HTP corridor, identify matters that should be assessed further in the EIS, and determine the appropriate level of assessment in accordance with the State Significant Infrastructure Guidelines (DPHI, 2024).

These investigations included:

- detailed electricity system planning
- strategic land use planning
- engineering and environmental studies
- a review of government plans, policies and guidelines
- consultation with key stakeholders such as Australian and NSW agencies and local councils.

Based on these investigations, EnergyCo concludes there are 3 matters that require detailed assessment, including cumulative impact assessment: people, biodiversity and Aboriginal cultural heritage.

The remaining matters will require standard assessment as they are well understood, can be predicted using standard methods, and are capable of being mitigated to comply with relevant standards or performance measures.

The findings of these standard assessments will be incorporated in the detailed assessment of the project's impacts on people in the EIS.

EnergyCo's proposed approach is described in the **Summary of Proposed Assessment** (Appendix D).

6.2 Matters requiring detailed assessment

6.2.1 People

Suggested SEARs:

- Avoid and minimise the project's impacts on other land uses in consultation with the landowners and explain how these impacts will be managed
- Demonstrate the project will not significantly increase the demand for infrastructure and services in the relevant local government areas
- Assess the impacts of the project on people including cumulative impacts during construction (dust, noise, vibration, traffic and water), operations (including the visual, bushfire, electric and magnetic fields, potential interference with aviation and communications, and noise) and decommissioning
- Assess the social impacts of the project in accordance with the Social Impact Assessment Guideline (DPIE, 2023)
- Include a benefit sharing program for the project

Critical for energy security

The HTP is one of the State's most critical energy projects and is essential for the transition to renewable energy under the NSW Electricity Infrastructure Roadmap as NSW's coal-fired power stations close.

It will strengthen NSW's core electricity grid by closing the northern gap in the 500 kV network, providing an additional 5 GW of transfer capacity and unlocking electricity supply from the Central-West Orana and New England REZs.

This will deliver cleaner, more affordable and reliable electricity to NSW consumers for generations to come, particularly in the Hunter, Sydney and Illawarra where 80% of electricity is consumed.

Actions to avoid and minimise the project's impacts on people

During the selection of the HTP corridor, EnergyCo has sought to avoid and minimise the project's impacts on people (see Figure 6.1).

This includes:

- locating over 85% of the corridor on power station, mining, industrial and government land
- avoiding major towns (Singleton, Cessnock, Maitland, Kurri Kurri, Newcastle)
- avoiding major villages (Jerrys Plains, Broke, Ellalong and Quorrobolong)
- moving the new substation from Eraring to the Olney State Forest to remove the new transmission line from the Martinsville and Cooranbong communities
- avoiding and minimising impacts on popular tourism and recreation areas, particularly in the State forests
- avoiding the Pokolbin wine/tourist area and strategic agricultural land.

Consequently, there are less than 25 private landowners in the HTP corridor. EnergyCo will seek to further reduce this number during detailed design of the project.

The HTP will directly affect land use of:

- private landowners at Gouldsville, Mt Thorley, Cedar Creek, Millfield and Laguna
- private landowners along some local roads where upgrades may be necessary
- Bayswater Power Station
- Hunter Valley Operations, Mt Thorley Warkworth and Bulga mining complexes
- Singleton Military Area
- Pokolbin, Corrabare, Watagan and Olney State forests.

These land uses are shown in Figure 6.1.

During the project's detailed design, EnergyCo will seek to minimise the impacts on these land uses in consultation with landowners and develop agreements with each landowner.

EnergyCo will also start negotiations with landowners to secure easements and land for the project, and seek to complete these negotiations as quickly as possible.

EnergyCo will assess the project impacts on people and local communities in the EIS, including the likely cumulative impacts in HTP North, during:

- construction (dust, noise, vibration, traffic and water)
- operation (visual, bushfire, electric and magnetic fields and potential interference with aviation and communications)
- decommissioning.

This will include an assessment of the project's social impacts according to the Social Impact Assessment Guideline (DPE, 2023). The **Summary of Proposed Assessment** (see Appendix D) identifies some of the key issues that will be considered further in the social impact assessment.

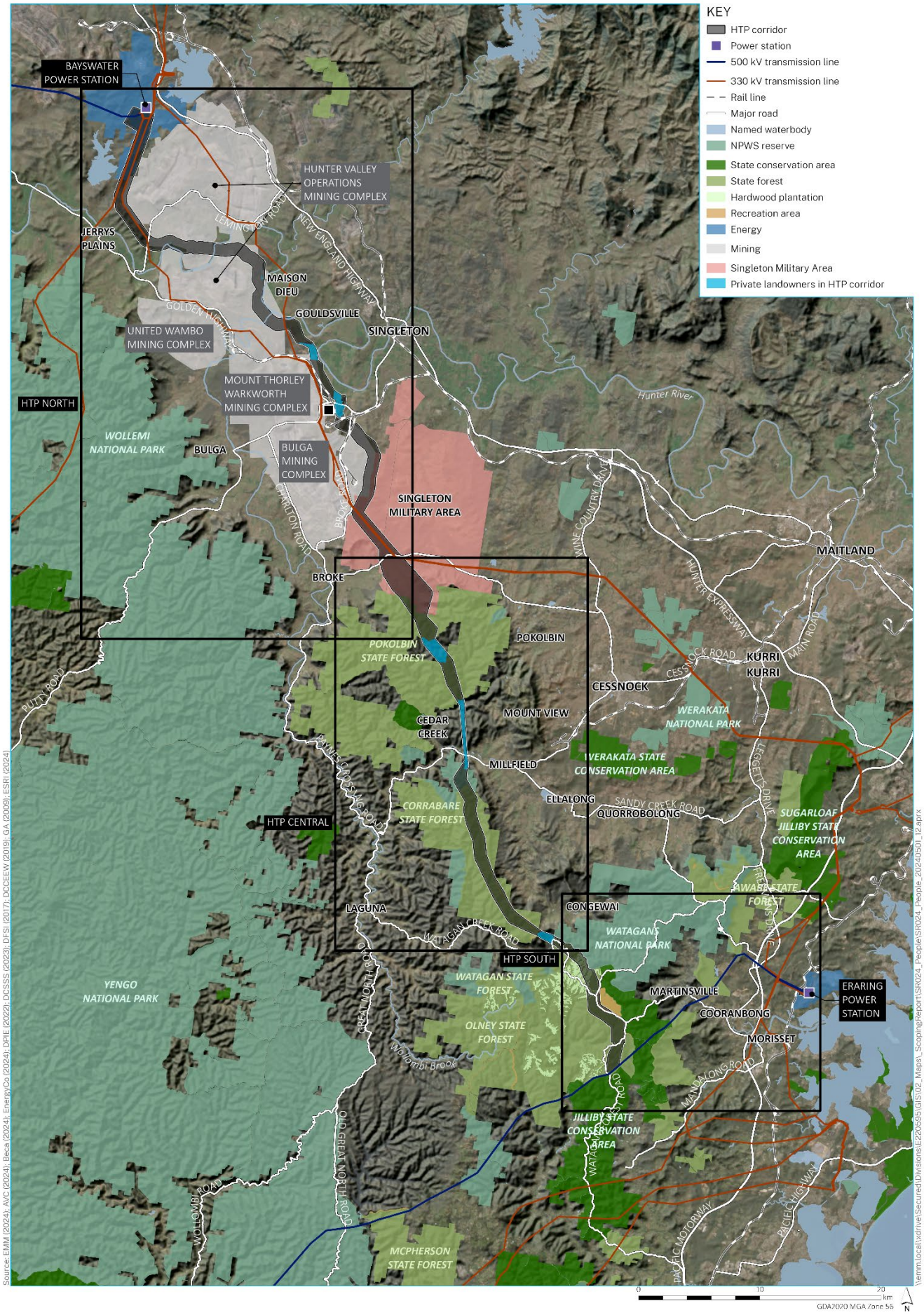


Figure 6.1 Land use in the HTP corridor

Benefit sharing

The HTP is a multi-million dollar investment that will generate hundreds of jobs.

EnergyCo is committed to harnessing and building on the region's diverse economic skills base and maximising opportunities for the Hunter community to benefit from the project.

During the preparation of the EIS, EnergyCo will develop a benefit sharing program for the HTP in consultation with local councils, affected landowners, local communities and other key stakeholders such as the local Aboriginal community. This program will include:

- funding for strategic initiatives to directly benefit local communities affected by the HTP
- strategic benefit payments ($200,000 per kilometre) for private landowners hosting transmission infrastructure on top of regular compensation for easements or land
- at least 1.5% of the design and build contract value to go towards increased income and job opportunities for local Aboriginal communities
- maximising the employment of locals and the purchase of local goods and services
- creating education and training opportunities for the community to participate in the transition to renewable energy, including the HTP.

6.2.2 Biodiversity

Suggested SEARs:

- Avoid and minimise the project's biodiversity impacts, particularly on the national park estate (Watagans National Park and Jilliby State Conservation Area) and State forest reserves (Warrawolong Flora Reserve and Corrabare North Flora Reserve), existing offset areas, and threatened species and communities
- Assess the project's impacts on biodiversity values, including cumulative impacts, in accordance with the requirements in the *Biodiversity Conservation Act 2016* and Biodiversity Assessment Method 2020 (BAM)
- Include a draft biodiversity management plan
- Include a strategic biodiversity offset strategy to enhance biodiversity values in the region

Actions to avoid and minimise the project's impacts on biodiversity

During the selection of the HTP corridor, EnergyCo has sought to avoid and minimise the project's impacts on biodiversity (see Figure 6.3). This includes:

- avoiding areas of high conservation values such as Watagans National Park, Werakata National Park, Jilliby State Conservation Area, Warrawolong Flora Reserve and biodiversity offset areas
- avoiding and minimising impacts to threatened ecological communities, particularly scarce valley floor vegetation such as the critically endangered Warkworth sands woodland
- avoiding and minimising the removal of habitat for threatened plants and animals such as the critically endangered regent honeyeater and swift parrot
- revising the corridor in the Pokolbin and Corrabare State forests to avoid and minimise impacts on key threatened species such as the sooty owl, brush-tailed rock wallaby and scrub turpentine.

There is scope to further reduce these impacts during the project's detailed design – particularly in the State forests by locating transmission towers on hilltops, spanning the transmission line across valleys to avoid vegetation clearing, and only partially clearing the rest of the transmission easement (see Figure 6.2). This will be considered in further detail in the EIS.

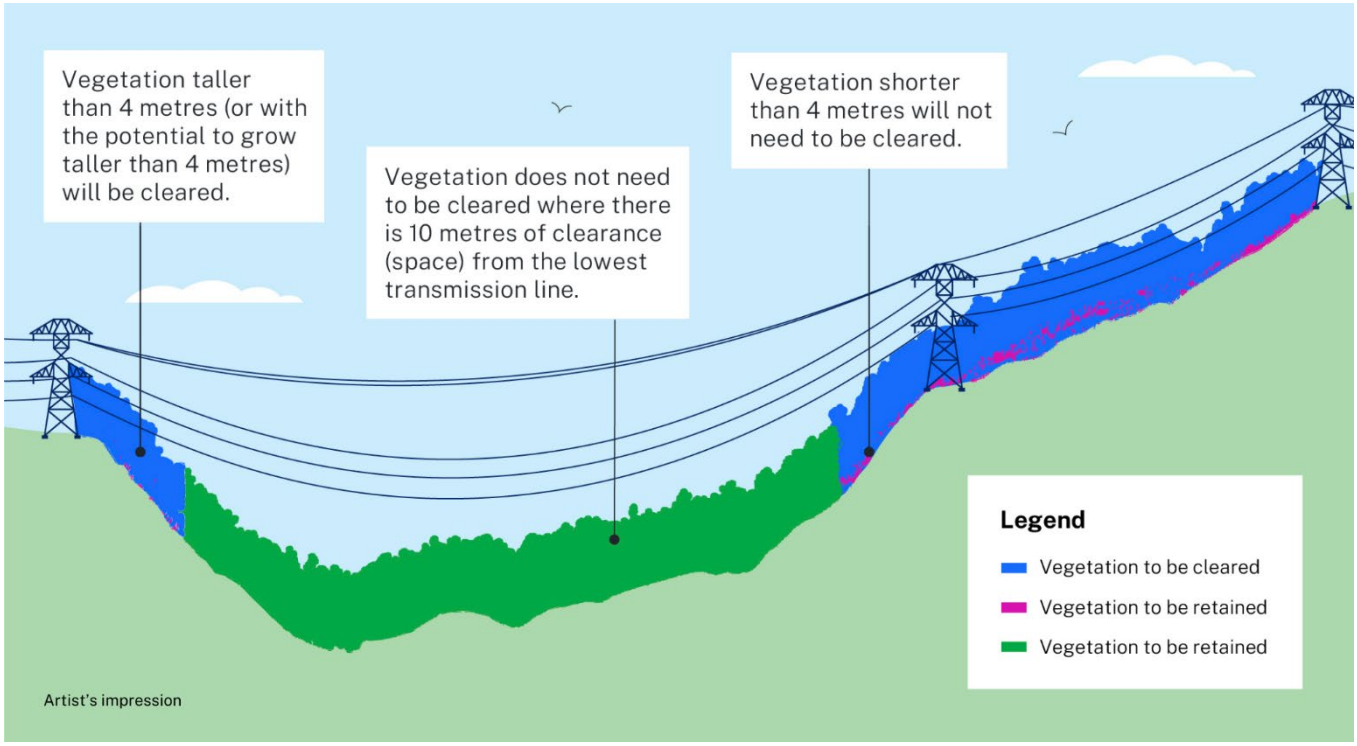


Figure 6.2 Conceptual diagram of partial clearing on the forested plateau

Assessment of impacts

EnergyCo's **Preliminary Biodiversity Assessment** (see Appendix F) of the project's impacts is based on a desktop assessment and field surveys during 2023 and early 2024.

The preliminary assessment describes existing biodiversity values in the region and uses conservative assumptions to estimate the project's vegetation clearing. It identifies the threatened species and communities that are likely to be affected by the project and will be further assessed in the EIS.

The preliminary assessment estimates the project will clear up to 1130 hectares of native vegetation and habitat in the HTP project area. This includes around 408 hectares of vegetation from 7 threatened ecological communities (see Table 6.1).

Table 6.1 Estimated clearing of threatened ecological communities

Threatened ecological community	Potential serious and irreversible impacts	Estimated clearing (hectares)
Central Hunter Grey Box-Ironbark Woodland	No	304
Central Hunter Ironbark-Spotted Gum-Grey Box Forest	No	32
Hunter Floodplain Red Gum Woodland	Yes	2
Hunter Lowland Redgum Forest	No	14
Lower Hunter Spotted Gum Ironbark Forest	No	35
River-Flat Eucalyptus Forest	No	4
Warkworth Sands Woodland	Yes	17
Total		**408**

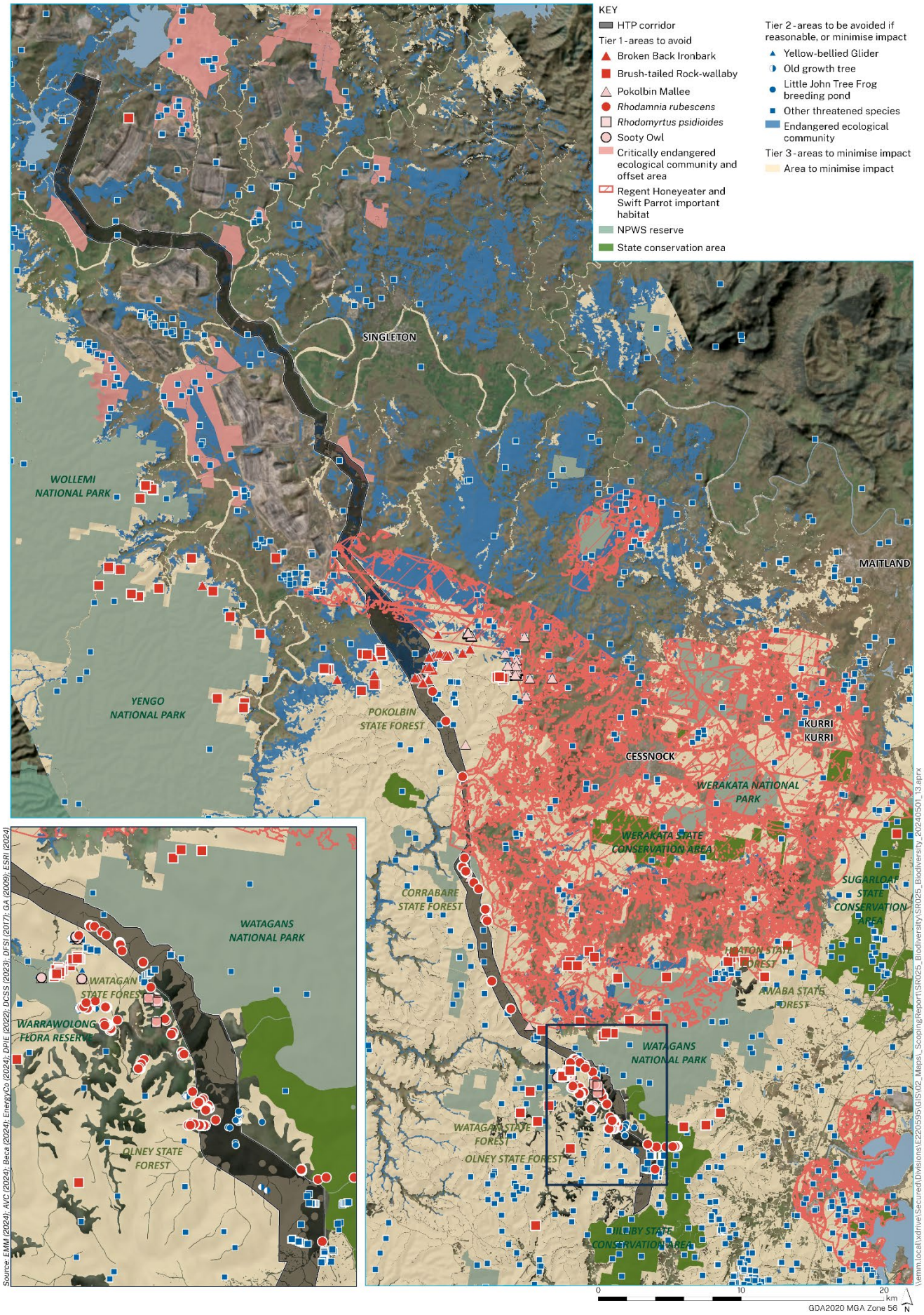


Figure 6.3 Biodiversity values in the Hunter region

The concept of avoiding **serious and irreversible impacts** on species is a key feature of the *Biodiversity Conservation Act 2016* (BC Act).

For threatened plants and animals, the preliminary assessment finds:

- 15 of 81 threatened plant species that could be affected have been recorded or have a high likelihood of occurring in the project area. This includes 4 species that may be subject to serious and irreversible impacts: broken back ironbark, scrub turpentine, native guava and Pokolbin mallee
- 33 of 103 threatened animal species that could be affected have been recorded or have a high likelihood of occurring in the project area. This includes 9 species that may be subject to serious and irreversible impacts: stuttering frog, sooty owl, brush-tailed rock wallaby, regent honeyeater, swift parrot, large-eared pied bat, little bent-winged bat, large bent-winged bat and eastern cave bat.

EnergyCo will assess the project's impacts on biodiversity values in accordance with the BC Act and Biodiversity Assessment Method (BAM).

This will focus on these threatened species and communities, along with any others recorded in future surveys. The assessment will include:

- actions to further avoid and minimise the project's biodiversity impacts, including existing offset areas
- detailed vegetation mapping and condition surveys of all plant community types
- identification of category 1- exempt land [land that does not need to be assessed in the EIS in line with the *Local Land Services Act 2013* (LLS Act)]
- targeted species surveys
- prescribed and indirect impacts, including connectivity, line strike and direct impacts on cave habitat
- the impacts of partial clearing, including an explanation of the approach to vegetation management in the transmission easement and the removal or trimming of dangerous trees that may fall on the transmission line or towers.

The EIS will include a biodiversity development assessment report that explains the findings of the BAM assessment.

Management

The EIS will include a draft biodiversity management plan for the project.

This will include measures to manage any biosecurity risks, including measures to:

- reduce the threat of dieback to scrub turpentine and other species due to *Phytophthora cinnamomi* (a rapidly spreading soil-borne water mould that infects native plants)
- prevent the infection of threatened frogs by *Amphibian chytrid* (a fungus that is deadly to frogs).

Strategic biodiversity offsets

EnergyCo is committed to providing strategic biodiversity offsets for the HTP that significantly enhance the region's biodiversity values.

The EIS will contain a biodiversity offset strategy for the HTP that:

- delivers strategic conservation outcomes in accordance with NSW Government and Australian Government priorities
- achieves landscape-scale outcomes, securing large remnants with connectivity value
- protects land under existing threats and/or undertakes landscape-scale restoration
- protects and conserves like-for-like values for threatened species and communities affected by the HTP but allows some flexibility for offsetting non-threatened communities if better strategic outcomes can be achieved
- includes targeted conservation actions for certain species
- maximises engagement with key agencies, environment groups and the local Aboriginal community.

6.2.3 Aboriginal cultural heritage

Suggested SEARs:

- Avoid and minimise Aboriginal cultural heritage impacts
- Assess the project's impacts on Aboriginal cultural heritage, including any cumulative impacts in HTP North, having regard to the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011), Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010) and Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010)
- Include targeted test excavations with the approval of Heritage NSW
- Include a cultural values mapping study of the State forests and surrounds that has been prepared by an anthropologist in consultation with key Aboriginal Elders and knowledge-holders
- Include a draft Aboriginal cultural heritage management plan

Actions to avoid and minimise the project's impacts on Aboriginal cultural heritage

The HTP corridor has been carefully chosen to avoid and minimise impacts on known Aboriginal cultural heritage, including significant archaeological sites and landforms with cultural significance.

This included:

- minimising any potential development in the sandsheets around the Hunter River and Wollombi Brook that may contain cultural material from the Pleistocene period (more than 10,000 years ago)
- avoiding known rock-shelters, grinding grooves and modified trees
- avoiding major ridgelines in the State forests that provide pathways to and through sandstone country
- avoiding major landforms with cultural significance such as Lizard Rock, Mount Warrawolong, Mount Sugarloaf and Mount Vincent, and minimising visual impacts on the sightlines between these and other major landforms in the region.

There is scope to further reduce these impacts during the HTP's detailed design by reducing ground disturbance and vegetation clearing, choosing an alignment that reduces impacts on ridgelines and prominent landforms, and ensuring the transmission line spans any significant archaeological sites.

Assessment of impacts

EnergyCo's **Preliminary Aboriginal Cultural Heritage Assessment** (see Appendix G) was informed by:

- a desktop review of the region (geomorphology, geology, soils, land use and disturbance), previous studies and known archaeological sites
- consultation with local registered Aboriginal groups, including local Aboriginal land councils (Wanaruah, Mindaribba, Awabakal, Biraban and Darkinjung), traditional owners and knowledge holders
- initial cultural mapping
- survey work in 2023 and early 2024.

The preliminary assessment describes existing Aboriginal cultural heritage values in the region. It also identifies constraints for the project's design and the matters that should be investigated further in the EIS.

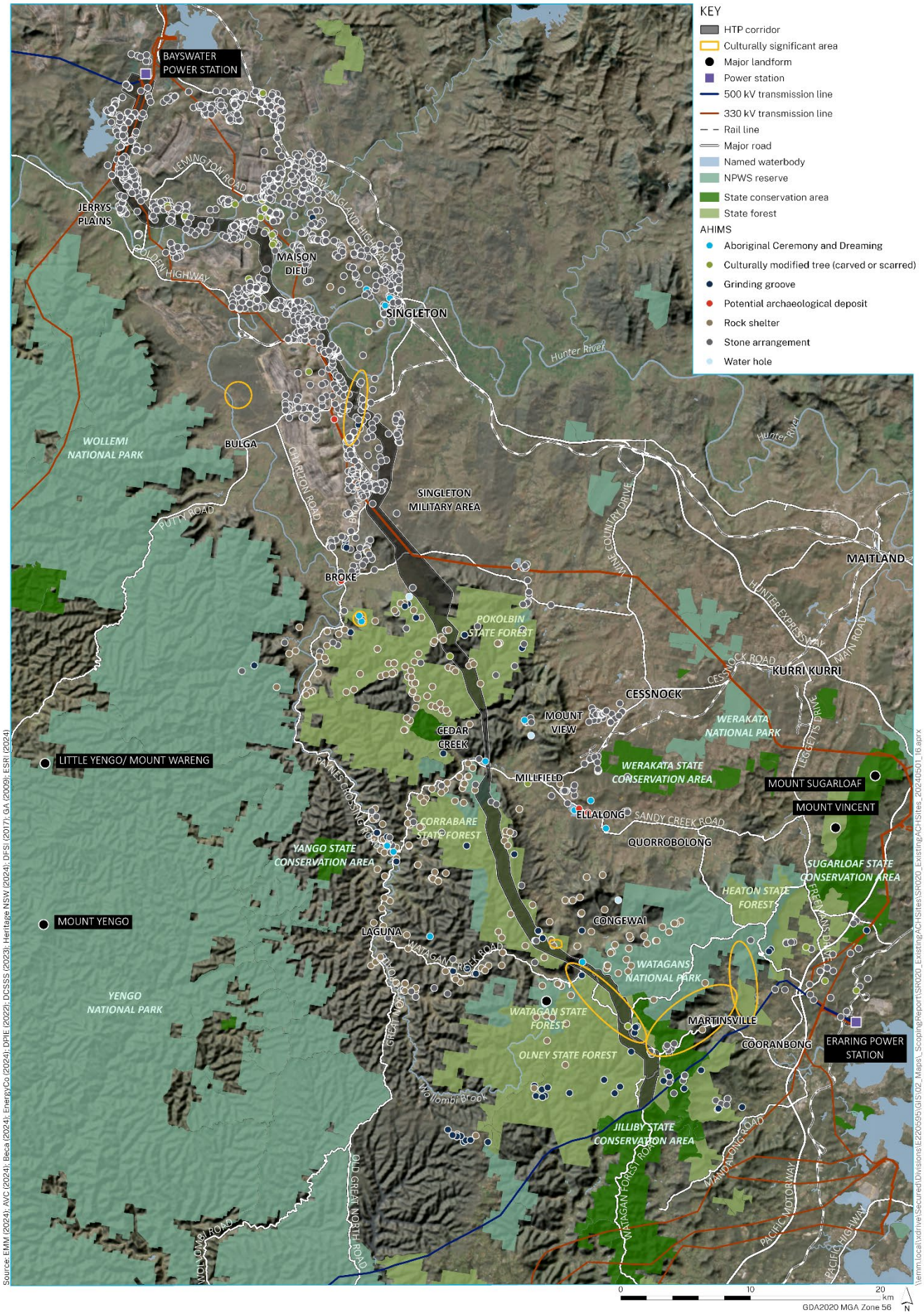


Figure 6.4 Known Aboriginal cultural heritage sites and values in the vicinity of the HTP corridor

HTP North forms part of the Hunter Valley floor landscape, which is characterised by gentle undulating hills and slopes intersected by watercourses and floodplains that have been heavily modified by development (farming, mining, industrial and urban) over the last 200 years. Numerous heritage studies have been undertaken in the area and identified extensive archaeological sites (see Figure 6.4).

These sites are dominated by open stone artefact scatters with low to moderate scientific significance but there are some sites with higher significance. These include higher-density open stone artefact sites near watercourses, grinding grooves in creeks with exposed sandstone and modified trees.

The sandsheets around the Hunter River and Wollombi Brook near Warkworth may contain rare cultural material from the Pleistocene period. Any disturbance in this area should be subject to further investigations including test excavations.

HTP Central and HTP South form part of the forested plateau along the southern edge of the Hunter Valley, which is characterised by prominent sandstone ridgelines and peaks, steeply incised gorges and ravines, watercourse with exposed bedrock, and extensive native vegetation.

Very few heritage studies have been undertaken in the area, so there are relatively few known archaeological sites (see Figure 6.4).

Figure 6.5 Grinding grooves in HTP Central

These sites are dominated by rock-shelters (some with art), grinding grooves (see Figure 6.5) and modified trees that have high scientific significance. There are also several major landforms with known cultural heritage significance.

The preliminary assessment has identified 561 archaeological sites in the HTP corridor, with 542 of these sites in HTP North. This includes 26 sites of moderate to high scientific significance, including:

- axe grinding grooves at the base of a waterfall in HTP South
- 2 high-density open artefact scatters near creeks in HTP North.

EnergyCo will assess the project's impacts on Aboriginal cultural heritage value in accordance with relevant guidelines and involve Aboriginal groups in this assessment to determine the cultural significance of any impacts. The assessment will include:

- actions to further avoid and minimise the project's direct and indirect impacts
- detailed field surveys with Aboriginal groups of the project's disturbance footprint
- test excavations in targeted areas, including the sandsheets around the Hunter River and Wollombi Brook and rock-shelters with potential cultural deposits in HTP Central and HTP North
- cultural values mapping by an anthropologist with key Aboriginal Elders and knowledge-holders
- an analysis of the cultural significance of any impacts, including the potential cumulative impacts with other relevant projects in HTP North (see 2.6 Relevant projects for cumulative impact assessment).

The EIS will include an Aboriginal cultural heritage report that explains the findings of this assessment.

Management

The EIS will include a draft Aboriginal cultural heritage management plan for the project. This plan will involve Aboriginal groups in the ongoing management of cultural heritage on site during construction and operation. The plan will include actions to:

- protect existing archaeological sites
- reduce the project's impacts further by:
  - minimising ground disturbance and vegetation clearing
  - micro-siting the location of infrastructure to avoid or minimise impacts on known heritage sites
  - adapting the project's design to respond to unexpected finds of significant heritage sites
- salvage heritage sites subject to impact and undertake further research to build cultural knowledge.

6.3 Matters requiring standard assessment

6.3.1 Transport

Suggested SEARs:

- Avoid and minimise the project's transport impacts
- Identify:
  - the main transport routes, including any heavy vehicle or oversize/over mass vehicle routes
  - all required road upgrades and works, including any relevant standards
  - all transmission crossings of the public road and rail network
  - how the transport routes will be maintained
- Assess the project's impacts (including cumulative impacts) on the capacity, efficiency and safety of the public road and rail network
- Include a draft transport management plan

EnergyCo has identified the key issues for assessing the project's transport impacts (see Table 6.2).

Table 6.2 Key issues for transport impact assessment

Key issues	• The project's likely major traffic routes during construction are shown in Figure 6.6. Separate traffic assessments will be prepared for HTP North, HTP Central and HTP South because the traffic impacts in each area are likely to be different • In HTP North, there will be limited use of local roads. Most traffic to build the new Bayswater substation and around 130 transmission towers will be concentrated on these major roads: - New England Highway (to build the substation and the northern section of the transmission line) - Golden Highway (to build the transmission line in and around Hunter Valley Operations and Mt Thorley Warkworth mining complexes) - Cessnock Road/Broke Road (to build the transmission line in the Bulga mining complex and Singleton Military area) • In HTP Central, the key issue will be getting materials and equipment into the Pokolbin and Corrabare State forests to build around 50 transmission towers using local roads, including Broken Back Trail, Mount View Road and Hayes Road. Most of these roads will require upgrades • In HTP South, traffic to build the Olney substation and around 20 transmission towers will be concentrated on Freemans Drive and Martinsville Road before moving into the Olney and Watagan State forests • The transmission line will cross several roads and the Wambo, Mt Thorley and Bulga railway lines • The project's traffic impacts are expected to be negligible during the HTP's operations
Assessment	See suggested SEARs
Cumulative impacts	• There will be cumulative traffic impacts with other relevant projects in HTP North (see section 2.6) but these will be focused on the New England Highway and Golden Highway. Both are major roads built to accommodate high traffic volumes. Traffic using the New England Highway could be affected by the Singleton Bypass works • While there are unlikely to be any cumulative traffic impacts in HTP Central and HTP South, traffic in HTP Central may be affected by the proposed upgrade of Wollombi Road
Management	Include a draft transport management plan in the EIS

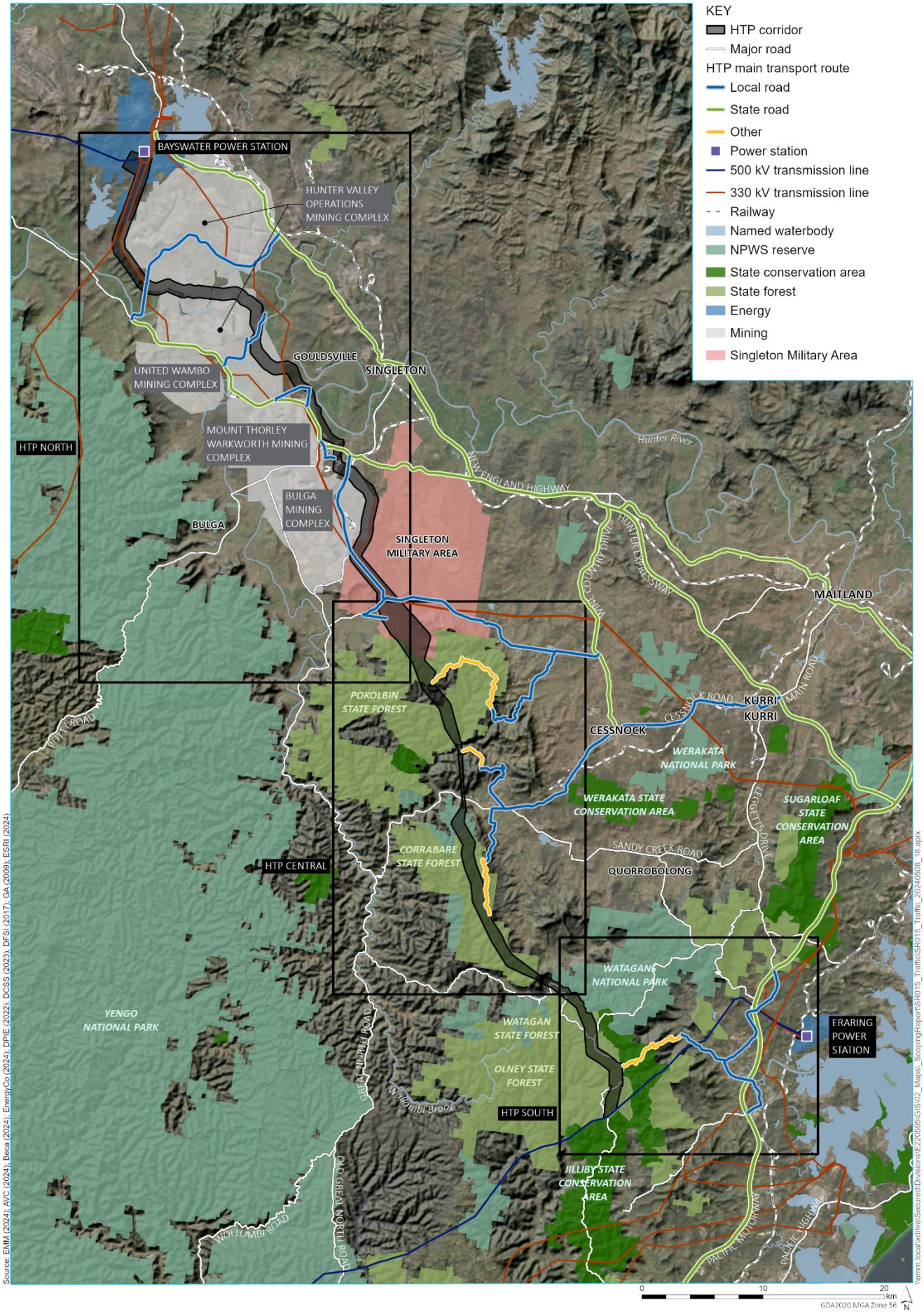


Figure 6.6 Indicative transport routes to be used during the HTP's construction

6.3.2 Visual

Suggested SEARs:

- Avoid and minimise the project's landscape and visual impacts
- Assess the project's landscape and visual impacts in accordance with the draft Technical Supplement for Landscape and Visual Impact Assessment (DPE, 2023) for transmission projects
- Describe the measures that will be implemented to mitigate moderate to high visual impacts on people, including providing suitable vegetation screening or at-source treatments at affected public viewpoints and private dwellings

EnergyCo has sought to minimise the project's impacts on landscape character and views by:

- avoiding major towns and villages
- using disturbed power station, mining, industrial and government land in HTP North
- locating most of the development in HTP Central and HTP South in the State forests where it will mostly be shielded by existing landforms and vegetation (see Figure 6.7).

EnergyCo has prepared the **Preliminary Landscape and Visual Assessment** (see Appendix H) and the key issues it identifies are summarised in Table 6.3.

This describes the landscape character of the region and identifies the public viewpoints and private dwellings that will be subject to detailed assessment in the EIS in accordance with relevant guidelines.

Table 6.3 Key issues for landscape and visual impact assessment

Key issues	• Avoid or minimise impacts on the region's landscape character, including the sandstone outcrops on the plateau forming the southern edge of the Hunter Valley • In HTP North, avoid and minimise the project's visual impacts (including cumulative impacts) on: - private dwellings in Maison Dieu, Gouldsville, Mt Thorley and near the Singleton Military Area - views of the sandstone plateau from Cessnock Road as the transmission line heads into the Pokolbin State Forest - public viewpoints where the transmission line will cross prominent roads such as Putty Road, Broke Road and Cessnock Road • In HTP Central and HTP South, avoid and minimise the project's visual impacts on: - private dwellings in the Pokolbin State Forest, Cedar Creek, Millfield and Laguna - private dwellings and public viewpoints on the valley floor, particularly from Congewai and Laguna - major landforms with Aboriginal cultural heritage significance and the sightlines between these landforms - significant public viewpoints in the State forests such as Lizard Rock in the Pokolbin State Forest and Flat Rock in the Corrabare State Forest - views from the Jilliby State Conservation Area and State forest recreation areas, particularly from the development of the Olney substation - public viewpoints where the transmission line will cross prominent roads such as Wollombi Road and Watagan Forest Road • Mitigate the project's moderate to high visual impacts on people by providing suitable vegetation screening or at-source treatments at affected public viewpoints or private dwellings
Assessment	See suggested SEARs
Cumulative impacts	Only in HTP North, near private dwellings in Maison Dieu where the HVO Continuation Projects (North and South) and Maison Dieu Solar Farm may increase visual impacts

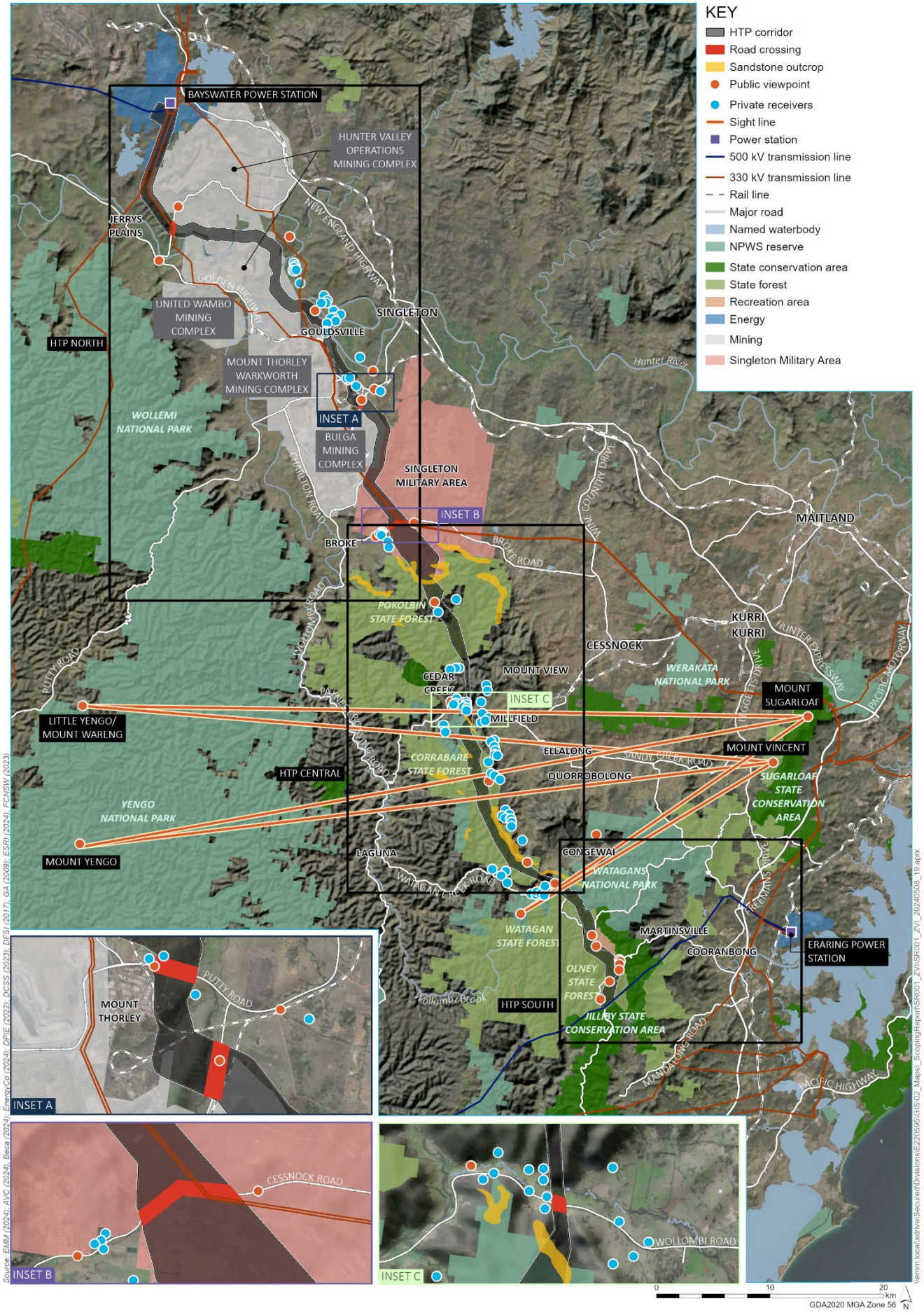


Figure 6.7 Key issues to consider in the landscape and visual impact assessment

6.3.3 Water

Suggested SEARs:

- Avoid or minimise impacts on watercourses, riparian corridors, aquifers and groundwater dependent ecosystems, having regard to the Controlled Activities on Waterfront Land (DPI, 2018) guidelines, Fish Passage Requirements for Waterway Crossings (DPI, 2003) and Aquifer Interference Policy (DPI, 2012)
- Calculate the project's water demand and demonstrate there will always be sufficient water for the project having regard to relevant water sharing plans
- Describe the measures that will be used to avoid and minimise water pollution, including the erosion and sediment controls in accordance with the Managing Urban Stormwater: Soils & Construction series (Blue Book) (Landcom) and wastewater controls
- Demonstrate the project will not adversely affect any key fish habitat or threatened aquatic species
- Minimise the project's flood risks and demonstrate that it will not adversely affect flood conditions or the susceptibility of land to flood

EnergyCo has prepared the **Preliminary Water Assessment** (see Appendix I) for the HTP. Table 6.4 summarises the findings of this assessment and identifies the key issues for assessment in the EIS.

Table 6.4 Key issues for water impact assessment

Key issues	• Avoid or minimise impacts on watercourses and riparian corridors by: - avoiding watercourse crossings, particularly higher order watercourses - locating transmission towers outside riparian corridors and spanning watercourses - limiting disturbance to areas that are degraded or have low ecological value - rehabilitating any temporary disturbance (see Figure 6.8) • Avoid impacts on aquifers and groundwater dependent ecosystems by minimising groundwater extraction during construction. At this stage, groundwater extraction is likely to be very minor and temporary (see Figure 6.8). • Water demand is expected to be between 500 and 1000 megalitres during construction. This demand will be spread over 2 years and a large area, so impacts on regional water resources are likely to negligible. EnergyCo will: - minimise water demand (recycling and reuse) - calculate the project's water demand and demonstrate there will always be sufficient water for the project - avoid impacts on other water users • Avoid or minimise water pollution by controlling: - erosion and sediment flow in accordance with the Blue Book - the storage, handling and use of fuels and chemicals to avoid spills - wastewater, particularly at the construction support facilities • Avoid or minimise impacts on key fish habitat and threatened aquatic species – see the **Preliminary Aquatic Assessment** (Appendix J) • Minimise the project's flood risks associated with crossing the Hunter River, Wollombi Brook and the associated floodplain (see Figure 6.8)
Assessment	See suggested SEARs
Cumulative impacts	Not applicable
Management	Include draft water management plan in the EIS

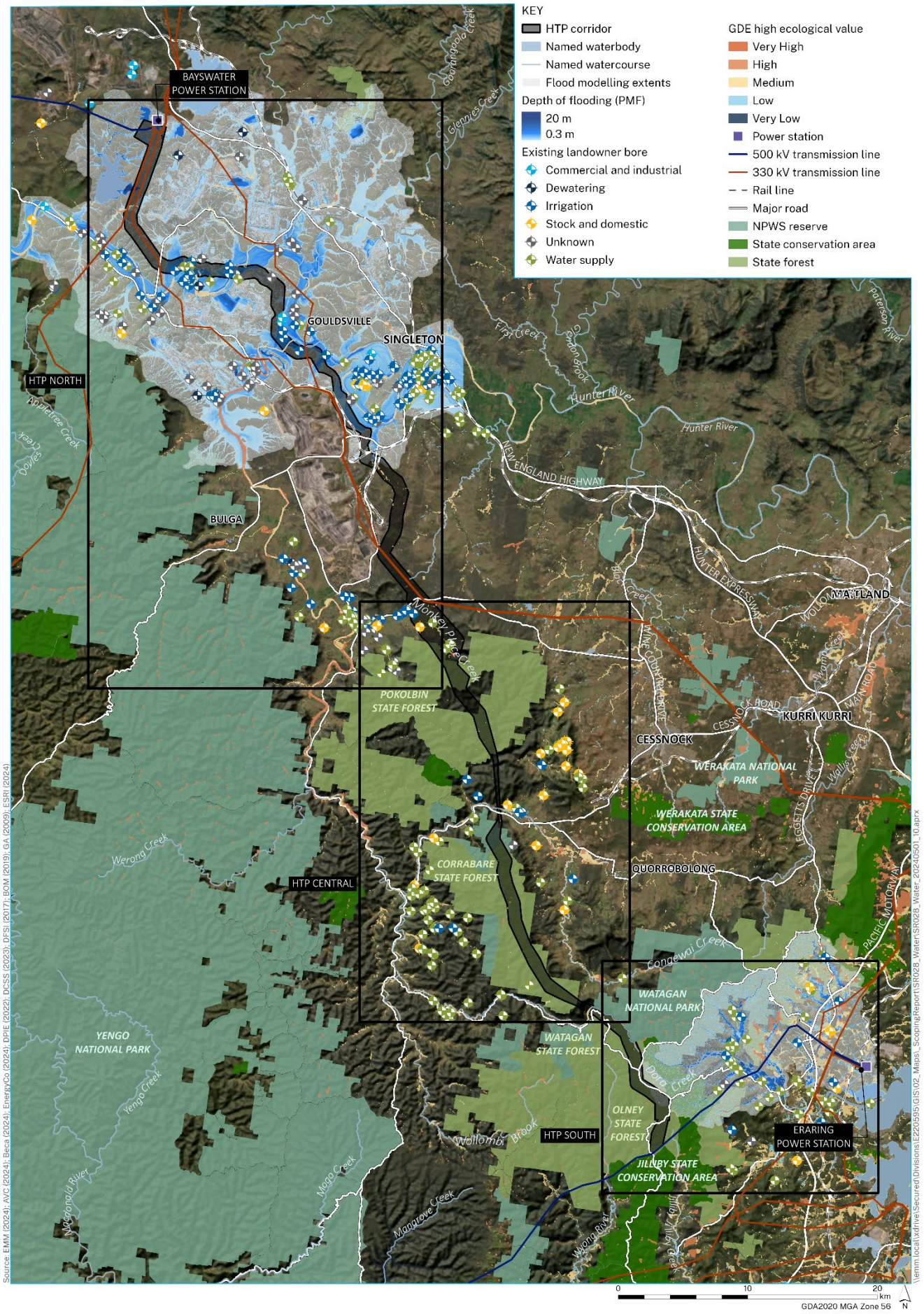


Figure 6.8 Key water features in the vicinity of the HTP corridor

6.3.4 Other matters

Table 6.5 summarises key issues associated with the other matters that will require standard assessment and identifies the proposed assessment approach.

Table 6.5 Other matters and proposed assessment approach

Matter	Key issues	Suggested SEAR
Bushfire	• The HTP crosses extensive bushfire prone land • The risk of the project starting a bushfire is low as the transmission line will be built to strict standards, including AS/NZ 7000:2016 Overhead line design. The transmission line will be in a cleared easement and maintained regularly to rectify defects and avoid outages. There are no records of the existing 500 kV transmission lines in NSW starting a bushfire and these have operated for decades in similar landscapes to the HTP • During construction, standard safe work practices and fire management will be used to minimise bushfire risks • The project will comply with the Planning for bush fire protection guideline (RFS, 2019). This will include developing strategies with the NSW Rural Fire Service, Forestry Corporation of NSW, and National Parks and Wildlife Service to: - identify suitable asset protection zones for the project - minimise impacts on firefighting in the State forests, and adjoining national parks and State conservation areas - put in place effective arrangements for emergency management, including the evacuation of workers during the HTP's construction and operation • During operations the HTP's network operator will be required to protect public safety from bushfires under the *Electricity Supply Act*	• Avoid and minimise the project's bushfire risks • Describe the bushfire protection measures for the project, including the proposed approach to vegetation management in the transmission easement, having regard to the requirements in the Planning for bush fire protection guideline (RFS 2019)
Historic heritage	• There are no State-listed historic heritage items in or near the HTP corridor, but there are: - 4 items with local heritage significance under the Singleton and Lake Macquarie local environmental plans, such as the Eraring Power Station - a few items in the heritage management plan for Singleton Military Area • The project will not directly affect any of these heritage items but may affect the curtilage (vicinity) or views from these items • The project's historic heritage impacts will be assessed having regard to the Assessing heritage significance guideline (DPE, 2023)	• Avoid and minimise the project's historic heritage impacts • Assess the project's historic heritage impacts having regard to the Assessing heritage significance guideline (DPE, 2023) • Include a draft historic heritage management plan in the EIS

Matter	Key issues	Suggested SEAR
Noise and vibration	• The project is unlikely to cause any significant noise impacts due to the isolated nature of the project. Most of these impacts will be temporary and confined to the project's construction • Construction noise impacts, including any road noise and vibration, will be controlled to acceptable levels in accordance with the requirements in the Interim construction noise guideline (DECC, 2009), NSW road noise policy (DECCW, 2011) and relevant vibration standards. This will include restricting construction hours but some out of hours work may be necessary • At this stage, the project does not involve blasting. If this changes the EIS will include a blasting impact assessment • There noise impacts during operation are likely to be negligible but the EIS will include an assessment of the Olney substation's noise impacts on the Jilliby State Conservation Area and key recreation areas in the Olney State Forest. It will also include an assessment of the corona noise impacts of the transmission line on nearby dwellings	• Avoid and minimise the project's noise and vibration impacts • Assess the project's road noise impacts during construction in accordance with the NSW road noise policy (DECCW, 2011) • Include a draft construction noise management plan in the EIS, including a protocol for out of hours work, having regard to the Interim construction noise guideline (DECC, 2009) • Assess the Olney substation's operational noise impacts in accordance with the Noise policy for industry (EPA, 2017) • Assess the corona noise impacts of the transmission line near dwellings
Dust	• The project's construction dust impacts will be controlled to comply with the relevant standards for particulate matter using standard mitigation measures	• Include a draft dust management plan in the EIS
Electric and magnetic fields (EMF)	• The project's EMF risks are likely to be negligible: - due to the isolated nature of the project - as the magnetic field levels directly under the transmission line are likely to be well below the International Commission on Non-Ionizing Radiation Protection (ICNIRP) general public exposure reference limit of 2000 milligauss - as the electric field levels under the transmission line are likely to be meet the ICNIRP general public basic restriction of 0.02 kilovolts per metre • The project will be designed to avoid and minimise EMF risks. This will include ensuring suitable minimum clearance heights for the transmission line. The project will comply with the relevant EMF standards adopted by the Australian Radiation Protection and Nuclear Safety Agency • There is a very small risk the project may interfere with nearby communications systems (telecommunications, radio, microwave) but standard measures are available to address any impacts	• Avoid and minimise the project's EMF risks • Demonstrate the project will comply with the relevant EMF standards adopted by the Australian Radiation Protection and Nuclear Safety Agency • Assess the impacts of the project on nearby communications systems (telecommunications, radio, microwave) and identify actions to address any predicted interference

Matter	Key issues	Suggested SEAR
Contamination and other hazards	• The **Preliminary Site Investigation** (Appendix K) involved a desktop review of the region's land uses, environment and historical information to identify potential contamination sources that may affect the HTP • While the investigation did not identify any declared contaminated land in the HTP corridor, it concluded that contamination is likely to be present in and around the corridor, mostly in HTP North • It identified several areas of interest with potential hazards that will require further investigation in the EIS, including: - land and groundwater contamination - hazards such as naturally occurring asbestos, acid sulfate soils and salinity - poor geotechnical conditions such as mine subsidence and fill - unexploded ordinances in the Singleton Military Area.	• Carry out detailed investigations of potential sources of contamination and other hazards (mine subsidence and fill, naturally occurring asbestos, salinity, unexploded ordinances and poor geotechnical conditions) • Demonstrate that the site can be made suitable for the HTP • Include a draft contamination and hazards management plan in the EIS
Dangerous goods	• The project will involve the use of several fuels and chemicals (petrol, diesel, natural gas, LNG, mineral oil, SF6, silica gel) • However, the quantity of materials used is expected to be well below the levels required for a detailed hazards assessment. • The fuels and chemicals will be transported to the project area and stored and handled on site in accordance with relevant statutory requirements and standards, including Australian Standard AS 1940: The storage and handling of flammable and combustible liquids	• Identify the dangerous goods required for the project • Describe how these goods will be transported to the project area and stored and handled on site in accordance with relevant statutory requirements and standards
Aviation	• The project is unlikely to adversely affect any certified aerodromes in the region but may affect the Warkworth Aerodrome (Hunter Valley Gliding Club) and other unrestricted aerodromes in the vicinity of the HTP corridor, including aircraft landing strips and helicopter landing sites • The transmission line will be like other 500 kV transmission lines in the region and is unlikely to affect low-flying aviation operations such bush firefighting, aerial crop spraying and military operations	• Avoid and minimise the project's impacts on aviation and associated communications systems • Assess the project's impacts on: - certified aerodromes within 30 nautical miles of the transmission line - uncertified aerodromes and landing strips within 5 nautical miles of the transmission line - low-flying aviation operations (less than 200 feet/60 metres)

6.4 Environmental management

6.4.1 Principles

We have developed guiding principles for the environmental management of the HTP. These principles seek to ensure best practice during the delivery of the project.

The principles are:

- **Flexibility** – develop strategies, plans and programs for the HTP in stages to allow the project to be delivered as quickly as possible and ensure the right measures are in place to manage activities on site at any time.
- **Work closely with the community** – talk to affected individuals and groups to minimise impacts, keep them informed about the project, manage complaints effectively and monitor and report on performance.
- **Effective** – minimise the impacts of the project on people and the environment, comply with statutory obligations, review performance regularly and update strategies, plans and programs to ensure best practice.
- **Efficient** – target environmental management to the activities on site that require detailed management, and streamline the consultation required during the preparation and approval of these strategies, plans and programs.
- **Act with integrity** – be open, inclusive, fair, respectful and do what we say we will do.

6.4.2 Proposed approach

Our proposed approach to environmental management for the HTP includes:

- preparing an environmental management strategy to provide the strategic framework for environmental management on site
- continuing to operate the Regional Reference Group during construction
- preparing strategies, plans and programs to manage specific matters on site (see the **Summary of Proposed Assessment** Appendix D)
- commissioning an independent environmental audit within 6 months of starting construction
- regularly monitoring and reporting on performance
- regularly updating the strategies, plans and programs to ensure they are effective
- providing timely and accurate information on the project on our website.

7 Appendices

The appendices are available as separate documents on the **NSW Planning Portal**.

Appendix A	HTP Overview
Appendix B	Shaping the HTP
Appendix C	Community Engagement Plan
Appendix D	Summary of Proposed Assessment
Appendix E	Social Impact Assessment Worksheet
Appendix F	Preliminary Biodiversity Assessment
Appendix G	Preliminary Aboriginal Cultural Heritage Assessment
Appendix H	Preliminary Landscape and Visual Assessment
Appendix I	Preliminary Water Assessment
Appendix J	Preliminary Aquatic Assessment
Appendix K	Preliminary Site Investigation

energyco.nsw.gov.au/htp

NSW GOVERNMENT