



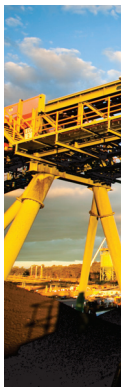

MOOLARBEN COAL COMPLEX
OC3 EXTENSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT

SECTION 2

STRATEGIC CONTEXT

YANCOAL
兖煤澳大利亚有限公司
MOOLARBEN COAL

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2 STRATEGIC CONTEXT

This section outlines the strategic context for the Project, with regard to the natural and built environment, and relevant strategic plans and policies. This section also describes the strategic need for, and potential benefits of, the Project.

In summary, the Project has been proposed as it is a logical extension of an existing mining operation that can use existing infrastructure and services and can be operated by the existing Moolarben Coal Complex workforce. The Project resource can be recovered at a generally low depth of cover, allowing for economically efficient extraction with minimal potential for significant environmental impact.

Potential impacts to the local environment are limited as land in the Project area has largely been historically cleared for agricultural uses and is visually isolated from surrounding private residences by intervening topography (associated with the Munghorn Gap Nature Reserve and other nearby ridgelines).

The Project is consistent with surrounding land uses, as the local area is an existing mining precinct with a railway in place for transport of product coal. Existing MCO agreements to access rail and port infrastructure would continue for the Project, as would existing customer relationships and export sale agreements.

The Project is considered to align with key regional and State plans and policies, including the areas of action specified in the NSW Government's (2020a) *Strategic Statement on Coal Exploration and Mining in NSW* (the Statement) (e.g. supporting responsible coal production), and would generate employment, royalties and support local businesses in the region and the State.

The product coal from the Project would be supplied to overseas customers who are either signatories to the *Paris Agreement* (United Nations Framework Convention on Climate Change [UNFCCC], 2022a) or have domestic policies consistent with the *Paris Agreement*. It is also expected that a small amount would be sold to coal traders or other Australian coal companies to optimise product blending opportunities. Demand for the Project's product coal is expected to continue over the Project life (2025 to 2034).

Additional consideration of a range of other strategic planning documents of potential relevance to the Project is provided in Attachment 6. Additional justification for the Project is provided in Section 7.

2.1 PROJECT-SPECIFIC CONTEXT

The Project is located within the Moolarben Valley, separated from private residences by surrounding natural ridges and steep slopes. This avoids or minimises potential amenity impacts at private residences.

The following section gives a summary of strategically relevant features that are unique to the Project area.

2.1.1 Location

The Project area is considered suitable for the proposed extension of mining at the Moolarben Coal Complex as:

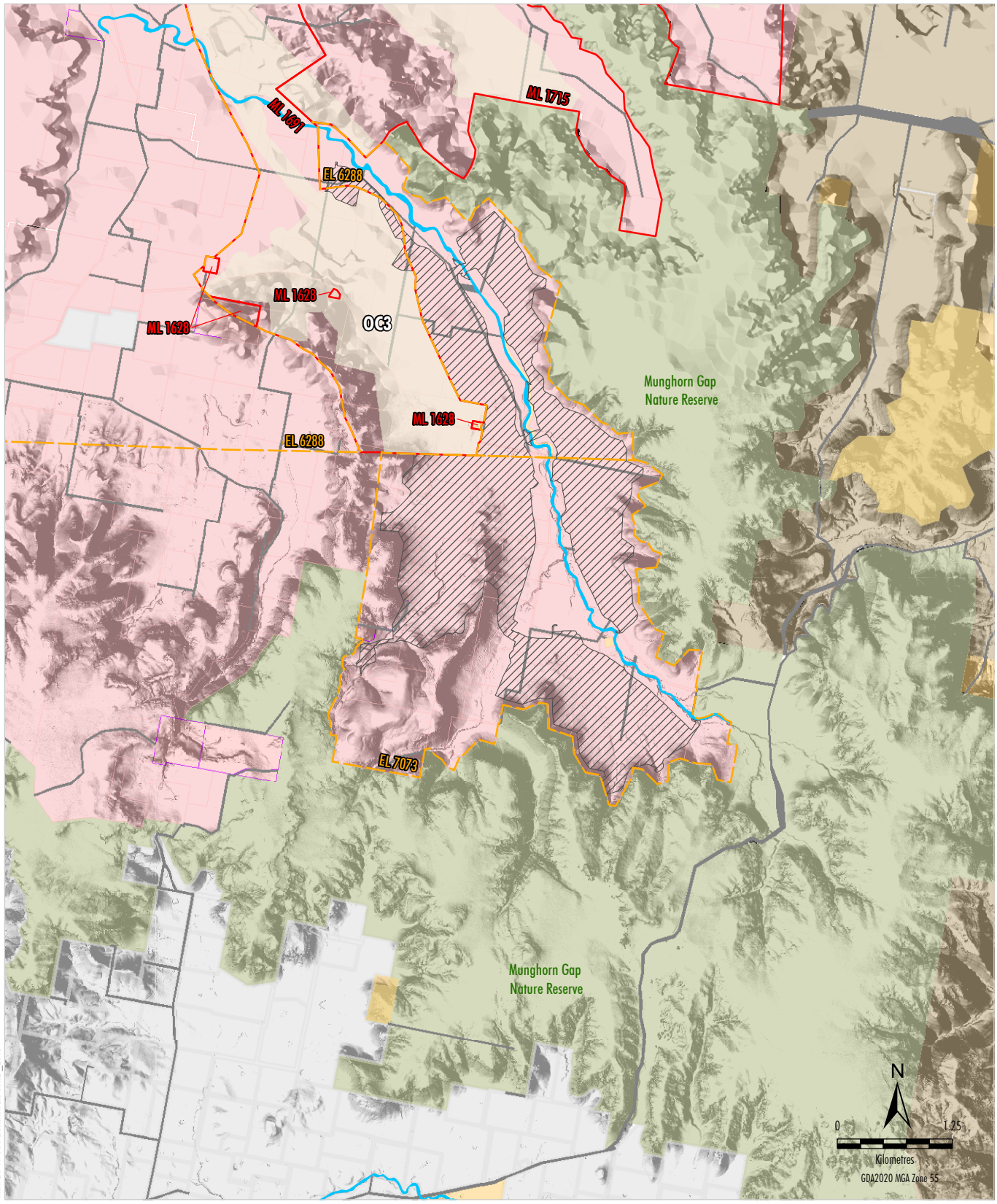
- The Project is located in an area where more significant environmental impacts can be avoided.
- The coal resource can be efficiently recovered in a manner that minimises the potential for off-site impacts to the community.
- The Project is a logical extension of existing mining operations within existing mining tenements.
- The Project is predominantly located on cleared land subject to previous agricultural use.
- The Project is located on Moolarben-owned freehold land (with minor areas of Crown/Council Land).

The Project is located within the Moolarben Valley, which is characterised by lower lying areas associated with Moolarben Creek and is surrounded by the undulating foothills and ridges of the adjacent Munghorn Gap Nature Reserve.

The Project would avoid mapped rocky habitat associated with threatened bat species and the Broad-headed Snake located on the steeper terrain adjacent the Munghorn Gap Nature Reserve.

The Project area has largely been constrained to previously cleared land historically used for low-intensity agriculture (i.e. grazing and dryland cropping).

The ridges surrounding the Project would act as a natural barrier between the Project and private residences at Cooyal to the south and Cooks Gap to the west, limiting potential visual impacts (Figure 2-1).



MCM-20-18 OC3 Extension EIS Sect2_2018

LEGEND

National Park/Nature Reserve
Exploration Licence Boundary
Mining Lease Boundary
Moolarben Coal Complex Disturbance Footprint
OC3 Extension Project
Indicative Surface Disturbance Extent

Land Ownership

Moolarben Coal Operations Pty Ltd
Yancoal Interest - Crown
Wilpinjong Coal Mine
Crown Land
Privately Owned

Source: MCO (2022); NSW Spatial Services (2021)
Orthophoto: MCO (Jan 2021)

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Project Location, Surrounding Natural Features and Land Ownership

Figure 2-1

The Project proposes extraction of additional coal resources within existing mining and exploration tenements situated on Moolarben-owned freehold land (with minor areas of Council/Crown Land), adjacent to approved OC3 operations at the Moolarben Coal Complex (Figure 2-1).

Exploration undertaken for the Project indicates a relatively low depth of overburden cover (i.e. low strip ratio), similar to the approved OC3 mining area, which minimises waste rock material required to be handled to extract the coal resource (Figure 2-2). As a result, the Project provides an opportunity for efficient resource recovery.

Environmental impacts (e.g. dust emissions and stresses on groundwater systems) associated with the Project are minimised compared to extraction of deeper resources. The relatively low depth of cover is also associated with a low in-situ gas content in the coal seam, resulting in a low fugitive emissions intensity from mining the coal.

2.1.2 Existing Moolarben Coal Complex

The Project is considered to be consistent with the Statement, particularly the stated area of action "Supporting responsible coal production in areas deemed suitable for mining", as the Project would be located within an existing mining precinct and would be incorporated into the existing Moolarben Coal Complex.

The infrastructure area at the Moolarben Coal Complex comprises the CHPP, coal stockpiles and train load-out facility approved under the Stage 1 Project Approval (05_0117) (Figure 1-3). All ROM coal from Stage 1 and Stage 2 mining operations is handled, processed and loaded to trains using Stage 1 infrastructure. ROM coal from the Project would also be handled, processed and loaded to trains using the existing Stage 1 infrastructure (subject to a separate modification).

As an operating coal mine producing predominantly export quality thermal coal, MCO has long-standing international customer relationships and existing sale agreements in place. MCO would leverage these existing relationships and sale agreements to sell coal produced from the Project.

Access to Project areas would be via the same roads as the existing Moolarben Coal Complex, meaning there would be no additional requirement to interact with the public road network.

The existing open cut workforce would be employed for the Project. Mining of the Project area would follow the completion of the approved OC3 operations and therefore this workforce (and mining fleet) would be employed in the Project area. The Project would provide continuity and security of employment by extending the duration of employment for existing open cut workforce. At the same time, there would be no additional demand for community services and infrastructure in the region.

2.2 LOCAL CONTEXT

The Project has been designed to avoid or minimise potential impacts to key natural features in the local area (i.e. setbacks from major drainage lines and avoidance of mapped rocky habitat for key threatened species, as far as practicable).

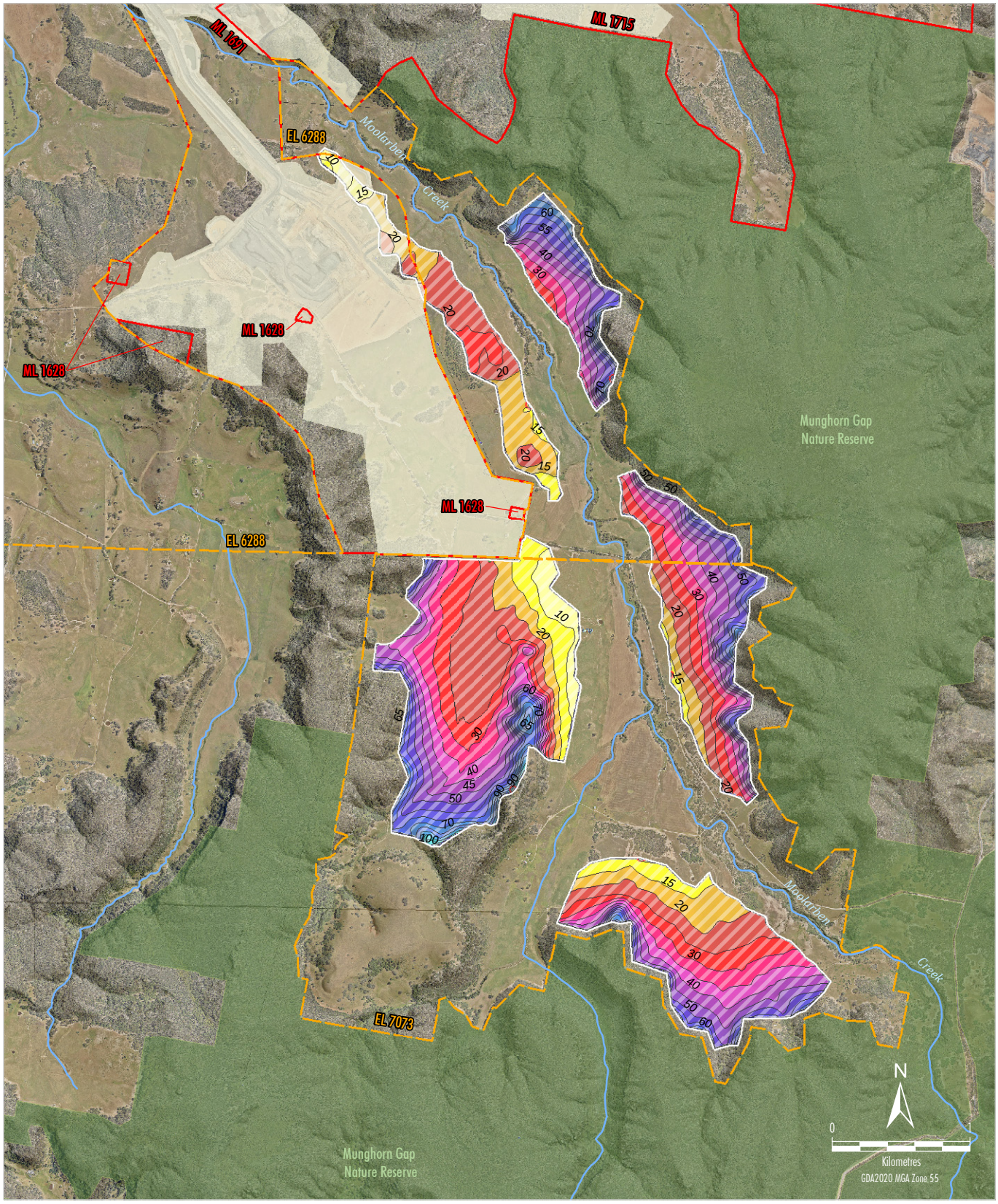
The following section describes strategically relevant features of the local area surrounding the Project, which have been considered when designing and assessing the Project.

2.2.1 Natural and Built Features

The key natural features in the local vicinity of the Project area are the Munghorn Gap Nature Reserve and the Goulburn River National Park, neither of which would be directly impacted by the Project. There are no significant built (i.e. non mine-owned) features or infrastructure within the local vicinity of the Project area.

The Munghorn Gap Nature Reserve is located to the immediate east, south and south-west of the Project, and is used for recreational purposes such as birdwatching, bush walking, picnicking and scenic views of the sandstone pagoda features (Figure 1-3). However, publicly-accessible areas within the Munghorn Gap Nature Reserve are not within view of the Project area due to the intervening natural topography and vegetation.

The closest publicly-accessible recreational area within the Munghorn Gap Nature Reserve is the Moolarben Picnic Area, located approximately 1 km south of the Project and separated from the Project area by intervening topography and dense vegetation. Public walking trails within the Munghorn Gap Nature Reserve are located further from the Project than the Moolarben Picnic Area.



MCM-20-18 OC3 Extension EIS Sect2_2030

LEGEND

- National Park/Nature Reserve
- Exploration Licence Boundary
- Mining Lease Boundary
- Moolarben Coal Complex Disturbance Footprint
- OC3 Extension Project
- Indicative Open Cut Pit Extent

Depth to Base of Ulan Coal Seam (metres)

- 100 m
- 75 m
- 50 m
- 25 m
- 0 m

Source: MCO (2022); NSW Spatial Services (2021)
Orthophoto: MCO (Jan 2021)

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Depth to Base of Ulan Coal Seam

Figure 2-2

The Goulburn River National Park is located approximately 7 km to the north-east of the Project, and comprises hiking trails, camping, natural features, wildlife and cultural heritage values (Figure 1-3).

The relevant subsections of Section 6 consider key risks to protected land as identified in *Developments adjacent to National Parks and Wildlife Service lands: Guidelines for consent and planning authorities* (National Parks and Wildlife Services [NPWS], 2020).

Consideration of Other Potential Environmentally Sensitive Areas of State Significance

An investigation of environmentally sensitive areas of State significance[1] has identified that none of the following areas occur within the Development Application area:

- Coastal waters of the State.
- Lands identified as 'coastal wetlands' or 'littoral rainforest' within the meaning of Chapter 2 (Coastal Management) of the *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP).
- Lands reserved as an aquatic reserve under the *Fisheries Management Act 1994* (FM Act), or as a marine park under the *Marine Parks Act 1997*.
- Lands within a wetland of international importance under the Ramsar Convention or lands within a World Heritage area under the World Heritage Convention.
- Lands identified in an Environmental Planning Instrument (EPI) as being of high Aboriginal cultural significance or high biodiversity significance.
- Lands reserved as a State conservation area under the *National Parks and Wildlife Act 1974* (NPW Act).
- Land, places, buildings or structures listed on the State Heritage Register under the *Heritage Act 1977*.
- Land reserved or dedicated under the *Crown Land Management Act 2016* for the preservation of flora, fauna, geological formations or for other environmental protection purposes.
- Lands identified as critical habitat under the BC Act or FM Act.

2.2.2 Land Use

The Project is an extension to existing mining operations, near existing processing and transport infrastructure, and would be located within an existing mining precinct.

The most prevalent land uses in the area surrounding the Project are mining, low-intensity agriculture and conservation.

The Project is an extension of the existing Moolarben Coal Complex and is located within an existing mining precinct along with the Wilpinjong Coal Mine (immediately east) and Ulan Mine Complex (immediately north) (Figure 1-2).

Freehold land in the immediate vicinity of the Project area is largely owned by Moolarben, with a small number of Crown Land parcels (Section 1.3.3).

Land use other than mining in the area surrounding the Project includes agricultural enterprises (grazing and dryland cropping), commercial, industrial and residential areas of Ulan, rural residential areas of Cooks Gap and Cooyal, and conservation areas (Munghorn Gap Nature Reserve and Goulburn River National Park).

The Project would be consistent with surrounding land uses, as the local area is an existing mining precinct including the existing Moolarben Coal Complex, which has been operating concurrently with surrounding land uses since 2010.

2.2.3 Local Community

The nearest private residence to the Project area is 2.5 km to the south of the indicative surface disturbance extent. All private residences are separated from the Project area by significant natural topography, limiting potential amenity impacts.

[1] As defined in Chapter 2 (State and Regional Development) of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

Table 2-1 and the subsections below summarise key information on the localities in the vicinity of the Project.

Table 2-1
Localities in the Vicinity of the Project

Locality	Location (relative to the Project)	Approximate Population[1]
Moolarben	-	10
Cooyal	2.5 km south	137
Cooks Gap	5 km west	549
Ulan	6 km north	81

[1] Source: Australian Bureau of Statistics (ABS) (2022).

Moolarben

The Project and Development Application area sit within Moolarben. There are no private residences within this locality.

Cooyal

Cooyal predominantly comprises large lot residential properties, as well as primary production land (Mid-Western Regional Council, 2019). The locality has a community hall and a hotel with accommodation.

The private residence closest to the Project in Cooyal is approximately 2.5 km from the indicative surface disturbance extent. However, Cooyal properties are physically separated from the Project area by the intervening elevated topography of the Munghorn Gap Nature Reserve.

Cooks Gap

Cooks Gap comprises predominantly privately-owned large lot residential properties (Mid-Western Regional Council, 2019). Community amenities are limited in Cooks Gap except for a community hall and Rural Fire Service facility.

Cooks Gap is approximately 5 km from the boundary of the Project area. Mining operations for the Project would be a greater distance from Cooks Gap than the existing Moolarben Coal Complex, and would progressively move further away towards the east and south-east.

Ulan

The locality of Ulan includes large lot rural residential land parcels as well as the Ulan Village, which provides some amenities, including a small primary school (in temporary closure), hotel and accommodation for mine workers at the Ulan Village Green.

Most properties within and around Ulan are owned by mining companies or are Council/Crown Land. A small number of properties in Ulan and to the west and south of the village are privately-owned (approximately nine properties), and are all isolated from the Project by intervening topography and the existing Moolarben Coal Complex.

Ulan is located approximately 6 km from the boundary of the Project. The Project would be significantly further away from Ulan Village than the existing Moolarben Coal Complex operations.

2.2.4 Population Centres

The nearest urban locality is the town of Gulgong (Figure 1-1). It is located approximately 20 km to the west of the site with an estimated population of approximately 2,700 residents in 2021 (ABS, 2022).

The town of Mudgee is located approximately 40 km south-west of the Project area with a population of approximately 12,600 residents in 2021 (ABS, 2022) and is the major centre of the Mid-Western Regional Local Government Area (LGA) (Figure 1-1).

Potential amenity impacts to nearby population centres would be negligible given their larger distance from the Project area. No significant adverse social or economic impacts are expected for these areas given the Project is an extension of existing operations with no increase to peak employment numbers or mine life of the approved Moolarben Coal Complex.

2.2.5 Cumulative Impacts

Potential interactions between the Project and other existing and proposed major developments have been considered, including other nearby mining projects, renewable energy projects and electricity transmission lines (ETLs).

Key proposed or approved projects in the area that may potentially interact with the Project include:

- the existing approved Moolarben Coal Complex;
- Ulan Mine Complex, operated by Ulan Coal Mines Limited (UCML);
- Wilpinjong Coal Mine, operated by Wilpinjong Coal Pty Ltd (WCPL);
- Bowdens Silver Project, a proposed silver, lead and zinc mine approximately 25 km south of the Project (currently under assessment); and

- a number of solar and wind renewable energy projects in the wider region associated with the Central West Orana Renewable Energy Zone.

Figure 1-2 shows the locations of relevant existing and proposed mining developments, while Table 2-2 below gives a summary comparison between the operational mining developments and the Project.

Further consideration of potential cumulative interactions between the Project and other proposed or approved projects is included in Section 6 as well as the relevant environmental studies conducted for the Project EIS.

Existing Moolarben Coal Complex

The Project would result in additional ROM coal extraction and extension of employment of existing open cut workforce. However, there would be no cumulative change to annual ROM coal mining rate, product coal production rate, rail movements, approved mine life or peak employment for the Moolarben Coal Complex as a result of the Project.

In addition, the Project would have no direct interaction with the public road network as employees and deliveries would access the Project area via the existing Moolarben Coal Complex site access. As above, no cumulative change to peak vehicle movements to and from the Moolarben Coal Complex would occur as a result of the Project.

Other Regional Operations

A number of other mines are located in the Central West region. Potential interactions with these mines are typically limited to shared use of the Sandy Hollow-Gulgong Railway, shared use of supporting contractors, contributions to regional background air quality and traffic movements, and socio-economic effects on the area (e.g. support industries based in Mudgee and other population centres in the region).

Renewable Energy Projects

There are a number of renewables projects associated with the Central West Orana Renewable Energy Zone that are either operational, approved but yet to be constructed, or under assessment, including the following:

- Ulan Solar Farm (10 km north-west).
- Stubbo Solar Farm (20 km north-west).
- Wollar Solar Farm (27 km south-east).
- Beryl Solar Farm (30 km west).
- Barneys Reef Wind Farm (30 km north-west).
- Tallawang Solar Farm (30 km north-west).
- Burrundulla Solar Farm (30 km south-west).
- Birriwa Solar Farm (35 km north-west).
- Dunedoo Solar Farm (50 km north-west).
- Uungula Wind Farm (50 km west).
- Valley of the Winds Wind Farm (55 km north-west).
- Liverpool Range Wind Farm (60 km north).

The nearest renewables project (Ulan Solar Farm) is approximately 10 km north-west of the Project.

An EIS for the Valley of the Winds Wind Farm underwent public exhibition from May to June 2022, and proposed to develop the Wind Farm approximately 55 km north-west of the Project. The EIS includes a potential ETL corridor to connect to the Wollar substation which would intersect with the existing Moolarben Coal Complex, but would not intersect the Project area.

Table 2-2
Comparison of Coal Mining Projects in the Local Area

Project	Location (relative to the Project)	Final Year of Approved Mining Operation	Maximum ROM Coal Rate (Mtpa)	Mine Type
Moolarben Coal Complex	Adjacent, north-west	2038	24[#]	Open Cut & Underground
Ulan Mine Complex*	8 km north	2033	20	Underground
Wilpinjong Coal Mine	2 km east	2033	16	Open Cut
The Project	**-**	**2034**	**9[#]**	**Open Cut**

[#] The Moolarben Coal Complex ROM coal rate is a combination of Stage 1 and Stage 2 operations, which would incorporate the Project ROM coal rate if approved.

* It is noted that SEARs have been issued for a proposed modification to the Ulan Mine Complex. No detail on the scope of the modification was available at the time of preparation of this EIS and therefore has not been considered further.

SEARs have been issued for a proposed State Significant Infrastructure upgrade of the existing Wollar substation to support existing and proposed renewable developments within the Central West Orana Renewable Energy Zone.

SEARs have also been issued for a proposed State Significant Infrastructure development of a high voltage ETL to support existing and proposed renewable development within the Central West Orana Renewable Energy Zone. The Project Study Area for the proposed ETL corridor does not interact with the Project area.

Minimal overlap in development requirements and operational activities between the Project and relevant renewables projects and electricity transmission upgrades suggests that the potential for significant cumulative impacts is limited. Notwithstanding, any potentially relevant interactions with environmental matters for these projects (e.g. social, road transport) have been considered in the relevant subsections of Section 6.

2.3 REGIONAL CONTEXT

The Project is considered to align with the aims of the relevant regional planning documentation, including the Mid-Western Regional Local Environmental Plan aim to properly develop the region's resources while protecting, enhancing and conserving key natural resources and agricultural land.

Mining is a significant industry in the Mid-Western Regional LGA, which is reflected in strategic planning statements and policies for the region. The Project would responsibly develop resources within the LGA while minimising potential impacts to surrounding areas.

The Mid-Western Regional LGA is located in the north-eastern section of the NSW Central Tablelands (Figure 1-1).

Approximately 14 percent (%) of workers in the Mid-Western Regional LGA were employed in coal mining in 2016 (compared to 0.6% of workers in NSW) (ABS, 2017).

As an industry, mining contributes almost half of the Mid-Western Regional LGA's economic output each year, with the annual value of goods and services production from mining estimated at $2,437 million (M) in 2021 (Mid-Western Regional Council, 2021).

The Project would allow for the continuation of existing benefits, including economic contribution through mining and extension of employment in the region.

The following sections summarise how the Project would fit into the significant existing mining industry of the Mid-Western Regional LGA, including within the framework of existing regional planning instruments.

2.3.1 Mid-Western Regional Local Environmental Plan 2012

The Mid-Western Regional LGA is subject to the *Mid-Western Regional Local Environmental Plan 2012* (Mid-Western Regional LEP). Clause 1.2 of the Mid-Western Regional LEP outlines the general aims of the plan. The particular aims relevant to the Project include:

> *(b) to encourage the proper management, development and conservation of resources within Mid-Western Regional by protecting, enhancing and conserving:*
>
> *(i) land of significance to agricultural production, and*
>
> *(ii) soil, water, minerals and other natural resources, and*
>
> *(iii) native plants and animals, and*
>
> *(iv) places and buildings of heritage significance, and*
>
> *(v) scenic values,*
>
> *(c) to provide a secure future for agriculture through the protection of agricultural land capability and by maximising opportunities for sustainable rural and primary production pursuits,*
>
> *(d) to foster a sustainable and vibrant economy that supports and celebrates the Mid-Western Regional's rural, natural and heritage attributes,*
>
> *…*
>
> *(g) to promote development that minimises the impact of salinity on infrastructure, buildings and the landscape.*

The Project is generally consistent with the aims of the Mid-Western Regional LEP, as per the following:

- Development would be undertaken in a manner that minimises potential impacts to rural and agricultural land, as well as natural resources such as soil and water (Sections 6.3, 6.4 and 6.13).

- Potential impacts to places of Aboriginal and non-Aboriginal heritage significance would be minimised (Sections 6.11 and 6.12).
- Potential impacts on native threatened species, populations and ecological communities have been considered, and the requirement for a biodiversity offset strategy has been determined (Section 6.5).
- Mining operations and nearby agricultural enterprises have co-existed since the commencement of operations at the Moolarben Coal Complex, and this would continue for the Project.
- Mine landforms would be progressively rehabilitated and include areas of grassland, and would therefore potentially be available for agriculture post-mining (Section 3.16).
- The Project would facilitate extension of employment for existing workforce as well as additional expenditure in the region (Sections 3.15 and 6.15).
- Erosion and sediment control measures would be incorporated to mitigate impacts on downstream watercourses (Sections 3.10 and 3.11).

Further discussion on the Mid-Western Regional LEP, including permissibility and special provisions, is provided in Attachment 7.

2.3.2 Mid-Western Regional Comprehensive Land Use Strategy

The *Mid-Western Regional Comprehensive Land Use Strategy* (LUS) was developed to identify environmental, social and economic opportunities and constraints for land in the LGA leading up to 2031 (Mid-Western Regional Council, 2017). The LUS is intended to be used as a basis for development of a future updated Mid-Western Regional LEP.

The LUS identifies mining as a key driver of employment growth in the region, and details the following:

> *Mining is a major employer and contributor to the local, regional and State economy. There is also potential for future mining and extractive industries within and nearby the local government area.*

The LUS lists a series of economic, environmental and social objectives for the Mid-Western Regional LGA, including the following most relevant to the Project:

- *ensure that existing industrial development (including mining and extractive industries) is allowed to prosper and grow*
- *to promote the conservation of agricultural land for primary production purposes*
- *promote and encourage the establishment of new business and industry by providing adequate land for future employment requirements*
- *promote the conservation and enhancement of ecological integrity of the local government area*
- *ensure that development does not impact on water quality and strives to improve the water quality of the surrounding waterways*
- *promote development that does not impact on air quality for the residents and visitors*
- *protect and manage heritage resources within the local government area*
- *preserve and protect the existing character of the urban and rural areas*

The Project would be consistent with the LUS as a result of the following characteristics:

- Extension of existing established mining development.
- Located on existing mining tenements (therefore not limiting available land for other development).
- Progressive rehabilitation including areas available for grazing and other future potential agricultural uses.
- No significant direct impact to protected conservation lands.
- Setback of mining areas from major drainage lines (4th order and above) to protect water resources and quality.
- Isolation from private residences by the surrounding topography, limiting amenity impacts.

Further discussion on the LUS is provided in Attachment 6.

2.3.3 Upper Hunter Strategic Regional Land Use Plan

The *Upper Hunter Strategic Regional Land Use Plan* (Upper Hunter SRLUP) covers the Upper Hunter Region, as well as the Bylong-Wollar-Ulan Corridor including the Project area (NSW Government, 2012b). The Project would not intersect any Critical Industry Clusters (CICs) or Biophysical Strategic Agricultural Land (BSAL) as identified in the Upper Hunter SRLUP.

The Upper Hunter SRLUP outlines strategies to address sustainable management of agricultural land and natural resources. It is noted that the Upper Hunter SRLUP has been recommended for review in the *Hunter Regional Plan 2036* (NSW Government, 2016a).

With regard to economic development and employment, the Upper Hunter SRLUP acknowledges the ongoing contribution of mining to the region:

> *The scale of coal mining in the region is significant on a national scale with the coal mining industry making a major contribution to both the state and national economies.*

The approved Moolarben Coal Complex provides existing benefits to the Upper Hunter region and there would be incremental benefits as a result of the Project.

The Upper Hunter SRLUP includes a Strategic Agricultural Land (SAL) Map that identifies BSAL and CICs. The Project area is within the boundaries of the SAL Map.

Under clause 30 of the EP&A Regulation, any Development Application relating to "mining and petroleum development"[2] on land shown on the SAL Map is required to include a Gateway Certificate or Site Verification Certificate (SVC).

An SVC was issued by the Secretary in October 2022 verifying that the Project Development Application area is not located on BSAL.

It is noted that there is no similar certification requirement for CICs.

2.3.4 Other Strategic Planning Documents

Consideration of the following additional strategic planning documents is provided in Attachment 6:

- The *Central West and Orana Regional Plan 2036* (NSW Government, 2017).
- The *Mid-Western Regional Local Strategic Planning Statement – Our Place 2040* (Mid-Western Regional Council, 2020).
- The *Mid-Western Region Community Plan-Towards 2040* (Mid-Western Regional Council, 2022).

2.3.5 Third-party Agreements

MCO has an existing Voluntary Planning Agreement with the Mid-Western Regional Council for the approved life of the Moolarben Coal Complex (i.e. until 31 December 2038) in accordance with the Stage 1 Project Approval (05_0117) and Stage 2 Project Approval (08_0135).

Due to the nature of the Project (i.e. no change to the approved mine life and peak production rate of the Moolarben Coal Complex) it is not considered that there would be any increased demand for local infrastructure.

Notwithstanding, MCO and the Mid-Western Regional Council have agreed to a new Community Contribution for the Project. This contribution would be in addition to existing and ongoing contributions under the Stage 1 and Stage 2 Project Approvals.

Along with the proponents of the Ulan Mine Complex and Wilpinjong Coal Mine, MCO would continue to contribute financially to the implementation of the Ulan Road Strategy in accordance with the Stage 1 and Stage 2 Project Approvals (05_0117 and 08_0135, respectively).

MCO also makes financial contributions to non-Government and community organisations in the region through its Community Support Program. During 2021, MCO provided over $138,000 to support local community, sporting, cultural, educational and recreational activities, organisations and events. This program would continue for the life of the Moolarben Coal Complex.

[2] As defined in Part 2.4 of the *State Environmental Planning Policy (Resources and Energy) 2021* [Resources and Energy SEPP].

A number of private landholders are afforded acquisition and/or mitigation rights under the existing Moolarben Coal Complex Stage 1 and Stage 2 Project Approvals (05_0117 and 08_0135, respectively) to address predicted air quality and/or noise impacts of the approved operations. MCO has also entered into agreements with landholders to implement noise attenuation works. These existing rights/agreements would continue to have effect and would not be affected by the Project.

Noise and air quality modelling and impact assessment undertaken for the Project have not identified any additional private landholders that would require acquisition and/or mitigation rights due to predicted noise or air quality impacts (Sections 6.7, 6.8 and 6.9).

2.4 STATE CONTEXT

The following section describes key NSW Government policy and advice relevant to mining developments in NSW, and outlines how the Project represents a mining proposal that aligns with the objectives of the policy.

2.4.1 Strategic Statement on Coal Exploration and Mining in NSW

In 2020, the NSW Government released the Statement, describing planned areas of action for a responsible long-term transition to low carbon energy sources.

The Statement recognises the importance of coal production to NSW, including how regional NSW communities depend on the industry, which provides more than 110,000 direct and indirect jobs in the State as well as royalties (approximately $2 billion [B] in 2018-2019) that are used to fund public services and infrastructure (NSW Government, 2020a).

A balanced approach is described in the Statement, setting a clear and consistent policy framework that supports investment certainty while giving coal-reliant communities time to adapt to a global transition to low carbon energy sources.

The Statement describes the NSW Government's four areas for action within the coal sector, as follows:

1. *Improving certainty about where coal mining should not occur.*
2. *Supporting responsible coal production in areas deemed suitable for mining.*
3. *Addressing community concerns about the impacts of coal mining.*
4. *Supporting diversification of coal-reliant regional economies to assist with the phase-out of thermal coal mining.*

In support of the first action area, the Statement is accompanied by a map identifying areas that have been ruled out for further coal mining. The Project area is not located within areas marked on the map as "coal mining prohibited", or where open cut coal mining is not supported.

As part of the second action area, the Statement details that the NSW Government would recognise existing industry investment by streamlining the application process for areas adjacent to current mining operations. A key component of the third action area is facilitating beneficial uses of coal mining land once mining has ended, while the fourth action area acknowledges that some regions would see increased coal production in the short to medium term.

In consideration of the above, and of the Statement as a whole, the following details how the Project would be consistent with the NSW Government's goals and areas of action:

- The Moolarben Coal Complex has been operating since 2010 and the Project would realise additional coal extraction within existing mining and exploration tenements immediately adjacent to the existing operations.
- The Project would support the ongoing financial sustainability of the Moolarben Coal Complex through the use of existing infrastructure and mobile equipment as well as utilising existing open cut workforce.
- The Project would be developed in a manner that is responsible and considers the benefits and consequences of the development for other land uses, including coexistence with the adjacent Munghorn Gap Nature Reserve and surrounding agricultural land.
- The Project decision-making process would be informed by public involvement and participation through the Project EIS consultation program (Section 5), public exhibition of the EIS document, and assessment of the Project in accordance with the EP&A Act.
- The Moolarben Valley would be rehabilitated to a safe, stable final landform with no final voids, maximising the land available for beneficial post-mining land uses.

- Waste rock from the Project would be used to backfill the approved OC3 final void (i.e. the Project would reduce the number of voids in the Moolarben Valley from one to zero), creating an improved and integrated final landform.
- The Project would incorporate comprehensive mitigation, monitoring and adaptive management measures (Section 6).
- The Project would result in the following benefits for the local area, the State of NSW and for the national economy:
  - extension of employment of existing open cut workforce, and other expenditure-induced indirect jobs;
  - support for local and regional business, including construction-related capital expenditure and substantial ongoing operating expenditure;
  - Commonwealth tax contributions;
  - contributions to local government for community infrastructure and services; and
  - payment of royalties and taxes to the NSW Government over the life of the Project.

2.4.2 Net Zero Plan Stage 1: 2020-2030

Due to the generally low depth of cover to the resource, optimised mine planning and low in-situ gas content of the target coal seam, the Project has a relatively low Scope 1 emissions intensity.

The *Net Zero Plan Stage 1: 2020-2030* (NSW Government, 2020b) (the Net Zero Plan) provides the foundational framework for NSW to reach net zero emissions by 2050. The *Net Zero Plan Stage 1: 2020–2030 Implementation Update* was released in September 2021 (NSW Government, 2021), and included the following key statement:

> *NSW Government policy is that the NSW Government's objective set out in this Plan, to reduce emissions by 50% below 2005 levels by 2030, is not to be considered in the assessment or determination of development and infrastructure applications under the Environmental Planning and Assessment Act 1979.*

Notwithstanding the above, the Project is estimated to have a relatively low Scope 1 emissions intensity compared to other NSW mining operations including a very low fugitive emissions intensity (for both methane and carbon dioxide [CO_2]) from open cut mining due to the shallow depth of cover and low in-situ gas content of the target coal seam (Appendix J).

It should be noted the Project represents an extension of open cut operations of the Moolarben Coal Complex. Accordingly, the Moolarben Coal Complex is regulated as a single facility under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and the Safeguard Mechanism, and is operated in accordance with a calculated emissions baseline.

Greenhouse gas emissions from the Moolarben Coal Complex are currently measured and reported annually as a single facility in accordance with the NGER Act, which would incorporate the Project.

2.4.3 NSW Aquifer Interference Policy

The Project would setback 200 m from the major drainage lines (4th order and above) in the Moolarben Valley in consideration of the "minimal impact" criterion of the *NSW Aquifer Interference Policy*.

The AIP applies State-wide, and details water licence and impact assessment required under the *Water Management Act 2000*. In addition to licensing requirements, the *Water Management Act 2000* includes the concept of "no more than minimal harm".

The AIP includes thresholds for minimal impact to alluvial water sources. Relevantly, minimal impact considerations for water quality include:

> *No mining activity to be below the natural ground surface within 200m laterally from the top of high bank or 100m vertically beneath (or the three dimensional extent of the alluvial water source - whichever is the lesser distance) of a highly connected surface water source that is defined as a "reliable water supply".*

Under the Upper Hunter SRLUP (Section 2.3.3), the definition of a "reliable water supply" includes 5th order and higher rivers[3], such as Moolarben Creek. The Project would avoid open cut mining within a 200 m area of Moolarben Creek, as well as conservatively apply the same setback to Murdering Creek (a 4th order stream).

[3] "Order" refers to the stream order under the Strahler system (NSW Government, 2022).

By restricting mining activities for the Project to outside the 200 m setback threshold, and maintaining consistency with other relevant requirements, the Project would meet the criteria for minimal impact as detailed in the AIP.

2.5 NATIONAL CONTEXT

It is recognised that the Project is significant on a national level due to the potential economic contribution, as well as the determination of the Project as a Controlled Action under the EPBC Act.

The following section details the policy framework applicable to nationally-relevant development, and how that context pertains to the Project.

2.5.1 National Strategy for Ecologically Sustainable Development

In recognition of the importance of sustainable development, the Commonwealth Government developed a *National Strategy for Ecologically Sustainable Development* (NSESD) (Commonwealth of Australia, 1992) that defines ESD as:

> *using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

The NSESD was developed with the following core objectives:

- *to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;*
- *to provide for equity within and between generations; and*
- *to protect biological diversity and maintain essential processes and life support systems.*

Accordingly, Project design, planning and assessment has been carried out applying the principles of ESD, through:

- responsible development of resources, enhancing community welfare and economic development;
- safeguarding intergenerational equity during the transition to low carbon energy sources (e.g. if the Project were not to proceed, future generations would not receive the socio-economic benefits as a result of the Project, which are likely to accrue beyond 2035);
- minimisation of impacts resulting from capital development through efficient use of existing infrastructure;
- avoidance and mitigation of impacts to biological systems via stream setbacks and habitat clearing constraints;
- incorporation of risk assessment and analysis at various stages in the Project design and environmental assessment and within decision-making processes;
- adoption of high standards for environmental and occupational health and safety performance; and
- consultation with regulatory and community stakeholders.

Further detail on how the principles of ESD have been considered in development of the Project is provided in Section 7.

2.5.2 National Greenhouse Gas Emissions

The potential impacts of greenhouse gas emissions from all Australian sources are collectively managed at a national level, through initiatives implemented by the Commonwealth Government (as a party to the *Paris Agreement* detailed further in Section 2.6.1).

The Commonwealth Government has committed to reducing greenhouse gas emissions by 43% below 2005 levels by 2030, as well as achieving net zero emissions by 2050 (Commonwealth of Australia, 2022a). In July 2022, the *Climate Change Bill 2022* was presented to the Australian Federal Parliament, aiming to set Australia's emissions targets in legislation (Commonwealth of Australia, 2022b).

The NGER Act is a national framework for reporting greenhouse gas emissions, energy production and energy consumption by corporations. The data reported under the NGER Act is used by the Commonwealth Government in compiling Australia's national greenhouse gas emissions inventory to meet its international reporting obligations.

MCO would continue to comply with its obligation to report energy consumption/production and Scope 1 and 2 greenhouse gas emissions for the Moolarben Coal Complex, including the Project, in accordance with the NGER Act.

The predicted contributions of Project greenhouse gas emissions to national and international emissions are detailed in Section 6 and Appendix J.

2.6 INTERNATIONAL CONTEXT

The main international consideration for the Project is the balance between a long-term global response to climate change and the short- to medium-term demand for affordable and reliable baseload electricity generation from thermal coal.

Over the life of the Project, the international demand for thermal coal is expected to remain steady, partly due to developing countries seeking to provide their communities with access to electricity to support economic growth and improve the quality of life (NSW Government, 2020a).

The Project presents an opportunity to provide thermal coal to existing customers and meet energy demands while alternative energy sources become more available globally.

Yancoal recognises that the transition to a lower carbon economy is a significant global challenge, and that the Australian coal mining industry has a key role to play in this energy transition by continuing to supply coal, which has a lower emissions profile than that of other exporting countries, to ensure universal access to affordable, reliable, and modern energy (Yancoal, 2022a).

Yancoal also recognises that energy production associated with the consumption of traditional fossil fuel energy sources contributes to global warming through the release of greenhouse gas emissions, and it therefore has an important role to proactively manage the direct (Scope 1) and indirect (Scope 2) emissions and energy intensity of its operations, and to support research into technologies that will reduce greenhouse gas emissions from the downstream consumption of its products (Scope 3) (Yancoal, 2022a).

2.6.1 Paris Agreement

The international framework addressing greenhouse gas emissions, and the global response to climate change, commenced with adoption of the UNFCCC in 1992.

The *Paris Agreement,* a legally binding international treaty on Climate Change under the UNFCCC to which Australia is a party, entered into force on 4 November 2016. The goal of the *Paris Agreement* is to limit the increase in global temperature to 2 degrees Celsius (°C) (when compared to pre-industrial temperatures).

The Intergovernmental Panel on Climate Change (2018) report *Global Warming of 1.5°C* details that all modelling scenarios resulting in no or limited overshoot of 1.5°C rise could only be achieved when anthropogenic CO_2 emissions reached global net zero around the year 2050.

Currently, there are no international agreements or policies in place requiring any country to achieve net zero emissions by 2050, however, in March 2022 the United Nations Secretary-General launched the High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities (the Expert Group) (United Nations, 2022). The Expert Group is expected to make recommendations before the end of 2022.

The Project is a continuation of existing operations at the Moolarben Coal Complex, which has existing sale agreements with customers in countries subject to the requirements of the *Paris Agreement* (or with domestic policies consistent with the *Paris Agreement*).

2.6.2 Demand for Thermal Coal

The NSW Government estimates that approximately 85% of coal mined in NSW is exported internationally, and used for electricity generation. It is estimated that global demand for seaborne thermal coal would increase to over 950 Mt leading up to 2030, at which point demand would begin to steadily decline (NSW Government, 2020a). By comparison, total NSW exports in 2021 was 164 Mt of coal (NSW Mining, 2022).

Under the scenario of a reduced export regime from NSW, most coal consumers would be likely to source their coal from elsewhere, and much of this coal would be lower quality compared to NSW coal (NSW Government, 2020a). Lower quality coal requires the consumption of more fuel to produce equivalent energy, increasing overall environmental impacts.

This is supported by recent statements from Australian Prime Minister Anthony Albanese (Australian Broadcasting Corporation, 2022):

> *If Australia today said we are not going to export any more coal, what you'd see is a lot of jobs lost, you would see a significant loss to our economy, significantly less taxation revenue for education, health and other services, and that coal wouldn't lead to a reduction in global emissions, what you would see is a replacement with coal from other countries that's likely to produce higher emissions because of the quality of our product.*

The Moolarben Coal Complex is an operating thermal coal mine with long-standing international customer relationships and existing sale agreements for thermal coal exports.

MCO has existing customers, and the Project would allow MCO to continue to meet global demand for thermal coal in the short- to medium-term.

Yancoal's 2021 Environmental, Social and Governance (ESG) Report, commits to the following:

- Continue to calculate, track and report Scope 1 and Scope 2 emissions through the NGER Act.
- Identify and manage climate-related risks and opportunities, recognising that they may impact its people, infrastructure and value chains, and customers and markets.
- Monitor relevant policy, market, technology and financial signals and signposts to inform how Yancoal's investment and development priorities should adapt to transitions in the global energy mix.
- Provide annual disclosures in line with the Taskforce for Climate-Related Financial Disclosures recommendations in Yancoal's annual ESG Report.
- Strongly support innovation and investment in Carbon Capture, Utilisation and Storage through various industry and policy initiatives, to work towards the commitments outlined in the *Paris Agreement*.
- Take a constructive role in public policy development and participation in relevant industry associations, guided by Yancoal's recognition of the aims of the *Paris Agreement*.

2.7 CONSIDERATION OF ALTERNATIVES

Clause 192(1)(c) of the EP&A Regulation requires that an EIS must include:

> *(c) an analysis of feasible alternatives to the carrying out of the development, activity or infrastructure, considering its objectives, including the consequences of not carrying out the development, activity or infrastructure*

In addition, the *State Significant Development Guidelines* (DPIE, 2021a) and SEARs for the Project require consideration of feasible alternatives.

The key feasible alternatives to the Project that were considered and not adopted were as follows:

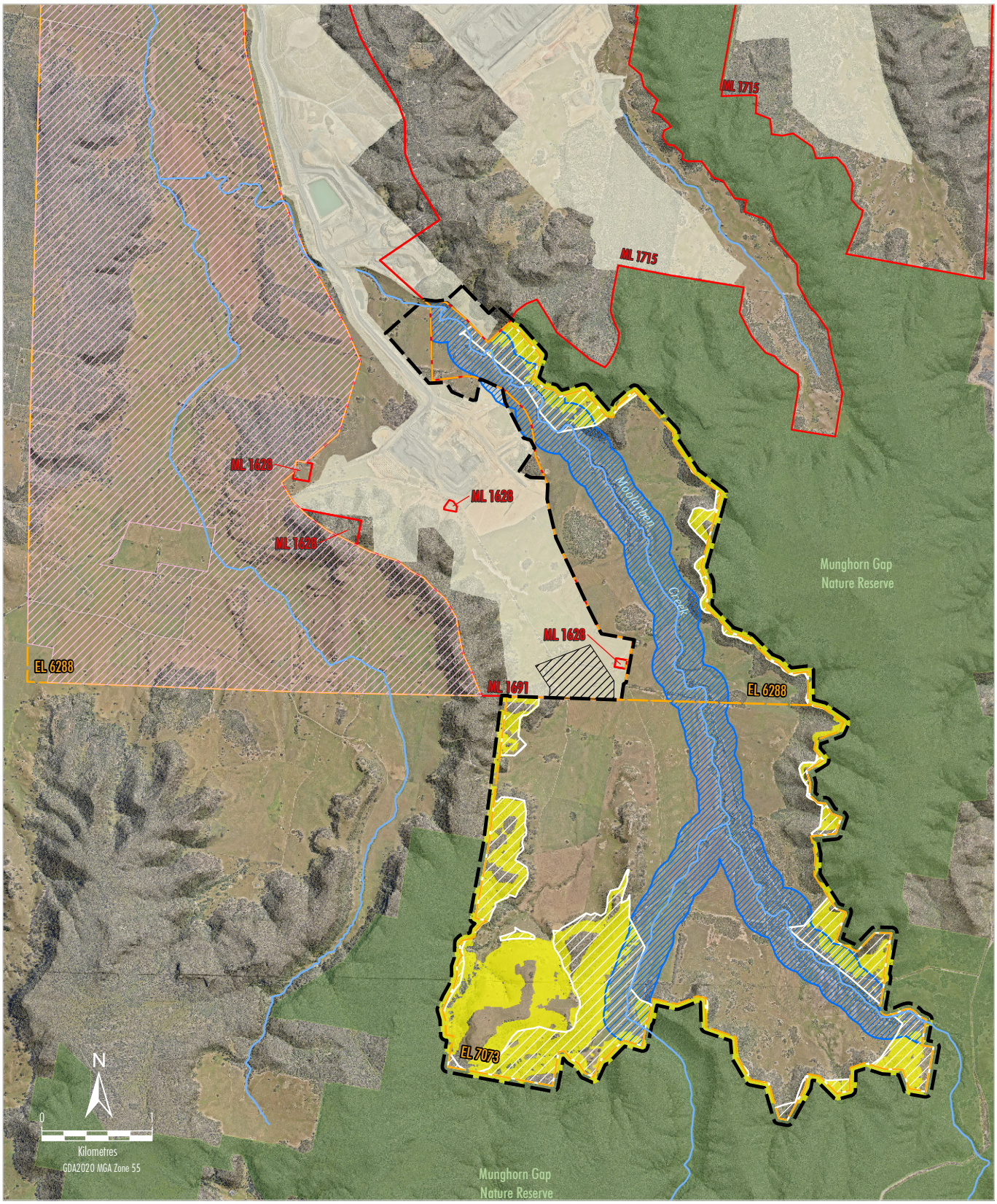
- Not proceeding with the Project (and associated consequences).
- Alternative open cut mining locations within MCO mining and exploration tenements outside of the Moolarben Valley.
- Alternatives to the proposed Project mining extent within the Moolarben Valley.
- Alternative mine life, peak mining rate or coal processing and transport infrastructure for the Project.
- Alternatives to the proposed mining method for the Project.
- Alternative final landform.

These are detailed further in the subsections below. Figure 2-3 shows a number of key features within and surrounding the Project area that are relevant to the alternatives considered.

2.7.1 "No Project" Scenario

If the Project did not proceed, while there would be reduced environmental impacts, there would likely be significant adverse socio-economic implications due to the following:

- Stage 1 open cut operations would cease following completion of approved mining, with associated impacts including:
  - sterilisation of approximately 40 Mt of ROM coal targeted by the Project (out of a total of 100 Mt within the Moolarben Valley), currently in high demand internationally for electricity generation;



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LEGEND

- National Park/Nature Reserve
- Exploration Licence Boundary
- Mining Lease Boundary
- Moolarben Coal Complex Disturbance Footprint
- Project Area

Key Project Alternatives

- Approved Final Void Proposed to be Backfilled by Project
- Moolarben-owned Land within Existing Exploration Licence Outside of Moolarben Valley

Key Project Avoidance Features

- No Proposed Open Cut Mining (Ancillary and Supporting Infrastructure Only)
- Indicative Rocky Habitat Avoidance Area
- Indicative Steep Slopes (>10%) to be Avoided by the Project

Source: MCO (2022); NSW Spatial Services (2021)
Orthophoto: MCO (Jan 2021)

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MOOLARBEN COAL COMPLEX

Key Project Alternatives and Avoidance Features

Figure 2-3

  - the approved final void would remain in the OC3 final landform; and
  - potential under-utilisation and inefficient use of existing processing and transport infrastructure at the Moolarben Coal Complex.
- Construction capital expenditure of approximately $140 M would not occur.
- Substantial royalty payments and taxes for the Project would not be generated.
- Social benefits and expenditure with businesses within the Mid-Western Regional LGA related directly to the Project would not be realised.

Additionally, if the Project were not to go ahead it is anticipated that international demand for thermal coal would be met by lower efficiency operations and/or lower quality product, effectively leading to higher overall global impact (Section 2.6.2).

2.7.2 Alternative Open Cut Mining Locations to the Project Outside of the Moolarben Valley

An alternative to the Project was considered where the extent of open cut mining operations included other MCO mining and exploration tenements outside of the Moolarben Valley.

However, mining outside of Moolarben Valley would likely increase amenity impacts to private landholders and residences, and would therefore be inconsistent with the objective to develop the Project within existing amenity criteria.

2.7.3 Alternatives to Project Open Cut Mining Extent Within the Moolarben Valley

Mining Steep Slopes

The Project has been designed to avoid steep slopes and ridgelines around the Project area that are within existing mining tenements and on Moolarben-owned land.

Alternative mine plans considered inclusion of the steeper slopes and ridgelines within the proposed open cut mining extent to maximise resource extraction and provide greater flexibility during mining operations.

MCO determined that open cut mining the steeper slopes within the Project area would affect implementation of a safe and stable final landform and likely require highwalls to remain post-mining. Therefore, this alternative is inconsistent with the Project objective to facilitate an improved final landform and suitable post-mining land uses. Disturbance to habitat value associated with steeper slopes would therefore also be avoided.

Accordingly, a Project alternative that would directly disturb steeper slopes and ridgelines has not been adopted.

Direct Disturbance of Mapped Rocky Habitat

Seeking to extend mining operations within the identified mapped rocky habitat associated with threatened bat species and the Broad-headed Snake (and offsetting any potential impact) would increase the total magnitude of resource available for extraction. However, given that mapped rocky habitat associated with threatened bat species and the Broad-headed Snake is located within steeper slopes, there was an opportunity to avoid all direct disturbance to the mapped rocky habitat and thereby meet the Project objective to avoid key sensitive environmental features within the Moolarben Valley.

Therefore, a Project alternative involving direct disturbance of a significant area of mapped rocky habitat associated with threatened bat species and the Broad-headed Snake has not been adopted.

Disturbance within 200 m of Major Drainage Features

Seeking to extend open cut mining operations within the specified 200 m avoidance area of the major drainage lines (4th order and above) (e.g. decreasing the avoidance area to 100 m) would increase the total resource available for extraction, but would not be consistent with the "minimal impact" criteria under the AIP or the Project objective to avoid sensitive environmental features.

Therefore, a Project alternative involving open cut operations within 200 m of Moolarben Creek and Murdering Creek has not been adopted.

2.7.4 Alternative Mine Life, Peak Mining Rate or Coal Processing and Transport Infrastructure for the Project

Mine Life

An alternative Project mining schedule was considered which would have extended the approved life of the Moolarben Coal Complex (i.e. beyond 2038). However, implementation of Project avoidance measures (steep slopes, mapped rocky habitat and major drainage features) in the alternatives described above meant that the production schedule did not support an extended mine life.

Construction of New Coal Processing and Transport Facilities

Construction of new infrastructure would require significant capital expenditure and additional surface disturbance, and would also increase the magnitude of operations proposed within the Project area.

On this basis, MCO determined that construction of new coal processing and transport facilities within the Project area would not meet the Project objectives for undertaking a practical and efficient extension to the existing Moolarben Coal Complex, nor for operating within existing amenity criteria and peak coal processing and transport limits.

2.7.5 Alternatives to the Proposed Project Mining Method

Due to the generally very low depth of cover to the resource, underground mining methods are unsuitable for the Project.

2.7.6 Alternative Final Landform

An alternative final landform option for the Project has been considered where a final void or voids remain following completion of mining.

MCO determined that, while a final void would reduce operational costs associated with material rehandling and rehabilitation, in the specific context of the Project it was considered reasonable and feasible to establish a final landform with no final voids, given the generally low depth of cover to the resource.

In consideration of the Project objective to facilitate an improved final landform and suitable post-mining land uses, an alternative final landform leaving final voids in the Moolarben Valley upon completion has not been proposed.

Similarly, MCO determined that it was feasible to backfill the approved OC3 final void as part of the Project, reducing the number of final voids in the Moolarben Valley from one to zero.

Given the Project objective to facilitate an overall improved final landform, a Project alternative that leaves the approved final void in the existing OC3 area or a void within the Project area has not been adopted.

2.7.7 Key Risks and Hazards

Clause 190(2)(a) of the EP&A Regulation requires that the person preparing an EIS for State Significant Development must have regard to the *State Significant Development Guidelines*. Appendix B to the *State Significant Development Guidelines* requires that relevant strategic issues including key risks and hazards are identified.

Key risks and hazards for the Project include flooding along Moolarben Creek, bushfire management, management of contaminated land and final landform stability and safety. These hazards and risks are discussed further in their respective sections.