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STANDING COMMITTEE ON STATE DEVELOPMENT

Beneficial and productive post-mining land use

Report 53

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Beneficial and productive post-mining land use

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Beneficial and productive post-mining land use

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Chair: Hon Emily Suvaal MLC



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Terms of reference

That the Standing Committee on State Development inquire into and report on beneficial and productive post-mining land use, and in particular:

- (a) the benefits of having multiple successive land uses including the positive benefits for local communities and the economy, business, industry, and the broader state
- (b) changes in land use potential and demand in established or traditional mining areas, particularly those generated by the decarbonised economy, renewable technology, manufacturing, defence, skills, and training
- (c) opportunities for investment and growth in training and skills in established or traditional mining areas, including:
 - (i) the need to reskill and or retrain current workforces
 - (ii) the impact and effectiveness of existing and new education, training, and skills providers for mining communities
- (d) opportunities to encourage innovative post-mining land uses including:
 - (i) the planning and implementation of essential supporting infrastructure for future site use
 - (ii) the development of solar farms, pumped hydro, and other clean energy industries
 - (iii) the compatibility of post mining land sites with commercial projects
 - (iv) the potential of unlocking surrounding land for residential dwellings, amenities, environmental and educational facilities
 - (v) potential exploration of former and legacy mining sites with modern mining technology to explore deposits in tailings and closed sites
 - (vi) the development of sites for use for advanced manufacturing, commercial and industrial use
- (e) how to ensure the benefit from innovative post mine land uses are shared between the community and mine operators
- (f) the expectations of mining communities in relation to post-mine land use, and how to balance this with innovative reuse of existing infrastructure
- (g) the need to develop a robust independent regulatory framework to maintain and advance best practice in this area, and
- (h) any other related matters.

The terms of reference for the inquiry were referred to the committee by the Hon Courtney Houssos MLC, Minister for Finance, Minister for Domestic Manufacturing and Government Procurement, Minister for Natural Resources on 3 May 2024 and adopted by the committee on 14 May 2024.

Committee details

Committee members

Hon Emily Suvaal MLC	Australian Labor Party	<i>Chair</i>
Hon Scott Barrett MLC*	The Nationals	<i>Deputy Chair</i>
Ms Abigail Boyd MLC*	The Greens	
Hon Mark Buttigieg MLC	Australian Labor Party	
Hon Scott Farlow MLC	Liberal Party	
Ms Sue Higginson MLC*	The Greens	
Hon Emma Hurst MLC	Animal Justice Party	
Hon Stephen Lawrence MLC	Australian Labor Party	
Hon Peter Primrose MLC	Australian Labor Party	

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* Ms Sue Higginson MLC substituted for Ms Cate Faehrmann MLC from 30 May 2024 for the duration of the inquiry.

* Ms Abigail Boyd MLC is a participating member from 19 July 2024 for the duration of the inquiry.

* The Hon Scott Barrett MLC replaced the Hon Wes Fang MLC as a substantive member of the committee from 18 February 2025. The Hon Wes Fang MLC substituted for Hon Sam Farraway MLC from 1 August 2024 for the duration of the inquiry. The Hon Wes Fang MLC replaced the Hon Sam Farraway MLC as a substantive member of the committee from 11 December 2024.

Secretariat

Jessie Halligan, Principal Council Officer
 Talina Drabsch, Principal Council Officer
 Faith Aghahowa, Administration Officer
 James Ryan, Administration Officer
 Mervé Sarikaya, Graduate Officer
 Alex Stedman, Director

Chair's foreword

As New South Wales moves towards net-zero and global markets shift to low-carbon economies, it is essential that the government and industry leaders address the environmental, social and economic impacts of this change. At the same time, it is important to look ahead, and a strategic, forward-thinking approach is crucial, as mining communities navigate the transition from energy and resources industries to new economic opportunities.

As part of this inquiry, the State Development Committee received 77 submissions, two supplementary submissions and held six public hearings – four in the NSW Parliament and two in the Hunter region. Members also visited current and former mine sites in the Lower and Upper Hunter regions, gaining valuable insight into mine closure challenges and opportunities for land restoration and repurposing. These contributions provided a comprehensive understanding of the realities faced by mining communities and reinforced the need for collaborative and innovative solutions.

As a Hunter-based Member of Parliament, I am committed to ensuring that mining communities continue to thrive. To achieve this, governments at all levels must coordinate efforts to support land uses that help restore the environment and strengthen regional communities.

That said, challenges remain, and community concerns regarding employment and economic stability are valid and must be addressed. The prospect of losing stable, well-paying jobs is difficult, and targeted support is essential to help workers transition into new industries as part of an evolving economy.

Looking ahead, successful outcomes for post-mining will depend on cutting red tape, fostering innovation, encouraging investment, and equipping workers with the education and skills needed for the future. Fortunately, there are lessons to be learned from post-mining experiences across Australia and around the world.

The committee wishes to acknowledge and thank everyone who contributed to the inquiry, including individuals, councils, community groups, unions, peak bodies, mine operators, researchers, and government departments. Their expertise has informed this report and shaped the recommendations aimed at overcoming barriers and ensuring former mine sites serve as foundations for new industries, fostering economic, environmental, and social resilience. The collective commitment and enthusiasm from all stakeholders underscores the importance of strong partnerships and a shared vision.

Finally, I extend my gratitude to my fellow committee members and the committee secretariat for their assistance, dedication, and hard work. Our hope is that this report not only informs the NSW Government, but also inspires proactive action towards a sustainable and prosperous future for our mining regions – ensuring they remain vibrant for generations to come.

Recommendations

Recommendation 1

45

That the Government undertake a comprehensive program of review of the post-mining regulatory framework and processes, including relevant provisions of the *Mining Act 1992*, *Environmental Planning and Assessment Act 1979* and *Protection of the Environment Operations Act 1997* and associated regulations and policies. The program should include:

- updating land-use planning controls to support the development of innovative post-mining land uses allowing multiple successive land uses and modification of existing consents
- simplifying mining lease rights and approvals to provide flexibility for future use
- developing a framework for the Resources Regulator to oversee and approve future beneficial uses
- ensuring continuity around water licensing
- aligning biodiversity and conservation requirements with future beneficial use and for opportunities to create nature positive outcomes
- ensuring biodiversity outcomes and mine rehabilitation standards are maintained or improved by the above-listed reforms.

Recommendation 2

46

That the Government conduct a comprehensive program of reform of current land uses and opportunities for future uses across regions experiencing mining and energy transition. Among other areas, this review should:

- identify regions across the State to which a post-mining regulatory framework may apply
- conduct a land audit of industrial sites, surplus and industrial lands
- map infrastructure assets in place
- conduct a land audit of sites for potential repurposing for housing, environmental, educational tourism, sport, infrastructure, advanced manufacturing and renewable energy purposes
- assess potential for these sites to take on alternative future beneficial use
- establish regional architecture across government to guide the next stages of this work
- facilitate community engagement in identifying priority land uses and local aspirations
- identify priority regions and communities in need of economic diversification.

Recommendation 3

47

That the Government establish a framework based on the Place Delivery Group model that can be applied to regions of the State experiencing energy and resource transition. This framework should be empowered to:

- receive expressions of interest from community, industry, landowners, and local government for future land use and opportunities for economic development.
- conduct land use planning in conjunction with local government and proponents

- consider opportunities to integrate the development of key government priorities including renewable energy generation, storage, transmission and manufacturing opportunities
- in conjunction with the Future Jobs and Investment Authorities conduct strategic assessment of impacted workforces to look at their skills, analysis wages gaps, and understand workforce aspirations
- build on existing research in conjunction with relevant parts of government, conduct strategic assessment of community aspirations.

Recommendation 4**47**

That the Government continue to evaluate if current security deposits are sufficient for meeting rehabilitation requirements.

Recommendation 5**49**

That the Government consider elevating the leadership of regional resource and energy transition to a ministerial and senior departmental working group level, empowering the group to:

- work across government to drive transformation and economic development
- partner with local government, industry and regional communities on demonstration projects and future opportunities
- collaborate on innovative and tailored solutions across levels of government including local, state and federal
- investigate employing the 'whole of government' land transformation working group model used in the Illawarra/at BlueScope applying it to a regional framework that can be replicated in other parts of the state experiencing transition
- work with the Resources Regulator to improve standards of mine rehabilitation, and timeliness of rehabilitation outcomes.

Recommendation 6**49**

That the Government investigate immediate opportunities to deliver demonstration projects in order to identify practical impediments as well as legislative and regulatory changes that may be required to give effect to broader land transformation in regions experiencing energy and resource transition.

Recommendation 7**76**

That relevant government agencies, including the Future Jobs and Investment Authorities and the Net Zero Commission, deliver a skills audit of the mining workforce in New South Wales to determine:

- what skills are recognised and can be used by other industries
- where there may be obstacles to the successful transfer of existing skills
- what retraining or upskilling may be required
- what wages and employment conditions are currently industry standard
- opportunities for on-site training and skills development
- where there are training and educational shortages in mining regions
- what is of relevance in the outcomes of previous skills audits.

Recommendation 8 **76**

That the Government invest in:

- reskilling, retraining, and educational programs to support mining communities during resources and energy transition
- opportunities for economic development and productive future use of sites in the resources and energy transition
- localised education and training opportunities to boost employment outcomes.

Recommendation 9 **98**

That the Government collaborate with relevant stakeholders to identify and map legacy sites in New South Wales and make this information publicly available. The Government should utilise new and existing resources to help determine site conditions and to help prioritise which sites should be expedited for beneficial post-mining land use, which require further restoration and rehabilitation, unlocking existing and future opportunities to transition current operations including:

- land, water and natural resources
- infrastructure
- workforce.

Recommendation 10 **98**

That the Government investigate the appropriateness of adopting the International Organisation for Standardisation's 'Managing Mining Legacies' standard for New South Wales, with a view to implementation so as to help manage the environmental, social and governance challenges associated with legacy mines.

Recommendation 11 **99**

That the Government investigate the appropriateness of emerging techniques for reducing risks associated with mining activity and management of final voids, including:

- artificially connecting pit lakes with local river systems,
- geomorphic rehabilitation, to progressively rebuild mine land in stages
- improvements in best practice land rehabilitation.

Recommendation 12 **122**

That the Government explore how mine operators and lease holders could better work with visionary and creative thinkers in relation to post-mining land use and consider how policy frameworks could encourage this collaboration, including:

- exploring compatibility of post-mining land sites with commercial projects
- exploration of former and legacy mining sites with modern mining technology to explore deposits in tailings and closed sites.

Recommendation 13 **123**

That the Government consider incentivising post-mining land uses that leverage the reuse of essential infrastructure, such as transmission lines, rail lines, workspaces and utilities, to provide a return on closure expenses, and reduce decommissioning costs and waste. Such incentives should ensure companies do not retain the entire value of the reduction in the decommissioning costs which may be invested in environmental and community benefit projects.

Findings

Finding 1**12**

The mining industry makes a substantial contribution to the development of the New South Wales economy through generation of revenue and jobs. In addition, the mining industry plays an important role in the cultural identity of many parts of New South Wales, particularly in the regions.

Finding 2**13**

Through changes in the global economy and because of the transition to clean and renewable energy, the demand profile for New South Wales' natural resources is shifting. This shift will have major implications for parts of the State that rely on the industry as the use of thermal coal is phased out and as the need to develop new resources critical to the energy transition gathers pace.

Finding 3**77**

That New South Wales has an opportunity to learn from the experiences of other parts of the world that have already made the post mining transition and apply those lessons in the Australian context in a way that maximises benefits for the entire New South Wales community.

Finding 4**122**

That regional communities are on the cutting-edge of the post mining transition. Current land-use planning and mineral lease settings are not well-suited to adapt and respond with the necessary flexibility to rapidly changing circumstances.

Finding 5**124**

That leadership and reforms are required in the form of collaboration within government, between industry and the community. Harnessing collaboration will increase opportunities to develop beneficial post-mining land use and position regional communities to take full advantage of the energy transition.

Conduct of inquiry

The terms of reference for the inquiry were referred to the committee by the Minister for Minister for Finance, Minister for Domestic Manufacturing and Government Procurement, and Minister for Natural Resources on 3 May 2024 and adopted by the committee on 14 May 2024.

The committee received 77 submissions and 2 supplementary submissions.

The committee held six public hearings: four at Parliament House in Sydney, one in Muswellbrook and one in Lake Macquarie.

The committee also conducted three site visits to current and former mine sites in the Hunter Region.

Inquiry related documents are available on the committee's website, including submissions, hearing transcripts, tabled documents and answers to questions on notice.

Chapter 1 Background

This chapter provides an overview of the mining industry in New South Wales, focusing on mining operations across the state and the transition from active mining to post-mining land use. It outlines the regulatory framework guiding post-mining land use, including legislation governing mine closure and the role of key agencies and regulatory bodies. This chapter concludes by documenting the shift towards carbon emissions reduction and the ensuing implications for the mining regions of New South Wales, in particular those that have coal mines.

Mining in New South Wales

- 1.1 Mining is a large industry for the New South Wales economy, significantly contributing to the state's revenue and energy production.¹ The Government advised that there are approximately 147 large mines and 153 small mines operating at present in New South Wales.²
- 1.2 Mining is a temporary use of land.³ In broad terms under the *Mining Act 1992* mining refers to activities whereby materials such as minerals, oil and gas are extracted from the earth.⁴ These commodities are used for electricity generation, construction and manufacturing.
- 1.3 Many communities in New South Wales depend on the mining industry for employment and revenue, with more than 25,000 workers employed in production roles in the coal mining industry alone.⁵ In 2023-2024, coal royalties generated \$3 billion for the New South Wales economy and are forecast to generate \$13.3 billion over the next four years.⁶
- 1.4 The coal industry is predominately focused on export markets, with a significant proportion of state's coal traded to Asia. Of the 8.7 billion tonnes of coal produced in 2023, 90 per cent was exported overseas to markets including China, India, Japan, South Korea and Taiwan.⁷
- 1.5 Modelling conducted for the 2021 *NSW Intergenerational Report* forecasts that coal production will fall from 200 megatonnes per year to anywhere from zero to 100 megatonnes per year by 2061 – this being a consequence of the global push to achieve net zero emissions by the middle of the century.⁸

¹ Submission 69, NSW Government, p 5.

² Evidence, Mr Peter Day, Executive Director, NSW Resources Regulator, 17 December 2024, p 39.

³ Submission 69, NSW Government, p 3.

⁴ *Mining Act 1992* (NSW).

⁵ Submission 43, Mining & Energy Union, p 3, citing Coal Services Statistics, *NSW Coal Industry Employment*, March 2024.

⁶ Submission 59, NSW Minerals Council, p 2, citing NSW Budget Paper No 1, Budget Statement, 2024.

⁷ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 13; Submission 59, NSW Minerals Council, p 2; Andrew Gorringer, 'Australia's coal export market: Shifting trade dynamics with Asia', *Institute for Energy Economic and Financial Analysis*, 30 July 2024.

⁸ Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, to Committee, received 31 October 2024 – Attachment, Hunter PMLU – Summary report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 5, citing NSW Government, *The sensitivity of the NSW economic*

- 1.6 Despite this, coal currently remains the leading source for electricity generation in New South Wales. In 2023, coal accounted for 62.8 per cent of the state's electricity generation, the highest of all Australian states and territories.⁹ The remaining sources for electricity generation are natural gas, oil, hydro and other renewables. The percentage of each fuel source are displayed in the following table (Table 1).

Table 1 Australian electricity generation fuel mix by state and territory in 2023¹⁰

	NSW	VIC	QLD	WA	SA	TAS	NT	AUS
Coal	62.8	57.7	62.3	18.4	0.0	0.0	0.0	46.0
Natural gas	4.6	4.8	14.0	60.0	27.7	1.9	85.8	17.1
Oil	0.6	0.4	1.5	4.9	1.5	0.1	8.7	1.8
Hydro	5.4	6.1	1.7	0.2	0.0	80.1	0.0	5.8
Other renewables	26.6	31.1	20.5	16.5	70.7	17.8	5.5	29.3

Source: Department of Climate Change, Energy, Environment and Water, *Australian electricity generation fuel mix calendar year 2023 (2024)*

Mining operations in New South Wales

- 1.7 Major coal mining and coal-fired power operations take place in the Central West, Illawarra and North West regions of New South Wales, with the largest volume of coal produced in the Hunter.¹¹ In total, New South Wales is responsible for two per cent of the world's coal production.¹²
- 1.8 Mining operations often span decades, with mining leases typically granted for a period of up to 21 years and sometimes with approved extensions for over 50 years.¹³ Extensions are typically granted for economic reasons and to secure baseload energy production. The NSW Resource Regulator require mine operators to complete a 'Renewal Justification Statement' in order to be granted an extension.¹⁴

and fiscal outlook to global coal demand and the broader energy transition for the 2021 NSW Intergenerational Report, 2021.

⁹ Department of Climate Change, Energy, the Environment and Water, *Australian electricity generation – fuel mix calendar year 2023 (2024)*, <https://www.energy.gov.au/energy-data/australian-energy-statistics/data-charts/australian-electricity-generation-fuel-mix-calendar-year-2023>

¹⁰ Department of Climate Change, Energy, the Environment and Water, *Australian electricity generation – fuel mix calendar year 2023 (2024)*, <https://www.energy.gov.au/energy-data/australian-energy-statistics/data-charts/australian-electricity-generation-fuel-mix-calendar-year-2023>

¹¹ Submission 69, NSW Government, p 5.

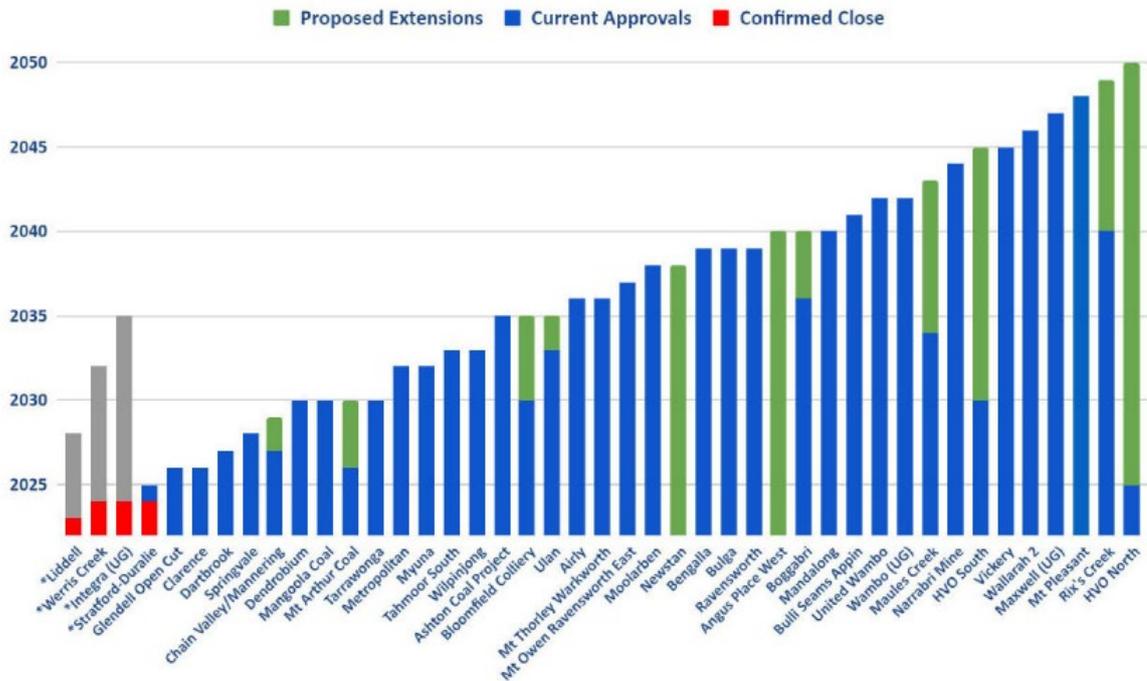
¹² Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 13.

¹³ Submission 69, NSW Government, p 4.

¹⁴ Department of Regional NSW, *Guide Completing a renewal justification statement Mining Act 1992*, March 2023, pp 4-5.

- 1.9 NSW Minerals Council provided an overview of current coal mine approvals and proposed extensions in New South Wales.¹⁵ See Figure 1 below.

Figure 1 Timeline of current coal mine approvals and proposed extensions



Source: Answers to questions on notice, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 September 2024, p 2, citing NSW Department of Planning and Environment.

Net zero

- 1.10 Analyses revealed that coal contributes 40 per cent of the world's greenhouse gas emissions.¹⁶ As a result, significant changes have begun both internationally and within New South Wales to reduce these carbon emissions, with a statewide emissions target to achieve 'net zero' by 2050.¹⁷
- 1.11 Net zero is achieved when greenhouse gas emissions are equal to the amount removed from the atmosphere.¹⁸

¹⁵ Answers to questions on notice, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, received 12 September 2024, p 2, citing NSW Department of Planning and Environment.

¹⁶ CSIRO, *What are the sources of carbon dioxide in the atmosphere?* (1 October 2024), <https://www.csiro.au/en/research/environmental-impacts/climate-change/climate-change-qa/sources-of-co2>.

¹⁷ NSW Climate and Energy Action, *Reaching net zero emissions* (2025), <https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/reaching-net-zero-emissions>.

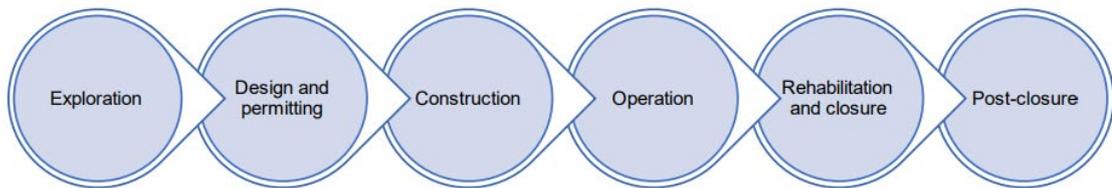
¹⁸ NSW Climate and Energy Action, *Reaching net zero emissions* (2025), <https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/reaching-net-zero-emissions>.

- 1.12** In 2023, the New South Wales Parliament passed the *Climate Change (Net Zero Future) Act*. The Act sets out the state's approach to deliver net zero by 2050, including the following reductions targets (based on 2005 levels):
- 50 per cent by 2030
 - 70 per cent by 2035
 - Net zero by 2050.¹⁹
- 1.13** As a consequence, there is a growing focus among communities, regulators, and the mining industry to develop emissions reductions strategies and plan for post-mining futures.²⁰

The mine lifecycle, and the transition from active mining to post-mining land use

- 1.14** Mining in New South Wales typically follows six key stages from exploration to design and development, construction, operation, rehabilitation and closure, and post-closure.²¹ The CSIRO provided the following figure to show the process.

Figure 2 Mine lifecycle stages



Source: CSIRO, *The feasibility of developing regionally integrated transition beyond mining in the Hunter Region* (2024), p 10.

- 1.15** The exploration stage aims to discover mineral and coal resources, which is regulated under the *Mining Act 1992* and its associated *Mining Regulation 2016*.²² This Act and accompanying regulation govern the granting of exploration licences, to explore for specific resources to establish the quality and quantity of those resources and to investigate the viability of extracting the resource.²³

¹⁹ *Climate Change (Net Zero Future) Act 2023* (NSW)

²⁰ Submission 73, CSIRO, p 1.

²¹ Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, to Committee, received 31 October 2024 – Attachment, Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 10.

²² NSW Resources, *Exploring in NSW* (2025), <https://www.resources.nsw.gov.au/mining-and-exploration/exploring-nsw>

²³ NSW Resources, *Exploring in NSW* (2025), <https://www.resources.nsw.gov.au/mining-and-exploration/exploring-nsw>

- 1.16** Following the discovery of minerals or coal resources, the mine operator applies for a mining lease, which requires development consent.²⁴ This is subject to an assessment process, including a detailed environmental impact assessment and public consultation. Once consent is approved, the mining operator can commence construction and production of the mine.²⁵
- 1.17** Eventually all mines will close either when resources are depleted or due to commercial decisions.²⁶ When this occurs, a mine site transitions from active extraction operations to the closure and post-closure stages.²⁷
- 1.18** Post-mining land use is regulated under the *Mining Act 1992*, which requires all disturbed land to be rehabilitated to a safe and stable state which aligns with an approved use.²⁸
- 1.19** Planning for post-mining land use begins during the development stage and evolves over time to reflect updated legislation, industry best practices, as well as technological, economic and societal changes.²⁹
- 1.20** Mine closure has traditionally focused on rehabilitation, asset decommissioning, lease relinquishment, and transferring responsibility to authorities or third parties. However, there is a growing emphasis on creating positive legacies and beneficial land uses.³⁰
- 1.21** Recent changes to mine rehabilitation rules in New South Wales allow leaseholders to propose different land uses beyond traditional options like agriculture and native forests. These changes aim to encourage innovative uses that meet rehabilitation standards while supporting economic development in mining communities.³¹

Mine closure

- 1.22** Mine closure is a multi-phased process aimed at achieving environmental stability and safety on former mining sites. This process involves several key stages, including planning, physical decommissioning of mining infrastructure, landform reshaping, revegetation, and managing any

²⁴ NSW Resources, *Strategic Release Framework for Coal and Petroleum Exploration* (2024), <https://www.resources.nsw.gov.au/invest-nsw/nsw-mineral-resources/coal-exploration-and-mining/strategic-release-framework-for-coal>

²⁵ NSW Resources, *Strategic Release Framework for Coal and Petroleum Exploration* (2024), <https://www.resources.nsw.gov.au/invest-nsw/nsw-mineral-resources/coal-exploration-and-mining/strategic-release-framework-for-coal>

²⁶ Submission 69, NSW Government, p 4.

²⁷ Submission 69, NSW Government, p 4.

²⁸ Submission 69, NSW Government, pp 8-10.

²⁹ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 10.

³⁰ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 10.

³¹ Department of Regional NSW, *Practical guide: Post mining land use*, January 2023, p 5.

residual risks. The objective is to make the land safe and usable for approved post-mining purposes, with the ultimate goal of achieving a 'safe, stable, and sustainable' end state.³²

Post-mining land use stages

- 1.23** Post mining land use must be considered upfront, with the final landform and land use specified as part of the development consent process for a mine.³³ Mines are required to comply with strict rehabilitation requirements, including the need to progressively rehabilitate.³⁴ At a minimum, rehabilitation must achieve a post mining land use that is approved under the approval of the mine. Proposals for final land uses that differ to those originally approved require further development approval, including community consultation.³⁵ This is explored further in Chapter 2.
- 1.24** Certain former mine sites have attributes that are suitable for generating economic and social benefits for the local community and for New South Wales. These include:
- established infrastructure with good access to electricity and transport networks
 - large parcels of land including established buffer zones from residential areas
 - access to regional population centres.³⁶
- 1.25** The regulatory framework for mine closure and post-mining land use is structured into stages:
- design
 - assessment and approval
 - operational
 - post closure and transition.³⁷
- 1.26** These stages are outlined below.

Design

- 1.27** Post-mining land use is considered from the start of mine design with the goal of ensuring that land is rehabilitated to a safe and stable state.³⁸ Mine proposals must include a 'base case' rehabilitation plan when seeking development consent and a mining lease. Suitable post-mining land uses depend on factors like physical conditions, surrounding land uses, economic and social considerations, and legislative requirements.³⁹

³² Submission 69, NSW Government, p 3; Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2.

³³ Submission 69, NSW Government, p 3.

³⁴ Submission 69, NSW Government, p 3.

³⁵ Submission 69, NSW Government, p 3.

³⁶ Submission 69, NSW Government, pp 4-5.

³⁷ Submission 69, NSW Government, p 8.

³⁸ Submission 69, NSW Government, p 8.

³⁹ Submission 69, NSW Government, p 8.

- 1.28 The NSW Department of Planning, Housing and Infrastructure and NSW Resources advise mine operators to plan early for flexible and progressive rehabilitation strategies, and to consider potential partners for development of land post mine closure.⁴⁰

Assessment and approval

- 1.29 All new mines are subject to assessment and approval processes under New South Wales and Commonwealth legislation. This includes an assessment of environmental and social impacts. Development approvals require mining companies to outline land rehabilitation and final land use plans, which must meet safety, environmental, and sustainability standards.⁴¹ These plans are subject to community input and government review.⁴²
- 1.30 The Government advised that rehabilitation conditions in development consents and mining leases promote compliance and readiness for new land uses:

Setting rehabilitation conditions upfront as part of the development process and mining lease approval is necessary to provide protections that appropriately manage environmental and safety hazards before the land transitions to a different use. It provides clear rehabilitation objectives that the Resources Regulator uses to enforce compliance with rehabilitation obligations under the mining lease.⁴³

Operational

- 1.31 Once a mine is approved, mine operators are monitored by the Resources Regulator to make sure they meet specific lease conditions and statutory requirements set out in the *Mining Act 1992*.⁴⁴ The Government advised that this includes complying with the mine approval conditions and 'lodging a security bond/deposit that covers the full cost of rehabilitation in the event that the holder of the mining lease or licence defaults on their rehabilitation obligations'.⁴⁵
- 1.32 As mines near closure, operators can review and adjust post-mining land use based on opportunities or seek a new development consent to extend the range of possible post-mining land uses.⁴⁶

Post closure and transition

- 1.33 Once a mine ceases production, the Government requires operators to commence complete rehabilitation works to the agreed final landform as approved in the development consent.⁴⁷ Rehabilitation must meet standards for environmental protection and hazard management. Full rehabilitation is confirmed once evidence verifies the sustainability of the approved final land use, allowing for the release of the security bond.⁴⁸

⁴⁰ Submission 69, NSW Government, pp 8-9.

⁴¹ Submission 69, NSW Government, p 9.

⁴² Submission 69, NSW Government, p 9.

⁴³ Submission 69, NSW Government, p 10.

⁴⁴ Submission 69, NSW Government, p 10.

⁴⁵ Submission 69, NSW Government, p 10.

⁴⁶ Submission 69, NSW Government, p 10.

⁴⁷ Submission 69, NSW Government, p 11.

⁴⁸ Submission 69, NSW Government, p 11.

- 1.34 Mines often have a decades long production period. During that time, new technologies and changes in environmental, economic and societal demands may have created opportunities that were not considered during the initial design stage. These new post-mining land use opportunities may be proposed by the mine operator or a third party.⁴⁹

Final land use domains

- 1.35 A final land use domain refers to a specific plan for a mine site after rehabilitation is complete.⁵⁰ Mining leases may have only one final land use or may be split into different uses. Each land use is treated as a separate 'domain' with its own specific rehabilitation goals and criteria.⁵¹

- 1.36 The NSW Resources Regulator has developed a list of nominated final land use domains which include:

- native ecosystem
- agriculture – grazing
- agriculture – cropping
- rehabilitation biodiversity offset area
- industrial
- water management areas
- water storage (excluding final void)
- heritage area
- infrastructure
- final void
- other (only used in exceptional circumstances).⁵²

- 1.37 NSW Resources advised that there have been recent updates to this list and there is now a broader range of potential final land uses:

Our website has recently been updated. It talks about a much broader range of potential final land uses at mine sites. We're shifting with the community expectation.⁵³

⁴⁹ Submission 69, NSW Government, p 12.

⁵⁰ NSW Resource Regulation, *Guideline: Rehabilitation objectives and rehabilitation completion criteria*, July 2021, p 9.

⁵¹ NSW Resource Regulation, *Guideline: Rehabilitation objectives and rehabilitation completion criteria*, July 2021, p 9.

⁵² Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 3, citing NSW Resource Regulator, *Form and Way: Rehabilitation Management Plan for Large Mines*, July 2021.

⁵³ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 44.

Monitoring and management

1.38 Mining lease holders are responsible for ongoing management and monitoring of a mine site. This includes monitoring site conditions to meet regulatory rehabilitation standards to prevent environmental hazards and manage potential risks.⁵⁴

1.39 The NSW Resources Regulator oversees compliance and only once the site meets all safety and stability criteria will it be relinquished:

Long-term monitoring is required to ensure that the Resources Regulator can be satisfied that the site is safe and stable. Adequately assessing environmental impacts can take time. For example, assessing long term impacts to groundwater may take over 10 years of monitoring.⁵⁵

The Resources Regulator will only confirm that mine rehabilitation is complete once a mining company can provide independently verified evidence that the approved final land use has been achieved and can be sustained over the long term.⁵⁶

Regulatory framework for mine closure and post-mining land use

1.40 New South Wales has established a regulatory framework to govern mine closure and facilitate sustainable post-mining land use. This framework provides legal and procedural guidance to address long-term environmental challenges, to ensure community safety, and promote economic opportunities for new industries and beneficial land uses.⁵⁷

Legislation governing mine closure

1.41 Mine closure in New South Wales is regulated by the Resources Regulator under two main statutes, the *Mining Act 1992* and *Environmental Planning and Assessment Act 1979*.⁵⁸

- ***Mining Act 1992***: This Act sets the standards for exploration, assessment, mining leases and operations, and mine rehabilitation.⁵⁹
- ***Environmental Planning and Assessment Act 1979***: This Act governs development applications for mining projects, including provisions for initial and modified land-use approvals.⁶⁰

⁵⁴ Submission 69, NSW Government, p 11.

⁵⁵ Submission 69, NSW Government, p 11.

⁵⁶ Submission 69, NSW Government, p 11.

⁵⁷ See, Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, p 2; Submission 69, NSW Government, pp 4 and 16.

⁵⁸ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 18.

⁵⁹ Submission 69, NSW Government, p 4; *Mining Act 1992* (NSW).

⁶⁰ Submission 69, NSW Government, p 4; *Environmental Planning and Assessment Act 1979* (NSW).

- 1.42 The Government advised that other legislation regulating mine operations and mine closure in New South Wales, includes the *Protection of the Environment Operations Act 1997* and *Contaminated Land Management Act 1997*.⁶¹

Key agencies and regulatory bodies

- 1.43 Several agencies are responsible for the various aspects of mining regulation, as outlined below.⁶²

- **NSW Department of Planning, Housing and Infrastructure** is the responsible agency for the *Environmental Planning and Assessment Act 1979*, under which mining project development applications are assessed and approved. Initial approvals include the final post-mining land use, although proponents can later seek modifications. Depending on the size and nature of the mining project, development consent may be granted by the Minister for Planning, the Independent Planning Commission or the local council.⁶³
- **NSW Environment Protection Authority** administers the *Protection of the Environment Operations Act 1997*, requiring environmental protection licences for mining activities. They also regulate some of the transition to non-mining use, including contaminated land management under the *Contaminated Land Management Act 1997*. Licences may also be required for certain post-mining land uses, such as energy generation and agriculture.⁶⁴
- **NSW Department of Primary Industries and Regional Development** oversees the *Mining Act 1992* and the *Petroleum (Onshore) Act 1991* regarding the exploration, mining and petroleum production in NSW.⁶⁵
- **NSW Resources Regulator** division within Department of Primary Industries and Regional Development, enforces compliance with rehabilitation conditions under the *Mining Act 1992* and the *Petroleum (Onshore) Act 1991* and mining lease agreements.⁶⁶
- **Independent Planning Commission** imposes rules and conditions regarding the closure and rehabilitation of mine sites, requiring the land to be shaped for future use, such as agriculture, biodiversity conservation or industrial land use.⁶⁷

- 1.44 The Auditor-General for New South Wales also conducts audits to ensure compliance and evaluate the effectiveness of regulatory practices related to mine closure.⁶⁸

- 1.45 The regulatory framework is discussed in further detail in Chapter 2.

⁶¹ Submission 69, NSW Government, p 4.

⁶² Submission 69, NSW Government, p 4.

⁶³ Submission 69, NSW Government, p 4.

⁶⁴ Submission 69, NSW Government, p 4.

⁶⁵ Submission 69, NSW Government, p 4.

⁶⁶ Submission 69, NSW Government, p 4.

⁶⁷ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 2.

⁶⁸ Audit Office of NSW, *Regulating Mining Rehabilitation 2024-25* (2024), <https://www.audit.nsw.gov.au/our-work/reports/regulating-mining-rehabilitation>

Impacts of the shift to low carbon energy sources

- 1.46 The New South Wales mining industry is entering a new phase as the shift to low carbon energy sources drives a decline in coal production, with 32 of the state's 39 coal mines expected to close by 2040.⁶⁹
- 1.47 Coal dependent regions are likely to be most affected by the reduction in coal demand. This has prompted the Government and local communities to seek new opportunities in renewable energy, agriculture, manufacturing, and other industries to support regional communities beyond coal.⁷⁰
- 1.48 The decline in coal demand and the transition to low carbon alternatives are outlined below.

Global coal demand and emissions targets

- 1.49 Global efforts to transition to low carbon and renewable energy is resulting in a decline in coal production.⁷¹ The International Energy Agency predicts a 30 per cent reduction in thermal coal demand by 2050⁷², with other estimates suggesting a 40 per cent decrease under existing climate policies, and up to a 90 per cent decrease with intensifying efforts to achieve net zero emissions as pledged in the Paris Agreement.⁷³ This shift is leading to the closure of coal mines and creating a need for economic diversification in regions traditionally reliant on coal.⁷⁴
- 1.50 Many countries are reducing their reliance on coal to meet international commitments and emissions reductions targets. These efforts include the phasing out of coal in electricity generation (thermal coal).⁷⁵ Businesses and investors are also aligning with these changes, prioritising low carbon and renewable operations and investment.⁷⁶
- 1.51 The Government has projected that more than ten coal mines will close in the next decade.⁷⁷ The transition away from coal presents opportunities to develop alternative industries and repurpose former mine sites for productive uses, including:
- Energy production – investment into clean and renewable industries

⁶⁹ Media Release, the Hon Courtney Houssos, Minister for Natural Resources, '\$37.7 million to support regional communities and protect workers', 18 June 2024.

⁷⁰ Submission 69, NSW Government, p 17; Media Release, the Hon Courtney Houssos, Minister for Natural Resources, '\$37.7 million to support regional communities and protect workers', 18 June 2024.

⁷¹ Submission 69, NSW Government, p 5.

⁷² International Energy Agency, *Coal 2023 Analysis and forecast to 2026*, 2023, p 14.

⁷³ Submission 63, Hunter Renewal, p 6 citing International Energy Agency *Accelerating Just Transitions for the Coal Sector: Strategies for Rapid, Secure and People-centred Change*, 2024, pp 16-17; Paris Agreement Article 4.

⁷⁴ Submission 69, NSW Government, p 3.

⁷⁵ NSW Government, *Strategic Statement on Coal Exploration and Mining in NSW*, 2020, p 5.

⁷⁶ Answers to questions on notice, Ms Kimberley Crofts, received 2 September 2024 – Attachment 5, Lock the Gate Alliance report, *Diversification and growth: Transforming mining land in the Hunter Valley*, (EY, 26 May 2022), p 6.

⁷⁷ Submission 69, NSW Government, p 5.

- Agriculture – expanding the capacity of existing agriculture in the region
- Manufacturing – develop manufacturing capacity in high growth industries
- Conservation and rehabilitation – restoring land for ecological and economic purposes.⁷⁸

1.52 The transition away from coal will significantly impact mining regions, with government and local communities recognising the need for economic diversification and new industries.⁷⁹ The Government acknowledged that the success of these transitions depends on effective regulatory support, alignment with regional development goals, and community engagement.⁸⁰

1.53 The Government aims to create new opportunities by leveraging advancements in technology and repurposing former mine sites, with many of these former mine sites deemed suitable for redevelopment due to existing infrastructure, such as access to transmission networks and transport systems, which can support new uses.⁸¹

Committee comment

1.54 The committee acknowledges the significant contribution of mining to the New South Wales economy. The state has benefited from the mining industry in various ways, including as a sizable source of income and employment. It has also helped shape the culture and identity of many regional towns. In addition, the coal mining industry has also helped power the state for many years.

1.55 The committee finds that the mining industry makes a substantial contribution to the development of the New South Wales economy through generation of revenue and jobs. In addition, the mining industry plays an important role in the cultural identity of many parts of New South Wales, particularly in the regions.

Finding 1

The mining industry makes a substantial contribution to the development of the New South Wales economy through generation of revenue and jobs. In addition, the mining industry plays an important role in the cultural identity of many parts of New South Wales, particularly in the regions.

1.56 While coal is currently the primary source of electricity in New South Wales, there is a growing awareness of its environmental impact, notably in the form of carbon emissions. This has led to strategies to reduce carbon emissions, including a 'net zero' target, and an associated decrease in coal production and use.

⁷⁸ Lock the Gate Alliance report, *Diversification and growth: Transforming mining land in the Hunter Valley*, (EY, 26 May 2022), p 6.

⁷⁹ NSW Government, *Strategic Statement on Coal Exploration and Mining in NSW*, 2020, p 5.

⁸⁰ Submission 69, NSW Government, pp 12-13, and 17.

⁸¹ Submission 69, NSW Government, p 17.

- 1.57 The committee recognises that coal-dependent regions in New South Wales, including the Hunter, Central West, Illawarra, and North West, are likely to be adversely impacted by a reduction in coal production, as coal mining operations and coal fired-power stations close.
- 1.58 The committee finds that through changes in the global economy and because of the transition to clean and renewable energy, the demand profile for New South Wales' natural resources is shifting. This shift will have major implications for parts of the State that rely on the industry as the use of thermal coal is phased out and as the need to develop new resources critical to the energy transition gathers pace.

Finding 2

Through changes in the global economy and because of the transition to clean and renewable energy, the demand profile for New South Wales' natural resources is shifting. This shift will have major implications for parts of the State that rely on the industry as the use of thermal coal is phased out and as the need to develop new resources critical to the energy transition gathers pace.

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- 1.59 The committee also acknowledges the importance of careful planning and facilitation for mining regions as the transition from coal takes place. The need to plan and collaborate is accepted, so as to support regional adaptation and economic diversification.

Chapter 2 Regulatory and policy framework governing post-mining land use

This chapter explores the regulatory framework governing post-mining land use in New South Wales, examining the legislative and policy settings that guide mine closure and rehabilitation. It discusses stakeholder concerns about the complexity of the current framework and various constraints. This includes regulatory barriers, uncertainty regarding residual risk and liabilities, and duplication of responsibilities. The chapter also considers potential reforms that may streamline processes and support beneficial and productive post-mining land use.

The current regulatory and policy framework

- 2.1** This section examines stakeholder perspectives regarding the effectiveness of the legislative and regulatory framework currently governing mine closure and rehabilitation in New South Wales.
- 2.2** While many government agencies at all three levels of government are involved, the regulatory framework in New South Wales governing the rehabilitation of mines for future use is specifically managed by the NSW Department of Planning, Housing and Infrastructure, the NSW Environment Protection Authority, and the NSW Department of Primary Industries and Regional Development.⁸²
- 2.3** The Resources Regulator sits within NSW Resources in the NSW Department of Primary Industries and Regional Development and enforces compliance with rehabilitation conditions under the *Mining Act 1992*, as well as the conditions of a mining lease itself.⁸³
- 2.4** The above agencies are responsible for the following legislation which are the main instruments relevant to the closure and rehabilitation of mines in New South Wales:
- *Mining Act 1992* – requires proponents to meet rehabilitation standards to obtain lease relinquishment
 - *Environmental Planning and Assessment Act 1979* – governs development applications for mining projects including final land use approvals
 - *Protections of the Environmental Operations Act 1997* – regulates the environmental impacts associated with mining and post-mining land use, including through environment protection licensing.⁸⁴
- 2.5** Ms Georgina Beattie, Deputy Secretary, NSW Resources, stated that 'New South Wales has a strong regulatory framework to support mine closure and facilitate appropriate post-mining land use'.⁸⁵ She outlined the role of various government agencies in overseeing this framework:

The Department of Planning, Housing and Infrastructure undertakes a merit assessment of mining projects under the Environmental Planning and Assessment Act,

⁸² Submission 69, NSW Government, p 4.

⁸³ Submission 69, NSW Government, p 4.

⁸⁴ Submission 69, NSW Government, p 4.

⁸⁵ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2.

with the Independent Planning Commission imposing consent conditions regarding the closure and rehabilitation of mine sites to specific landforms to facilitate future agricultural, biodiversity conservation or industrial land use. NSW Resources in the Department of Primary Industries and Regional Development administers exploration and mining titles under the Mining Act, and the Resources Regulator enforces compliance to ensure that land disturbed by mining is progressively rehabilitated to a safe and stable state.⁸⁶

- 2.6** Ms Beattie then explained the responsibilities of the NSW Environment Protection Authority as well as that of the Future Jobs and Investment Authorities (discussed in detail in Chapter 3) which are to be established by the Government:

The NSW Environment Protection Authority requires environment protection licences under the Protection of the Environment Operations Act and regulates the management and remediation of contaminated land under the Contaminated Land Management Act. The New South Wales Government has also committed to establish Future Jobs and Investment Authorities, which will provide a leading role in planning for the future of coal regions.⁸⁷

- 2.7** Stakeholders from various sectors including government, industry, academia, peak bodies and business groups referred to the complexity of the current regulatory process and requirements for post-mining land use in New South Wales. A number suggested that the framework should be reviewed to identify possible areas for reform.⁸⁸

- 2.8** The Institute for Regional Futures highlighted a disconnect between the *Mining Act 1992* and the *Environmental Planning and Assessment Act 1979*, viewing it as one of the weaknesses of current land use planning.⁸⁹ According to the Institute for Regional Futures, this contributes to the following issues:

- a lack of statutory requirements for the integration of land use planning during the mining lifecycle with broader government-led strategic land use planning efforts
- limited reliable, publicly accessible data on the status of rehabilitation and mine site configurations, restricting the evidence base for long term planning
- disconnected processes – the approval for a change of use under the *Environmental Planning and Assessment Act 1979* does not recognise the mine relinquishment process of the *Mining Act 1992*
- approval processes for relinquishment of a mine site do not assess a site's risk profile against proposed future land uses, further complicating and delaying the process.⁹⁰

⁸⁶ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2.

⁸⁷ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2.

⁸⁸ See, for example, Submission 61, Yancoal; Submission 18, Singleton Council; Submission 59, NSW Minerals Council; Submission 62, Business Hunter.

⁸⁹ Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), pp 1-2.

⁹⁰ Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

2.9 Various stakeholders stressed that a robust, independent regulatory framework is essential.⁹¹ According to the Association of Mining and Exploration Companies, such a framework would ensure that 'post-mining land use practices are responsible, sustainable, and beneficial for the environment and local communities' as it:

- provides a legal framework to resolve disputes and enforce compliance
- helps mitigate environmental impacts providing protection for ecosystems and biodiversity
- establishes clear, uniform standards for post-mining land use
- facilitates consistency across different mining projects and jurisdictions
- builds transparency and trust between governments, communities, and mining companies
- effectively engages local communities in the decision-making processes.⁹²

Constraints on the beneficial reuse of post-mining land

2.10 The Government acknowledged that industry consultation had identified the following challenges with the current post-mining land use framework:

- **lack of understanding of the framework:** developers and industry need more education and guidance, as land under a mining lease is currently perceived as a barrier to development (see from paragraph 2.13).⁹³
- **disincentives for consideration of alternative land uses by mining operators:** changing post-mining use requires additional approvals that can be time intensive and costly for mining operators to obtain (see from paragraph 2.21).⁹⁴
- **ownership of risk when seeking changes to post-mining land use:** the location of responsibility for the long-term management of environmental liabilities and residual risks (e.g. environmental monitoring, contamination, landform stability and water management) after mining lease relinquishment remains unclear and can delay closure sign-off (see from paragraph 2.65).⁹⁵
- **duplication of responsibilities across government agencies:** the framework for post-mining land use is managed by several key agencies, as such there is a need to review agency responsibilities to minimise duplication and deliver best practice (see from paragraph 2.85).⁹⁶

2.11 Similarly, the Institute for Regional Futures identified the following as barriers for timely mine relinquishment:

⁹¹ See for example, Submission 15, Green Gravity, p 6; Submission 48, Association of Mining and Exploration Companies (AMEC), p 3; Submission 68, Liverpool Plains Shire Council, pp 15-16.

⁹² Submission 48, Association of Mining and Exploration Companies (AMEC), p 3.

⁹³ Submission 69, NSW Government, p 13.

⁹⁴ Submission 69, NSW Government, p 13.

⁹⁵ Submission 69, NSW Government, p 13.

⁹⁶ Submission 69, NSW Government, p 14.

- **Financial barriers:** Mining companies face financial disincentives to relinquish mines and move to beneficial land use. Relinquishment is currently an expensive and lengthy process in NSW. In addition, changing conditions of consent to beneficial land use involves considerable effort and cost which mining companies are reluctant to undertake.
- **Regulatory barriers:** Complex regulatory frameworks in NSW and complex pathways may deter mining companies from relinquishing i.e. it is easier to leave land as safe, stable and non-polluting rather than embark on a lengthy (and often costly) relinquishment process.
- **Residual risk concerns:** Uncertain long-term liabilities and risk post-relinquishment may lead mining companies to be cautious in their approach to relinquishment.
- **Environmental remediation:** Progressive remediation, as part of the development consent as well as ongoing remediation following mine closure, may still be required decades after mining activity has ceased to ensure the mining land is safe, stable and non-polluting.⁹⁷

2.12 The NSW Minerals Council claimed that there is broad consensus among 'government, industry, developers and many local mining communities that the current regulatory framework is not fit for purpose to facilitate alternative post-mine land uses outside of the traditional pasture/conservation land expectations'.⁹⁸

Complexity of the regulatory framework

2.13 This section explores the complexity of the planning and regulatory processes for post-mining land use. This may require the obtaining of multiple overlapping approvals involving various legislation and government departments, potentially leading to delays and deterring companies from pursuing alternative land uses.

2.14 Singleton Council described the closure planning requirements as a 'confusing array of intertwined management actions and outcomes'.⁹⁹ They described how the strategies and plans documenting the requirements of the *Environmental Planning and Assessment Act 1979* and the *Mining Act 1992* could at times appear to be contradictory.¹⁰⁰

2.15 The NSW Minerals Council highlighted the resource intensive nature of investing in alternative land uses for former mine sites, identifying a number of factors that form part of the regulatory framework that act as disincentives:

... complex requirements to obtain multiple approvals under multiple pieces of legislation; inflexible modification application requirements limiting the ability to change land use and landform outcomes; complexity around rehabilitation sign off; and

⁹⁷ Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 2-3.

⁹⁸ Submission 59, NSW Minerals Council, p 1.

⁹⁹ Submission 18, Singleton Council, p 13.

¹⁰⁰ Submission 18, Singleton Council, p 13.

uncertainty around long term liability responsibility, along with exhaustive approval timeframes.¹⁰¹

2.16 The table below, produced by the NSW Minerals Council, sets out the various approvals required for a new development on a mine site.

Table 2 Approvals required for a new development on a mine site¹⁰²

Outcome	Application
Resources Regulator – Rehabilitation and mine closure approval to relinquish the mining lease	Completion of rehabilitation and relinquishment (Mining Act). Note: If the rehabilitation, land use or landform outcomes are different to the original development approval, a modification application must be approved to enable the Resources Regulator to certify that the new rehabilitation is complete and for the mining lease to be relinquished.
Department of Planning, Housing Infrastructure (DPHI) – Change the original mine operation development approval to enable	Modification Application (EP&A Act) - A modification application of the existing mine consent to change the rehabilitation, land use and landform commitments reflecting the requirements of the proposed new use such as final landform and land use outcomes. Note: A modification application can only be approved where it's substantially the same development, otherwise a full State Significant Development application would be required.
Environmental Protection Authority – Changes to the Environment Protection Licence (EPL)	The mine operator would need to vary their EPL to remove any new development area from the EPL which is in place over the mine site.
DPHI – Approval for a new successive use of the former mine site	A new development application is to be lodged for required for the new land use which confirms operational, landform and environmental outcomes. The application will be lodged with either the State Government if it meets State Significant Development criteria (large scale wind farm or solar farm), or the local council if it's local development (industrial or commercial development).
Local Council – Lodgement of a planning proposal (rezoning application) to change the land	Lodgement of a planning proposal for rezoning (EP&A Act) - Assuming the new use is not permissible in the relevant zone under the local environmental plan or an applicable State environmental planning policy, a rezoning

¹⁰¹ Submission 59, NSW Minerals Council, p 7.

¹⁰² Submission 59, NSW Minerals Council, pp 8-9.

Outcome	Application
zone to allow for alternative land use post-mine closure	application/ planning proposal would need to be lodged with the local council to enable the new use.

Source: Submission 59, NSW Minerals Council, pp 8-9.

- 2.17** The NSW Minerals Council stated that obtaining these separate but interrelated approvals under different legislation and different government organisations 'takes significant resources and time to navigate'.¹⁰³
- 2.18** Business Hunter similarly claimed that the bureaucratic 'red tape' has a negative impact on businesses and places constraint on economic efficiency.¹⁰⁴
- 2.19** In a policy position paper provided by the Institute for Regional Futures, the current regulatory frameworks in New South Wales were seen as a deterrent for mining companies relinquishing land. It suggested that it could often be easier to leave land as safe, stable and non-polluting rather than embark on a lengthy and costly relinquishment process.¹⁰⁵
- 2.20** On the other hand, Ms Georgina Beattie, Deputy Secretary, NSW Resources, stressed the importance of managing environmental and safety risks when considering possible reforms to streamline the process.¹⁰⁶ Ms Beattie advised that the systems exist to manage residual risk and to avoid potential impact. She stated 'the hurdles are there for a reason. If there's to be change, we just need to carefully consider what that would look like and how we manage the risks'.¹⁰⁷

Regulatory barriers and disincentives for alternative land use

- 2.21** The regulatory framework governing post-mining land use was identified as a significant barrier to innovative and adaptive reuse of mining land. Stakeholders emphasised that the current focus on restoring land to its original pre-mining state often discourages alternative uses that may be of benefit. The committee heard that there were very few incentives for mining companies to relinquish land or pursue beneficial uses. Stakeholders called for more flexible and streamlined regulatory pathways and consent processes to support innovative outcomes.

Focus on restoring land to pre-mining state

- 2.22** Several inquiry participants noted that the current approach to mine closure hindered the adaptive reuse of mined lands. According to the Institute for Regional Futures, this process typically involves the decommissioning of mine assets, rehabilitation, relinquishment of the

¹⁰³ Submission 59, NSW Minerals Council, p 9.

¹⁰⁴ Submission 62, Business Hunter, p 5.

¹⁰⁵ Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

¹⁰⁶ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 37.

¹⁰⁷ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 43.

mining lease, and the transfer of ownership, and focuses on land being safe, stable and non-polluting before the cessation of the lease.¹⁰⁸

2.23 Ms Sharon Pope, Director, Environment and Planning, Muswellbrook Shire Council, described how a focus on restoring land to its original state does not consider changes to technology, the economy, society, and the environment that have occurred since the original approval was granted.¹⁰⁹ Ms Pope suggested that some of these areas were suitable for renewable energy, recreation, or intensive or extensive farming and emphasised that 'We need outcomes that are nature positive and improve natural capital that replace the number of mining jobs with new skilled jobs and create a place where people want to live and visit. We need to commence action to drive these outcomes prior to the closure of mines'.¹¹⁰

2.24 The focus of traditional rehabilitation efforts on restoring land to its original pre-mining condition may discourage mining companies and developers from pursuing alternative uses. This includes emerging uses, such as renewable energy, that were not considered at the time of approval for many mines.¹¹¹

2.25 The NSW Minerals Council emphasised the need for a framework that balances past commitments with evolving opportunities, stating that it is 'short sighted' not to explore the potential advantage of facilitating new developments, including alignment with current needs such as renewable energy, recreation, or agriculture.¹¹² However, it was their view that the complexity and uncertainty of the current structure of the regulatory framework can hinder this and stop the exploration of other significant potential opportunities:

It's currently less complicated for a mining company to return land to pastoral land or woodland consistent with the original development consent and mine lease requirements, compared to examining other land use opportunities.¹¹³

2.26 Liverpool Plains Shire Council argued for a balanced approach, describing a 'robust regulatory framework' as 'one that ensures that the land is safe and stable but not so risk averse that the land is in effect sterilised for any future use beyond grazing or woodland'.¹¹⁴

Development consent and historical commitments

2.27 The committee heard that historical commitments may have limited the adaptive reuse of former mining sites. Stakeholders noted that these limitations stem from the development

¹⁰⁸ Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

¹⁰⁹ Evidence, Ms Sharon Pope, Director, Environment and Planning, Muswellbrook Shire Council, 20 August 2024, p 2.

¹¹⁰ Evidence, Ms Sharon Pope, Director, Environment and Planning, Muswellbrook Shire Council, 20 August 2024, p 2.

¹¹¹ Submission 59, NSW Minerals Council, p 1.

¹¹² Submission 59, NSW Minerals Council, pp 1 and 5.

¹¹³ Submission 59, NSW Minerals Council, p 7.

¹¹⁴ Submission 68, Liverpool Plains Shire Council, p 16.

consent process, where final landforms and land uses are determined at the outset of a mining project.¹¹⁵

2.28 The Government noted that post-mining land use must be considered upfront as part of the development consent process for a mine, often decades in advance.¹¹⁶ As a result it may not account for future demand for the land.¹¹⁷ They acknowledged that while the *Environmental Planning and Assessment Act 1979* provides some flexibility to modify development consent to allow a different outcome, the extent to which it is possible varies.¹¹⁸

2.29 The Government explained the rationale for establishing the rehabilitation conditions as part of the approval process, namely to provide suitable conditions for land transition and to enable regulatory oversight:

Setting rehabilitation conditions upfront as part of the development process and mining lease approval is necessary to provide protections that appropriately manage environmental and safety hazards before the land transitions to a different use. It provides clear rehabilitation objectives that the Resources Regulator uses to enforce compliance with rehabilitation obligations under the mining lease.¹¹⁹

2.30 However, various inquiry participants consistently identified the complexity of navigating the consent process as a major deterrent to pursuing alternative land uses.¹²⁰

2.31 The NSW Minerals Council noted that modifying development consent can be difficult as it requires demonstrating that the proposed modification remains 'substantially the same development for which consent was originally granted'.¹²¹ In addition, the title for a mining lease is unable to be relinquished until the new development is finalised and the Resources Regulator certifies that rehabilitation is complete.¹²² They argued that this makes development of the site 'complex and unattractive' for the following reasons:

- Third party investment and development are required, but there is no certainty that the mining lease will be relinquished.
- The mine operator will need to continue to hold the mining lease, while a developer is developing the site.
- The mining operator continues to be liable for the site, while works are carried out potentially by third parties.
- The mine operator needs to maintain the security deposit for the mining lease, which now will have a significantly different set of risks. It is not clear how this is viewed by the providers of surety.

¹¹⁵ See: Submission 62, Business Hunter, p 2; Submission 21, MACH Energy, p 4; Submission 25, Hunter Joint Org; Submission 61, Yancoal, pp 2-3.

¹¹⁶ Submission 69, NSW Government, pp 3 and 10.

¹¹⁷ Submission 69, NSW Government, p 10.

¹¹⁸ Submission 69, NSW Government, p 10.

¹¹⁹ Submission 69, NSW Government, p 10.

¹²⁰ See, for example, Evidence, Ms Sharon Pope, Director, Environment and Planning, Muswellbrook Shire Council, 21 August 2024, p 17; Submission 18, Singleton Council, p 4-13; Submission 32, BHP, p 3.

¹²¹ Submission 59, NSW Minerals Council, pp 16-17.

¹²² Submission 59, NSW Minerals Council, p 11.

- The mining lease brings with it a particular set of work health and safety standards that non-mining developers and contractors will find onerous to meet.¹²³

- 2.32** Coal producer, Yancoal, emphasised the 'disconnect' between final landforms approved under development consents and the realities of post-mining rehabilitation.¹²⁴ They described the pathways to amending development consents as 'limited, costly, complex and tak[ing] a long period of time'.¹²⁵ Yancoal argued that the 'high thresholds' to amending the development consent deters companies from pursuing post-mining land uses that deviate from the approved plans.¹²⁶
- 2.33** The Institute for Regional Futures proposed a more adaptive regulatory pathway to expedite beneficial land use, emphasising the need for flexibility and a faster consent process. They argued that this would enhance investor confidence and enable transitions to land uses that differ from those originally defined in mining lease or development consents, while maintaining safety, stability and environmental protections.¹²⁷

Zoning restrictions

- 2.34** Zoning was identified by some as having a role in shaping the future use of mining land. Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, highlighted the challenges in aligning land use zoning plans with desired land use outcomes, acknowledging that while the planning system does allow for changes, having 'the money and the studies and the timing right' can be difficult to achieve.¹²⁸
- 2.35** Potential issues with the restrictive nature of zoning laws were also raised by some stakeholders. Singleton Council explained that mining operations within their local government area are typically zoned RU1 (rural).¹²⁹ The objectives of this zone include encouraging sustainable primary industry production as well as diversity in primary industry enterprises.¹³⁰ Changes to zoning require an amendment to the local environmental plan.¹³¹
- 2.36** Wollondilly Shire Council emphasised the importance of adhering to current land use zoning regulations.¹³² The Council strongly opposed using mining lands for residential purposes, noting

¹²³ Submission 59, NSW Minerals Council, pp 11-12.

¹²⁴ Submission 61, Yanocal, p 3.

¹²⁵ Submission 61, Yancoal, p 3.

¹²⁶ Submission 61, Yancoal, pp 2-3.

¹²⁷ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

¹²⁸ Evidence, Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 9.

¹²⁹ Submission 18, Singleton Council, p 14.

¹³⁰ Submission 18, Singleton Council, p 14.

¹³¹ Submission 18, Singleton Council, p 14.

¹³² Submission 16, Wollondilly Shire Council, p 3.

that existing mines are located outside growth areas.¹³³ They argued that post-mining land uses should 'reflect the current zoning of the land being rural or conservation'.¹³⁴

2.37 Nonetheless, Wollondilly Shire Council shared that they are preparing amendments to their local planning framework to allow for the more diverse use of rural lands and to help increase their visitor economy through tourism.¹³⁵ They viewed the most appropriate post-mining use of land in their area as that which boosts tourism, including accommodation options such as camping and eco-tourism.¹³⁶

2.38 Other councils are also considering the possibilities for land zoned as rural. For example, Singleton Council is currently undertaking a rural land use strategy.¹³⁷ This involves looking at all of their land that is zoned as rural, including mining land, and considering how it could be used in future in relation to employment, tourism, conservation, mining and housing.¹³⁸

2.39 Complexities around zoning issues may also discourage third party investment. Mr Martin Rush from the Association of Mining and Energy Related Council referred to the Liddell site in Muswellbrook as an example, where rezoning efforts have been ongoing for eight years.¹³⁹ Mr Rush described how difficulties around zoning have hindered otherwise interested parties:

But, once they realised the zoning wasn't right, the infrastructure wasn't correct and that key aspects of the planning system weren't ready, they walked away for other international sites. We're talking about large data companies and other companies that would have added enormous value to the New South Wales economy.¹⁴⁰

2.40 Ms Claire Doherty, Policy Director, NSW Minerals Council, suggested that the process for 'dealing with the current consent for the mining project, the mining lease and the new consent for the new project and the rezoning' could be streamlined by potentially bringing together the rezoning and development approvals by combining them into a unified process.¹⁴¹

2.41 The difficulties presented by zoning were recognised by the Government. Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, acknowledged that predicting future land use through the zoning of mines at an early stage can sometimes hinder alternative land uses.¹⁴² He accepted that there may be

¹³³ Submission 16, Wollondilly Shire Council, p 6.

¹³⁴ Submission 16, Wollondilly Shire Council, p 6.

¹³⁵ Submission 16, Wollondilly Shire Council, p 6.

¹³⁶ Submission 16, Wollondilly Shire Council, p 6.

¹³⁷ Evidence, Mrs Mary-Anne Crawford, Manager, Development and Environment Services, Singleton Council, 20 August 2024, p 13.

¹³⁸ Evidence, Mrs Mary-Anne Crawford, Manager, Development and Environment Services, Singleton Council, 20 August 2024, p 13.

¹³⁹ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Council, 5 August 2024, p 15.

¹⁴⁰ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Council, 5 August 2024, p 14.

¹⁴¹ Evidence, Ms Claire Doherty, Policy Director, NSW Minerals Council, 12 August 2024, pp 16-17.

¹⁴² Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 35.

opportunities to streamline the system in relation to zoning and allow for more flexible land use.¹⁴³

- 2.42** Ms Georgina Beattie, Deputy Secretary, NSW Resources, stated that '[i]f there is an opportunity to accelerate or make it easier to change that final land use that could incentivise companies, both investors and the mining industry, to look at some of those alternatives'.¹⁴⁴ Nonetheless, she stressed that changes to final land use require a change to development consent and that 'any change that would allow that needs to balance the need to ensure that rehabilitation is undertaken appropriately'.¹⁴⁵
- 2.43** The Place Delivery Group program is an example of a strategic initiative to help accelerate and support construction in the Central Coast and the Hunter (a region key to the mining transition). This program is explored in the case study below.

Case study Place-based approaches such as Place Delivery Group (PDG) program¹⁴⁶

The extent to which former mine sites and its wider region can be repurposed and reimagined after a mine closes is dependent on various factors, including land suitability, road access, market demands, community needs, stakeholder feedback, and investment of time and money.¹⁴⁷

Currently, redevelopment on former mining sites can be hampered by regulatory requirements, including final landform consent, zoning restriction, or other barriers which slow down progress and delay investment and economic growth.¹⁴⁸

By contrast, a 'place-based' approach prioritises urban development tailored to specific regions, aligned with local needs – such as new housing supply, amenities, roads and other infrastructure needs.¹⁴⁹ A place-based strategy aims to provide a balanced approach to development, including:

- a mix of housing types near amenities like parks, shops, schools and transport
- sustainable conservation and development outcomes
- good roads and infrastructure

¹⁴³ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 35.

¹⁴⁴ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 7.

¹⁴⁵ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 7.

¹⁴⁶ See, Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, pp 13, 16 and 18; Department of Planning and Environment, *Place Delivery Group program for Central Coast and Hunter*, August 2023, p 4; Submission 69, NSW Government, pp 13 and 22; Submission 18, Singleton Council, p 2; Submission 47, Lake Macquarie City Council, pp 2 and 13; Submission 59, NSW Minerals Council, p 4; Submission 73, CSIRO, p 48; Submission 21, MACH Energy Australia Pty Ltd, p 5; Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 31; Submission 37, Ms Amanda Wetzel, p 3; Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 19; Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 8.

¹⁴⁷ See, for example, Submission 18, Singleton Council, p 2; Submission 47, Lake Macquarie City Council, p 13; Submission 59, NSW Minerals Council, p 4; Submission 69, NSW Government, p 22.

¹⁴⁸ See, for example, Submission 73, CSIRO, p 48; Submission 21, MACH Energy Australia Pty Ltd, p 5; Submission 47, Lake Macquarie City Council, p 2.

¹⁴⁹ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 13.

- staged development of facilities based on community need.¹⁵⁰

Professor Roberta Ryan from the Institute for Regional Futures spoke about the importance of treating places at a 'regional scale' so as to better inform decisions and understand community needs:

[I]t's about treating places at this regional scale, joining up all of the evidence at that scale and creating an evidence base around what are community aspirations all the way through to what are the impediments to investment in these locations.¹⁵¹

A new place-based strategy initiative by the NSW Department of Planning and Environment is 'Place Delivery Group' program.¹⁵² This program was introduced as part of the Hunter Regional Plan 2041 with the aim of resolving planning and infrastructure constraints for the mining region.¹⁵³

By aligning local government and state government efforts, the Place Delivery Group program can provide a more 'coordinated, collaborative, and holistic response' to planning and infrastructure servicing issues.¹⁵⁴

The Place Delivery Group program is still in its early stages and as yet still untested.¹⁵⁵ However, the strategy shows strong potential to reduce constraints and make land ready for redevelopment, especially where existing infrastructure like roads, rail and other services are already located.¹⁵⁶

The relevance of place-based approaches extends beyond the Hunter, and could be used to support the economic transition of other coal reliant regions such as the Central West, Illawarra and North West.¹⁵⁷ To this end, researcher Dr Simon Wright from Gulbali Institute at Charles Sturt University, stressed the importance of leadership, as well as investment from all levels of government to support the transition and address community needs.¹⁵⁸

Lack of incentives for adaptive land use

- 2.44** The Government identified a number of initiatives supporting post-mining land use, including facilitation support for mine closure and changes to post-mining land use and the provision of

¹⁵⁰ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 18.

¹⁵¹ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 31.

¹⁵² Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 16.

¹⁵³ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 16.

¹⁵⁴ Department of Planning and Environment, *Place Delivery Group program for Central Coast and Hunter*, August 2023, p 4.

¹⁵⁵ Submission 37, Ms Amanda Wetzel, p 3.

¹⁵⁶ Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, to Committee, received 31 October 2024 – Attachment, Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 19.

¹⁵⁷ Submission 69, NSW Government, p 13.

¹⁵⁸ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 8.

comprehensive guidance materials.¹⁵⁹ It highlighted the potential for the Office of Regional Economic Development to use mine sites to attract private sector investment:

Mine sites often have many attributes that are attractive for these kinds of commercial post mining land use opportunities and approaching PMLU through a strategic planning lens that considers investment opportunities may support unlocking further investment attraction opportunities in the regions.¹⁶⁰

- 2.45** Ms Beattie acknowledged that there are some 'great opportunities' to use renewable energy at mine sites because of existing infrastructure.¹⁶¹
- 2.46** However, a number of stakeholders highlighted the lack of incentives for exploring the adaptive and beneficial reuse of former mining land. The Institute for Regional Futures emphasised that mining companies often retain ownership of unproductive mines as relinquishing land was seen as a complex and a resource intensive process.¹⁶² They detailed how mining land use is managed as a standalone process involving mining companies and government agencies, with land often 'locked up' until mining ceases, assets are decommissioned and rehabilitation is complete.¹⁶³ They highlighted the need to integrate consideration of beneficial land use throughout the mining lifecycle, arguing that the range of post-mining land uses could be broadened beyond traditional options like grazing and native vegetation to include renewable energy, horticulture, tourism and intensive livestock production.¹⁶⁴
- 2.47** Further, the Institute for Regional Futures explained that although recent efforts aim to enable faster and more flexible transitions, regulatory requirements and the lengthy relinquishment process can delay the implementation of beneficial land uses, hindering community development and economic diversification. Additionally, mining companies may retain land due to residual risk management obligations, leaving it unused for extended periods despite being in a safe, stable, and non-polluting condition.¹⁶⁵
- 2.48** Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, described how the current relinquishment process and regulatory obligations can act as a disincentive for adaptive post-mining land use. He observed that there is little incentive for a mining company to complete

¹⁵⁹ Submission 69, NSW Government, p 20.

¹⁶⁰ Submission 69, NSW Government, p 20.

¹⁶¹ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 7.

¹⁶² Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

¹⁶³ Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

¹⁶⁴ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 7.

¹⁶⁵ Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

the relinquishment process as it is resource intensive with little gain.¹⁶⁶ In the case of BlackRock Motor Resort, the regulatory process has caused substantial delays:

If we'd received ESF2 sign-off [NSW Mining Regulator form for evidence of rehabilitation] and were able to get on and start doing our development—which was approved through the DA process—while we're waiting for the final relinquishment paperwork to be done, and there was no penalty for the mining company in letting us get on their land or for us getting on there, then we would be four years ahead of where we are right now.¹⁶⁷

2.49 Other inquiry participants pointed to systemic issues in the regulatory framework as a disincentive to post-mining land use. Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, emphasised how the current framework discourages companies from exploring innovative post-mining uses. He warned that, without reform, companies will default to their existing rehabilitation obligations, 'which will make pursuing alternative economic opportunities and renewable energy projects even more difficult'.¹⁶⁸

2.50 Coal producers, Yancoal and BHP, also underscored the need to incentivise relinquishment and adaptive reuse.¹⁶⁹ Yancoal explained that the extended and costly nature of rehabilitation, coupled with bureaucratic hurdles, disincentives innovative land reuse, such as energy projects or commercial ventures.¹⁷⁰

2.51 Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, a renewable energy storage provider, added that the current lack of transparency and certainty around relinquishment deters miners and external developers from pursuing new uses:

New South Wales has a large opportunity for repurposing mines. We have thousands of sites across the State, many with attractive potential. We also have lacked the traditional history of achieving relinquishment of these sites for future use... The incentives need to change. Miners who are doing the right thing and are working to rehabilitate and relinquish their sites can't get certainty around relinquishment currently. Miners who are not actively working to rehabilitate their sites face little disincentive. There is reasonably low transparency across this situation. Clean energy projects have changed the dynamic and the context for this State. The significant landholdings and significant need for energy projects—we need to bring these two things more together.¹⁷¹

2.52 Ms Morven Cameron, Chief Executive Officer, Lake Macquarie Council highlighted several barriers, including the absence of clear end-use strategies and the reluctance of mining

¹⁶⁶ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 39.

¹⁶⁷ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 40.

¹⁶⁸ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 12.

¹⁶⁹ Evidence, Ms Liz Watts, Vice-President, NSW Energy Coal, BHP, 12 August 2024, pp 23-24; Submission 61, Yancoal Australia, pp 3-4.

¹⁷⁰ Submission 61, Yancoal Australia, pp 3-4.

¹⁷¹ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

companies to prioritise relinquishment of land leases. She emphasised the importance of strategic planning tailored to the unique characteristics of each site, noting that successful outcomes require early clarity on potential land uses, such as employment generation, environmental conservation, or residential development.¹⁷²

- 2.53** Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, echoed these concerns, stating the lack of tangible incentives for mining companies to progress through the final stages of lease relinquishment. He observed that, for mining companies, post-mining land use often holds limited priority compared to their broader operational goals, resulting in protracted timelines for relinquishment. Mr Palmer suggested that government-backed grants loans or guarantees could mitigate risks and accelerate development on former mining sites.¹⁷³ He argued for greater flexibility during transitional stages, such as allowing developers to begin work on approved projects before final relinquishment is complete. Mr Palmer also stressed the importance of market-driven approaches to envisioning future uses of post-mining land, urging governments to create supportive frameworks rather than dictate specific outcomes.¹⁷⁴
- 2.54** The potential implications of disrupting the status quo also emerged as a possible barrier that discourages mining companies from exploring other uses. Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, emphasised the reluctance of mining companies to alter their original approvals, even when opportunities for beneficial land use arise.¹⁷⁵ She noted that mining companies are apprehensive about opening up approvals for fear of triggering more stringent environmental regulations than those under which they were initially approved. It was her view that this regulatory risk discourages companies from considering uses such as battery storage, transmission lines or biodiversity projects, despite the potential for these to coexist with current operations. Professor Ryan argued that addressing this disincentive is critical, suggesting that mechanisms could be developed to allow beneficial reuses without jeopardising the core business activities of mining companies.¹⁷⁶

Partial relinquishment of mine sites

- 2.55** One option that emerged during the inquiry was partial relinquishment as a practical and flexible approach to post-mining land management. A number of stakeholders noted that partial relinquishment allows sections of a mine site to be rehabilitated and repurposed for different uses, enabling a phased transition. This approach addresses challenges posed by the large and diverse nature of mine sites, ensuring that land can be returned to productive use more efficiently.

¹⁷² Evidence, Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council, 21 August 2024, p 3.

¹⁷³ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 39.

¹⁷⁴ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 43.

¹⁷⁵ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 28.

¹⁷⁶ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 28.

- 2.56** Ms Amanda Wetzel, an urban and regional planner, stated that 'very few' mines achieve full relinquishment, and trying to reach full relinquishment is 'setting ourselves up to fail'.¹⁷⁷ Ms Wetzel suggested that a framework could be adopted where certain uses are permitted prior to relinquishment.¹⁷⁸
- 2.57** Green Gravity explained the benefits of partial rehabilitation as an option, provided there are clear guidelines supporting it:

Partial rehabilitation could be a viable approach, wherein specific parts of the mine, like shafts used for energy storage, are rehabilitated to the required standards. This approach can facilitate the return of bonds to the original mining operators while ensuring that the new use meets environmental safety standards. Clear guidelines and frameworks to support partial rehabilitation and transition of responsibilities from miners to new operators will be required to ensure that post-mining land uses contribute positively to local communities and the economy.¹⁷⁹

- 2.58** The Government acknowledged that, given the long timeframes for mine site rehabilitation, partial rehabilitation allows for the progressive release of land, facilitating the transition of rehabilitated areas to approved final land uses.¹⁸⁰ They illustrated the potential of partial relinquishment through reference to examples such as the BlackRock Motor Resort, where 'part of that site was relinquished and is now being developed for a different use'.¹⁸¹
- 2.59** Mr Peter Day, Executive Director, NSW Resources Regulator advised that partial relinquishment was the most common form of rehabilitation sign off in New South Wales.¹⁸² Mr Day considered that this approach would likely continue as it allows companies to do a 'discrete bit of work there, potentially freeing up some funds under our current framework that they can put into other rehab activities going forward'.¹⁸³

Buffer zone redevelopment opportunities

- 2.60** Several stakeholders discussed the challenges of repurposing land within buffer zones. These are areas that 'immediately adjoin mine sites, are owned by the mine operators, but are not currently incorporated into final land use plans'.¹⁸⁴ In some cases, mining companies own substantial portions of buffer zone land which have been acquired to mitigate the impacts of mining activity such as air and noise pollution.¹⁸⁵
- 2.61** Hunter Renewal specifically highlighted the significance of buffer zones in the Hunter region. They noted that these lands have the potential to be turned into biodiversity corridors, linking

¹⁷⁷ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 35.

¹⁷⁸ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, pp 34-35.

¹⁷⁹ Submission 15, Green Gravity, p 5.

¹⁸⁰ Submission 69, NSW Government, p 11.

¹⁸¹ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, pp 40-41.

¹⁸² Evidence, Mr Peter Day, Executive Director, NSW Resources Regulator, 17 December 2024, p 38.

¹⁸³ Evidence, Mr Peter Day, Executive Director, NSW Resources Regulator, 17 December 2024, p 38.

¹⁸⁴ Submission 63, Hunter Renewal, p 3.

¹⁸⁵ Submission 38, Lock the Gate Alliance, pp 3-4.

over 40,000 hectares of biodiversity offset land held by Hunter mining companies thereby enhancing ecological functionality.¹⁸⁶

2.62 NSW Government representatives explained that current planning systems treat buffer zone land based on zoning rather than strategic merit, detailing how the current planning system manages development proposals in buffer zones. Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, stated that the use of land in buffer zones could be explored where there is strategic merit in doing so:

Currently it treats each site as it's zoned and so it doesn't distinguish necessarily in every case at the strategic or zoning level between operational and non-operational land—operational land being where mining activity has occurred or there have been effects of that mining activity, whereas the non-operational land is generally the buffer zone area. I know that there have been suggestions from witnesses before us and landowners about using buffer zone land or non-operational land. That's absolutely something that could be explored on a site-by-site basis if there is that strategic merit for those particular sites.¹⁸⁷

2.63 The Department of Planning, Housing and Infrastructure explained that mining companies can, and sometimes do, use buffer zones for the purpose of fulfilling environmental offset requirements for their respective mining projects. However, for these areas to be used, they must meet certain conditions set out in the NSW Biodiversity Offsets Policy and contain areas of environmental value, unique habitats and/or biodiversity features.¹⁸⁸

2.64 However, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, recognised that there are some limitations to repurposing land in buffer zones due to a lack of existing infrastructure, which could limit suitability for redevelopment. Nonetheless, he acknowledged that site-specific evaluation could identify viable uses for buffer zones.¹⁸⁹

Ownership of risks and liability

2.65 Various inquiry participants raised concerns about residual risk and the need for improved governance and compliance oversight. This section discusses the need for financial mechanisms and legislative reform to address residual risks and liabilities in post-mining land use.

¹⁸⁶ Submission 63, Hunter Renewal, pp 2-3.

¹⁸⁷ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 38.

¹⁸⁸ Answers to questions on notice, Mr Tom Loomes and Chris Ritchie, Department of Planning, Housing and Infrastructure, received 24 January 2025, p 1.

¹⁸⁹ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 39.

Managing residual risks and liabilities in post-mining land use

- 2.66** Long term future risks to community and government are often described as 'residual risks'.¹⁹⁰ There can be uncertainty for government, industry and developers about where responsibility for these risks fall after a mining lease has been relinquished and how they should be managed.¹⁹¹
- 2.67** Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, described residual risk as an 'ongoing process' and warned of the danger in thinking residual risk can be evaluated at the end.¹⁹²
- 2.68** Dr Unger referred to her work with the International Organisation for Standardisation in developing a standard on managing mining legacies.¹⁹³ She outlined the benefits of a comprehensive governance framework, transparent stakeholder engagement and the adoption of standards to ensure liabilities are fully accounted for and long-term funding is in place.¹⁹⁴
- 2.69** Lock the Gate Alliance informed the committee that it had obtained documents under the *Government Information Public Access (GIPA) Act 2009* that referred to discussions between the Government, ten mining companies and the NSW Minerals Council regarding post-mining land use. Lock the Gate Alliance argued that these documents revealed that mining companies were seeking to avoid responsibility for 'the residual long-term risk of failed rehabilitation on mine sites' and wanted to alter approved final landforms and rehabilitation commitments plans without planning approval.¹⁹⁵
- 2.70** Lock the Gate Alliance expressed concern that some mining operators are attempting to evade their responsibility to leave mines in a 'safe, stable and non-polluting state', and noted the absence of formal mechanisms to manage long-term environmental risks once mining leases are relinquished.¹⁹⁶ Mr Steve Phillips, Hunter Coordinator, Lock the Gate Alliance, emphasised the need to strengthen obligations on mining companies for rehabilitation.¹⁹⁷ He also stressed the impact on biodiversity and loss of agricultural land should sites not be returned to the strict criteria specified in final land-use plans.¹⁹⁸
- 2.71** Ms Georgina Beattie, Deputy Secretary, NSW Resources noted that, in some cases, developers have been allowed to take on manageable risks, but in other more significant cases regulatory

¹⁹⁰ Submission 69, NSW Government, p 3.

¹⁹¹ Submission 69, NSW Government, p 3.

¹⁹² Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, pp 37-38.

¹⁹³ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 35.

¹⁹⁴ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, pp 35-36.

¹⁹⁵ Submission 38, Lock the Gate Alliance, p 6.

¹⁹⁶ Evidence, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance, 5 August 2024, p 42.

¹⁹⁷ Evidence, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance, 5 August 2024, p 43.

¹⁹⁸ Evidence, Mr Steve Phillips, Hunter Coordinator, Lock the Gate Alliance, 5 August 2024, pp 42-43.

reform would be required to ensure long-term environmental risks are managed.¹⁹⁹ She said the Government must be confident that land is stable and safe before signing off on rehabilitation, and that financial assurances remain essential for managing future risks.²⁰⁰

2.72 Mr Peter Day, Executive Director, NSW Resources Regulator, assured the committee that the preplanning and monitoring processes embedded in the regulatory framework ensure that ongoing risks are addressed:

The more we can do of that, the more we mitigate against residual risk into the future. There's always been some residual risk, but the scale of it, as opposed to what we were talking about some time ago, has certainly changed because of the robustness of the programs and the robustness of the regulatory framework in New South Wales as well as we speak around that process. So where we are now is certainly a lot better, in terms of managing that issue going forward. In terms of sign-off of the rehab, that's one of our critical things—to make sure that if there's significant risk identified, we've got to be satisfied that's been addressed before we can sign off that project itself.²⁰¹

The role of security deposits

2.73 Mining companies are required lodge a security deposit with the Government based on the estimated cost of rehabilitating a mine.²⁰² This deposit may be used to fund rehabilitation should the mining company default. However, if the Regulator is satisfied that rehabilitation has achieved the approved final landform, the security deposit is returned.²⁰³

2.74 The possible insufficiency of security deposits emerged as a concern during the inquiry. The Mining & Energy Union noted a 'significant shortfall in rehabilitation security bonds for NSW mines'.²⁰⁴ It strongly supported strict and effective monitoring and compliance measures to see the goals of rehabilitation achieved.²⁰⁵

2.75 The Audit Office of NSW noted its 2017 performance audit on mining rehabilitation security deposits.²⁰⁶ The audit found that mining rehabilitation security deposits 'were not likely to be sufficient to cover the full costs of each mine's rehabilitation in the event of a default'.²⁰⁷ Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, described the lack of financial assurance regarding risk:

¹⁹⁹ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2023, p 5.

²⁰⁰ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2023, p 5.

²⁰¹ Evidence, Mr Peter Day, Executive Director, NSW Resources Regulator, 17 December 2024, p 40.

²⁰² NSW Resources, *Security deposits* (2025), <https://www.resources.nsw.gov.au/resources-regulator/mine-rehabilitation/security-deposits>

²⁰³ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 11.

²⁰⁴ Submission 43, Mining & Energy Union, pp 1-2.

²⁰⁵ Submission 43, Mining & Energy Union, p 2.

²⁰⁶ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 30.

²⁰⁷ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 30.

The department could not ensure it was monitoring mine sites effectively to gauge progress with ongoing site rehabilitation and management of closure risks. There was no financial assurance held over the risk of significant environmental degradation in the long term after effects of mines that were deemed to have been rehabilitated.²⁰⁸

- 2.76** In its report, the Audit Office recommended 'improving the quality of rehabilitation and closure plans, collaboration with relevant agencies to establish a financial assurance mechanism and improving assurance that security deposits are sufficient'.²⁰⁹
- 2.77** The Audit Office has since noted improvements in security deposits, with the total value increasing from \$2.2 billion to \$3.9 billion as of June 2024.²¹⁰ However, it stressed the importance of maintaining current security guarantees to safeguard against company insolvencies.²¹¹ The Audit Office indicated that it will continue to evaluate how the department integrates international best practice into its framework.²¹²
- 2.78** Hunter Renewal advocated leveraging the current profitability of mining companies to increase the financial provisions that are in place.²¹³
- 2.79** Some stakeholders supported the introduction of a levy on mining operators to fund rehabilitation to ensure that the full cost of rehabilitation is covered, preventing the financial burden falling on the public.²¹⁴ Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW stressed that the expenditure of such funds and determination of future land uses should 'be guided by community voices'.²¹⁵
- 2.80** Examples from Queensland and Western Australia were cited which emphasised the benefits of pooling financial resources to address residual risks and secure long-term funding for rehabilitation and adaptive reuse of land.
- 2.81** The Queensland Mine Rehabilitation Commissioner, Mr James Purtill, described finding a balance to ensure that the industry is 'paying its fair share', but not 'crippling economic activity' by imposing high residual risk costs.²¹⁶ Mr Purtill explained that, in Queensland, the estimated

²⁰⁸ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 30.

²⁰⁹ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 30.

²¹⁰ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, pp 33-34.

²¹¹ Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 32.

²¹² Evidence, Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales, 17 December 2024, p 31.

²¹³ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 29.

²¹⁴ Submission 43, Mining & Energy Union, pp 7-8; Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 39.

²¹⁵ Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, pp 39-40.

²¹⁶ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 25.

rehabilitation liability is \$13.7 billion, with about half held in a dedicated fund and the rest secured through bank guarantees.²¹⁷

- 2.82** Green Gravity cited the model in Western Australia where mining companies contribute to a fund that supports rehabilitation efforts, including for closed sites. Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, suggested that this approach allows greater flexibility, facilitates the repurposing of land and unlocking of economic opportunities.²¹⁸
- 2.83** Hunter Joint Organisation, a group representing the 10 mayors of the Hunter region, advocated for a comprehensive review of relevant legislation, especially the *Mining Act 1992*, to address barriers to relinquishing mining leases and to establish mechanisms for securing rehabilitation funds.²¹⁹
- 2.84** Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, proposed a flexible approach that considers community needs:

...we need some mechanism to be able to, in my mind, reserve some of the funds that they would've spent on rehabilitation and infrastructure removal, have that invested. We can relinquish the mining lease. They can leave the site if that's their intention. Then if over a period of time—whether that's 20 years—we've been unable to find a new use for that site and for that infrastructure, and we admit that it's time that that infrastructure now needs to be removed, there's a source of funds to do it. There needs to be certainty for the community that we can be flexible, but while we're being flexible we're not going to impose significant potential costs on future communities. It's complicated.²²⁰

The potential for greater streamlining and alignment

- 2.85** Various inquiry participants viewed the regulatory framework for post-mining land use in New South Wales as inefficient and highlighted the need for a system that streamlined processes and aligned government policies at all levels.²²¹
- 2.86** The NSW Minerals Council highlighted the complexities of obtaining approvals under various legislation and involving multiple government agencies.²²² They advocated for a 'simpler and

²¹⁷ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 26.

²¹⁸ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 48.

²¹⁹ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 21 August 2024, p 18.

²²⁰ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 21 August 2024, p 17.

²²¹ See: Submission 15, Green Gravity, p 6; Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 11; Submission 59, NSW Minerals Council, pp 8-9; Submission 61, Yancoal Australia Ltd, p 3.

²²² Submission 59, NSW Minerals Council, p 9.

more streamlined' relationship between the *Mining Act 1992*, *Environmental Planning and Assessment Act 1979* and other approvals to facilitate new land uses.²²³

2.87 Yancoal adopted a similar position.²²⁴ They argued that reforms would be necessary should the NSW Government want to encourage broader post-mining land use:

If the NSW Government is minded to encouraging post-mining land uses on these areas (into commercial uses beyond grazing and native vegetation, such as renewable energy generation facilities), reforms to the Planning apparatus that streamline the ability to amend development consents, or for this responsibility to be managed under the Mining Act instead, would prevent regulatory duplication and would remove a significant barrier to pivoting mines reaching the end of their productive lives to new commercial opportunities that may arise.²²⁵

2.88 Hunter Joint Organisation advocated for a regional entity to oversee and coordinate various efforts related to the future of mining regions.²²⁶ While acknowledging the good work by agencies and community groups, Mr Steve Wilson, Director, Hunter Joint Organisation stressed the need for a more strategic approach.²²⁷ Mr Wilson suggested programs like the Future Job and Investment Authorities could play a key role in helping to align various agencies, provide assistance to councils, and support local jobs, training and development opportunities.²²⁸

2.89 Hunter Joint Organisation also supported the idea of a whole-of-government approach involving both state and federal agencies. Ms Kim Carland, Advocacy and Government Relations Lead, Hunter Joint Organisation, stressed that she hoped a whole-of-government approach would include a comprehensive plan to audit the mines that are closing and their infrastructure, the impact on workers, and the timeline for planning future changes.²²⁹

2.90 There were also calls for greater alignment between the various levels of government.²³⁰ The Hunter Joint Organisation called for a review of state and federal legislation to 'address the policy and legislative change needed to create a clear and consistent policy and planning pathway for the reuse of these lands to activate new job creating activities'.²³¹

2.91 Green Gravity called for a more unified regulatory approach between the Australian states regarding the management of post-mining land use and residual risk to help reduce the burden on companies which operate across multiple jurisdictions.²³² According to Green Gravity this would 'provide clearer pathways, encouraging more companies to invest in repurposing disused

²²³ Submission 59, NSW Minerals Council, p 9.

²²⁴ Submission 61, Yancoal Australia Ltd, p 3.

²²⁵ Submission 61, Yancoal Australia Ltd, p 3.

²²⁶ Evidence, Mr Steve Wilson, Director, Hunter Joint Organisation, 21 August 2024, p 19.

²²⁷ Evidence, Mr Steve Wilson, Director, Hunter Joint Organisation, 21 August 2024, p 19.

²²⁸ Evidence, Mr Steve Wilson, Director, Hunter Joint Organisation, 21 August 2024, p 19.

²²⁹ Evidence, Ms Kim Carland, Advocacy and Government Relations Lead, Hunter Joint Organisation, 21 August 2024, p 20.

²³⁰ See: Submission 25, Hunter Joint Organisation, p 2; Submission 59, NSW Minerals Council, p 8.

²³¹ Submission 25, Hunter Joint Organisation, p 4.

²³² Submission 15, Green Gravity, p 4.

mines'.²³³ By addressing these inconsistencies, Green Gravity argued that New South Wales could position itself as a leader in innovative post-mining land use.²³⁴

- 2.92** The NSW Minerals Council listed initiatives including the Commonwealth Net Zero Economy Authority, the NSW Government's Future Jobs and Investment Authorities, and local council programs in coal mining areas, as examples of where there is a potential for coordinated efforts.²³⁵ They argued that this would 'ensure resources and funding are not wasted through unnecessary duplication, bureaucracy and administration'.²³⁶
- 2.93** In addition to consistency and collaboration across local, state, and federal government agencies, inter-jurisdictional knowledge sharing may improve processes.²³⁷ The CSIRO was of the view that this would 'allow regulators to operate beyond the business-as-usual, which may enable governments to explore how they can facilitate improved closure and transition outcomes'.²³⁸

Whole-of-government coordinated decision-making

- 2.94** As noted above, stakeholders such as Hunter Joint Organisation recommended a whole-of-government approach to post mining land use, calling for a coordinated effort across all government agencies across the whole mining lifecycle.²³⁹
- 2.95** The Institute for Regional Futures stressed that coordinated strategic decision-making could help 'unlock land to drive economic prosperity and deliver environmental outcomes and support the welfare and wellbeing of the people of NSW'.²⁴⁰
- 2.96** In response, representatives from the NSW Resources, the Department of Planning, Housing and Infrastructure noted that coordinated decision making will be provided by the Future Jobs and Investment Authorities, which are expected to lead whole-of-government input into maximising beneficial post-mining land use.²⁴¹ They advised the committee:

While government can set strategic land use objectives and potentially incentivise beneficial re-use, the supply of mining land will ultimately be determined by a company's desire to utilise its land asset. This is where the Future Jobs and Investment Authorities

²³³ Submission 15, Green Gravity, p 4.

²³⁴ Submission 15, Green Gravity. p 4.

²³⁵ Submission 59, NSW Minerals Council, p 8.

²³⁶ Submission 59, NSW Minerals Council, p 8.

²³⁷ Submission 73, CSIRO, p 49.

²³⁸ Submission 73, CSIRO, p 49.

²³⁹ Evidence, Ms Kim Carland, Advocacy and Government Relations Lead, Hunter Joint Organisation, 21 August 2024, p 20.

²⁴⁰ Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), p 5.

²⁴¹ Answers to questions on notice, Department of Primary Industries and Regional Development, NSW Resources, and the Department of Planning, Housing and Infrastructure, received 28 January 2025, pp 4-5.

can work with mine operators and local communities to explore and capitalise on opportunities.²⁴²

2.97 The Government stated that a whole-of-government approach will 'maximise the benefits from the planned closure of mining sites across NSW'.²⁴³ They noted that by reviewing the roles and responsibilities of each department and agency they can 'minimise duplication of tasks and realise previously untapped potential of mine sites helping to create new opportunities'.²⁴⁴

2.98 The Government noted the announcement of the BlueScope Master Plan for Port Kembla Surplus Land in the Illawarra region.²⁴⁵ In 2024, BlueScope released a Master Plan to reactivate land adjacent to the Port Kembla Steelworks.²⁴⁶ This multi-industrial precinct is expected to be one of the largest industrial reactivations projects in the world, proposed to provide up to 30,000 jobs.²⁴⁷ To support this project, the Government announced the establishment of a whole-of-government working group to help coordinate decision making across government departments.²⁴⁸ The working group will be chaired by the Minister for Planning and Public Spaces, who wrote in a June 2024 media release:

I am also looking forward to chairing the new 'whole of government' Working Group acting as a one stop shop for the coordination of departmental and agency decision making on the world's largest land reactivations – the equivalent of transforming land use in Sydney CBD from Circular Quay to Central Station. This confirms the strategic importance that the NSW Government places on this land transformation – not only for the Illawarra region but the whole of NSW.²⁴⁹

Demonstration projects

2.99 Despite the long history of mining in New South Wales, there is a notable absence of fully relinquished and redeveloped mine sites across the state.²⁵⁰ This absence highlights a need for more demonstration projects or pilot examples which could demonstrate post-mining land use benefits and foster improvements. Ms Amanda Wetzel noted:

²⁴² Answers to questions on notice, Department of Primary Industries and Regional Development, NSW Resources, and the Department of Planning, Housing and Infrastructure, received 28 January 2025, pp 4-5.

²⁴³ Submission 69, NSW Government, p 21.

²⁴⁴ Submission 69, NSW Government, p 21.

²⁴⁵ Submission 69, NSW Government, p 24.

²⁴⁶ Media Release, Transport for NSW, 'Future focus for transport connections to Port Kembla', 30 April 2024.

²⁴⁷ Media Release, Minister for Planning and Public Spaces, 'NSW Government backs the Illawarra's industrial future', 7 June 2024.

²⁴⁸ Media Release, Minister for Planning and Public Spaces, 'NSW Government backs the Illawarra's industrial future', 7 June 2024.

²⁴⁹ Media Release, Minister for Planning and Public Spaces, 'NSW Government backs the Illawarra's industrial future', 7 June 2024.

²⁵⁰ Submission 37, Ms Amanda Wetzel, p 2.

...very few mines ever actually achieve full relinquishment. There can be partial relinquishment. I think if you look at the S&P database globally, the fraction of mines anywhere in the world that actually get to that stage is minuscule.²⁵¹

- 2.100** Ms Amanda Wetzel suggested that the Hunter region could provide a good 'test bed' for solutions-focused efforts and suggested New South Wales would benefit from establishing an ongoing policy and practice evaluation program to foster improvements going forward.²⁵²

Implementing frameworks and guidelines

- 2.101** A number of stakeholders referred to specific frameworks and guidelines that could assist with land use management in New South Wales. These include the 'Multiple Land Use Framework', developed by the Standing Council on Energy and Resources, and the International Council on Mining and Metals 'Integrated Mine Closure: Good Practice Guide'. These are discussed in below.

Multiple Land Use Framework

- 2.102** The 'Multiple Land Use Framework' ('the Framework'), developed in 2013 by the Standing Council on Energy and Resources, was cited as a potentially helpful tool to manage conflicts and challenges that arise from competing demands for land access and use.²⁵³

- 2.103** The Multiple Land Use Framework aims to ensure that land is not locked into single-use decisions without the consequences being fully understood.²⁵⁴ The framework allows for two main approaches:

- **Multiple land use:** Using land for several purposes at the same time in a sustainable way to maximise the benefit for all.
- **Sequential land use:** Using land for different purposes over time, including restoring it to a previous use or developing an alternative one.²⁵⁵

- 2.104** According to the Standing Council on Energy and Resources, the Framework is designed to operate within established regulatory and policy frameworks.²⁵⁶ The following are its guiding principles:

- best use of resources
- coexistence
- strategic planning

²⁵¹ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 35.

²⁵² Submission 37, Ms Amanda Wetzel, p 2; Answer to questions on notice, Ms Amanda Wetzel, received 17 September 2024, p 2.

²⁵³ Answers to questions on notice, Ms Amanda Wetzel, received 17 September 2024 – Attachment 4, Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), pp 2-6.

²⁵⁴ Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), p 6.

²⁵⁵ Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), p 2.

²⁵⁶ Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), p 2.

- tailored participation of communities and landholders
- engagement and information
- decision making and accountability
- efficient processes
- accessible relevant information.²⁵⁷

2.105 The Institute for Regional Futures advocated for the adoption of a 'multiple and sequence land use' approach to address land use and access challenges underpinned by these guiding principles.²⁵⁸

2.106 While the Framework was considered to have broad support from governments and key industries and is recognised as a valuable tool for addressing current land use challenges, others have noted that it has received little promotion or resources for implementation.²⁵⁹

Integrated Mine Closure: Good Practice Guide

2.107 The International Council on Mining and Metals, *Integrated Mine Closure: Good Practice Guide* (the Guide'), aims to help mining companies and regulators create positive legacies that balance environmental protection, social wellbeing and financial performance.²⁶⁰ The Institute for Regional Future viewed the Guide as promoting flexibility, allowing for iterative planning throughout a mine's lifecycle, and incorporating evolving technologies and biodiversity needs.²⁶¹

2.108 According to the Institute for Regional Futures, the approach of the International Council on Mining and Metals differs from current planning and mining legislation in New South Wales in two key ways:

1. Instead of being prescriptive, its closure vision is objectives and principles based. This differs to the current approach in New South Wales which typically requires land to be returned to its original use.
2. A wider range of possible post-closure land uses is considered allowing more options for how land can be used during the mining lifecycle.²⁶²

²⁵⁷ Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), pp 2-3.

²⁵⁸ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 11, citing Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013).

²⁵⁹ Standing Council on Energy and Resources, *Multiple Land Use Framework*, (2013), p 6; Answers to questions on notice, Ms Amanda Wetzel, received 17 September 2024 – Attachment 3, Walcott, J, 'Multiple and sequential land use: A national policy for Australia?' (November 2019), Land Use Policy, Volume 88, p 2.

²⁶⁰ Answers to questions on notice Ms Amanda Wetzel, received 17 September 2024 - Attachment, Dawn Brock, 'ICMM's Integrated Mine Closure: Good Practice Guide – then and now' (1 April 2020), p 2.

²⁶¹ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 4.

²⁶² Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), pp 5-6.

2.109 CRC TiME recognised the Guide as an important resource for the repurposing of mines.²⁶³ According to CRC TiME, the Guide emphasises the importance of stakeholder involvement in mine closure and holding mining companies accountable for long-term economic outcomes. However, they nonetheless noted that local context remains important:

The ICMM guidelines are valuable, but they are limited by their universality in that they were developed regardless of the capacities of local institutions and regulatory frameworks. A more fine-tuned approach is needed across Australia, as each state and territory imposes their own regulatory frameworks and expectations.²⁶⁴

The potential role for a central authority and/or mine rehabilitation commissioner

2.110 There was consensus among many stakeholders that there was a potential role for a mine rehabilitation commissioner and/or central entity to be established in New South Wales to oversee rehabilitation and post-mining land use. Stakeholders broadly felt that this would ensure post-mining land is managed effectively and fairly, with a focus on long-term environmental, social, and economic outcomes.²⁶⁵

2.111 The committee learned how Queensland established a Mine Rehabilitation Commissioner, a non-regulatory advisory entity, as part of a suite of mine rehabilitation reforms in 2019 and 2020.²⁶⁶ The Commissioner reports directly to the Minister responsible for the *Environmental Protection Act 1994* (Qld). An annual report is tabled in Parliament by the Minister outlining the operations of the Commissioner and supporting office during the year.²⁶⁷

2.112 Mr James Purtill, the current Commissioner, outlined the key functions of his role:

- providing advice on rehabilitation practices, outcomes, and policies
- developing technical reports and documents on leading practice rehabilitation
- reporting on rehabilitation practice and trends in Queensland
- engaging with stakeholders on rehabilitation and management matters.²⁶⁸

²⁶³ Email from Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, to Committee, received 2 July 2024 – Attachment 1, CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 13.

²⁶⁴ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 14.

²⁶⁵ See: Submission 43, Mining & Energy Union, p 7; Submission 68, Liverpool Plains Shire Council, pp 15-16; Submission 66, Nature Conservation Council of NSW, p 4; Submission 31, Muswellbrook Shire Council, p 10.

²⁶⁶ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 21.

²⁶⁷ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 21.

²⁶⁸ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 21.

- 2.113** Mr Purtill emphasised the value of it being a non-regulatory role, as it allowed for 'candid conversations' between industry stakeholders and government.²⁶⁹ He observed that this enabled the identification of systemic issues across the mining industry which could then be addressed through policy reform. According to Mr Purtill, an independent authority in New South Wales could similarly address and respond to sector-wide challenges and enhance the effectiveness of rehabilitation practices across the state.²⁷⁰
- 2.114** It was proposed that a central authority could streamline complex legal and regulatory processes, bridge gaps between agencies and ensure effective collaboration in New South Wales.²⁷¹ According to Mr Mark Swinnerton from Green Gravity, Founder and Chief Executive Officer, a statewide body set up for this purpose could simplify navigation of post-mining processes for both companies and developers, ultimately benefitting affected communities.²⁷²
- 2.115** The role of leadership was also raised. Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, elaborated how interagency collaboration, under strong leadership, can streamline decision making, reduce redundancy and avoid confusion.²⁷³
- 2.116** Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, when noting the benefits of a central entity, referred to the Mine Land Rehabilitation Authority in Victoria and the Mine Rehabilitation Commissioner in Queensland as examples.²⁷⁴ She described it as an ongoing process that could examine barriers between agencies, identify opportunities and risks, and ensure that former mining lands are not left in 'suspended animation'.²⁷⁵
- 2.117** When asked about the benefits of a 'one-stop shop' approach to managing post-mining land use, Ms Shalee Welchman, Director, Community & Economy, Muswellbrook Shire Council, expressed a preference for a model that balanced effective governance with minimal red tape to provide councils with the certainty that there is someone in government responsible for delivering outcomes.²⁷⁶ She noted the various models that could be used to deliver this:

...an authority, a separate entity or some kind of department within the State Government to be able to deliver the outcome. We would be happy to work with the

²⁶⁹ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 22.

²⁷⁰ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, pp 21-22.

²⁷¹ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

²⁷² Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

²⁷³ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 30.

²⁷⁴ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 38.

²⁷⁵ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 38.

²⁷⁶ Evidence, Ms Shalee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 6.

State Government in the finalisation and the development of what that model is, and obviously that is also part of the jobs and investment authority which is being proposed.²⁷⁷

- 2.118** Muswellbrook Shire Council emphasised the need for coordinated leadership and strong community engagement. Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, described how an agency or authority would require 'primary responsibility and significant authority' to drive action and bring together the various government agencies to have a coordinated effort. She argued that without a central authority there is a risk of missing opportunities to diversify local economies before mines close.²⁷⁸
- 2.119** The Queensland Mine Rehabilitation Commissioner, Mr Purtill, underscored the importance of interdepartmental collaboration and coordination, as mining impacts are felt across various portfolios, including social, economic and environment sectors.²⁷⁹
- 2.120** Singleton Council reinforced the need for a strong central authority with statutory power and additional resources to support local councils in land use planning.²⁸⁰ Mrs Melinda Curtis, Executive Manager, Singleton Council, described Singleton Council as a small regional body that lacked the necessary resources to manage the complexities of post-mining land use effectively, underscoring the need for both regional empowerment and state-level leadership.²⁸¹
- 2.121** Some stakeholders stressed the need for such an entity to be independent of government. Ms Tara Dever from Mindaribba Local Aboriginal Land Council argued that an independent body, rather than a government agency, would ensure robust consultation and lead to better outcomes. Ms Dever suggested that such a model would allow for greater community engagement particularly with Aboriginal communities.²⁸²

Committee comment

- 2.122** The committee received a great deal of evidence about the challenges and complexity surrounding the regulatory framework for post-mining land use. In particular, stakeholders raised concerns about a disconnect between some of the relevant legislation, notably the *Mining Act 1992* and the *Environmental Planning and Assessment Act 1979*.
- 2.123** A number of stakeholders indicated that mining companies often find themselves in a position where it is easier to leave land in a safe, stable and non-polluting state rather than continue through the process of relinquishment. This is particularly concerning as it may present as an obstacle to ensuring that full beneficial and productive post-mining land use is realised.

²⁷⁷ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 6.

²⁷⁸ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 20 August 2024, p 2.

²⁷⁹ Evidence, Mr James Purtill, Queensland Mine Rehabilitation Commissioner, 17 December 2024, p 23.

²⁸⁰ Evidence, Mrs Melinda Curtis, Executive Manager, Singleton Council, 20 August 2024, p 14.

²⁸¹ Evidence, Mrs Melinda Curtis, Executive Manager, Singleton Council, 20 August 2024, p 14.

²⁸² Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, pp 12-13.

- 2.124** The committee agrees with a number of stakeholders that the current regulatory framework is not entirely fit for purpose. We recognise the limiting nature of a prescriptive approach that focuses on restoring land to a pre-mining state. However, we also acknowledge that, in some cases, there may be valid reasons for a community to expect that a mining company comply with the conditions in which approval for the mine was first granted.
- 2.125** Nonetheless, it is apparent that an appropriate balance must be found that allows for greater flexibility in the use of land while at the same time ensuring that mining companies properly fulfil their requirements in relation to the rehabilitation of land and ownership of risk. There is a need to weigh these past commitments with emerging opportunities, and to facilitate a change in post-mining land use where there is considerable benefit to many in doing so.
- 2.126** In many cases, a sizable period of time may have elapsed since approval for a mine was first granted. Local mining communities and economies may have changed considerably in that time. Additionally, subsequent technological developments may have been significant. The advance of renewable energy technologies, as well as recreational and tourism opportunities, were common examples provided to the committee of new factors that should be considered as alternative uses of mining land. Some of these potential future uses of mining land were not a possibility or factor for consideration at the time of the original approval.
- 2.127** Further, it must be recognised that these opportunities may provide substantial benefits and support that are vitally needed in some communities as they transition from mining to a post-mining local economy.
- 2.128** It was disheartening to hear that the complexity and uncertainty of the regulatory framework has led some mining companies to view it as easier to return land to a state consistent with the original development consent rather than explore other opportunities for land use. It is important that mining communities remain as a place where people want to live and work, both now and in the future. Some of these alternative post-mining land uses may go some way to facilitating that.
- 2.129** While the *Environmental Planning and Assessment Act 1979* provides some flexibility in modifying the conditions of the development consent, it quickly became apparent throughout the inquiry that it is an often resource intensive process. The committee recognises that developing a site, while still held by a mining operator under lease, can disincentivise third party investment.
- 2.130** Some of these issues were recognised by the Government who indicated that consultations with industry have revealed a lack of understanding of the framework and that incentives for considering alternative land uses were deficient. Their consultation also highlighted issues around the duplication of responsibilities between government agencies.
- 2.131** The case for removing some of the obstacles created by the complexity and overlap in the regulatory framework is compelling. The committee urges the Government to take action in removing unnecessary barriers to facilitate consideration of alternative post-mining land uses. This approach would still allow consents to only be modified where it is appropriate to do so and maintain that regulators are to be satisfied that obligations and risks will be appropriately managed.
- 2.132** It is recommended that the Government undertake a comprehensive program of review of the post-mining regulatory framework and processes, including relevant provisions of the *Mining*

Act 1992, Environmental Planning and Assessment Act 1979 and Protection of the Environment Operations Act 1997 and associated regulations and policies. This review program should include:

- updating land-use planning controls to support the development of innovative post-mining land uses allowing multiple successive land uses and modification of existing consents
- simplifying mining lease rights, and approvals to provide flexibility for future use
- developing a framework for the Resources Regulator to oversee and approve future beneficial uses
- ensuring continuity around water licensing
- aligning biodiversity and conservation requirements with future beneficial use and for opportunities to create nature positive outcomes
- ensuring biodiversity outcomes and mine rehabilitation standards are maintained or improved by the above-listed reforms.

Recommendation 1

That the Government undertake a comprehensive program of review of the post-mining regulatory framework and processes, including relevant provisions of the *Mining Act 1992, Environmental Planning and Assessment Act 1979* and *Protection of the Environment Operations Act 1997* and associated regulations and policies. The program should include:

- updating land-use planning controls to support the development of innovative post-mining land uses allowing multiple successive land uses and modification of existing consents
 - simplifying mining lease rights and approvals to provide flexibility for future use
 - developing a framework for the Resources Regulator to oversee and approve future beneficial uses
 - ensuring continuity around water licensing
 - aligning biodiversity and conservation requirements with future beneficial use and for opportunities to create nature positive outcomes
 - ensuring biodiversity outcomes and mine rehabilitation standards are maintained or improved by the above-listed reforms.
-

2.133 A comprehensive reform program for post-mining land use is necessary to identify potential economic, environmental, and social benefits. For this reason, the committee recommends a comprehensive program of reform of current land uses and opportunities for future uses across regions experiencing mining and energy transitions. Among other areas, this review should:

- identify regions across the State to which a post-mining regulatory framework may apply
- conduct a land audit of industrial sites, surplus and industrial lands
- map infrastructure assets in place

- conduct a land audit for potential repurposing of mining land for housing, environmental, educational tourism, sport, infrastructure, advanced manufacturing and renewable energy purposes
- assess potential for these sites to take on alternative future beneficial use
- establish regional architecture across government to guide the next stages of this work
- facilitate community engagement in identifying priority land uses and local aspirations
- identify priority regions and communities in need of economic diversification.

Recommendation 2

That the Government conduct a comprehensive program of reform of current land uses and opportunities for future uses across regions experiencing mining and energy transition. Among other areas, this review should:

- identify regions across the State to which a post-mining regulatory framework may apply
 - conduct a land audit of industrial sites, surplus and industrial lands
 - map infrastructure assets in place
 - conduct a land audit of sites for potential repurposing for housing, environmental, educational tourism, sport, infrastructure, advanced manufacturing and renewable energy purposes
 - assess potential for these sites to take on alternative future beneficial use
 - establish regional architecture across government to guide the next stages of this work
 - facilitate community engagement in identifying priority land uses and local aspirations
 - identify priority regions and communities in need of economic diversification.
-

2.134 The committee was encouraged by early indications that place-based strategies, such as Place the Delivery Group program, can resolve planning and infrastructure constraints that are holding back progress in mining communities. By implementing these coordinated and collaborative place-based strategies, governments can better respond to community needs and drive investment. The committee would like to see place-based strategies expanded to other coal reliant regions, including the Central West, Illawarra and North West.

2.135 To this end, the committee recommends that the Government establish a framework based on the Place Delivery Group model that can be applied to regions of the State experiencing energy and resource transition. This framework should be empowered to:

- receive expressions of interest from community, industry, landowners, and local government for future land use and opportunities for economic development.
- conduct land use planning in conjunction with local government and proponents
- consider opportunities to integrate the development of key government priorities including renewable energy generation, storage, transmission and manufacturing opportunities

- in conjunction with the Future Jobs and Investment Authorities conduct strategic assessment of impacted workforces to look at their skills, analysis wages gaps, and understand workforce aspirations
- build on existing research in conjunction with relevant parts of government, conduct strategic assessment of community aspirations.

Recommendation 3

That the Government establish a framework based on the Place Delivery Group model that can be applied to regions of the State experiencing energy and resource transition. This framework should be empowered to:

- receive expressions of interest from community, industry, landowners, and local government for future land use and opportunities for economic development.
- conduct land use planning in conjunction with local government and proponents
- consider opportunities to integrate the development of key government priorities including renewable energy generation, storage, transmission and manufacturing opportunities
- in conjunction with the Future Jobs and Investment Authorities conduct strategic assessment of impacted workforces to look at their skills, analysis wages gaps, and understand workforce aspirations
- build on existing research in conjunction with relevant parts of government, conduct strategic assessment of community aspirations.

2.136 The appropriate management of, and responsibility for, residual risk was a common concern among various stakeholders. The committee is comforted by assurances from the NSW Resources Regulator that it does not sign off on the rehabilitation of a site unless it is satisfied that any significant risk has been addressed.

2.137 However, the committee is concerned that the security deposits currently held by the Government may not be sufficient should mining companies default on their rehabilitation obligations. It is not reasonable that any shortfall be supplied by the taxpayer rather than mining companies. While it is pleasing to learn that there has been some improvement in the amount held, it is recommended that the Government continue to evaluate if current security deposits are sufficient for meeting rehabilitation requirements.

Recommendation 4

That the Government continue to evaluate if current security deposits are sufficient for meeting rehabilitation requirements.

2.138 The committee has been made aware of a number of frameworks and guidelines that may assist the Government in its consideration of the post-mining use of land. These include the 'Multiple Land Use Framework' and the 'Integrated Mine Closure: Good Practice Guide'. In addition,

there is much to be gained by the sharing of knowledge and experience between the various jurisdictions in Australia. These may help identify where processes can be streamlined and barriers removed.

- 2.139** The committee recognises that there may be a role for a central organisation or entity to oversee efforts related to the future of mining regions. There is some debate around whether such an entity should be independent or part of government. We note that the Future Jobs and Investment Authorities that have been established by the Government to help deliver investment in new industries could play a key role in this. However, a 'one-stop shop' that serves as a central authority may still be needed.
- 2.140** The committee was impressed by the evidence of the Queensland Mining Rehabilitation Commissioner and noted the benefits associated with such a role being non-regulatory. There is merit in exploring such an approach in New South Wales to identify and address systemic issues. While this type of non-regulatory role may help coordinate integrated landscape restoration efforts across New South Wales, the committee argues that this role should be elevated to a ministerial and senior departmental level to aid in delivering a sustainable future.
- 2.141** It is recommended that the Government consider elevating the leadership of regional resource and energy transition to a ministerial and senior departmental working group level, empowering the group to:
- work across government to drive transformation and economic development
 - partner with local government, industry and regional communities on demonstration projects and future opportunities
 - collaborate on innovative and tailored solutions across levels of government including local, state and federal
 - investigate employing the 'whole of government' land transformation working group model used in the Illawarra/at BlueScope applying it to a regional framework that can be replicated in other parts of the state experiencing transition
 - work with the Resources Regulator to improve standards of mine rehabilitation, and timeliness of rehabilitation outcomes.

Recommendation 5

That the Government consider elevating the leadership of regional resource and energy transition to a ministerial and senior departmental working group level, empowering the group to:

- work across government to drive transformation and economic development
- partner with local government, industry and regional communities on demonstration projects and future opportunities
- collaborate on innovative and tailored solutions across levels of government including local, state and federal
- investigate employing the 'whole of government' land transformation working group model used in the Illawarra/at BlueScope applying it to a regional framework that can be replicated in other parts of the state experiencing transition
- work with the Resources Regulator to improve standards of mine rehabilitation, and timeliness of rehabilitation outcomes.

2.142 The committee notes that despite there being a long history of mining in New South Wales, there is a notable absence of fully relinquished and redeveloped mine sites across the state. As a consequence, there is a need for more demonstration projects or pilot examples which could demonstrate post-mining land use benefits and foster improvements. The committee recognises that these projects can help assess the feasibility, environmental impact, and economic viability to support coal-reliant regions during the transition to a lower-carbon future.

2.143 It is recommended that the Government investigate immediate opportunities to deliver demonstration projects in order to identify practical impediments as well as legislative and regulatory changes that may be required to give effect to broader land transformation in regions experiencing energy and resource transition.

Recommendation 6

That the Government investigate immediate opportunities to deliver demonstration projects in order to identify practical impediments as well as legislative and regulatory changes that may be required to give effect to broader land transformation in regions experiencing energy and resource transition.

Chapter 3 Economic and social impacts of mine closures

This chapter considers the economic impact of mine closures on those communities for which mining is a central part of its local economy and identity. It discusses the importance of effective stakeholder engagement and community consultation in managing the economic transition of these areas. The need to overcome barriers to genuine engagement, especially in relation to marginalised groups, is explored. The chapter then considers strategies for managing workforce transition and how to overcome any gaps in skills, including various approaches to retraining. The potential role to be played by the Future Jobs and Investment Authorities is also discussed.

Impact of mine closures

3.1 Mining is a central part of the culture and identity of many regional communities, especially those within the Hunter, Central West, Illawarra and North West regions of New South Wales. For example, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, emphasised the depth of this connection in Muswellbrook and their desire for future generations to be able remain in the area:

With five generations of mining communities, it is part of our culture and fabric of who we are as a community, which is really important. It's the confidence for them to be able to see that there are opportunities for their children and for their families to be able to stay in the region that they're part of.²⁸³

3.2 Hunter Renewal noted that for towns like Muswellbrook and Singleton 'almost everyone is linked in some way to the coal industry'.²⁸⁴

3.3 The importance of recognising the strength of these connections was stressed by Dr Pete Whitbread-Abrutat, Co-Author of *102 Things to Do with a Hole in the Ground*, and Founder and Director, Future Terrains, who asserted that the 'respecting of cultural identity and the sense of place' was critically important to the success of post-mining societies.²⁸⁵

3.4 The following sections explore the economic impact of mine closures on communities, including employment opportunities, and the potential repercussions for local businesses and retaining youth in mining regions.

²⁸³ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 5.

²⁸⁴ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 19.

²⁸⁵ Email from Dr Pete Whitbread-Abrutat, Co-Author, '102 Things to Do with a Hole in the Ground', Founder and Director of Future Terrains, to Committee, received 11 December 2024 – Attachment, Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10.

Employment

- 3.5** There are significant economic and employment impacts as a result of mine closure. Lake Macquarie City Council described the potential effect of the closure of the Myuna underground coal mine and the Eraring Power State in the Lake Macquarie region, including the expected loss of jobs and lack of a structured government framework to support workers:

When Eraring Power Station closes it is expected that one of the coal mines, being Myuna, will also likely cease operations as it is a sole supplier to the power station. The closure of Eraring Power Station, and Myuna Mine will result in an estimated loss of 750 direct jobs and a significant local supplier network that has existed for decades. There currently exists no established government framework which will help support the transition of these industries.²⁸⁶

- 3.6** Cessnock City Council similarly highlighted the potential impact of job losses on Cessnock as the mining industry declines. They advised that the mining sector is the fifth largest industry in the Cessnock local government area, employing approximately 8.6 per cent of its workforce.²⁸⁷ Cessnock City Council warned that logistics and warehousing, which are promoted in the 'Hunter Regional Plan 2041', may not necessarily align with the skillset of mine workers.²⁸⁸ In their view, local employment opportunities as plant mechanics, fitters, electricians, boiler makers and train operators would be more suitable.²⁸⁹
- 3.7** Mine closures have generated uncertainty among communities, as residents fear potential economic instability and job losses. Muswellbrook Shire Council stated that residents are 'very concerned about their future employment opportunities and the level of uncertainty that they face'.²⁹⁰ Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, spoke about the need to commence economic diversification before mines close, stating 'we are running out of time' to capitalise on post-mining land use opportunities.²⁹¹
- 3.8** MACH Energy, owner of the Mount Pleasant Operation, an open cut coal mine near Muswellbrook in the Upper Hunter Valley, observed that because of their status as a 'stable mining employer' they often receive expressions of interest from workers in operations that will shortly close.²⁹² They stressed that employment strategies must take into account that there are few large-scale job creation opportunities at sites currently used for mining. They warned that without alternative employment options, there is a risk that workers may leave mining regions.²⁹³

²⁸⁶ Submission 47, Lake Macquarie City Council, p 9.

²⁸⁷ Submission 17, Cessnock City Council, p 8.

²⁸⁸ Submission 17, Cessnock City Council, p 8.

²⁸⁹ Submission 17, Cessnock City Council, p 8.

²⁹⁰ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 20 August 2024, p 2.

²⁹¹ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 20 August 2024, p 2.

²⁹² Submission 21, MACH Energy Australia, p 5.

²⁹³ Submission 21, MACH Energy Australia, p 6.

- 3.9** Stakeholders highlighted some of the other economic challenges of a transition away from coal, including the shift from high-paying mining jobs to lower paid industries.²⁹⁴ Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, identified a lack of high-paying alternative industries and the difficulty in retraining workers.²⁹⁵ Ms Nichols suggested that mining companies should ensure that employees are currently being trained for other jobs to protect their earning capacity in relation to post-mining employment opportunities (the need for retraining is discussed from paragraph 3.57 onwards).²⁹⁶
- 3.10** Another key issue raised by industry groups was the need to keep the coal mining workforce employed for as long as possible to aid the transition process.²⁹⁷ Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council argued that retaining workers for as long as possible is beneficial for a smooth transition as it 'gives the transition the best chance of success'.²⁹⁸
- 3.11** The Mining and Energy Union suggested that the need for site rehabilitation and alternative land uses may provide additional opportunities for employment. They stressed that local workers should be prioritised for any employment opportunities in site rehabilitation or resulting from new post-mining land uses:

Where mine operators seek to repurpose mined land and existing infrastructure for other purposes, in place of completing full site rehabilitation, communities should be consulted, and local workers given priority for any employment that the new use generates. Workers directly impacted by mine closures should be prioritised for employment in available site rehabilitation roles.²⁹⁹

Impact on small business

- 3.12** While the closure of mines often leads to direct job losses, the broader economic impacts can also be significant. Muswellbrook Shire Council observed that mine closures impact other businesses, including small businesses, who are not directly involved in mining.³⁰⁰ Ms Shaelee Welchman shared that these businesses often rely on the economic flow from the mining industry, and their survival depends on the ability of the region to diversify into other industries. Ms Welchman described how Muswellbrook Shire Council is focused on supporting family-owned businesses impacted by mine closure:

²⁹⁴ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, pp 26-27.

²⁹⁵ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 26.

²⁹⁶ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 27.

²⁹⁷ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 13.

²⁹⁸ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 14.

²⁹⁹ Submission 43, Mining & Energy Union, p 6.

³⁰⁰ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 3.

Our concern as council is for the mums and dads—the community that lives here; their kids go to school here; they're part of our sporting clubs—and about how these businesses, who rely on mining as an industry, will be able to transition to other industries. They need to see now that there are other industries moving into the region and what those opportunities are for our local businesses. Just raw figures if we lost those mining jobs out of our economy tomorrow, it has a flow-on impact of 0.82—other jobs within the supply chain, which has a massive impact on our whole community. It is a great concern and something that council is really focused on trying to support, those existing family-owned businesses in the region, to be able to diversify beyond mining.³⁰¹

- 3.13** The importance of supporting small businesses through the transition was also highlighted by Business Hunter who stressed the difficulties of a business pivoting in its focus as opposed to an individual retraining.³⁰² They asserted that the region must develop new industries and businesses as an addition rather than replacement, with a vital role to be played by business support and advisory services to help current businesses evolve and survive. Business Hunter stated that the level of support needed by businesses would vary and noted the example of existing support measures such as Business Connect.³⁰³

Retaining youth in mining communities

- 3.14** Evidence indicated that young people in mining communities may face particular challenges during the transition period. Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, argued for the development of programs to support young people in the transition away from coal, to 'retain them in their home communities and acknowledge that they have the biggest stake in the regions' future'.³⁰⁴
- 3.15** Despite various challenges, there are opportunities for youth in the transition period. CRC TiME highlighted how engagement with young people can enable them to play a direct role in the future of their community. Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, referred to the example of the Victorian Mine Land Rehabilitation Authority's engagement with secondary school students in the Gippsland area. This engagement is designed to expand the career options for students to include mine rehabilitation, noting that 'doing it at a secondary school level is important to bringing people in the door and also to look at staying in the region'.³⁰⁵
- 3.16** However, a related issue is the need to address the cost-of-living concerns in mining communities, especially in relation to young trainees and apprentices. Mrs Mary-Anne Crawford, Manager, Development and Environment Services, Singleton Council, pointed out that the high cost in these areas can make it difficult for apprentices and trainees to live

³⁰¹ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 3.

³⁰² Submission 62, Business Hunter, p 4.

³⁰³ Submission 62, Business Hunter, p 4.

³⁰⁴ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 8.

³⁰⁵ Evidence, Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, 21 October 2024, p 42.

independently.³⁰⁶ Mrs Crawford suggested that incentives could be provided to help alleviate these pressures, ensuring that young people have viable options to stay in the region.³⁰⁷

Stakeholder consultation and community engagement

3.17 Successful workforce adaptation and regional economic transitions require collaboration between governments, industry and unions. Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, stressed the importance of strong governance in the management of economic transition.³⁰⁸ This necessitates the involvement of those with the 'tools and capacity', who he identified as being all levels of government, the knowledge sector, worker unions, and key representatives of the energy and mining sector.³⁰⁹

3.18 Mr Rush described the power imbalance in some areas and how the often small, rural communities associated with mining may have international scale industries operating in them.³¹⁰ He shared that the Hunter Region, for example, accounts for 14 per cent of the global thermal coal trade.³¹¹ Due to this imbalance between the community and size of industry associated with it, Mr Rush stressed that it is essential that government is involved:

Asking particularly the smaller communities of the Upper Hunter to manage that transition, and loss of value-added production over a relatively short period of time, is far too challenging for those small communities without the support of the level of government that has responsibility for regional economic development, including regional economic transition: the State Government.³¹²

3.19 The committee heard that effective post-mining land use requires a collaborative approach that balances economic, environmental and social considerations. Evidence highlighted that successful mine closure depends on coordinated planning and inclusive engagement with all relevant stakeholders. Despite this, many expressed concerns that current consultation efforts are fragmented, leaving some communities feeling excluded from the decision-making process.

3.20 The following sections highlight the importance of meaningful engagement and outlines considerations for effectively engaging with various stakeholders, including local communities, First Nations communities, local councils, government agencies, industry and workforce.

³⁰⁶ Evidence, Mrs Mary-Anne Crawford, Manager, Development and Environment Services, Singleton Council, 20 August 2024, p 14.

³⁰⁷ Evidence, Mrs Mary-Anne Crawford, Manager, Development and Environment Services, Singleton Council, 20 August 2024, pp 13-14.

³⁰⁸ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

³⁰⁹ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

³¹⁰ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

³¹¹ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

³¹² Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

The necessity of effective consultation and engagement

3.21 Opinions on what constitutes a successful mine closure can vary. The following table by the CSIRO shows the variety of stakeholder values and perspectives influencing what is considered to be a successful mine closure:

Table 3 Examples of stakeholders and desirable mine closure and transition outcomes

STAKEHOLDER	DESCRIPTION	EXAMPLES OF DESIRED OUTCOMES
Miners	Mine closure practitioners plan and manage mine closure activities, including stakeholder engagement.	<ul style="list-style-type: none"> • Satisfy regulatory conditions, achieve relinquishment and meet shareholder expectations • Minimise expenses, address liabilities and retrieve funds held by government
Communities	Local community stakeholders (including Indigenous communities and groups) may be directly and indirectly affected by mining and mine closure through its impact on local communities, economies and environments.	<ul style="list-style-type: none"> • Mitigate safety, health and environmental risks • Protect cultural, social and environmental assets • Create and sustain economic and employment opportunities • Recognise heritage
Governments	State and territory governments regulate most aspects of mine closure, with the Australian Government involved in some elements of rehabilitation, closure and abandoned mine management. Local governments are engaged in discussions between miners and communities.	<ul style="list-style-type: none"> • Ensure mining companies achieve agreed mine closure outcomes (e.g., safe, stable, and non-polluting land) • Mitigate the risk of abandoned assets and ongoing liabilities to the government • Optimise social, environmental, and economic outcomes for communities and local economies
Other industries	Local industries and businesses may be impacted by mining and mine closure and potential users of mined land post-closure.	<ul style="list-style-type: none"> • Develop new industry opportunities from mine closures and transitions • Ensure sustainability of local businesses after the transformation of the mining economy

Source: Submission 73, CSIRO, p 5.

3.22 The CSIRO gave evidence that 'meaningful and respectful engagement' is essential to manage expectations around mine closure and transition.³¹³ They emphasised that while consultation with diverse groups can be challenging, it is nonetheless vital for optimising mine closure and transition outcomes.³¹⁴ In addition, effective engagement can improve the mining industry's social performance and address the 'trust deficit'.³¹⁵

3.23 Similarly, Nature Conservation Council of NSW also shared the value of strong engagement and consultation processes.³¹⁶ According to Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, communities should have a say in the future use of land, as 'they know what is best and what is needed in their region'.³¹⁷

3.24 The timing of engagement need not be limited to the end of the mining lifecycle. There was consensus that early, transparent and ongoing engagement with local community groups is

³¹³ Submission 73, CSIRO, p 5.

³¹⁴ Submission 73, CSIRO, p 5.

³¹⁵ Submission 73, CSIRO, p 5.

³¹⁶ Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 40.

³¹⁷ Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 40.

critical for successful mine closure and post-mining land use. Dr Pete Whitbread-Abrutat noted that engagement often occurs only at the end of the operational phase, which he viewed as 'too late to meaningfully enable contributions'.³¹⁸ He elaborated that when engagement does occur it is often 'formulaic rather than bespoke' and can fail to address the 'power disparity'.³¹⁹

3.25 Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, explained that the ultimate goal for the industry is to 'build credible social licence'.³²⁰ To achieve this, he argued that companies must engage 'deeply and consistently' with the community throughout the life of the project. Dr Wright explained that such long-term dialogue will allow the community to feel included in the process and experience enduring financial benefits. He warned that, for communities, 'if you're not at the table, you're probably on the menu'.³²¹

3.26 Dr Wright underscored that collaboration is 'critical to the success of these regional transitions'.³²² He cited an example from Hay, New South Wales, where a multi-stakeholder collaborative process between the council and industry is leading to long-term financial benefits from renewable energy projects.³²³ Dr Wright warned that rushed transitions without genuine engagement can lead to community opposition and frustration:

One of the lessons from that process has been that if you don't spend time and money upfront building trust with communities, you're confronted by angry landholders and community members who don't feel they've been engaged properly by governments or, indeed, industry.³²⁴

3.27 Hunter Renewal noted that there is 'no legal framework' to ensure communities are meaningfully involved in mine closure planning and post-mining developments.³²⁵ They highlighted that the international standard for mine closure requires that affected stakeholders are involved in planning for post-mining transition throughout the life of a mine.³²⁶ Hunter Renewal advocated

³¹⁸ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

³¹⁹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

³²⁰ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 9.

³²¹ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 9.

³²² Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 9.

³²³ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 9.

³²⁴ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 14.

³²⁵ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 19.

³²⁶ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 19.

for 'early, meaningful, and continual public engagement', maximising the advantages of local knowledge regarding local issues.³²⁷

- 3.28** The importance of the mining industry collaborating with external experts in determining post-mining use was also raised. Dr Pete Whitbread-Abrutat stressed that mining companies 'are not and should not be regeneration experts'.³²⁸ He argued that experts from non-mining industries, scientists, and 'unusual suspects' should be involved in developing innovative solutions, noting that the 'best closure/transition planning is multifaceted, complex, multidisciplinary and long-term'.³²⁹
- 3.29** In order to properly consider the context of the broader community, the Association of Mining and Energy Related Councils called for better engagement and collaboration between the mining sector, government, councils, land councils, workers, and unions.³³⁰ The following section examines what barriers may exist as well as ways in which they may be overcome.

Barriers to effective consultation

- 3.30** There was broad agreement that community involvement should take place at the local level, using methods that are accessible to residents. However, several stakeholders highlighted the challenges of engaging marginalised people, especially in socio-economically disadvantaged communities.
- 3.31** Lock the Gate Alliance criticised the centralisation of power and decision-making in Sydney, which they believe has reduced the ability of local leadership to provide advice:
- Our most important message to the Committee is that giving the Hunter community the agency and control on this is the crucial thing. There will be lots of disagreement amongst people in the Hunter about what to put in one place or another. But the difference that it will make for people to actually feel like the region finally now gets to have a say and a real hand in its future is the most important thing.³³¹
- 3.32** Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, gave evidence of the importance of doorknocking in socio-economically disadvantaged areas of Muswellbrook and how this enabled connection with people who have otherwise been excluded from the consultation process.³³²

³²⁷ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 19.

³²⁸ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 13.

³²⁹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 14.

³³⁰ Submission 46, Association of Mining and Energy Related Councils NSW, pp 1-2.

³³¹ Evidence, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance, 5 August 2024, p 46.

³³² Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 23.

3.33 Following on from this, Ms Kimberley Crofts (a PHD candidate who has researched how to support public participation in transitions away from coal mining in the Hunter Valley) described how providing opportunities for engagement in people's homes can assist them to feel at ease.³³³ She spoke of the importance of using a mix of styles of engagement that may also include workshops in community halls as well as surveys, observing that 'there are lots of different ways that different people might like to be engaged and to share their expertise'.³³⁴ She advocated for seeing local people as experts of the context for the ideas being proposed.

3.34 Dr Wright agreed with the need for face-to-face discussions rather than impersonal communication, stressing the role of personal interactions in building trust:

Regional people don't want a leaflet in their letterbox, which is 2½ kilometres from their house. They want people to knock on their door, shake their hand, look them in the eye and say, "This is what we want to do. What do you think?" ... A key learning for me is that, sure, you can try to do without those, but the probability of success is very low. It's much better ... to spend time and money upfront, engaging with those communities and building trust, because that is your currency of action and collaboration. Without that, you simply can't operate.³³⁵

3.35 The Association of Mining and Exploration Companies shared the benefits of community advisory panels in providing ongoing input and feedback as a way of managing the expectations of mining communities around post-mining land use and how this can be balanced with 'the innovative reuse of existing infrastructure'.³³⁶

3.36 While the importance of effective consultation and engagement was apparent, the importance of it translating into action was stressed. The NSW Minerals Council highlighted the need for 'political will from governments and Ministers to actually want to achieve an outcome and drive a process, and not just put out a glossy Hunter Regional Plan'.³³⁷ Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, spoke of the need for action and outcomes:

The last thing we need is more reports, more studies and more consultancies on what the future of the Hunter looks like post-mining. You could fill a library this big with all those studies that have been done so far. Everybody knows what needs to be done'.³³⁸

³³³ Submission 20, Kimberley Crofts, p 1; and Evidence, Ms Kimberley Crofts, 21 August 2024, p 23.

³³⁴ Evidence, Ms Kimberley Crofts, 21 August 2024, p 23.

³³⁵ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 14.

³³⁶ Submission 48, The Association of Mining and Exploration Companies (AMEC), p 5.

³³⁷ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 14.

³³⁸ Evidence, Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council, 12 August 2024, p 14.

Consultation with First Nations communities

- 3.37** Evidence indicated that the cultural impact of mining can be particularly significant for First Nations communities.³³⁹ While many stakeholders emphasised the need for effective engagement with local communities broadly, some specifically acknowledged that consultation with First Nations communities has been particularly insufficient and needs to improve.
- 3.38** Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, spoke of the importance of overcoming the gap in First Nations consultation:
- Most companies will tell you that, yes, they have robust relationships with Aboriginal groups and they will name the specific groups. What you need to have are robust relationships with everyone and with the traditional owner groups. Their connection to country, spiritually, since time began, is important. It is incredibly important in mine rehabilitation.³⁴⁰
- 3.39** Ms Dever emphasised that regional planning often occurs at a 'high level', making it difficult for everyday community members to engage effectively.³⁴¹ She stressed the importance of connecting with First Nations communities early in the process, reflecting that 'The people that engage early and continue to engage get good outcomes'.³⁴²
- 3.40** The need to allow sufficient time for engagement was also raised. Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council, emphasised that it takes time to build trust with First Nations communities, and it 'can't be rushed and needs to be done in a thoughtful, insightful and engaging manner'.³⁴³
- 3.41** Hunter Renewal stated that affected First Nations groups should be brought into development planning early and 'given a real say' in the development and management of post-mining land projects.³⁴⁴ They affirmed that this would be in line with a key action item of the 'National Agreement on Closing the Gap' regarding shared decision-making.³⁴⁵ It was their view that the

³³⁹ See, for example, Submission 38, Lock the Gate Alliance, pp 5-6; Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), p 3.

³⁴⁰ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 11.

³⁴¹ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 16.

³⁴² Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 17.

³⁴³ Evidence, Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council, 5 August 2024, p 31.

³⁴⁴ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 23.

³⁴⁵ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 23.

transition away from mining in the Hunter region 'must mark the beginning of a new approach to planning and development built on genuine collaboration with First Nations groups'.³⁴⁶

- 3.42** Muswellbrook Shire Council emphasised its commitment to integrating community voices into planning, including through its Indigenous inclusion subcommittee.³⁴⁷ Mr Derek Finnigan, General Manager, Muswellbrook Shire Council, spoke of the importance of engaging with the Indigenous population in Muswellbrook (around 11.8 per cent of the total population).³⁴⁸ Ms Sharon Pope from Muswellbrook Shire Council explained the deeper understanding of land that can result from this engagement:

I think our Indigenous population has a lot to offer us in understanding the past before Europeans settled the valley. To understand the songlines, and to know what the landscape was like and what animals and plants were in the landscape before Europeans settled in the valley is quite vital to know what we should be replacing, what we should be planting and where, and how we manage that land.³⁴⁹

- 3.43** Ms Dever also spoke of the importance of First Nations connection to country when considering mine rehabilitation.³⁵⁰ She observed that First Nations connection to country is unique, and their knowledge of the land can help shape planning and inform how to 'care for the country moving forward'.³⁵¹
- 3.44** The committee heard from various mining companies about the way in which they engage with First Nations communities. BHP shared details of their approach to creating 'long-term relationships' with First Nations communities, as articulated in the BHP Indigenous Peoples Policy Statement.³⁵² They emphasised that it is based on principles of trust and mutual benefit. BHP advised that they engage extensively with local First Nations communities regarding their ongoing business activities, plans to modify consent to allow for mining until 2030, the Reconciliation Action Plan, procurement opportunities, and their 'Pathways to 2030' closure and transition plan.³⁵³
- 3.45** Yancoal also shared their approach to consultation with First Nations communities. Mr Michael Moore, Group Manager, Approvals, Yancoal, described the ongoing nature of Yancoal's engagement with First Nations groups:

³⁴⁶ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 23.

³⁴⁷ Evidence, Cr Steven Reynolds, Mayor, Muswellbrook Shire Council, 20 August 2024, p 9.

³⁴⁸ Evidence, Mr Derek Finnigan, General Manager, Muswellbrook Shire Council, 20 August 2024, p 9.

³⁴⁹ Evidence, Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council, 20 August 2024, p 9.

³⁵⁰ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 11.

³⁵¹ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 11.

³⁵² Answers to questions on notice, Ms Amanda Walker, Manager, Corporate Affairs, NSW Energy Coal, BHP, 16 September 2024, p 1.

³⁵³ Answers to questions on notice, Ms Amanda Walker, Manager, Corporate Affairs, NSW Energy Coal, BHP, 16 September 2024, p 1.

But we don't just engage with Aboriginal stakeholders at the time of an approval. We have ongoing engagement with a range of Aboriginal stakeholders, whether it be the land councils or the local registered or native title claimants. Our modus operandi is to continue that engagement and, with respect to our proposal up at Stratford, we have been engaging with the local Aboriginal stakeholders, as we have done with the local community, with the business chambers and with all the special interest groups.³⁵⁴

3.46 Hunter Renewal referred to the closure of the Argyle diamond mine in Western Australia which as an example that 'demonstrates the benefits that can flow to Aboriginal and/or Torres Strait Islander people when mining companies work closely with First Nations groups in the planning and management of mine closure and land restoration'.³⁵⁵ Hunter Renewal detailed that the Gelganyem Trust³⁵⁶ served as a lead actor in all stages of planning, closure and rehabilitation and 'the project provided employment and transferable skills to First Nations people while allowing them to work on Country and care for it'.³⁵⁷

3.47 Despite these examples, a number of stakeholders, including Ms Tara Dever, criticised the mining industry for failing to properly engage with First Nations communities, stating that these communities are often consulted too late and only when 'there are legislative requirements'.³⁵⁸ She called for more comprehensive consultation:

There needs to be holistic broader consultation and then engagement, not just to say, "We spoke and now off we'll go and we won't engage those people in work and there will be no procurement or it will be too hard", but to actually get the voices there and find out what the outcomes that are needed by the communities.³⁵⁹

3.48 The committee heard of some of the ways First Nations communities can be impacted by mine closures. Mr Dylan Dyer, Indigenous Initiatives Manager, ServeGate, emphasised the history of inadequate engagement between the mining industry and First Nations businesses.³⁶⁰ Mr Dyer noted that despite occasional efforts, corporate procurement and contracts tend to be short-term and low-skilled, with no long-term capacity building for First Nations businesses. Mr Dyer argued that this has persisted for decades leaving First Nations people without the skills and opportunities needed for future industries:

That is the extent of engagement and the problem that I see is, as we're moving in this new frontier of renewable energies and rehab, we don't have the businesses and the

³⁵⁴ Evidence, Mr Michael Moore, Group Manager, Approvals, Yancoal, 12 August 2024, p 29.

³⁵⁵ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 22.

³⁵⁶ The trust was established with the specific objective to receive funds from Argyle Diamonds Limited and distributed these funds and also to use the asset for the benefit of the Traditional Owners of Argyle's mining area in Western Australia (the beneficiaries). Source: Australian Charities and Not-for-profits Commission, *The Trustee for the Gelganyem Trust*, (2005), <https://www.acnc.gov.au/charity/charities/d9f5fbf-38af-e811-a95e-000d3ad24c60/profile>

³⁵⁷ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 22.

³⁵⁸ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 11.

³⁵⁹ Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 11.

³⁶⁰ Evidence, Mr Dylan Dyer, Indigenous Initiatives Manager, ServeGate, 21 October 2024, p 15.

people with the skills that are needed to take active roles for the opportunities in the future.³⁶¹

- 3.49** Improving the availability and accessibility of education and training was identified as a priority by CRC TiME, so First Nations and regional communities have the opportunity learn more about mine closure and the transition process.³⁶² CRC TiME shared that they support an Indigenous-led project to develop Vocational Education and Training (VET) options tailored for First Nations communities.

The role of government

- 3.50** Some stakeholders agreed that both local councils and state governments could play a key role in facilitating community-led planning and decision making. Muswellbrook Shire Council described their role as a 'funnel' and 'sounding board' for the region, facilitating various projects and opportunities.³⁶³

- 3.51** Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, called for coordination across government to avoid fragmented decisions that could result in poor outcomes:

What matters is that there is that planning and coordination by the Government to achieve outcomes on a regional level, and not to be having dozens of independent land-use decisions being made, which will create worse environmental outcomes—worse outcomes in term of jobs—and not give the community a clear avenue and a way to provide their feedback and actually have some ownership over the outcomes that are being created ... It's providing a way for the community to have a voice over the future of the land use in the region.³⁶⁴

- 3.52** Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, praised the way in which Muswellbrook Shire Council engaged the community, as well as understanding 'the crux of the issues that that community will face'.³⁶⁵ Mr Loomes observed that 'council strategic planning documents are where we can see some of the richness of the engagement and the community aspiration'.³⁶⁶

- 3.53** The Hunter Regional Plan 2041, discussed in the case study below, is an example of a strategic planning document that has been developed for a specific region.³⁶⁷

³⁶¹ Evidence, Mr Dylan Dyer, Indigenous Initiatives Manager, ServeGate, 21 October 2024, p 15.

³⁶² Submission 67, CRC TiME, pp 4-5.

³⁶³ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 7.

³⁶⁴ Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 41.

³⁶⁵ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 42.

³⁶⁶ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 42.

³⁶⁷ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022.

Case study – Hunter Regional Plan 2041³⁶⁸

The Hunter Regional Plan 2041 (the 'Plan') is a 20-year land use plan, published in 2022 by the Department of Planning and Environment under the *Environmental Planning and Assessment Act 1979*.³⁶⁹

For many decades the Hunter region has been driven by the mining industry, particularly coal. However, recent trends and growing awareness of the environmental impact of carbon emissions, has seen a rapid shift away from coal towards lower carbon energy sources. This has led policy makers to seek economic diversification and incorporate new industries for the Hunter region.³⁷⁰

The Plan encompasses local government areas of Cessnock, Dungog, Lake Macquarie, Maitland, MidCoast, Muswellbrook, Newcastle Port Stephens, Singleton and the Upper Hunter.³⁷¹ The Plan is viewed by some stakeholders as a 'game changer' as it aims to shape the future of the Hunter region, ensuring sustainable growth, infrastructure, and community development.³⁷²

The primary purpose of the Plan is to guide the region as it transitions towards a net-zero future, fostering growth in employment and innovation while addressing the challenges posed by the decline in coal mining. The Plan seeks to create thriving and resilient communities by ensuring that the region remains a desirable place to live and work, with affordable housing, vibrant communities, employment opportunities, and good quality of life.³⁷³

A key strategy of the Hunter Regional Plan 2041 is to demonstrate how post-mining land use can rehabilitate the post-mining landscape, diversify the economy and attract new employment opportunities to the region, with a focus on:

- maximising employment generation and attract visitors to the region,
- making use of existing infrastructures and site features such as voids, rail loops, transmission lines, water and transport access,
- supporting the growth of adjoining industrial areas,
- enhancing biodiversity corridors,
- ensuring compatibility with surrounding land uses and align with existing development plans.³⁷⁴

By repurposing land and infrastructure, the Plan aims to create a sustainable and resilient economy, while preserving the Hunter's unique environmental and community values. Two of the 'big ideas' in the plan are:

³⁶⁸ Submission 69, NSW Government, p 17; Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, pp 2, 8, 11, 23-27; Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2; Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 30; Answers to questions on notice, Mr David Gainsford, NSW Department of Planning, Housing and Infrastructure, 4 September 2024, p 1; Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), pp 2-3.

³⁶⁹ Submission 69, NSW Government, p 17; Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 2.

³⁷⁰ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, pp 23-24.

³⁷¹ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 8.

³⁷² Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 30; Institute for Regional Futures, Policy Paper 2, *Integrated strategic land use planning for beneficial use of mining land in NSW*, (Institute for Regional Futures, University of Newcastle, 2024), p 2-3.

³⁷³ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, pp 8-9.

³⁷⁴ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 24.

- greater diversification of employment, mining and energy generation on lands, supporting economic renewal and fostering innovation
- a new approach to how we sequence planning for new land uses and infrastructure to accelerate proposals that support our vision for the region and bring even greater public value.³⁷⁵

3.54 Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure described the strategic approach of the Hunter Regional Plan, noting that:

I think the Hunter Regional Plan... really took that first step towards trying to take a more strategic approach in evaluating, particularly in the Upper Hunter district, where, as they describe, there are areas of interest on those former mine sites and power stations, and trying to collect and understand what's possible. It's really a matter for government to decide whether it wants to take a strategic approach. There are obviously benefits to doing so, but I think there's also a bit of a reality that there are lots of mine sites, particularly in the Upper Hunter, and I think there's probably only a handful that can realise a post-mining land use that will contribute significantly to that regional economy.³⁷⁶

3.55 As to whether a strategic approach would be considered by the Government, Mr Loomes continued:

We would probably want to reflect on how the Hunter Regional Plan is going, what it has learnt from its work, how we could adopt that elsewhere, what the barriers would be on those sites that have opportunities in the planning system, and whether there is a systemic issue that needs to be resolved or whether it is better off playing within the system that exists around site-specific rezonings.³⁷⁷

The need to avoid fragmented consultation

3.56 A number of challenges in relation to government-led consultation were also identified, especially around duplication of efforts by various agencies. Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, highlighted the complexity of aligning different government planning cycles and addressing fragmented consultation processes across different levels of government as well as departments and agencies.³⁷⁸ She noted that many communities see 'government' as a single entity, and do not recognise the different roles of government agencies and local councils. She stated that communities often experience confusion and fatigue from overlapping and repeated

³⁷⁵ Department of Planning and Environment, *Hunter Regional Plan 2041*, December 2022, p 9.

³⁷⁶ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 36.

³⁷⁷ Evidence, Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure, 17 December 2024, p 36.

³⁷⁸ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 32.

consultation, observing that from the perspective of the community, 'you're asking us all about the same things over and over again'.³⁷⁹

Workforce transition and skills development

3.57 Evidence was received about proactive steps that can be taken to aid the transition of communities and their workforce away from a reliance on mining. The following sections discuss the need for a skills gap analysis to be completed, and how to best train and upskill workers in preparation for this transition. It also considers the roles of mining companies and the Future Jobs and Investment Authorities.

Skills gap analysis

3.58 The transition away from coal has far-reaching implications for the workforce. To ensure a smooth transition, stakeholders called for better data on, and analysis of, workers' skills. This would enable any skills shortages to be identified so the economic landscape may be better understood and the workforce effectively supported.

3.59 The Government acknowledged the importance of reskilling coal miners for emerging industries, stating that it 'recognises the need to act now to support coal-reliant communities into the future'.³⁸⁰ They described how miners need to be equipped with the skills required in growing industries. These skills could include advanced robotics, renewable energy and environmental rehabilitation. It was suggested that such skills 'will enable workers to transition into high-demand roles within sectors poised for growth, such as clean energy, agrotechnology, and smart manufacturing'.³⁸¹

3.60 Some councils have noted the growing demand and potential for workers to transition into other industries such as construction, renewable energy, and manufacturing. Singleton Council noted that over 48 per cent of the workforce in Singleton is industrial with 'highly experienced trades, technicians and operators whose skills are relevant now and transferable to the future'.³⁸² However, they stressed that an assessment of the skills needed for the transition is required, and skills development should occur now.³⁸³

3.61 Similarly, Lake Macquarie City Council shared that 58 per cent of its population had a vocational or technical qualification (compared to 43 per cent of New South Wales).³⁸⁴ They also viewed their workforce as well positioned to transition into other industries. Nonetheless, they identified that the workforce would need support to benefit from industries like advanced

³⁷⁹ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 32.

³⁸⁰ Submission 69, NSW Government, p 18.

³⁸¹ Submission 69, NSW Government, p 18.

³⁸² Submission 18, Singleton Council, p 3.

³⁸³ Submission 18, Singleton Council, p 3.

³⁸⁴ Submission 47, Lake Macquarie City Council, p 8.

manufacturing, renewable energy generation, information media and technology, and the circular economy.³⁸⁵

- 3.62** Ms Jenny Mewing, Senior Strategic Planner, Cessnock City Council, noted that Cessnock City Council was undertaking an employment lands strategy to identify workforce gaps and how to respond to them:

That will give us a better idea of any gaps that we have in terms of employment land supply, the population that we have within the LGA and the needs that we have to then fulfil to provide responses to those gaps... Manufacturing is the highest employer within the LGA. There is some opportunity for skills transition there. But then, when you look at our other higher employers, like health care, social welfare and the like, the skills aren't easily transitioned between those employed in the mining industry and those higher employers.³⁸⁶

Relevant training

- 3.63** The retraining or upskilling of workers was raised by a number of stakeholders as a vital part of a successful workforce transition. The NSW Government advised of the some of the ways it already collaborates with the Commonwealth and others to 'train, retain and reskill workers', including through Training Services NSW, the Targeted Workforce Development Scheme, and the National Skills Agreement.³⁸⁷
- 3.64** The five-year National Skills Agreement between the NSW Government and the Commonwealth commenced in January 2024.³⁸⁸ It includes more than \$3.81 billion funding from the Commonwealth Government to assist with reskilling the workforce in New South Wales as well as to boost skills training in the renewable energy and technology sector. This funding is supplemented by \$1.055 billion from the NSW Government. However, the submission from the NSW Government cautioned that 'there are budget pressures on the Skills budget that need to be taken into account for any new initiatives supporting regional workforce transition or increased workforce development'.³⁸⁹
- 3.65** Narrabri Shire Council shared that it had prepared a regional workforce strategy and spoke to some of the challenges around identifying skills shortages and needs.³⁹⁰ Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council, pointed to the uncertainty surrounding the renewable energy sector and stressed that more research and analysis was needed to help upskill the workforces and shape the transition:

Our experience has been similar on a local level, where there is some shortages and gaps in training provider offerings, and also the challenge that I think exists, where we're

³⁸⁵ Submission 47, Lake Macquarie City Council, p 9.

³⁸⁶ Evidence, Ms Jenny Mewing, Senior Strategic Planner, Cessnock City Council, 21 August 2024, pp 11-12.

³⁸⁷ Submission 69, NSW Government, p 19.

³⁸⁸ Submission 69, NSW Government, p 19.

³⁸⁹ Submission 69, NSW Government, p 19.

³⁹⁰ Evidence, Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council, 5 August 2024, p 27.

moving to a future of renewables. For some industries we don't even know what they might look like and how they might shape our regions as yet. There is some additional research and analysis needed in that space.³⁹¹

- 3.66** Mr Jack Ayoub, NSW Branch Organiser, Australian Workers' Union, highlighted that many mining skills, while significant in terms of expertise and quality, are learned 'on-the-job'.³⁹² This can present a challenge in the transfer of these skills as they are not recognised by the current frameworks. Mr Ayoub suggested conducting a skills audit to identify transferable skills and assess how they could be formalised into qualifications, through institutions like TAFE, describing the benefits that could result:

That's not only of benefit to the broader economy because we redeploy workers, but it also provides certainty for them that there is a formalised process—whether it's an assessment to say these skills can be transferable, or another good example ... I've been to many sites where we've got people "rewiring the nation", to use that term, and we don't have apprenticeships that deal with the specific skills that those people need. I think you're right that we need some formal authority that assesses and transitions these workers into other industries.³⁹³

- 3.67** The Association of Mining and Energy Related Councils NSW also stressed that worker skills and business supply lines should be realigned with 'high-value and sustainable new jobs and opportunities'.³⁹⁴ They suggested that planning for these transitions should start up to ten years in advance and could include repurposing former mine sites.³⁹⁵

- 3.68** A number of inquiry participants identified new job opportunities in emerging industries, especially within the renewable energy sector in addition to potential roles rehabilitating mine sites. The Nature Conservation Council of NSW proposed that landscape restoration and biodiversity could provide new employment opportunities, asserting that '[s]ite rehabilitation and restoration to a natural state should not always be seen as a less desirable option to other PMLU opportunities'.³⁹⁶ They described how this could provide a range of jobs ranging from professional to skilled or semi-skilled.³⁹⁷

- 3.69** However, a crucial factor in a successful workforce transition is the willingness of the workforce to reskill and adapt to new industries. Business Hunter referred to a 2024 report that found 70 per cent of the workforce in the Hunter and Central Coast were willing to retrain for job opportunities.³⁹⁸

- 3.70** Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle elaborated on this willingness to retrain:

³⁹¹ Evidence, Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council, 5 August 2024, p 27.

³⁹² Evidence, Mr Jack Ayoub, NSW Branch Organiser, Australian Workers' Union, 5 August 2024, pp 2-3.

³⁹³ Evidence, Mr Jack Ayoub, NSW Branch Organiser, Australian Workers' Union, 5 August 2024, p 2.

³⁹⁴ Submission 46, Association of Mining and Energy Related Councils NSW, p 2.

³⁹⁵ Submission 46, Association of Mining and Energy Related Councils NSW, p 3.

³⁹⁶ Submission 66, Nature Conservation Council of NSW, p 4.

³⁹⁷ Submission 66, Nature Conservation Council of NSW, p 4.

³⁹⁸ Submission 62, Business Hunter, p 4.

Right from the community point of view there's a significant willingness to retrain and for communities to take benefit of what is coming in the future as we move to a low-carbon economy, and so on. Some of those skills are required by the mining industry and will continue to be required. Some of those skills are required in the new energy economy, and there's a lot of work being done around that. The universities are doing work around new degrees in this space.³⁹⁹

- 3.71** Nonetheless, Professor Ryan stressed that while the desire to reskill is strong, better coordination and skill pathways are needed to ensure that the transition is effective, and workers are ready for the emerging job markets:

We've got to be doing much more around how do we actually incentivise existing skills when we need less of them and more of those. We've got to obviously give people proper paid opportunities. We've got to make the skills pathways easier. It's actually quite difficult if you're an air conditioning mechanic or tradesperson who does a lot of work with electricals to become an electrician. There's actually a skills pathway issue there. It has to be addressed at all of those levels, with a place focus.⁴⁰⁰

- 3.72** However, some stakeholders, such as the Mining and Energy Union noted that current training offerings at local educational providers often do not align with the skills needed for emerging industries like renewable energy.⁴⁰¹ They emphasised that 'investment in public vocational training facilities is necessary to ensure appropriate equipment, facilities, and teaching staff are available locally'.⁴⁰² The Mining and Energy Union further emphasised that workers with non-trade qualifications, such as company-endorsed certificates, face additional challenges as their skills may not transfer as easily to other sectors. They argued that 'policy efforts to support retraining and reskilling need to account for this'.⁴⁰³

- 3.73** A significant barrier to retraining is the uncertainty surrounding the future of emerging industries such as renewable energy. The Mining and Energy Union noted that workers are 'rightly hesitant' to make a 'years-long commitment', and require clearer guidance on which industries will emerge in place of the mines:

Further progress in establishing new industries in traditional mining regions is urgent so that workers impacted by major closures know what they should retrain and upskill for, and can plan for their futures.⁴⁰⁴

- 3.74** Muswellbrook Shire Council shared this concern. They stated that they are in a 'holding pattern' as they try and determine exactly what industries to retrain workers for:

We are in this little bit of a holding pattern where we haven't attracted that keystone industry here to replace mining. We know we need electricians, we know we need a

³⁹⁹ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 31.

⁴⁰⁰ Evidence, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 31.

⁴⁰¹ Submission 43, Mining & Energy Union, p 4.

⁴⁰² Submission 43, Mining & Energy Union, p 4.

⁴⁰³ Submission 43, Mining & Energy Union, p 4.

⁴⁰⁴ Submission 43, Mining & Energy Union, p 4.

whole range of different skills and experience, but we're not exactly sure what we're retraining people for at this point in time.⁴⁰⁵

- 3.75** Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, also raised the need to consider the practicalities around providing training opportunities for people who are shift workers:

We're working really strongly with them to provide Open Universities open pathways programs here within Muswellbrook. Most of our workers, or people in mines, they're also on shiftwork, so being able to provide those courses for those staff which are on the alternate rosters and working really closely with industry to be able to link existing staff up with those opportunities.⁴⁰⁶

- 3.76** To address these challenges, stakeholders called for a regional entity to oversee and coordinate reskilling efforts. Mr Steve Wilson, Director, Hunter Joint Organisation pointed out that while a lot of good work was happening by agencies and community groups, there was a need for a more unified strategic approach to align efforts, and to ensure that agencies, councils, and local communities work together to support the transition and 'actually get everyone rowing in the same direction so to speak'.⁴⁰⁷
- 3.77** Hunter Renewal shared that in order to diversify the Hunter region's economy there must be investment in reskilling the workforce. They advocated for new TAFE campuses and courses that will equip local people with the right skills to help transition the workforce.⁴⁰⁸
- 3.78** One key initiative that gained support was the establishment of a Centre for Excellence.⁴⁰⁹ Stakeholders such as Dantia and Lake Macquarie City Council proposed leveraging Lake Macquarie's existing educational institutions and establishing the TAFE Manufacturing Centre of Excellence in Glendale for this purpose.⁴¹⁰
- 3.79** Advanced Simplicity similarly advocated for a Centre of Excellence to 'develop world class intellectual property and practical advancement in the sustainability industries'. They noted that it could 'strengthen the region's knowledge base with the likely development of collaborative projects with the other existing local and international Centres of Excellence'.⁴¹¹

⁴⁰⁵ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, p 8.

⁴⁰⁶ Evidence, Ms Shaelee Welchman, Director, Community & Economy, Muswellbrook Shire Council, 20 August 2024, pp 7-8.

⁴⁰⁷ Evidence, Mr Steve Wilson, Director, Hunter Joint Organisation, 21 August 2024, p 19.

⁴⁰⁸ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 20.

⁴⁰⁹ See, for example, Submission 27, Lake Macquarie Economic Development Company – trading as Dantia, p 5; Submission 47, Lake Macquarie City Council, p 9; Submission 38, Lock the Gate Alliance, p 3.

⁴¹⁰ Submission 27, Lake Macquarie Economic Development Company – trading as Dantia, p 5; Submission 47, Lake Macquarie City Council, p 9.

⁴¹¹ Submission 60, Advanced Simplicity, p 8.

Role of mining companies

- 3.80** Stakeholders highlighted that mine operators play a critical role in facilitating the transition for their workers to new jobs, industries or into retirement. BHP, for example, was one company which shared details of their workforce transition planning.
- 3.81** BHP operates the Mount Arthur Coal facility, a large open-cut thermal coal mine located in the Hunter Valley and is scheduled to cease operations by 2030.⁴¹² BHP advised that it is working closely with its Mount Arthur workforce of approximately 2,200 people on its 'Pathway to 2030' program.⁴¹³ This has entailed one-on-one conversations with employees to understand their aspirations, providing opportunities for questions as well as a chance to allay fears.⁴¹⁴ It also enabled feedback as to what support was needed and wanted from BHP. Its 'Tomorrow, Together' initiative aims to help employees identify closure pathways that suit their individual circumstances, and consists of engagement sessions, training, and support.⁴¹⁵
- 3.82** BHP shared their efforts to map mine workers skills to the Australian Qualifications Framework, aiming to make these skills transferrable to other industries.⁴¹⁶ Ms Liz Watts, Vice-President, NSW Energy Coal, BHP also highlighted the potential of 'micro skills' training, which would target specific gaps in workers skill set, rather than requiring a full qualification, allowing for a smoother transition to new roles.⁴¹⁷
- 3.83** Yancoal emphasised that its approach involves regular engagement with its workers and the provision of redeployment opportunities.⁴¹⁸ They also provide training opportunities for those exiting the business, and have worked to get certification and accreditation of operational skills gained on-the-job, helping workers access alternative employment.⁴¹⁹ However, Mr Nick McDermott, Policy Specialist, Yancoal noted that the uptake of training opportunities was low compared to options like redundancy or redeployment.⁴²⁰
- 3.84** Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, referring to the closure of the Liddell Power Station where some workers were transferred to Bayswater Power Station, spoke positively about a 'no-forced-redundancy-policy'.⁴²¹ Mr Rush emphasised that an approach where workers are redeployed to other options rather than laid off can be effective in maintaining both the workforce expertise and the communities economic value.⁴²²

⁴¹² Evidence, Ms Liz Watts, Vice-President, NSW Energy Coal, BHP, 12 August 2024, p 21.

⁴¹³ Submission 32, BHP, p 1.

⁴¹⁴ Evidence, Ms Liz Watts, Vice-President, NSW Energy Coal, BHP, 12 August 2024, p 22.

⁴¹⁵ Submission 32, BHP, p 1.

⁴¹⁶ Evidence, Ms Liz Watts, Vice-President, NSW Energy Coal, BHP, 12 August 2024, p 23.

⁴¹⁷ Evidence, Ms Liz Watts, Vice-President, NSW Energy Coal, BHP, 12 August 2024, p 23.

⁴¹⁸ Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, p 32.

⁴¹⁹ Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, p 32; Evidence, Mr Michael Moore, Group Manager, Approvals, Yancoal, 12 August 2024, p 32.

⁴²⁰ Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, p 32.

⁴²¹ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

⁴²² Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 10.

- 3.85** However, there were some concerns about the sustainability of such a model. Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, noted that redeploying workers within mining companies and power stations may not be viable long-term as the coal industry begins to decline more rapidly.⁴²³ While Ms Nichols acknowledged that the AGL example was a success for those workers, she reflected that as the industry continues to shrink there will be fewer options to transition within the same company.⁴²⁴

Successful workforce transitions in former mining regions

- 3.86** Examples where workforce transitions had been successfully managed in what were previously mining regions were cited by inquiry participants.⁴²⁵ One example is outlined in the case study below.

Case study The Ruhr Valley, Germany⁴²⁶

In response to market forces and in an effort to reduce carbon emissions, the German Ruhr region phased-out coal production over a number of decades, officially shutting down the last remaining mines in 2018. This decision to withdraw from coal production led to a significant decline in the region's workforce, from a peak of nearly 480,000 miners in 1955, down to 24,000 miners in 2007, and eventually fewer than 4,000 by 2018.⁴²⁷

To manage the transition, a tripartite agreement between coal companies, the representative trade unions and federal and state governments was signed in 2007. This agreement was worker-focused and included policies to support workers, including, voluntary redundancies, early retirement, on-the-job qualification, retraining, and assistance to transfer into other industries.⁴²⁸

Professor Tom Measham, Research Director, CRC TiME, illustrated the scale of the Ruhr Valley transformation which included decades of planning and significant investment:

People often draw their own analysis of what's happened in Germany in the Ruhr Valley. That was a €38 billion transformation, so that's roughly A\$60 billion. That's

⁴²³ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 28.

⁴²⁴ Evidence, Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 28.

⁴²⁵ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, pp 9-11.

⁴²⁶ World Resources Institute, *Germany: The Ruhr Region's Pivot from Coal Mining to a Hub of Green Industry and Expertise*, 1 April 2021, <https://www.wri.org/update/germany-ruhr-regions-pivot-coal-mining-hub-green-industry-and-expertise>; Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 8; Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 13; Evidence, Professor Tom Measham, Research Director, CRC TiME, 21 October 2024, p 40.

⁴²⁷ World Resources Institute, *Germany: The Ruhr Region's Pivot from Coal Mining to a Hub of Green Industry and Expertise*, citing Kohlenstatistik, 1 April 2021, <https://www.wri.org/update/germany-ruhr-regions-pivot-coal-mining-hub-green-industry-and-expertise>.

⁴²⁸ World Resources Institute, *Germany: The Ruhr Region's Pivot from Coal Mining to a Hub of Green Industry and Expertise*, 1 April 2021, <https://www.wri.org/update/germany-ruhr-regions-pivot-coal-mining-hub-green-industry-and-expertise>.

the scale of that transformation. That transformation took 50 years. It involved all scales of government, with an emphasis on regional delivery... But the reason it worked was because they generated a whole lot of jobs, industries, new economic activity, real estate value—a whole lot of things came out of that which were very positive for Germany.⁴²⁹

The Ruhr Valley also faced severe environmental decline, including abandoned mines, large final voids, and contaminated landscapes. Under the direction of regional planning authorities, which worked closely with research bodies and local communities, the region successfully transformed into a national centre of environmental industries, research, and development.⁴³⁰

One of the success stories was the development of the Zollverein Coal Industrial complex, a UNESCO World Heritage site that now serves as a cultural and ecological park, which accommodates 130 companies, employs 5,000 workers and attracts 1.5 million visitors annually.⁴³¹

Future Jobs and Investment Authorities

- 3.87** The closure of coal mines presents significant challenges for the local workforce and regional economies. An effective transition is likely to require a comprehensive strategy that involves supporting workers, managing land rehabilitation, and creating new employment opportunities. This section outlines the Future Jobs and Investment Authorities ('the Authorities') to be established in New South Wales and the role they will play in addressing the issues identified.
- 3.88** The Government has committed to establishing Future Jobs and Investment Authorities as part of its support for securing the long-term economic future of communities reliant on the coal industry, namely the Hunter, Central West, Illawarra and North West regions.⁴³² Ms Georgina Beattie, Deputy Secretary, NSW Resources stated that the Authorities are to play 'a leading role in planning for the future of coal regions'.⁴³³
- 3.89** According to the Government, the Authorities will bring together local representatives to advise on regional priorities and investment opportunities, focusing on job creation, growth through new industries, and regional coordination across all levels of government and local communities.⁴³⁴ The Government has committed \$5.2 million to set up the Future Jobs and

⁴²⁹ Evidence, Professor Tom Measham, Research Director, CRC TiME, 21 October 2024, p 40.

⁴³⁰ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 13.

⁴³¹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 8; World Resources Institute, *Germany: The Ruhr Region's Pivot from Coal Mining to a Hub of Green Industry and Expertise*, 1 April 2021, <https://www.wri.org/update/germany-ruhr-regions-pivot-coal-mining-hub-green-industry-and-expertise>.

⁴³² Department of Primary Industries and Regional Development, *Future Jobs and Investment Authorities* (2025), <https://www.nsw.gov.au/regional-nsw/future-jobs-and-investment-authorities>.

⁴³³ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 2.

⁴³⁴ Department of Primary Industries and Regional Development, *Future Jobs and Investment Authorities* (2025), <https://www.nsw.gov.au/regional-nsw/future-jobs-and-investment-authorities>.

Investment Authorities and has been consulting with communities to guide their development.⁴³⁵

3.90 The Government outlined the role of the Authorities as a link between communities, the Government and investment opportunities:

The Future Jobs and Investment Authorities will also play a role as a voice for communities to help shape strategic plans expanding the range of options available in different areas. Local representatives in these coal-reliant regions will work with the Authorities to advise Government on regional priorities with a focus on sustainable economic development and job creation. Government's role will be to help link new industries and interested developers to seize opportunities and deliver new life to key mine sites that are closing.⁴³⁶

3.91 When asked about the barriers preventing the full realisation of the social and economic benefits from rehabilitated mine sites, Ms Georgina Beattie, Deputy Secretary, NSW Resources, stated that the Future Jobs and Investment Authorities will play an important role in examining the 'economic and social implications of such large-scale shift when coalmines close in the future'.⁴³⁷ Ms Beattie described how the Future Jobs and Investment Authorities would support coal communities in identifying economic opportunities:⁴³⁸

As part of that, opportunities for land development and job-creating industries would be part of that proposal. Mining sites and power stations that offer those opportunities would fall into that remit. I think the other thing to mention is that we have a concierge service to support investors or mining companies looking to establish in New South Wales, and we connect across government.

3.92 While the Future Jobs and Investment Authorities was seen as a critical tool for supporting workforce transition, some stakeholders raised concerns about its implementation and effectiveness. For example, the Hunter Renewal group criticised the limited open public consultation in the development of the Future Jobs and Investment Authorities model.⁴³⁹ They expressed concern that the government-selected panels, which advise on which diversification projects should receive funding, may not be representative of the broader communities and could restrict public engagement:

The government developed its Future Jobs and Investment Authorities proposal without any open public consultation whatsoever, via invite-only 'roundtable' discussions. In the same vein, the proposed FJIA model would see government-selected panels (or 'Authorities') advising the Minister on which diversification projects should receive Royalties for Rejuvenation funding - in replication of the existing Expert Panels system. Such panels create the impression of public engagement while in fact restricting it to a very small and generally unrepresentative group of people.⁴⁴⁰

⁴³⁵ Department of Primary Industries and Regional Development, *Future Jobs and Investment Authorities* (2025) <https://www.nsw.gov.au/regional-nsw/future-jobs-and-investment-authorities>.

⁴³⁶ Submission 69, NSW Government, p 3.

⁴³⁷ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 9.

⁴³⁸ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 39.

⁴³⁹ Submission 63, Hunter Renewal, p 4.

⁴⁴⁰ Submission 63, Hunter Renewal, pp 4-5.

- 3.93** The consultation process and the governance structure was also a concern for Narrabri Shire Council, who shared that while they 'cautiously' supported the establishment of the Future Job and Investment Authorities, there was a need for clear governance, accountability and a strong focus on community needs.⁴⁴¹ Furthermore, they warned against the Authorities becoming political and adding another layer of bureaucracy, advocating for local government to not only have 'a seat at the table but a clear voice in future decision making on issues that directly affect their communities'.⁴⁴²

Committee comment

- 3.94** Throughout the inquiry, the depth and centrality of the connection of mining to the culture and identity of a number of regional communities was apparent, often having been formed over many generations. It is understandable that many in these communities are fearful of the economic impact of a transition away from mining, and the repercussions for themselves and their families, including for the generations to follow.
- 3.95** The potential impact of mine closures in terms of employment opportunities as well as the consequences for local businesses is likely to be significant. It is of the utmost importance that the economic and workforce transition is managed with care and sensitivity, as well as strategically, so as to minimise the extent of any disruption.
- 3.96** The committee was heartened by the evidence received indicating that a move away from a reliance on mining can bring new opportunities with it. There are likely to be employment prospects in mine rehabilitation as well as some of the alternative land uses under consideration. There is hope that emerging industries may not only offer jobs to replace the ones that will be lost, but may also provide for the potential growth of rural and regional economies.
- 3.97** Effective and genuine consultation between communities, workers, industry and government is critical to a successful transition, in order to build trust between all involved. Stakeholder collaboration, when done well, can optimise economic and community outcomes.
- 3.98** To this end, the benefits of in-person consultation should not be underestimated and may help ensure the effective inclusion of a broader range of community representatives. Consultation must not be rushed and is at its best when it is ongoing throughout the lifecycle of a mine.
- 3.99** In particular, while efforts have been made to engage and consult with First Nations communities, the committee acknowledges that there is room for improvement. First Nations peoples must be part of the consultation process from its beginning, with appropriate time allowed to ensure a better level of engagement.
- 3.100** It is clear that the workforce transition will not be seamless. There will be gaps in skills, and some skills will not easily transfer to other industries. The committee also recognises that in many cases it is still not apparent exactly what industries will emerge in place of mining. A skills audit is necessary so appropriate training opportunities are not only identified but resourced and provided in a timely manner.

⁴⁴¹ Submission 30, Narrabri Shire Council, p 11.

⁴⁴² Submission 30, Narrabri Shire Council, p 11.

3.101 The committee accordingly recommends that relevant government agencies, including the Future Jobs and Investment Authorities and the Net Zero Commission, conduct a skills audit of the mining workforce in New South Wales to determine:

- what skills are recognised and can be used by other industries
 - where there may be obstacles to the successful transfer of existing skills
 - what retraining or upskilling may be required
 - what wages and employment conditions are currently industry standard
 - opportunities for on-site training and skills development
 - where there are training and educational shortages in mining regions
 - what is of relevance in the outcomes of previous skills audits.
-

Recommendation 7

That relevant government agencies, including the Future Jobs and Investment Authorities and the Net Zero Commission, deliver a skills audit of the mining workforce in New South Wales to determine:

- what skills are recognised and can be used by other industries
 - where there may be obstacles to the successful transfer of existing skills
 - what retraining or upskilling may be required
 - what wages and employment conditions are currently industry standard
 - opportunities for on-site training and skills development
 - where there are training and educational shortages in mining regions
 - what is of relevance in the outcomes of previous skills audits.
-

3.102 The committee heard how the courses offered by local educational providers, including TAFE, may not always align with the skills needed by emerging industries. In some cases, additional campuses may be required so those in affected regions have access to relevant training. The committee thus recommends that the Government invest in: reskilling, retraining and educational programs to support mining communities during the resources and energy transition; opportunities for economic development and productive future use of sites in the resources and energy transition; localised education and training opportunities to boost employment outcomes.

Recommendation 8

That the Government invest in:

- reskilling, retraining, and educational programs to support mining communities during resources and energy transition
 - opportunities for economic development and productive future use of sites in the resources and energy transition
 - localised education and training opportunities to boost employment outcomes.
-

- 3.103** It is apparent that there is a role to be played by mining companies in assisting their workers to transition into new jobs or industries. The committee acknowledges the work that some companies are already doing in this space. The examples presented to the committee of how the transition from mining has been managed in various jurisdictions, in particular, the Ruhr Valley in Germany, were encouraging. The committee urges mining companies to learn from such examples and adapt them as appropriate for the New South Wales context.
- 3.104** The committee finds that New South Wales has an opportunity to learn from the experiences of other parts of the world that have already made the post mining transition and apply those lessons in the Australian context in a way that maximises benefits for the entire New South Wales community.

Finding 3

That New South Wales has an opportunity to learn from the experiences of other parts of the world that have already made the post mining transition and apply those lessons in the Australian context in a way that maximises benefits for the entire New South Wales community.

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- 3.105** Finally, many communities will need a clear strategy for how best to manage the transition away from mining in their region. The committee acknowledges the role that many councils are playing in this regard. The committee is pleased that the Government has committed to establishing Future Jobs and Investment Authorities in order to secure the long-term economic future of mining communities. These communities will need a strong voice to help identify regional priorities and investment opportunities, encourage job creation and the growth of new industries. If done well, they will be far from 'another level of bureaucracy' but will rather provide necessary direction, as they streamline and maximise opportunities to help communities and the workforce successfully transition into the non-mining era.

Chapter 4 Environmental considerations

This chapter examines the opportunities and challenges associated with managing the physical environment after mining ends. It documents the impact of mining activities on land and waterways. The chapter also considers the challenges associated with abandoned legacy mines and final voids. Next, the chapter outlines other environmental considerations, as consequence of mining, such as biodiversity loss and ecosystem disruption. It concludes by documenting emerging approaches to environmental restoration, including utilising better data and monitoring, as well as the latest restoration techniques and tools.

Impact of mining on land and water systems

4.1 The following sections consider the impacts of mining on land and water systems.

Land degradation

4.2 Dr Pete Whitbread-Abrutat, co-author, *102 Things to Do with a Hole in the Ground*, founder and director of Future Terrains, stated that mine sites are often left as 'stark discontinuities in the landscape', with polluted soil, barren land, and derelict buildings.⁴⁴³

4.3 The report, *Enabling mine closure and transitions: Opportunities for Australian industry (2023)*, provided by the CSIRO stated that mine sites often face 'extensive topsoil deficits', which occurs when the original topsoil is displaced during extraction and combined with other mine waste materials.⁴⁴⁴

4.4 It was also noted that the removal and disruption of topsoil can impact the natural landscape and can result in the loss of productive agricultural land and lead to poor regeneration outcomes.⁴⁴⁵

4.5 Hunter Renewal identified other 'profound' environmental impacts of large-scale open-cut mining, including air pollution and destruction of native ecosystems.⁴⁴⁶

4.6 Hunter Renewal acknowledged that the Government has made efforts to address environmental concerns by issuing stricter consent conditions for new and expanded coal mines to 'permanently rehabilitate their sites for viable alternative uses including ecosystem and agricultural lands.'⁴⁴⁷ Nonetheless, Hunter Renewal also stated that [i]t would be an abrogation

⁴⁴³ Email from Dr Pete Whitbread-Abrutat, Co-Author, '102 Things to Do with a Hole in the Ground', Founder and Director of Future Terrains, to Committee, received 11 December 2024 – Attachment, Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 8.

⁴⁴⁴ Submission 73, CSIRO, p 32.

⁴⁴⁵ See for example, Submission 73, CSIRO, pp 32-34; Submission 34, SEATA Group and Global Product Stewardship Council, p 5; Evidence, Mr Craig Bagnall, Director, Environment and Regulatory, SEATA Group, 12 August 2024, pp 50-51; Submission 63, Hunter Renewal, p 2.

⁴⁴⁶ Submission 63, Hunter Renewal, p 2.

⁴⁴⁷ Submission 63, Hunter Renewal, p 2.

of the government's responsibility to the public if these commitments were weakened or abandoned.⁴⁴⁸

- 4.7 The Government stressed that the impacts of previous land use on potential future uses must be considered and managed.⁴⁴⁹ Further, the Government advised that the Environmental Protection Agency plays a key role in land use planning and managing contaminated lands given its statutory powers:

The NSW EPA evaluates land use conflict, proximity to sensitive receivers, and impacts on noise, air water quality, and greenhouse gas emissions as well as legacy and emerging contamination at various stages. The EPA uses its powers under *the Contaminated Land Management Act 1997* to address significant contamination. Failure to consider contamination during the planning phase can lead to inappropriate land use decisions, increased human health risks, environmental damage, structural safety issues, development delays, decreased land value, and unanticipated development costs.⁴⁵⁰

Water quality

- 4.8 The CSIRO noted that mining activity can impact both surface and underground water systems.⁴⁵¹ They advised that changes to water systems can impact the quality, quantity, and movement of water, with potential repercussions including erosion and landform instability.⁴⁵²
- 4.9 Hunter Renewal asserted that mining activity has a permanent impact on waterway ecosystems by 'destroying aquifers, diverting streams, and connecting deep saline water with freshwater', leading to 'permanent loss' and disruption of waterways.⁴⁵³ They argued that it is 'fair to insist that mining companies undo the damage ... [t]he regeneration of waterway ecosystems must be a key objective of the Hunter's transition and restoration strategy'.⁴⁵⁴
- 4.10 Environmental researcher, Dr Julia Imrie, posited that the 'over-extraction and degradation' of fresh groundwater reduces water supply and increases salinity (salt) in the affected areas.⁴⁵⁵
- 4.11 Dr Imrie cited an example from the Ulan Wollar region, where three mines discharge over 56 million litres of mine water per day into the Goulburn River.⁴⁵⁶ She said that this practice has led to inconsistent water flow into the river, as it fluctuates to meet the needs of the mining operation.⁴⁵⁷

⁴⁴⁸ Submission 63, Hunter Renewal, p 2.

⁴⁴⁹ Submission 69, NSW Government, p 28.

⁴⁵⁰ Submission 69, NSW Government, p 28.

⁴⁵¹ Submission 73, CSIRO, pp 28-29.

⁴⁵² Submission 73, CSIRO, pp 28-29.

⁴⁵³ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 25.

⁴⁵⁴ Tabled document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 25.

⁴⁵⁵ Submission 35, Dr Julia Imrie, p 2, citing Imrie, J, *Changing land use in an uncertain climate: impact on surface water and groundwater in the Goulburn River, Upper Hunter Valley NSW*, ANU, 2019.

⁴⁵⁶ Submission 35, Dr Julia Imrie, pp 1-2.

⁴⁵⁷ Submission 35, Dr Julia Imrie, pp 1-2.

- 4.12** The Wollar Progress Association echoed Dr Imrie's concern. They argued that discharging treated mine water into local river systems has 'completely destroyed the natural flow variability of the river system'.⁴⁵⁸ They observed that 'untreated mine water has been discharged into the Goulburn River for up to six months after flood periods, polluting the river with salt and heavy metals'.⁴⁵⁹
- 4.13** Dr Imrie also raised concerns about the long-term consequences once mine operators leave a site. She suggested that after mining companies cease operations, they stop managing the water, leaving it to run into the final void (the large, excavated areas left behind after mining operations are completed and which are considered in further detail at paragraph 4.51).⁴⁶⁰
- 4.14** Lock the Gate Alliance argued that mine closure can permanently remove catchment areas from local rivers and creeks.⁴⁶¹
- 4.15** The Government acknowledged that:
- mining activity can cause groundwater to drop significantly, leading to 'oxidation and groundwater mixing', resulting in water quality issues like higher concentrations of salt, metals and chemicals⁴⁶²
 - many mining operations leave a final void where surface water may enter the groundwater system, increasing water quality risks⁴⁶³
 - that these potential impacts should be considered by mine operators early in the planning process.⁴⁶⁴
- 4.16** The Government stressed that mining operators need to 'comply with the water access licensing requirements of the *Water Management Act 2000* and with the minimum impact requirements of the Aquifer Interference Policy if they need to access water sources'.⁴⁶⁵
- 4.17** In addition, the Government identified that 'water requirements for post mining land use development should be assessed early, with sources identified' given access to groundwater systems are generally fully allocated across the state. This means that 'post mining land use will require market-based access where surface and groundwater is taken. Alternative water sources, such as recycled effluent and produced water, should be considered to meet site demands'.⁴⁶⁶

⁴⁵⁸ Submission 29, Wollar Progress Association, p 2.

⁴⁵⁹ Submission 29, Wollar Progress Association, p 2.

⁴⁶⁰ Evidence, Dr Julia Imrie, Individual, 20 August 2024, p 21.

⁴⁶¹ Submission 38, Lock the Gate Alliance, p 2.

⁴⁶² Submission 69, NSW Government, p 28.

⁴⁶³ Submission 69, NSW Government, p 28.

⁴⁶⁴ Submission 69, NSW Government, p 28.

⁴⁶⁵ Submission 69, NSW Government, p 28.

⁴⁶⁶ Submission 69, NSW Government, p 28.

Managing former mine sites

4.18 The following section looks at various issues associated with abandoned, derelict and legacy mines, including:

- environmental risk
- the Government's approach to managing legacy mines
- responsibility and ownership
- legacy mine identification
- the International Organisation for Standardisation 'Managing Mining Legacies' standard.

Managing abandoned, derelict and legacy mines

4.19 Various inquiry participants stressed that abandoned mines, also known as 'derelict' and 'legacy' mine sites, present an ongoing environmental and safety issue across New South Wales.⁴⁶⁷

4.20 The CSIRO defined an abandoned mine as 'a mine where mining leases or titles no longer exist, and responsibility for rehabilitation cannot be allocated to any individual, company or organisation responsible for the original mining activities'.⁴⁶⁸

4.21 Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation observed that legacy mines are challenging to be managed because of regulatory uncertainty and a lack of clarity regarding who is accountable:

Mining legacies is really about dealing with mines that have fallen off a regulatory cliff, as it were, in that they have unclear ownership and responsibilities and environmental harms and often social conflicts around their existence. They're unremediated ... They sometimes have decaying industrial heritage infrastructure that could be important to tourism and so on.⁴⁶⁹

4.22 The Mining & Energy Union argued legacy mines are of benefit to no-one except the former operator who managed to shirk their responsibility:

Abandoned, poorly rehabilitated mine sites are of benefit to no-one save for the mine operator who has managed to avoid its financial obligations to the state of NSW and shift a major externality of its operations onto the public'.⁴⁷⁰

⁴⁶⁷ See for example, Submission 73, CSIRO, p 51; Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 35.

⁴⁶⁸ Submission 73, CSIRO, p 51.

⁴⁶⁹ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 35.

⁴⁷⁰ Submission 43, Mining & Energy Union, p 2.

4.23 The NSW Resource Regulator advised that 'responsibility for legacy mines lies with the landowner although support is provided through the Legacy Mines Program'.⁴⁷¹

Legacy Mines Program

4.24 In 1979, the Government established the Derelict Mines Program (now known as the Legacy Mines Program) to address legacy mines.⁴⁷²

4.25 A legacy mine is an abandoned mine site that meets the following criteria:

- has had a previous mining title under the *Mining Act 1992*, or the *Petroleum (Onshore) Act 1991* or their predecessors,
- it must be abandoned, that is, there is no person or company with direct responsibility for the rehabilitation of the former mining activities able to be identified,
- it constitutes a high environmental risk and/or high public safety risk, according to the Legacy Mine Program's (LMP) risk assessment tool.⁴⁷³

4.26 The Legacy Mines Program, administered by NSW Resources, oversees works to:

- reduce public safety and environmental risks from legacy mine sites
- stabilise and prevent further degradation
- remove or contain contamination at the source and prevent it from spreading.⁴⁷⁴

4.27 In addition to seeking to minimise the public safety and environmental risks from legacy mine sites, the Government also advised that efforts are being made to identify opportunities to reprocess wastage:

Work is underway to identify opportunities from current and historic mining operations where reprocessing of tailings for critical, base metal and precious metal commodities might exist. Several mine operators are currently exploring opportunities for reprocessing tailings and waste.⁴⁷⁵

Environmental risks

4.28 A key concern associated with legacy mine sites is environmental contamination. Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, advised that legacy mines pose a more significant environmental risk

⁴⁷¹ Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 4.

⁴⁷² Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 4.

⁴⁷³ Resources Regulator, *Legacy Mines Program*, Resources Regulator website, <https://www.resourcesregulator.nsw.gov.au/rehabilitation/legacy-mines-program>.

⁴⁷⁴ Submission 69, NSW Government, p 23; Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 4.

⁴⁷⁵ Submission 69, NSW Government, p 23.

simply because the technology used was nowhere near as good as contemporary mining technologies.⁴⁷⁶

4.29 Professor Naidu also noted that there it may be feasible at some legacy mine sites to do further mining with contemporary technology.⁴⁷⁷

4.30 The Cessnock City Council observed that 'some historic sites continue to present environmental and contamination risks in terms of acid mine drainage from former tailings dam and asbestos within buildings'.⁴⁷⁸

4.31 Mr Tony Chappel, Chief Executive Officer, NSW Environment Protection Authority acknowledged the scale of the problem:

There are hundreds of legacy sites where we have to work out and triage. Some of those risks in terms of legacy sites venting methane, for example, probably haven't historically been captured. Those are considerations as we think about the whole economy and emission sources.⁴⁷⁹

4.32 Regarding the future closure of current mining sites, particularly coal mines, Ms Georgina Beattie, Deputy Secretary, NSW Resources, advised that the Government is anticipating a broader range of final land uses at mine sites. She acknowledged that community expectations were changing and while closures will be based on consent conditions there is a recognition that alternative land uses may be pursued:

We're shifting with the community expectation. We are in a transition phase with coalmining. We're expecting a large number of mines to close based on consent conditions, largely between 2030 to 2040. That is changing, but ultimately it still comes down to the consent. But there is that recognition that there are increasingly—even in the past couple of years—new alternative land uses and proposals for alternative land uses.⁴⁸⁰

Responsibility and ownership of legacy mines

4.33 The lack of clear responsibility for legacy mines was identified by various inquiry participants. It was noted that that many legacy sites were developed prior to the establishment of modern mining regulations, leaving gaps in data, and issues related to liability reporting and risk management.⁴⁸¹

⁴⁷⁶ Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, 21 October 2024, p 36.

⁴⁷⁷ Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, 21 October 2024, p 36.

⁴⁷⁸ Submission 17, Cessnock City Council, p 4.

⁴⁷⁹ Evidence, Mr Tony Chappel, Chief Executive Officer, NSW Environment Protection Authority, 17 December 2024, pp 44-45.

⁴⁸⁰ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 17 December 2024, p 44.

⁴⁸¹ See for example, Submission 73, CSIRO, p 51; Email from Dr Corinne Unger to the Committee, received 19 August 2024 – Attachment 1, C.J Unger, A.M. Lechner, J. Kenway, V. Glenn, A. Walton, 'A jurisdictional maturity model for risk management, accountability and continual improvement of

- 4.34** Dr Unger, stressed that there is 'ambiguity' surrounding legacy mine responsibility.⁴⁸²
- 4.35** Ms Amanda Wetzel stated that historical records for certain legacy mines may be incomplete or unavailable. Ms Wetzel suggested that further investigation is needed to better understand risk but that this would be expensive:
- The problem with legacy sites is that some of these may never have been approved in the first place, depending on when they started, and others may have been approved so long ago that the archives are not reachable or available. To get to the point where we can fully understand and have detailed mapping of every risk and every type of historical land use on these legacy sites would be a very costly exercise, so there would need to be some sort of prioritisation process to decide which sites were worth investigating.⁴⁸³
- 4.36** Ms Wetzel noted several historical and abandoned mine sites scattered across the Hunter Region, including Lake Macquarie, Newcastle, and Maitland.⁴⁸⁴ She stressed that mapping these sites would be complex, and require collaboration between local, state, and federal government agencies to identify and prioritise the sites for further investigation.⁴⁸⁵
- 4.37** Dr Unger similarly suggested a 'systematic approach' to monitoring and evaluating abandoned mines to improve accountability and demonstrate change in liability over time.⁴⁸⁶
- 4.38** The CSIRO advised that there is no definitive source of authority regarding the location of current and former mine sites in New South Wales:
- There is currently no single source of authority when it comes to identifying the locations of current and historical mine sites in the state of New South Wales. Likewise, there is no centralised database of information relating to mine closure and rehabilitation planning within each individual mine site.⁴⁸⁷
- 4.39** According to the CSIRO 'The lack of fit-for purpose public and accessible information is an overarching impediment to the highest value reuse of post-mining land in the Hunter'.⁴⁸⁸ The Hunter being a major mining region in New South Wales.

abandoned mine remediation programs', (2015), Resources Policy Volume 43, p 8; Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, 21 October 2024, p 36.

⁴⁸² C.J Unger, A.M. Lechner, J. Kenway, V. Glenn, A. Walton, 'A jurisdictional maturity model for risk management, accountability and continual improvement of abandoned mine remediation programs', (2015), Resources Policy Volume 43, p 2.

⁴⁸³ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 36.

⁴⁸⁴ Submission 37, Ms Amanda Wetzel, p 3.

⁴⁸⁵ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 36.

⁴⁸⁶ C.J Unger, A.M. Lechner, J. Kenway, V. Glenn, A. Walton, 'A jurisdictional maturity model for risk management, accountability and continual improvement of abandoned mine remediation programs', (2015), Resources Policy Volume 43, p 1.

⁴⁸⁷ Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, to Committee, received 31 October 2024 – Attachment, Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 19.

⁴⁸⁸ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 19.

4.40 Green Gravity noted that evidence to a 2019 Senate inquiry had indicated that there are more than 50,000 abandoned mine sites across Australia. They further cited Productivity Commission research showing that New South Wales is the 'most exposed state to inactive mining assets, with 19,728 identified terminated or ceased mining activities'.⁴⁸⁹

4.41 Green Gravity asserted there is an opportunity here to create incentives to promote positive land use on former mine sites: 'This scale underscores the genuine opportunity for NSW to actively incentivise and facilitate the productive reuse of this surplus disturbed land'.⁴⁹⁰

Identifying abandoned mines

4.42 Several recommendations were put forward to help identify abandoned mines in New South Wales and develop an inventory of these sites.

4.43 For example, Professor Ravi Naidu suggested that an independent body be given responsibility to help map and assess these sites so as to guide post-mining land use decisions more effectively.⁴⁹¹

4.44 Professor Naidu also observed that:

- state governments do not have sufficient financial resources to fund bodies such as crcCARE to undertake research and mapping of derelict mines and that funding should probably come from the Commonwealth⁴⁹²
- there may be an opportunity to use artificial intelligence to delineate derelict mines.⁴⁹³

4.45 Ms Wetzel, suggested existing resources could be used to map abandoned and derelict mines, such as the former NSW Government website *Common Ground* and the environmental data portal Sharing and Enabling Environmental Data (SEED).⁴⁹⁴

ISO standard: Managing Mining Legacies

4.46 To address the complexities of managing mining legacies, the International Organisation for Standardisation (ISO) developed the 'Managing Mining Legacies' standard, which provides a comprehensive framework for handling the environmental, social, and governance challenges associated with abandoned mines.⁴⁹⁵

4.47 Dr Corrine Unger, convenor and project lead of the 'Managing Mining Legacies Working Group', explained that the ISO standard aims to transform negative mining legacies into positive outcomes through governance, stakeholder engagement, planning and performance

⁴⁸⁹ Submission 15, Green Gravity, pp 1-2.

⁴⁹⁰ Submission 15, Green Gravity, p 2.

⁴⁹¹ Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle, 21 October 2024, p 36.

⁴⁹² Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle 21 October 2024, p 36.

⁴⁹³ Evidence Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle 21 October 2024, p 36.

⁴⁹⁴ Evidence, Ms Amanda Wetzel, Individual, 21 August 2024, p 36.

⁴⁹⁵ Submission 22, Dr Corinne Unger, pp 1-2.

reporting.⁴⁹⁶ She advised that the standard emphasises transparency, sustainable development, and alignment with the UN Sustainable Development Goals, such as reducing inequalities, restoring ecosystems, and improving health and livelihoods.⁴⁹⁷

- 4.48** The standard comprises two parts: Part 1 specifies compliance requirements, while Part 2 offers case studies and guidance.⁴⁹⁸ The standard is voluntary but if adopted its implementation requires the creation of governance frameworks, inventories of impacted mine sites, and accounting for liabilities, which, according to Dr Unger, are 'often neglected'.⁴⁹⁹
- 4.49** Dr Unger further noted that the standard is designed to complement, not conflict with, existing legislative frameworks. She stated that 'Standards are always there as a backdrop, in the background as a leading practice guidance or whatever, but they do not supersede or conflict with legislation in any way'.⁵⁰⁰
- 4.50** Nonetheless, Dr Unger called for the New South Wales Audit Office to review the alignment of state legislation with the ISO standards, particularly regarding the management of derelict mines.⁵⁰¹ Dr Unger stated that 'I'm not sure if there is legislation that properly addresses derelict mines'.⁵⁰²

Final voids and pit lakes

- 4.51** A mine final void is the area of excavation that remains after mining is complete. Final voids present various environmental challenges, but they can also be repurposed to positive ends.⁵⁰³

Environmental impacts

- 4.52** Lock the Gate Alliance stated that the existence of final voids can have lasting environmental impacts, particularly on water quality and groundwater systems:

[V]oids will be groundwater sinks for centuries, drawing in groundwater from the surrounding area and becoming more and more contaminated over time as water evaporates and pollutants concentrate.⁵⁰⁴

⁴⁹⁶ Submission 22, Dr Corinne Unger, pp 1-2.

⁴⁹⁷ Submission 22, Dr Corinne Unger, pp 1-2.

⁴⁹⁸ Submission 22, Dr Corinne Unger, p 2.

⁴⁹⁹ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 35.

⁵⁰⁰ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 35.

⁵⁰¹ Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 36.

⁵⁰² Evidence, Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, 12 August 2024, p 36.

⁵⁰³ Evidence, Mr Peter Day, Executive Director, NSW Resources Regulator, 12 August 2024, p 5.

⁵⁰⁴ Submission 38, Lock the Gate Alliance, p 2.

- 4.53** Ms Sophie Nicholls, Engagement Coordinator, Outreach Officer, Hunter Renewal, similarly indicated that final voids can create aquifer interference thereby impacting waterways.⁵⁰⁵
- 4.54** To address such risks, the Government requires mining companies to address final voids in their Environmental Impacts Statement, which accompanies their development application under the *Environmental Planning and Assessment Act 1979*.⁵⁰⁶
- 4.55** In their Environmental Impact Statement, mine operators must demonstrate that their proposed final void design is 'safe, feasible and environmental stable'.⁵⁰⁷ The NSW Resource Regulator states that the primary aim is to 'minimise potential sterilisation of post-mining land'.⁵⁰⁸
- 4.56** Despite such requirements, the abandonment of final voids is a growing concern in New South Wales. According to Lock the Gate Alliance, the abandonment of 45 voids in the state have been approved, half of which are in the Hunter region.⁵⁰⁹

Mitigation measures

- 4.57** Despite the concerns detailed above, the CSIRO advised that the water quality in final voids can be improved by selecting 'neutral pit backfill materials' and treating water on-site.⁵¹⁰
- 4.58** An alternative to backfilling was identified by Dr Pete Whitbread-Abrutat using final void pit lakes. These form when water entering the mine pit from groundwater or surface flows, ceases to be pumped out at the end of the mining activity. He argued that with proper water management and quality control of pit lakes backfilling is not always necessary.⁵¹¹
- 4.59** Dr Whitbread-Abrutat cited the Lusatian Lake District in Germany, a large network of interconnected pit lakes where water quality has been maintained through connection to river systems and the addition of limestone to neutralise acid levels.⁵¹²
- 4.60** Mr Peter Laux, Mining Technology, LEAG, and Mr Dennis Bluth, Director of Hunter Lakes Corporation, also cited the Lusatia Lakes region in Germany. They reported that the lake system in Lusatia has provided benefits including stabilising river flow, managing floods, helping to

⁵⁰⁵ Evidence, Ms Sophie Nicholls, Engagement Coordinator, Outreach Officer, Hunter Renewal, 21 August 2024, p 22.

⁵⁰⁶ Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 3.

⁵⁰⁷ Submission 69, NSW Government, p 22; Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 3.

⁵⁰⁸ Department of Regional NSW, Resource Regulator, Fact Sheet, *Rehabilitation of exploration, mining and petroleum operations*, November 2022, p 3.

⁵⁰⁹ Submission 38, Lock the Gate Alliance, p 2.

⁵¹⁰ Submission 73, CSIRO, pp 28-29.

⁵¹¹ Evidence, Dr Pete Whitbread-Abrutat, co-author, '102 Things to Do with a Hole in the Ground', founder and director of Future Terrains, 17 December 2024, p 6.

⁵¹² Evidence, Dr Pete Whitbread-Abrutat, co-author, '102 Things to Do with a Hole in the Ground', founder and director of Future Terrains, 17 December 2024, p 6.

refill dams for water storages, providing drinking water, as well as being used for recreational activities such as sailing.⁵¹³

- 4.61** The Hunter Lakes Corporation strongly encouraged the Government to follow Germany's example and utilise final voids to create artificial lakes 'for the benefit of future generations'.⁵¹⁴ According to Mr Bluth developing a network of artificial lakes in the Hunter Region will help secure the state's water supply and assist with sustaining existing agriculture and urban water supplies.⁵¹⁵ In addition, the Hunter Lakes Corporation advised that a network of artificial lakes would generate employment and tourism opportunities in former mining regions.⁵¹⁶ This example is explored in further detail in the below case study.

Case study Lusatian Lake District, Germany⁵¹⁷

The Lusatian Lake District is a large network of artificial lakes in eastern Germany, formed by the flooding of former opencast lignite (brown coal) mines. For over 100 years, the region was heavily mined, before operations ended in the late 20th century. By this time, there were 31 surface mines, 207 final voids and degraded landscape.⁵¹⁸

After the closure of the mines, the German government took over of these former state-owned mine sites and commenced a large-scale regeneration program to transform the land into a recreational and tourist destination built around a network of lakes.⁵¹⁹ The lakes also provide the additional benefit of water storage, including drinking water for Berlin, and flood protection.⁵²⁰

The transition was not easy. In addition to extensive rehabilitation requirements, the government also faced political and social resistance from the community.⁵²¹ By working closely with the local community, the German government was able to successfully restore the landscape, and regenerate

⁵¹³ Tabled document, Mr Dennis Bluth, Hunter Lakes Corporation, *Lessons learnt in 35 years on the way from Europe's largest opencast coal region to the Lusatia lakes land*, 21 October 2024, pp 45-46.

⁵¹⁴ Tabled document, Mr Dennis Bluth, Hunter Lakes Corporation, *The Hunter Water Bank*, 21 October 2024, p 2.

⁵¹⁵ Tabled document, Mr Dennis Bluth, Hunter Lakes Corporation, *The Hunter Water Bank*, 21 October 2024, p 1.

⁵¹⁶ Tabled document, Mr Dennis Bluth, Hunter Lakes Corporation, *The Hunter Water Bank*, 21 October 2024, p 5.

⁵¹⁷ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10; Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 11; Evidence, Mr Dennis Bluth, Director, Hunter Lakes Corporation, 21 October 2024, p 45; Evidence Mr Peter Laux, Mining Technology, LEAG, 21 October 2024, p 49; Evidence, Mr John Colvin, Consultant, Hunter Lakes Corporation, 21 October 2024, p 46.

⁵¹⁸ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10.

⁵¹⁹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10.

⁵²⁰ Evidence, Mr Dennis Bluth, Director, Hunter Lakes Corporation, 21 October 2024, p 45; Evidence Mr Peter Laux, Mining Technology, LEAG, 21 October 2024, p 49.

⁵²¹ Evidence, Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, 17 December 2024, p 11.

local flora and fauna.⁵²² The district now hosts many cultural and recreational activities, including hiking trails and various water activities including sailing, canoeing swimming, and other lake activities.⁵²³

Dr Pete Whitbread-Abrutat shared his perspective on the restoration efforts, describing it as a 'masterclass' which helped the local community to see value in the 'wounded' landscape:

Bespoke solutions that recognise the uniqueness of individual post-mining situations are best but require significant effort and time. The communities interspersed among Lusatia's expansive opencast lignite mines in eastern Germany offer a masterclass in changing community perceptions and re-connecting people with place. The 10-year International Building Exhibition (IBA) Fürst-Pückler-Land programme was launched to address the disconnect between local people and their wounded landscape and explore potential futures in what would become a new lakeland landscape.⁵²⁴

Regulatory considerations

- 4.62** Mine closure planning requirements are undertaken at the 'site scale' and is regulated by the NSW Resources Regulator under the *Mining Act 1992*, *Mining Regulation 2016*, the *Environmental Planning and Assessment Act 1979*, and the *Environmental Planning and Assessment Regulation 2000*.⁵²⁵
- 4.63** As part of these requirements, mining companies prepare both a Final Void Management Plan and Mine Closure Plan, however Singleton Council expressed that the timing for preparation of these documents is often unclear, resulting in uncertainty in closure planning.⁵²⁶
- 4.64** As covered in Chapter 2, mining companies also lodge a security deposit (security bond) with the NSW Resource Regulator to cover potential rehabilitation costs. Once rehabilitation has been achieved, the security deposit will be returned.⁵²⁷ Concerns regarding the security deposit were previously explored, including a shortfall in the amount currently held along with reliance on potentially inaccurate cost estimates provided by the mining companies.⁵²⁸
- 4.65** Some local councils and conservation groups advocated for clearer guidelines and stronger regulations to ensure that mining companies meet their rehabilitation obligations, to strengthen environmental protection, and ensure future land uses do not inherit long-term contamination risks.⁵²⁹

⁵²² Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10.

⁵²³ Evidence, Mr John Colvin, Consultant, Hunter Lakes Corporation, 21 October 2024, p 46.

⁵²⁴ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 10.

⁵²⁵ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 18.

⁵²⁶ Submission 18, Singleton Council, p 12.

⁵²⁷ Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 25; Submission 73, CSIRO, p 11.

⁵²⁸ Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 25; Submission 73, CSIRO, p 10.

⁵²⁹ See for example, Submission 31, Muswellbrook Shire Council, p 11; Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 39.

Impacts on biodiversity and ecosystems

- 4.66** Biodiversity refers to the various living things within an ecosystem. It includes the different plants and animals one might find in any natural environment. Biodiversity supports human life by supplying clean air and water, healthy ecosystems and fertile soils.⁵³⁰
- 4.67** Hunter Renewal observed the 'profound' impact of open cut mining in the Hunter Valley, asserting that it has led to the 'large-scale destruction of native ecosystems and dependent threatened species'.⁵³¹
- 4.68** Lock the Gate Alliance expressed concern about the environmental impact of mining in the Hunter Valley.⁵³² Mr Steve Phillips, Hunter coordinator for Lock the Gate Alliance, noted that mining companies often attempt to limit responsibility for land rehabilitation, exacerbating the 'impacts on biodiversity and loss of agricultural land'.⁵³³
- 4.69** Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council of NSW, asserted that the post mining transition provides an opportunity to provide for better biodiversity outcomes. Ms Mills stated:

The scale of this land use change that we're contemplating is a generational opportunity to enhance biodiversity outcomes in what is a key ecological region for the State, particularly the Hunter. Nature is currently in a state of crisis, with 954 species and 111 ecological communities listed as threatened in our State. Only 50 per cent of our threatened species are expected to survive the next 100 years. We believe the New South Wales Government must coordinate landscape restoration, in particular, to maximise biodiversity and connectivity outcomes.⁵³⁴

Biodiversity loss and offsets

- 4.70** Biodiversity offsetting is 'based on the theory that biodiversity values gained at an offset site will compensate for biodiversity values lost to development'.⁵³⁵
- 4.71** However Hunter Renewal stated that the Biodiversity Offsets Scheme which is part of the *Biodiversity Conservation Act 2016* is intended to be a 'last resort', yet they observed it is used

⁵³⁰ NSW Environment and Heritage, *About diversity* (2023) <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/about-biodiversity#:~:text=Biodiversity%20is%20vital%20for%20supporting,species%20diversity%20and%20ecosystem%20diversity>

⁵³¹ Submission 63, Hunter Renewal, p 2.

⁵³² Evidence, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance, 5 August 2024, p 39.

⁵³³ Evidence, Mr Steve Phillips, Hunter Coordinator, Lock the Gate Alliance, 5 August 2024, pp 42-43.

⁵³⁴ Evidence, Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council of NSW, 5 August 2024, p 34.

⁵³⁵ Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 27, quoting Department of Planning and Environment, *How does the Biodiversity Offsets Scheme work?*, (2024), <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about/how-scheme-works>

frequently, and argued that it has led to 'extensive habitat loss'.⁵³⁶ They argued that a significant proportion of mines with offset obligations fail to properly secure offset properties and meet deadlines 'instead promising to re-establish complex ecosystems up to a decade in the future after mining ceases'.⁵³⁷

4.72 According to *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region* co-author, Ms Amanda Wetzel, the Hunter Valley faces a 'nature deficit' and is on the brink of 'localised extinction' due to mining activities.⁵³⁸

4.73 Ms Wetzel stressed that the region has struggled to replace lost species or find 'like-for-like' biodiversity offsets.⁵³⁹ Despite this loss, she was of the view that a 'deliberate effort to restore and regenerate our natural landscapes', might offer a chance for large-scale ecological restoration.⁵⁴⁰

Vegetation

4.74 The CSIRO stressed the importance of revegetation as part of mine rehabilitation so as to mitigate the environmental impact of the mine, noting that:

- without proper revegetation there is an increased risk of 'adverse effects such as erosion'⁵⁴¹
- revegetation 'plays an important role in maintaining the stability and function' of the surrounding environment.⁵⁴²

4.75 The CSIRO also acknowledged that revegetation efforts face significant challenges, including:

- topsoil deficits, making revegetation more expensive and difficult
- the need for native flora species to revegetate a mine site
- invasive weed species detrimentally impacting the local ecosystem.⁵⁴³

4.76 Despite these challenges, the CSIRO emphasised that mine closure practitioners must adequately address these issues to comply with environmental regulations and closure criteria.⁵⁴⁴

4.77 Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, echoed these concerns. He argued that the baseline for restoration should focus on returning native

⁵³⁶ Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 27.

⁵³⁷ Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 27.

⁵³⁸ Evidence, Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 6.

⁵³⁹ Evidence, Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 6.

⁵⁴⁰ Evidence, Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, University of Newcastle, 21 October 2024, p 6.

⁵⁴¹ Submission 73, CSIRO, p 32.

⁵⁴² Submission 73, CSIRO, p 32.

⁵⁴³ Submission 73, CSIRO, p 32.

⁵⁴⁴ Submission 73, CSIRO, p 32.

vegetation that was removed. If that is not possible, he suggested that vegetation should be offset elsewhere, with the goal of achieving a 'net increase in vegetation cover' particularly from the restoration of mines.⁵⁴⁵

Habitats and endangered species

- 4.78** The loss of critical habitats, particularly for endangered species, was another issue identified by stakeholders. For example, Ms Beverley Smiles raised concerns about the expansion of mine sites and the resulting loss of critical habitats for endangered species.⁵⁴⁶
- 4.79** The Wollar Progress Association observed that the approval of the Peabody Energy Wilpinjong Coal Mine extension in 2017 has led to the loss of the Regent Honeyeater habitat (a critically endangered native bird).⁵⁴⁷ The Association noted that the consent for the expansion required 'most of the mine rehabilitation be returned to Regent Honeyeater habitat as an offset for cumulative loss of breeding and feeding sites'.⁵⁴⁸

Biodiversity corridors

- 4.80** The concept of integrated landscape restoration to improve biodiversity outcomes was discussed by Hunter Renewal. They suggested that mine sites, including buffer lands and biodiversity offset areas, can be part of the broader restoration of the Hunter region.⁵⁴⁹ This approach could allow for the creation of a 'biodiversity corridor network' which they view as 'necessary for native species to adapt to climate change'.⁵⁵⁰
- 4.81** The Nature Conservation Council of NSW noted that the closure of coal mines in the Hunter will release over 130,000 hectares of land and is a 'generational opportunity' to free up large tracts of land and improve biodiversity.⁵⁵¹ They argued that the Government 'must coordinate landscape restoration to maximize biodiversity and connectivity outcomes'.⁵⁵²
- 4.82** In addition, the Nature Conservation Council of NSW identified the Hunter as a region of ecological significance. They stated that there is a large 'vegetation gap' in the Great Eastern Ranges (an area encompassing the Hunter) with less vegetation coverage compared to adjacent regions.⁵⁵³ They cited research showing that '[i]n a warming climate, enhancing biodiversity climate corridors in this area to allow species to move to higher elevations, and to the south would enhance their long-term survival prospects'.⁵⁵⁴

⁵⁴⁵ Evidence, Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW, 5 August 2024, p 40.

⁵⁴⁶ Evidence, Ms Beverley Smiles, Secretary, Wollar Progress Association, 20 August 2024, p 19.

⁵⁴⁷ Submission 29, Wollar Progress Association, p 2; Office of Environment & Heritage, *Threatened Species - Regent Honeyeater*, (April 2024), threatenedspecies.bionet.nsw.gov.au/profile?id=10841

⁵⁴⁸ Submission 29, Wollar Progress Association, p 2; Office of Environment & Heritage, *Threatened Species - Regent Honeyeater*, (April 2024), threatenedspecies.bionet.nsw.gov.au/profile?id=10841

⁵⁴⁹ Submission 63, Hunter Renewal, p 3.

⁵⁵⁰ Submission 63, Hunter Renewal, p 3.

⁵⁵¹ Submission 66, Nature Conservation Council of NSW, p 4.

⁵⁵² Submission 66, Nature Conservation Council of NSW, p 4.

⁵⁵³ Submission 66, Nature Conservation Council of NSW, p 4.

⁵⁵⁴ Submission 66, Nature Conservation Council of NSW, p 4.

- 4.83 Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils similarly identified the opportunity in the Hunter to restore mine sites to areas of native vegetation:

There are other sites that sit within critical areas of macro-landscape connectivity across New South Wales. I think particularly of some of the mines in the north-west of Muswellbrook shire which sit between the World Heritage area and the Great Eastern Ranges. Those are open-cut mines. Unquestionably, in my view, the best re-use of those sites is for remediation and rehabilitation to first-class native vegetation.⁵⁵⁵

- 4.84 One international example of biodiversity restoration from the United Kingdom's Eden Project is detailed in the below case study.

Case study Eden Project, United Kingdom⁵⁵⁶

A unique example of restoring biodiversity as part of post-mining land use is the Eden Project in Cornwall, United Kingdom. Built on a former 160-year-old China clay quarry, the site has now become a state-of-the-art botanical visitor attraction including greenhouses and indoor rainforests.⁵⁵⁷ Previously a barren, unstable, and flood-prone landscape, the former mine site was revitalised by using 80,000 tonnes of artificial soil made from recycled China clay mineral waste and compost.⁵⁵⁸

The project officially opened in 2001, hosting diverse plants and wildlife, creating a thriving ecosystem. With a strong focus on ecosystem restoration, combined with educational and recreational activities, the Eden Project has driven significant local and socio-economic benefits, attracting approximately one million visitors each year, contributing £2 billion to the local economy and promoting ecological renewal efforts.⁵⁵⁹

Following the success of the Eden Project, Dr Pete Whitbread-Abrutat shared his experience and insights working on the project in his book '102 Things to Do with a Hole in the Ground'. He told the committee:

Eden Project in the UK is another example, where you can build commercial activity and recreational tourism-related activity, create lots of jobs and all the rest of it, while at the same time recognising the cultural value that remains at that mine in terms of the structures or the buildings, and provide an opportunity for nature to return—either rewilding, left alone, or by actively gardening, for want of a better word, to

⁵⁵⁵ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 14.

⁵⁵⁶ Evidence, Dr Pete Whitbread-Abrutat, Co-Author of 102 Things to Do with a Hole in the Ground, and Founder and Director, Future Terrains, 17 December 2024, p 2; Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

⁵⁵⁷ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 2.

⁵⁵⁸ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

⁵⁵⁹ Evidence, Dr Pete Whitbread-Abrutat, Co-Author of 102 Things to Do with a Hole in the Ground, and Founder and Director, Future Terrains, 17 December 2024, p 2.

promote ecological restoration. You could do all those things on many sites. The key thing is connecting them into the wider landscape context.⁵⁶⁰

First Nations community and connection to land

- 4.85** Stakeholders noted the impact mining has had on First Nations communities, including the destruction and dispossession of land, and impact on cultural heritage, and artifacts.⁵⁶¹ For example, ServeGate stated that First Nations land had been 'sold, cleared, built on and mined'.⁵⁶²
- 4.86** Considering the impact on First Nations communities, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance recommended purposing 'the obvious option on the table' which is to consult with local First Nations people and seek their opinion as to what to do with the land post-mining. Sharing an example of the Maules Creek mine located on Gomeri country, and the Glendell mine located on the lands of the Wonnarua people, Ms Woods told the committee that these mine sites could be repurposed to provide profits for First Nations groups:

With the very large landholdings that are owned by the mining companies, in the Hunter specifically, there is actually a lot of land that could be an economic opportunity for Aboriginal communities. A lot of land was taken from Aboriginal communities not just at the first site of dispossession when the English first came, but even in the twentieth century in the second wave of dispossession that happened in the 1920s. There is a lot of land. Everyone is just walking around now going, "There is all this land. What are we going to do with all this land?" There is a fairly obvious option on the table, which is to talk to Wonnarua, Gomeri and Wiradjuri people about what they think should be done with it.⁵⁶³

- 4.87** Stakeholders called for the recognition of First Nation ongoing and continuing connection to land, and recommending the government to return cultural artifacts, as well as facilitate the return of lands to First Nation people, enabling them to generate economic returns.⁵⁶⁴

Improving environmental outcomes

- 4.88** This section explores emerging approaches to environmental restoration, including utilising better data and monitoring, as well as the latest restoration techniques and tools.

⁵⁶⁰ Evidence, Dr Pete Whitbread-Aburat, Co-Author of 102 Things to Do with a Hole in the Ground, and Founder and Director, Future Terrains, 17 December 2024, p 3.

⁵⁶¹ See for example, Evidence, Mr Steve Phillips, Hunter Coordinator, Lock the Gate Alliance, 5 August 2024, p 48; Submission 63, Hunter Renewal, p 5; Submission 44, ServeGate, p 3; Submission 29, Wollar Progress Association, p 1.

⁵⁶² Submission 44, ServeGate, p 3.

⁵⁶³ Evidence, Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance, 5 August 2024, p 48.

⁵⁶⁴ See for example, Submission 44, ServeGate, p 3; Submission 35, Dr Julia Imrie, p 3; Submission 29, Willar Progress Association, p 3.

Data and monitoring tools

- 4.89** Following the earlier discussion in this chapter on legacy mines and oversight and data accuracy, the CSIRO also identified similar issues with respect to contemporary mines. The CSIRO undertook a study to examine what a post-mining future would like in the Hunter. The study looked at a very wide range of sources to identify gaps in knowledge, as well as opportunities to improve postmining planning and transition outcomes. Despite having access to such information, the CSIRO expressed concern that there is no single source of authority and that this was a significant barrier to a successful transition:

A review of available information on the current extent of mine operations or the timeline for projected mine closures was pieced together from individual licenses, partial government data, aggregated industry information, self-reporting databases, archived government websites, ASX and media releases issued by mining operators individually. There is currently no single source of authority when it comes to identifying the locations of current and historical mine sites in the state of New South Wales. Likewise, there is no centralised database of information relating to mine closure and rehabilitation planning within each individual mine site. The lack of fit-for purpose public and accessible information is an overarching impediment to the highest value reuse of post-mining land in the Hunter.⁵⁶⁵

- 4.90** In its report, entitled *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, the CSIRO conducted a 'Baseline Atlas' of biophysical spacial data in the Hunter Region. The data was sourced from public information, including the NSW Government central resource for Sharing and Enabling Environmental Data (SEED), to assess whether land in the region was 'fit-for purpose' for post-mining land uses.⁵⁶⁶ The CSIRO observed that creating the Baseline Atlas had reinforced their view that while data is publicly available, it is 'not easily interrogated' and 'not readily useable to inform decisions on post-mining land use'.⁵⁶⁷
- 4.91** The CSIRO noted that better tools for collecting data could help mining companies track and manage their activities, as well as plan for future land use and protect the long-term health of the environment after the mine is closed.⁵⁶⁸ The CSIRO suggested new technologies, such as drones, could be used to track environmental loss and growth, and provide a baseline for data monitoring.⁵⁶⁹

Techniques to improve restoration and rehabilitation

- 4.92** The committee heard about new and emerging techniques for reducing the environmental impact of mines and for the rehabilitation of both water systems and landscapes. Some emerging approaches were explored in the CRC TiME report, *Hydrological and geochemical processes and closure options, for below water table open pit mines*. These approaches include:

⁵⁶⁵ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 19.

⁵⁶⁶ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 21.

⁵⁶⁷ Hunter PMLU – Final report, *The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region*, (Adelaide CSIRO, 2024), p 21.

⁵⁶⁸ Submission 73, CSIRO, p 29.

⁵⁶⁹ Submission 73, CSIRO, p 13.

- engineered barriers to limit groundwater from flowing between the mine and nearby ecosystems
- diverting water systems into pits post-closure to enhance water table recovery
- modifying the materials used in pit backfill, and revegetation to control evaporation
- amending the materials used in pit backfill to reduce oxygen levels and prevent the development of acidic conditions
- using bioremediation approaches to improve water quality in the pit lake.⁵⁷⁰

4.93 Another possible solution discussed by Dr Pete Whitbread-Abrutat and Hunter Innovation and Science Hub was 'Geomorphic rehabilitation'.⁵⁷¹ This approach involves progressively rebuilding mined land in stages alongside mining operations to help reduce environmental risks.⁵⁷² Geomorphic rehabilitation uses advanced tools such as GeoFluv, which creates landform and drainage systems to replicate natural systems and create a more stable and functional landscape.⁵⁷³ Dr Whitbread-Abrutat said that this is considered 'best practice' in the European Union and has proven successful in Australia.⁵⁷⁴

4.94 Finally, the CSIRO emphasised the importance of using First Nations ecological knowledge and forging collaboration with First Nations communities to 'achieve the best environmental and cultural outcomes'. They identified the Australian Research Council Training Centre for Healing Country, which incorporates knowledge from First Nations communities, as a potential resource for environmental restoration research and training.⁵⁷⁵

Committee comment

4.95 Mining activities have had a significant impact on the environment, including soil contamination, land degradation, and ecosystem destruction. In addition, mining operations have at times negatively affected water ways resulting in poor water quality and increased salt levels. The repercussions of mining do not necessarily cease with the end of mining. Unfortunately, the closure of mine sites may in some cases also contribute to the contamination of local water ways, particularly if untreated surface water enters final voids.

4.96 The public safety and environmental risks associated with legacy mine sites emerged as an issue during the inquiry. The committee was greatly concerned to learn that there is currently no way of knowing the location and condition of all legacy sites in New South Wales. While mapping

⁵⁷⁰ CRC TiME, *Final Report Project 3.3 Hydrological and geochemical processes and closure options for below water table open pit mines*, (CRC TiME Limited Perth. 2021), p 6.

⁵⁷¹ See, Submission 26, Hunter Innovation and Science Hub, p 2; Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 6.

⁵⁷² Submission 26, Hunter Innovation and Science Hub, p 2.

⁵⁷³ See, Submission 26, Hunter Innovation and Science Hub, p 2.

⁵⁷⁴ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 6.

⁵⁷⁵ Submission 73, CSIRO, p 32.

these sites would be a complex task, the committee strongly feels it is necessary for ensuring environmental sustainability and community safety.

- 4.97** The committee accordingly recommends that, to facilitate these processes, the Government should collaborate with relevant stakeholders to identify and map legacy sites in New South Wales and make this information publicly available. The Government should utilise new and existing resources to determine site conditions and to help prioritise which sites should be expedited for beneficial post-mining land use, which require further restoration and rehabilitation, unlocking existing and future opportunities to transition current operations including: land, water and natural resources; infrastructure; workforce.
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Recommendation 9

That the Government collaborate with relevant stakeholders to identify and map legacy sites in New South Wales and make this information publicly available. The Government should utilise new and existing resources to help determine site conditions and to help prioritise which sites should be expedited for beneficial post-mining land use, which require further restoration and rehabilitation, unlocking existing and future opportunities to transition current operations including:

- land, water and natural resources
 - infrastructure
 - workforce.
-

- 4.98** The committee was pleased to learn that the International Organisation for Standardisation has developed a 'Managing Mining Legacies' standard and urges the Government to consider how it could be applied in New South Wales. There are obvious benefits to be gained by its use, including the way in which it can aid the transformation and rehabilitation of legacy mine sites through the creation of governance frameworks, legacy mine records, liability accounting, as well as planning and reporting mechanisms.

- 4.99** As a result, the committee recommends that the Government investigate the appropriateness of adopting the International Organisation for Standardisation's 'Managing Mining Legacies' standard for New South Wales, with a view to implementation so as to help manage the environmental, social and governance challenges associated with legacy mines.
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Recommendation 10

That the Government investigate the appropriateness of adopting the International Organisation for Standardisation's 'Managing Mining Legacies' standard for New South Wales, with a view to implementation so as to help manage the environmental, social and governance challenges associated with legacy mines.

- 4.100** The sparseness of relevant data is an issue that extends beyond legacy mines. The beneficial nature of a central database with information on current and historical mine sites is obvious and the committee is alarmed that this does not exist. Nor is there a repository of information related
-

to mine site closure or rehabilitation plans. The limited data that is available is not easily accessible.

- 4.101** The proper rehabilitation of mines is an essential aspect of ensuring that the long-term consequences of mining of the environment are as minimal as possible. Collaborations with First Nations communities, with a view to learning from their ecological knowledge and incorporating this into post-mining land rehabilitation, could be of great benefit. The committee encourages the Government to consider the work of the Australian Research Council Training Centre for Health Country in this regard.
- 4.102** The committee notes the evidence illustrating the impact of mining on the environment, especially in regard to the loss of ecosystems, landscape degradation and water quality.
- 4.103** It is for this reason that the committee recommends that the Government investigate the appropriateness of emerging techniques for reducing environmental risks associated with mining activity and the management of final voids, including:
- artificially connecting pit lakes with local river systems
 - geomorphic rehabilitation to progressively rebuild mine land in stages
 - improvements in best practice land rehabilitation.

Recommendation 11

That the Government investigate the appropriateness of emerging techniques for reducing risks associated with mining activity and management of final voids, including:

- artificially connecting pit lakes with local river systems,
 - geomorphic rehabilitation, to progressively rebuild mine land in stages
 - improvements in best practice land rehabilitation.
-

- 4.104** Finally, the committee is concerned that some mining companies may be attempting to limit their responsibilities in relation to the rehabilitation of sites. The behaviour of mining companies in this regard should be closely monitored to ensure that environmental obligations are fulfilled and that lease holders do not renege on rehabilitation responsibilities.
- 4.105** The committee notes with concern reports that some mine operators have exploited the Biodiversity Offset Scheme as a way of appearing to minimise the environmental impact of their activity. The committee is firmly of the view that the Biodiversity Offset Scheme should only be used as a 'last resort', when onsite ecosystem restoration is impracticable or unachievable.

Chapter 5 Beneficial and alternative post-mining land uses

This chapter begins by documenting some of the frustrations articulated by inquiry participants concerning current approaches to post-mining land use. It then considers the benefits of repurposing mine land and infrastructure. The chapter concludes by exploring a variety of emerging post-mining land uses. This includes a circular economy approach; renewable energy projects (including solar, pumped hydro, and clean energy precincts); gravitational energy storage systems; medicinal cannabis; and tourism.

Frustrations with current approaches to post-mining land use

- 5.1** A policy paper prepared by the Institute for Regional Futures, University of Newcastle, entitled *Beneficial use of mining land as a priority for NSW prosperity* noted that '[m]ine closure is typically viewed as the end stage of a linear mining process and principally involves rehabilitation and the decommissioning of mine assets'.⁵⁷⁶ The paper further observed '[e]stablished legislative and regulatory obligations reinforce this linear, end-of-life approach by requiring mined land to be safe, stable and non-polluting before the cessation of mining leases'.⁵⁷⁷
- 5.2** The Institute for Regional Futures described post-mining land use as 'constrained' by the linear mining lifecycle.⁵⁷⁸ They noted that mine operators in New South Wales find it simpler and easier to rehabilitate land for grazing and other agricultural uses (which can take a very long time), rather than pursuing more immediate, complex, beneficial and alternative post-mining land uses.⁵⁷⁹
- 5.3** This concern was shared by CRC TiME, who stated that mining companies are risk adverse, choosing to restore land to a pre-mining state rather than consider other alternative land uses.⁵⁸⁰ They considered this to be as a result of heavy regulation, making it difficult to repurpose for other uses. They called this 'regulatory inertia'.⁵⁸¹
- 5.4** BHP added that the current mine relinquishment processes are complex, involve multiple pieces of legislation and require interaction with a number of government agencies/actors. According to BHP this creates waste and limits preliminary consideration of better land use alternatives:

⁵⁷⁶ Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

⁵⁷⁷ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

⁵⁷⁸ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 3.

⁵⁷⁹ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 7.

⁵⁸⁰ Email from Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, to Committee, received 2 July 2024 – Attachment 1, CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 10.

⁵⁸¹ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 10.

Mining land is currently governed under a complex system of approvals, covering multiple pieces of Legislation and requiring interaction with multiple Government Departments – often with overlapping responsibilities. Approval requirements, mining leases, and development applications – while initially implemented in good faith – are not compatible with delivering timely diversified social, environmental and economic outcomes through alternative mine land reuse, and have complex and uncertain rehabilitation and relinquishment requirements.

Current mine site relinquishment processes require complex rehabilitation criteria to be met which may be wasteful, costly, and unnecessary when considering a proposed alternate reuse; for example, relinquishment of a mine void may require reshaping, top-soiling, and vegetation of the land – only for this work to be undone to allow for a later alternative land use, such as pumped hydro.⁵⁸²

- 5.5** BHP further argued that the system is complex for all involved and creates investment barriers when compared to land use opportunities at other green or brown-field development sites:

This complexity is difficult for the resources industry and NSW Government Departments to navigate – and provides a significant disincentive for external investment by alternate industries when compared to other green or brown-field development sites. These complexities add significant financial risk, costs, and delays – ultimately to the detriment of the wider community who would benefit from the next potential alternative land use.⁵⁸³

- 5.6** The Institute for Regional Futures advocated for a more 'iterative' approach that offers opportunities for life of mine planning and earlier consideration for future land uses⁵⁸⁴ They stated that an important aspect of an iterative approach is that it is not 'set and forget', rather it is flexible and based on changes in knowledge and opportunities, such as new technologies, biodiversity needs or employment needs.⁵⁸⁵
- 5.7** The following figure provided by International Council of Mining and Metals (ICMM) illustrates key elements of iterative mine closure planning and the steps through the cycle where feedback loops are interconnected.

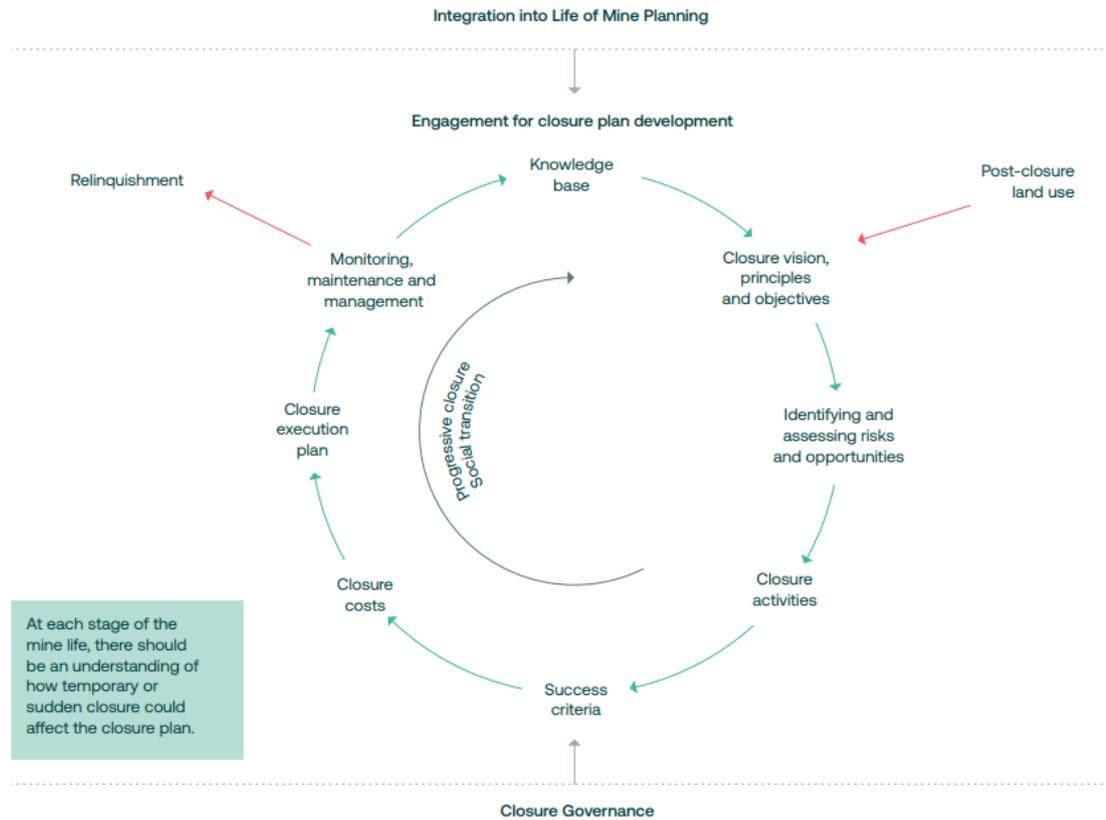
⁵⁸² Submission 32, BHP, p 3.

⁵⁸³ Submission 32, BHP, p 3.

⁵⁸⁴ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 4, quoting ICMM, *Integrated Mine Closure: Good Practice Guide*, 2nd Edition, (2019), p 11.

⁵⁸⁵ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 4.

Figure 3 Illustration of iterative mine closure planning with adaptation integrated into each stage of the mine life⁵⁸⁶



Source: ICMM, *Integrated Mine Closure, Good Practice Guide, 3rd Edition*.

- 5.8** Other stakeholders emphasised the need to involve creatives and other industries during mine closure planning. BlackRock Motor Resort founder and Chief Executive Officer Mr Tony Palmer called for post-mining land use decisions to involve 'visionaries' stressing that process and policy (as enforced by the Government) often kills good ideas:

I definitely think government should not be coming up with the ideas for the future use of the sites. They are not the visionaries. They are part of the planning framework.⁵⁸⁷

On some of these bigger open-cut swathes, you're going to have to get a community involved. You're going to have to get some visionaries involved. When I say visionaries, it is people that have incentive, whether it's economic incentive through business opportunities or whether it's incentive through their role as a place maker, as a community leader or as a community advocate. There's a lot of opportunity to get people together to share ideas. The first thing that kills creativity is process and policy.⁵⁸⁸

⁵⁸⁶ ICMM, *Integrated Mine Closure: Good Practice Guide, 3rd Edition*, (2025), p 11.

⁵⁸⁷ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 43.

⁵⁸⁸ Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 43.

- 5.9** This belief was also shared by BHP who stated that, as a mining company, they have 'limited experience' in developing alternate land reuse options, and that it is 'critical' to work with third parties who can help realize the full potential of the site post-mining.⁵⁸⁹
- 5.10** Singleton Council emphasised the benefits of repurposing former mine land and diversifying land use after operations end. The Council noted that diversification is not just replacing industry, but rather requires a 'holistic approach' to ensure a sustainable future.⁵⁹⁰
- 5.11** Singleton Council identified several growth industries for future land uses including renewable energy, advanced manufacturing, circular economy, agriculture, technical services, tourism, and transport.⁵⁹¹ The Council, however, recognised that these industries are already permitted on post-mining land in the Hunter, and advised that future land use should not be limited by what is currently considered feasible, but rather should be adaptive, flexible and support future industries'.⁵⁹²
- 5.12** Narrabri Shire Council pointed out that land reuse often leads to 'lower order' activities, such as agriculture, which do not generate the same economic return as mining activities.⁵⁹³
- 5.13** Cr Doug Hawkins, Mayor of Liverpool Plains Shire Council, noted that mining generates \$500,000 each year in council rates, compared to just \$6,000 or \$7,000 for grazing farmland.⁵⁹⁴
- 5.14** The Property Council of Australia identified a 'disconnect' between mining operations and the transition to new economic activities on mining sites. They stated regulatory requirements slow the process and do not provide for a timely transition to post-mining activities for affected communities:

Currently, there is a disconnect between mining operations and the transition to new economic activities on mining sites. The current approval pathways under the Mining Act 1992 (Mining Act) and Environmental Planning and Assessment Act 1979 (Planning Act) are separate and linear, requiring a site to be fully relinquished under the Mining Act before unconditional approval for a new use under the Planning Act. Current requirements vary between underground and open-cut mining, but typically range from 10-15 years, which is a deterrent to investors and does not support timely economic transition for mining communities. This disjointed process results in substantial repetition and time delays.⁵⁹⁵

- 5.15** Business Hunter also called for earlier considerations and land use planning to close the gap between operational mining activity ending and the commencement of future uses.⁵⁹⁶

⁵⁸⁹ Submission 32, BHP, p 3.

⁵⁹⁰ Submission 18, Singleton Council, p 1.

⁵⁹¹ Submission 18, Singleton Council, p 1.

⁵⁹² Submission 18, Singleton Council, p 1.

⁵⁹³ Submission 30, Narrabri Shire Council, p 3.

⁵⁹⁴ Evidence, Cr Doug Hawkins, Mayor, Liverpool Plains Shire Council, 5 August 2024, p 28.

⁵⁹⁵ Submission 45, Property Council of Australia, pp 2-3.

⁵⁹⁶ Submission 62, Business Hunter, p 3.

Repurposing mine land and infrastructure

- 5.16** Various inquiry participants recognised that repurposing mine sites can present opportunities for economic development, reduce mining dependence and create new employment opportunities.⁵⁹⁷
- 5.17** Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity pointed out that New South Wales has a large number of legacy mines that could be repurposed to create jobs and drive economic value.⁵⁹⁸ He stressed that mine sites left in 'care and maintenance' for extended periods of time represent missed opportunities.⁵⁹⁹
- 5.18** Mr Swinnerton argued that if mining companies had more certainty and support there would be productive conversations about their future use and greater public benefit in the near term.⁶⁰⁰ He suggested that mine sites, especially those on Crown land, could be leased or sold, to drive economic value, jobs and environmental outcomes in those regions.⁶⁰¹
- 5.19** The Government supported the idea of multiple successive land uses on former mine sites. The Government said they encourage mine leaseholders to explore alternative land uses and recognise that successive land uses opens doors to 'numerous economic benefits', as well as helping to reduce decommissioning costs, enhance social license and improve community relations.⁶⁰²
- 5.20** Furthermore, the Government highlighted significant investment opportunities on sites with access to utilities like roads, rail, water and electricity, which can support technology, manufacturing and other industries.⁶⁰³

By harnessing post-mining sites, businesses can capitalise on strategic locations, existing infrastructure, and resources to drive competitiveness and market expansion, while adopting sustainable practices that foster resilience and reduce environmental risks.⁶⁰⁴

- 5.21** The Institute for Regional Futures recommended adopting the Multiple Land Use Framework developed by the Standing Council on Energy and Resources (discussed in further detail in chapter 2), to guide land repurposing in New South Wales.⁶⁰⁵ They asserted that this framework

⁵⁹⁷ See, for example Submission 25, Hunter Joint Organisation, p 2; Submission 48, The Association of Mining and Exploration Companies (AMEC), p 3; Evidence, Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, 21 October 2024, p 13; Evidence, Mr Martin Johnson, Manager, Strategic Planning, Cessnock City Council, 21 August 2024, p 10.

⁵⁹⁸ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

⁵⁹⁹ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 47.

⁶⁰⁰ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 47.

⁶⁰¹ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 47.

⁶⁰² Submission 69, NSW Government, p 16.

⁶⁰³ Submission 69, NSW Government, p 16.

⁶⁰⁴ Submission 69, NSW Government, p 16.

⁶⁰⁵ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2, citing Standing Council on Energy and Resources, Multiple Land Use Framework, (2013).

emphasises the importance of promoting successive land uses and should be implemented to maximise the economic potential of post-mining sites.⁶⁰⁶

Reusing and recycling infrastructure and mining equipment

5.22 Stakeholders also identified the potential opportunities mines sites offer regarding the reuse of mine infrastructure and equipment, with unique features, including:

- **Purpose-built structures** – mine sites often have purpose-built structures including transmission lines, rail lines, industrial workspaces and offices.⁶⁰⁷
- **Existing utilities** – mine sites are often connected to essential utilities such as power, water, and sewage.⁶⁰⁸
- **Location** – mine sites are often located in remote parts of the state. A consequence of this is that the infrastructure created to support mining activities often represent a significant component of the infrastructure in undeveloped regions. These investments represent important regional assets, potentially critical in the future development of that locality.⁶⁰⁹

5.23 The CSIRO advised that repurposing mine infrastructure could help recoup closure costs and provide valuable assets for new projects.⁶¹⁰

5.24 The Liverpool Plains Shire Council suggested that an effective reuse of the transport infrastructure supporting mines, including rail access to major ports, would be to repurpose it for use as distribution hubs.⁶¹¹

5.25 One example of innovative reuse of former mining equipment and infrastructure is Ferropolis in Germany. This is explored in the case study below.

⁶⁰⁶ Institute for Regional Futures, Policy Paper 1, *Beneficial use of mining land as a priority for NSW prosperity*, (Institute for Regional Futures, University of Newcastle, 2024), p 2.

⁶⁰⁷ See for example Submission 59, NSW Minerals Council, p 4; Email from Dr Pete Whitbread-Abrutat, Co-Author, '102 Things to Do with a Hole in the Ground', Founder and Director of Future Terrains, to Committee, received 11 December 2024 – Attachment, Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7; CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 9.

⁶⁰⁸ See for example Submission 59, NSW Minerals Council, p 4; Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7; CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 9.

⁶⁰⁹ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 9.

⁶¹⁰ Submission 73, CSIRO, p 37.

⁶¹¹ Evidence, Cr Doug Hawkins, Mayor, Liverpool Plains Shire Council, 5 August 2024, p 28.

Case study Ferropolis – City of Iron⁶¹²

The Golpa-Nord, once an open pit lignite mine in eastern Germany closed in the 1990s. It has since transformed into 'Ferropolis – City of Iron', a state-of-the-art open-air industrial museum and cultural arts venue.⁶¹³

During the mine site's closure, design students from Bauhaus Dessau encouraged the mining company to preserve the mining infrastructure rather than 'unceremoniously' demolishing or scrapping it.⁶¹⁴ This included massive industrial machinery and equipment, such as gigantic cranes and diggers.

Nowadays, Ferropolis is a booming cultural hub, featuring a 25,000-seat amphitheatre, built on the former mine, surrounded by the pit lake and giant structures which tower over the venue. Visitors can climb or abseil down these "sleeping giants", turning the site into both a historical monument as well as an adventure destination.⁶¹⁵

The preservation of the mining equipment and revitalisation has given the site new life, drawing visitors from across Germany and the world to experience the industrial heritage in an interactive way.⁶¹⁶ By retaining and adapting its infrastructure, Ferropolis has become an example of how former mine sites can be reclaimed - blending both its history and culture.

Potential land uses

5.26 This section examines some potential land uses post-mining. Identified potential uses include a circular economy approach; renewable energy projects (including solar, pumped hydro, and clean energy precincts); gravitational energy storage systems; medicinal cannabis; and tourism.

A circular economy approach

5.27 Various inquiry participants recommended utilising a 'circular economy' approach to reuse and repurpose mining materials to minimise waste and maximise the value of the land.⁶¹⁷

5.28 Broadly a **circular economy** is an economic system aimed at minimising waste and making the most of resources. The below figure provided by the CSIRO outlines the principles underpinning the **circular economy in a mining context**.

⁶¹² Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7; Georgina Pearman, *101 Things to do with a Hole in the Ground*, (Post-Mining Alliance and the Eden Project, 2009).

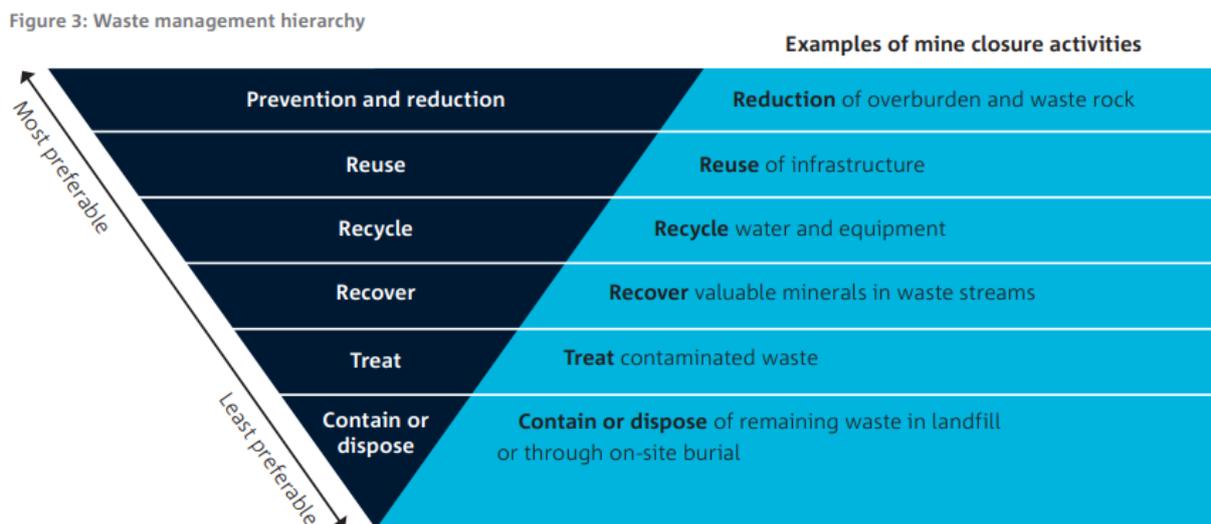
⁶¹³ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7.

⁶¹⁴ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7.

⁶¹⁵ Georgina Pearman, *101 Things to do with a Hole in the Ground*, (Post-Mining Alliance and the Eden Project, 2009).

⁶¹⁶ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 7.

⁶¹⁷ See for example, Submission 73, CSIRO, p 11; Evidence, Mr Grahame Kelly, General Secretary, Mining and Energy Union, 5 August 2024, p 19.

Figure 4 Waste management hierarchy⁶¹⁸

Source: Submission 73, CSIRO, p 11.

- 5.29** As detailed above, the intent is to create a loop where resources are repurposed and continuously recycled into products, rather than being abandoned or discarded after operations cease.
- 5.30** The Hunter Joint Organisation noted that it had helped prepare a business case to investigate the potential value and implementation pathway for the industrial circular economy in the Hunter Region. The purpose of the work was to identify the value and opportunities arising from the reuse of mining lands in the region.⁶¹⁹
- 5.31** The Hunter Joint Organisation noted that business case demonstrates that a circular economy approach in the Hunter Valley has the potential to generate 'significant' economic benefit, including \$1.1 billion of Gross Regional Product and 1,020 new jobs.⁶²⁰
- 5.32** In addition, the Hunter Joint Organisation shared that establishing a local circular economy can 'provide environmental benefits and support emerging, low carbon industries'.⁶²¹
- 5.33** Ms Sharon Pope from Muswellbrook Council added that a circular economy also addresses the issue of contaminated material on legacy mine sites. She suggested, for example, using coal ash and other mining waste to create building products, therefore preventing the materials from becoming long-term contaminants.⁶²²

⁶¹⁸ Submission 73, CSIRO, p 11.

⁶¹⁹ Submission 25, Hunter Joint Organisation, p 7.

⁶²⁰ Submission 25, Hunter Joint Organisation, p 7.

⁶²¹ Submission 25, Hunter Joint Organisation, p 7.

⁶²² Evidence, Ms Sharon Pope, Director, Environment and Planning, Muswellbrook Shire Council, 21 August 2024, p 16.

Renewable energy projects

- 5.34** The global transition away from fossil fuels towards lower-carbon emission has seen a growth in renewable energy projects across Australia.⁶²³
- 5.35** Senior Research Fellow, Dr Simon Wright, Gulbali Institute, Charles Sturt University noted that the establishment of the Net Zero Economy Agency in 2023 and the creation of the Future Jobs and Investment Authority in New South Wales are an indication of the importance of a clean energy future for Australian governments.⁶²⁴
- 5.36** As part of the transition, former mines are being evaluated as possible sites for renewable energy hubs. According to various inquiry participants, utilising existing mine sites and infrastructure for renewable energy projects will support economic diversification of mining regions.⁶²⁵
- 5.37** This was noted by the Government, who acknowledged the location of former mine sites provide developers with several key advantages, including:
- wide-open landscape, ideal for solar and wind farms
 - proximity to transmission lines and other utilities.⁶²⁶
- 5.38** In addition, the Government also noted that these sites are connected to the National Electricity Market, and therefore suitable for renewable energy projects that could support the transition to 'clean, reliable and affordable energy'.⁶²⁷
- 5.39** Nature Conservation Council of NSW stated that renewable energy projects on former mine sites have the potential to create new employment opportunities and 'create positive economic, social and environmental benefits for NSW'.⁶²⁸
- 5.40** The Liverpool Plains Shire Council, however, raised concerns regarding the overall economic benefits of renewable energy projects when compared to mining operations. They stated that apart from a 'few short-term jobs during the construction phase', renewable projects 'derive little economic benefit'.⁶²⁹ The Council noted that 150 jobs were lost when the Werris Creek Mine closed, which are unlikely to be matched with a renewable energy production facility.⁶³⁰

⁶²³ See, for example Email from Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University, to Committee, received 8 January 2025 – Attachment, Dr Simon Wright, *Empowering Coal Regions in Australia – Delivering an Enduring Legacy from the Clean Energy Transition*, (Churchill Fellowship 2022), p 6; Tendered document, Ms Sophie Nicholas, *Hunter Renewal report: After the coal rush, the clean up: a community blueprint to restore the Hunter*, 21 August 2024, p 24.

⁶²⁴ Dr Simon Wright, *Empowering Coal Regions in Australia – Delivering an Enduring Legacy from the Clean Energy Transition*, (Churchill Fellowship 2022), p 6.

⁶²⁵ See for example, Submission 66, Nature Conservation Council of NSW, p 3; Submission 15, Green Gravity, p 6.

⁶²⁶ Submission 69, NSW Government, p 17.

⁶²⁷ Submission 69, NSW Government, p 17.

⁶²⁸ Submission 66, Nature Conservation Council of NSW, p 3.

⁶²⁹ Submission 68 Liverpool Plains Shire Council, p 10.

⁶³⁰ Submission 68 Liverpool Plains Shire Council, p 10.

- 5.41** Conversely, the Association of Mining and Exploration Companies was optimistic about renewable energy projects and suggested that such projects could commence whilst the mine is still operating, which would help generate income and enable a 'smooth transition to post mine employment'.⁶³¹
- 5.42** NSW Resources acknowledged that while there was some potential to co-locate renewable energy projects on current operating mine sites, mining operators and investors would need to consider these arrangements as part of the 'final approved landform and final land use'.⁶³²
- 5.43** Ms Georgina Beattie, Deputy Secretary, NSW Resources also noted that the co-location of renewable energy projects on mining sites would require changes to development consent. She argued that any such change would still need to ensure appropriate land rehabilitation:

[At] the moment mining companies are miners, and some of them are interested in doing something different and have taken the initiative. Others, understandably, want to focus on their core business. The process to change that final land use currently requires a change to the development consent. Any change that would allow that needs to balance the need to ensure that rehabilitation is undertaken appropriately.⁶³³

Renewable Energy Zones (REZ)

- 5.44** Established by the Government, Renewable Energy Zones group new renewable energy projects into locations for the purpose of efficiently storing and transmitting energy across the state.⁶³⁴
- 5.45** The Government described Renewable Energy Zones as the equivalent of modern-day power stations as they combine:
- new renewable energy infrastructure including solar and wind farms,
 - storage such as batteries and pumped hydro,
 - high-voltage transmission infrastructure.⁶³⁵
- 5.46** Renewable Energy Zones are located in traditional mining areas including the Hunter, Central West and Illawarra regions. The Government deemed these communities 'ideal locations' due to their renewable energy resources and the capacity to utilise rehabilitated mining land, infrastructure, power stations, transport and skilled workforces.⁶³⁶
- 5.47** Lake Macquarie City Council, for example, noted that they were chosen as a Renewable Energy Zone as its attributes meet the Government's criteria and it has the capacity to deliver large amount of new energy.⁶³⁷ The Council noted that the closure of mines 'leaves behind a

⁶³¹ Submission 48, The Association of Mining and Exploration Companies (AMEC), p 4.

⁶³² Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 7.

⁶³³ Evidence, Ms Georgina Beattie, Deputy Secretary, NSW Resources, 12 August 2024, p 7.

⁶³⁴ Submission 69, NSW Government, p 17.

⁶³⁵ EnergyCo, *Renewable Energy Zones* (2025), <https://www.energyco.nsw.gov.au/renewable-energy-zones>

⁶³⁶ Submission 69, NSW Government, p 17.

⁶³⁷ Submission 47, Lake Macquarie City Council, p 10.

significant backbone of electricity network infrastructure that is essential to support the shift to renewable energy generation'.⁶³⁸

- 5.48** An example of a renewable energy project proposed for the Lake Macquarie region on a mine site is the Eraring Battery Energy Storage System which is scheduled to open in late 2025.⁶³⁹ This \$800 million large-scale battery project will be located onsite and adjacent to the existing Eraring Power Station.⁶⁴⁰
- 5.49** The Lake Macquarie City Council advised that the site for the Eraring Battery Energy Storage was selected for key attributes, including existing infrastructure and transmission lines, along with the connectivity to transport, including roads, rail, and freight.⁶⁴¹ The Council noted that these attributes will help enable the region to expand their capacity for renewable energy generation, storage and distribution ahead of the closure of Eraring Power Station in 2027.⁶⁴²

Solar

- 5.50** The committee heard that former mine sites could be repurposed for solar farms, which offer an opportunity for regions to transition from coal to a cleaner energy source. However, planning for these solar farms require care and consideration of environmental, regulatory and community factors.
- 5.51** One example is the proposed Maxwell Solar Farm, located on the former Drayton Coal Mine site in the Hunter Valley.⁶⁴³ According to the site owner Malabar Resources, this solar farm, will cover 105 hectares of rehabilitated land and will generate 25 megawatts of electricity, enough energy to power over 10,000 homes.⁶⁴⁴
- 5.52** The Government noted that the Maxwell Solar Farm project is part of the Hunter-Central Coast Renewable Energy Zone, which aims to harness the region's renewable energy potential.⁶⁴⁵
- 5.53** Malabar Resources described the difficulty they faced in seeking approval to host a solar farm on an old mine site (that was previously pastoral land) that had operated from 1983 to 2016.

We purchased a project where open cut mining had taken place from approximately 1983 until 2016. The original consent conditions date back many years. We have substantially rehabilitated that old mine. This matter relates to a historical consent that requires restoration of some land to pastoral land or woodland and a modern consent we received in 2020 for a solar farm on a small portion (less than 1/8th) of the rehabilitated area. Again, we are working through potential solutions with the NSW Resource Regulator and MEG.⁶⁴⁶

⁶³⁸ Submission 47, Lake Macquarie City Council, p 10.

⁶³⁹ Submission 27, Lake Macquarie Economic Development Company – trading as Dantia, p 4.

⁶⁴⁰ Submission 47, Lake Macquarie City Council, p 10.

⁶⁴¹ Submission 27, Lake Macquarie Economic Development Company – trading as Dantia, pp 1 and 6.

⁶⁴² Submission 47, Lake Macquarie City Council, p 9.

⁶⁴³ See, Submission 69, NSW Government, p 29; Submission 14, Malabar, p 1.

⁶⁴⁴ Submission 14, Malabar Resources, p 1.

⁶⁴⁵ Submission 69, NSW Government, p 29.

⁶⁴⁶ Submission 14, Malabar, p 2.

- 5.54** Malabar Resources detailed the challenge of navigating 'a conflicting and complex regulatory framework for our consented farm on an existing mining lease' for 'post mining use with conflicting consents'.⁶⁴⁷
- 5.55** Drawing on their experience, Malabar Resources noted that the time and effort required to date threatened the financial viability of the project. They called for the modernising of the regulatory requirements, that require mining land to be returned to traditional uses, to be more forward looking and help facilitate more suitable contemporary uses:
- Developing the Maxwell Solar Farm on rehabilitated land has proven to be a challenge. Solar developments are low margin enterprises and additional time and costs can quickly erode those slim returns and render them uneconomic to develop. Contemporising regulatory requirements that historically seek to return mining land to traditional uses presents an opportunity for this Parliamentary Committee ... Malabar looks forward to the Inquiry delivering practical suggestions to facilitate beneficial and productive post mining land use in the Hunter Valley into the future.⁶⁴⁸
- 5.56** Despite the challenges faced updating the consent requirements, the Maxwell Solar Farm example demonstrates the potential benefits of solar farms, including the ability to produce clean energy and generate power to the grid.⁶⁴⁹
- 5.57** Cr Doug Hawkins, Liverpool Plains Shire Council, however voiced unease about the proliferation of solar farms on agricultural land, stating 'solar panels don't produce a lot of jobs once they're constructed and they use up productive agricultural land'.⁶⁵⁰ He argued that they reduce the land available for farming which he says 'needs to be protected at all costs'.⁶⁵¹ He stressed the importance of local consultation to find common ground and to avoid placing solar farms in areas with high agricultural value.⁶⁵²
- 5.58** The Nature Conservation Council of NSW suggested exploring innovative approaches to integrate solar farms with other land uses. Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council, highlighted the potential for livestock to graze underneath the solar panels, allowing dual land use without compromising agricultural productivity, and providing animals with the added benefit of shade.⁶⁵³ She told the committee:

One of the key principles around renewable energy projects is to ensure productive co-use where possible. We would seek to ensure that these sites have the biodiversity outcomes, but also if there is an opportunity to marry clean energy projects with agriculture, for example. We start to see some good examples of that, where you have solar farms and livestock grazing in proximity, which can work quite well.⁶⁵⁴

⁶⁴⁷ Submission 14, Malabar, p 2.

⁶⁴⁸ Submission 14, Malabar, pp 2-3.

⁶⁴⁹ Submission 14, Malabar, pp 1-2.

⁶⁵⁰ Evidence, Cr Doug Hawkins, Mayor, Liverpool Plains Shire Council, 5 August 2024, p 30.

⁶⁵¹ Evidence, Cr Doug Hawkins, Mayor, Liverpool Plains Shire Council, 5 August 2024, p 30.

⁶⁵² Evidence, Cr Doug Hawkins, Mayor, Liverpool Plains Shire Council, 5 August 2024, p 31.

⁶⁵³ Evidence, Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council of NSW, 5 August 2024, p 36.

⁶⁵⁴ Evidence, Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council of NSW, 5 August 2024, p 36.

Pumped hydro

- 5.59** Pumped hydro technology is a 'closed loop system' whereby water is cycled between two reservoirs, an upper reservoir and a lower reservoir.⁶⁵⁵ Pumped hydro projects work by:
1. using renewable energy to pump water to the upper reservoir,
 2. releasing water to the lower reservoir when electricity demand increases,
 3. running the water through a turbine to generate more energy.⁶⁵⁶

- 5.60** ZEN Energy shared details of the proposed Western Sydney Pumped Hydro project, on the former Bunnagorang Valley Coal Washery site connected to Lake Bunnagorang. This project, described as a 'big water-driven battery', aims to store 1 gigawatt (1,000 megawatts), supplying renewable electricity to 500,000 homes and businesses for up to 8 hours.⁶⁵⁷ ZEN Energy stated that the project 'will significantly contribute to the security and reliability of NSW's energy supply'.⁶⁵⁸

- 5.61** The proposed ZEN Energy Pumped Hydro Project is located in the Wollondilly Shire Council local government area. The Council expressed its excitement about the project's potential to bring 'significant benefits' and investment into the local Wollondilly community, including 1,500 construction jobs, and 80 ongoing jobs.⁶⁵⁹ The Council further noted the benefits of such initiatives in seeking to achieve a more sustainable energy future:

Projects like the [Western Sydney Pumped Hydro Project] demonstrate the potential for government and private partnerships and investment into projects that deliver community benefit and seek to achieve a more sustainable future for communities via renewable technologies.⁶⁶⁰

- 5.62** The NSW Minerals Council noted that '[a] number of NSW mining operations have either obtained approval or are proposing large scale renewable energy projects, including pumped hydro facilities...'.⁶⁶¹ They argued that renewable projects can deliver the following benefits with the right regulatory and policy settings:
- Renewable energy directly into the network; and/or
 - A renewable energy source to existing mining operations to reduce greenhouse gas emissions associated with mining operations; and/or
 - A beneficial renewable energy source to support the operation of pumped hydro projects.⁶⁶²

⁶⁵⁵ Submission 76, ZEN Energy, p 2.

⁶⁵⁶ Submission 76, ZEN Energy, p 2.

⁶⁵⁷ Submission 76, ZEN Energy, p 2; Evidence, Mr Tony McFadden, Chief Executive Officer, SADA Dunbier Group, 21 October 2024, p 19.

⁶⁵⁸ Submission 76, ZEN Energy, p 2.

⁶⁵⁹ Submission 16, Wollondilly Shire Council, p 4.

⁶⁶⁰ Submission 16, Wollondilly Shire Council, p 4.

⁶⁶¹ Submission 59, NSW Minerals Council, p 5.

⁶⁶² Submission 59, NSW Minerals Council, p 5.

- 5.63** The NSW Minerals Council identified that [i]n some circumstances mine voids will be suitable for use for pumped hydro projects'.⁶⁶³
- 5.64** Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, noted that the Muswellbrook Pumped Hydro Energy Storage Project was proposing to use a final void 'because it was impervious in terms of water penetration'.⁶⁶⁴ Mr Rush did however caution that most voids are unsuitable for pumped hydro because if you have to line a void to prevent seepage it becomes economically unviable.⁶⁶⁵

Clean energy and storage precincts

- 5.65** Mixed energy precincts were also explored for potential use on post-mining land. Here a range of renewable energy projects and storage facilities are co-located on one site providing multiple clean energy solutions. The Woodlawn Eco Precinct in Tarago is one such example.⁶⁶⁶
- 5.66** The Woodlawn Eco Precinct spans 6,000 hectares and is located at the site of a former zinc and copper mine. It now hosts a range of operations, including a 48.3 megawatts windfarm, a 2.5 megawatts solar farm, and a bioenergy plant.⁶⁶⁷
- 5.67** In addition, the Woodlawn Eco Precinct also supports agriculture, aquaculture, and compost production through mechanical and biological treatments.⁶⁶⁸ Associate Professor Sarah Holcombe from the Centre for Social Responsibility in Mining, The University of Queensland reported on the success of the Woodlawn Eco Precinct:

[It] serves as an example of an innovative and sustainable land-use transition in an area once used solely for mining. While this transition was not led or funded by the mining industry, it is a successful contemporary example offering multiple lessons for mining industry-led or funded repurposing.⁶⁶⁹

Woodlawn is one of the largest and deepest purpose-built bioreactor landfill projects globally. As at 2019, the site was accepting approximately 40% of Sydney's putrescible waste and is recognised as an example of best practice in the application of landfill technology.⁶⁷⁰

⁶⁶³ Submission 59, NSW Minerals Council, p 5.

⁶⁶⁴ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 13.

⁶⁶⁵ Evidence, Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils, 5 August 2024, p 13.

⁶⁶⁶ Submission 69, NSW Government, p 29.

⁶⁶⁷ Submission 69, NSW Government, p 29.

⁶⁶⁸ Submission 69, NSW Government, p 29.

⁶⁶⁹ Associate Professor Sarah Holcombe, 'Woodlawn mine site repurposing: Success factors, enablers and challenges', (2020), *Centre for Social Responsibility in Mining. The University of Queensland*, p 6.

⁶⁷⁰ Associate Professor Sarah Holcombe, 'Woodlawn mine site repurposing: Success factors, enablers and challenges', (2020), *Centre for Social Responsibility in Mining. The University of Queensland*, p 6.

5.68 Another example, the Kidston Clean Energy Hub in Queensland was highlighted by CRC TiME in their report *Project 1.2 Post-mining land uses*.⁶⁷¹ According to CRC TiME, the Kidston Clean Energy Hub has demonstrated the potential of mine sites to transition into large-scale renewable energy projects. This former gold mine is already connected to the National Electricity Market, becoming a 50-megawatt solar and pumped hydro storage facility, which will utilise two existing pits acting as an upper reservoir and lower reservoir for the project.⁶⁷² The integration of both energy projects enables the solar farm to generate power for the pumped hydro project enabling the water to be pumped back up to the upper reservoir.⁶⁷³ According to CRC TiME:

The Kidston Clean Energy Hub case study provides an example of successfully transforming a disused mine site into a large scale clean energy facility. The project will assist in assessing, planning, engineering and promoting the repurposing of other mine operations towards zero emissions operations.⁶⁷⁴

5.69 Other mining regions, like Muswellbrook in the Hunter Valley, are also considering establishing renewable energy precincts. The former Muswellbrook Coal mine, which ceased operations in 2023, is planned to be converted into a Clean Industries Precinct.⁶⁷⁵ This project is explored further in the case study below.

Case study Muswellbrook Clean Energy Precinct⁶⁷⁶

The Muswellbrook Clean Energy Precinct is a transformative project proposed on site of the former Muswellbrook Coal Mine.⁶⁷⁷

Mine operator Idemitsu initiated the Muswellbrook Clean Energy Master Plan in 2021, with aspirations to revitalise the site and provide renewable energy solutions.⁶⁷⁸ The plan is to capitalise on the site's 2,390-hectares of rehabilitated land and buffer zone, as well as existing transmission lines, transportation, and proximity to the town of Muswellbrook.⁶⁷⁹

Two renewable energy projects have commenced assessment approval:

- 1. Muswellbrook Pumped Hydro Energy Storage Project** – In partnership with AGL, this initiative looks to repurpose an existing mine void as a lower reservoir, with an upper reservoir at Bells Mountain. The facility is expected to generate 400MW of energy with eight-hour energy storage capacity strengthening the grid reliability and stability.⁶⁸⁰

⁶⁷¹ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), pp 28-31.

⁶⁷² CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), pp 30-31.

⁶⁷³ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), pp 30-31.

⁶⁷⁴ CRC TiME, *Final Report Project 1.2 Post-mining land uses*, (CRC TiME Limited Perth 2022), p 31.

⁶⁷⁵ Submission 31, Muswellbrook Shire Council, p 4.

⁶⁷⁶ Submission 59, NSW Minerals Council, p 12; Submission 69, NSW Government, p 7; Submission 40, Idemitsu Australia Pty Ltd, p 2.

⁶⁷⁷ Submission 59, NSW Minerals Council, p 12.

⁶⁷⁸ Submission 69, NSW Government, p 7.

⁶⁷⁹ Submission 59, NSW Minerals Council, p 12.

⁶⁸⁰ Submission 59, NSW Minerals Council, p 12; Submission 69, NSW Government, p 7; Submission 40, Idemitsu Australia Pty Ltd, p 2.

2. **Muswellbrook Solar Farm** – In partnership with OX2, this solar farm is estimated to generate 135MW of power.⁶⁸¹

The precinct is set to create 750 direct jobs, with 20 full-time roles in the initial operational phase. It also aims to foster economic growth through supply chain opportunities and new industries.⁶⁸²

Gravitational energy storage

- 5.70 Other potential energy solutions explored in this inquiry include the use of abandoned and closed mine shafts and gravity for energy generation and storage.⁶⁸³

- 5.71 A version of this technology developed by Green Gravity, utilises heavy objects moving vertically through legacy mineshafts to exchange electrical and gravitational potential energy.⁶⁸⁴ Fundamentally, when energy is needed, heavy weighted objects are lowered through the mineshaft, generating energy as the descending weight spins the winch, causing a regenerative motor to generate electricity.⁶⁸⁵ Green Gravity Founder and Chief Executive Officer, Mr Mark Swinnerton described the process:

We use a regenerative electrical motor, which is essentially an electric motor that can behave as either a motor to winch, to wind up and consume electricity, or it can act as a generator as we break the descent of the mass. The mass...is attached to a cable, and the mass wants to drop. If we place it over a vertical mine shaft and let it go, it wants to drop very quickly. We don't let it happen. We control the descent of the mass. In doing that, we're effectively placing a magnet into the electric motor to retard the velocity. The consequence of that is it spits electrons off, and we can send those back to source. The technology can achieve quite high efficiency—in the order of 80 per cent efficiency of the energy.⁶⁸⁶

- 5.72 Green Gravity highlighted that this approach has 'significant' environmental and economic benefits. For one, it requires little water and resources, and produces no waste.⁶⁸⁷ In addition, it presents a low-cost, long-life alternative to other energy storage technologies, 'leading to a faster and lower cost transition away from fossil fuels'.⁶⁸⁸
- 5.73 Green Gravity posited that repurposing disused mineshafts can also generate economic value, as it can 'create jobs, stimulate the economy, and support industry growth'.⁶⁸⁹

⁶⁸¹ Submission 59, NSW Minerals Council, p 12; Submission 40, Idemitsu Australia Pty Ltd, p 2.

⁶⁸² Submission 69, NSW Government, p 7.

⁶⁸³ Submission 73, CSIRO, p 41.

⁶⁸⁴ Submission 15, Green Gravity, p 1.

⁶⁸⁵ Submission 15, Green Gravity, p 1; Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

⁶⁸⁶ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

⁶⁸⁷ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 45.

⁶⁸⁸ Submission 15, Green Gravity, p 8.

⁶⁸⁹ Submission 15, Green Gravity, p 6.

5.74 Mr Swinnerton also reflected that this technology provides an opportunity to transfer jobs and skills from mining to rehabilitation initiatives that create and store energy:

There is a huge opportunity to transfer jobs and skills from the current mines and from the rehabilitation activities into new technologies like what we're proposing with gravitational storage, and the kind of work types—maintaining equipment and the like—can really bring high-value-added skills into the region. We're a huge proponent of local-level engagement in the regions to be able to find the solutions.⁶⁹⁰

5.75 Green Gravity are not alone in pursuing gravitational energy storage. The UK based company Gravitricity have developed a similar storage system, known as GraviStore.⁶⁹¹ GraviStore also uses weights suspended in deep shafts to store and release energy.⁶⁹² Electricity is stored in the form of potential energy by raising the weight, power is then generated by lowering the weights to turn a generator.⁶⁹³

5.76 With depths ranging from 300 meters to 1,200 meters, and weights up to 1,000 tonnes, a single GraviStore weight system can produce between 1 and 8 MW of power.⁶⁹⁴ This is similar to the energy output estimated by Green Gravity. Mr Swinnerton from Green Gravity advised that the sizing for their commercial system is 'between five megawatts and 10 megawatts, with capacity between six and 12 storage hours'.⁶⁹⁵

5.77 Both companies believe this technology aligns with broader environmental goals.⁶⁹⁶ According to Gravitricity, the system has the potential to reduce carbon emission by providing an alternative to the traditional fossil-fuel based back up sources such as coal-fired plants, diesel engines and natural gas turbines.⁶⁹⁷ In addition, the technology increases the reliability of the power network and provides long-term energy storage solutions.⁶⁹⁸

5.78 Despite the potential, Green Gravity shared that they are still in the process of refining the system, with full production demonstrations expected in 2025.⁶⁹⁹

⁶⁹⁰ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 49.

⁶⁹¹ Submission 13, Gravitricity Ltd, p 1.

⁶⁹² Submission 13, Gravitricity Ltd, p 2.

⁶⁹³ Submission 13, Gravitricity Ltd, p 2.

⁶⁹⁴ Submission 13, Gravitricity Ltd, p 3.

⁶⁹⁵ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 46.

⁶⁹⁶ Submission 15, Green Gravity, p 8; Submission 13, Gravitricity Ltd, p 3.

⁶⁹⁷ Submission 13, Gravitricity Ltd, p 3.

⁶⁹⁸ Submission 13, Gravitricity Ltd, p 3.

⁶⁹⁹ Evidence, Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity, 12 August 2024, p 46.

Medicinal cannabis

- 5.79** Business-to-business medicinal cannabis company Biortica Agrimed, known by the brand name Green Farmers, proposed to utilise former mine land for the purpose of cultivating medicinal cannabis to support economic growth and create jobs in regional New South Wales.⁷⁰⁰
- 5.80** Mr Thomas Varga, Biortica Managing Director, advised that Australia's medicinal cannabis market is rapidly growing, and Biortica's year-round production can help address the shortage of local cultivation, noting that 80 per cent of medicinal cannabis products is currently imported from overseas including Canada, South Africa and Colombia.⁷⁰¹
- 5.81** According to Biortica, local cultivation has the potential to 'revitalize local economies, particularly in rural areas where traditional industries may be declining'.⁷⁰² Additionally, Biortica stated that 'medicinal cannabis industry can attract investment, both domestically and internationally, bolstering regional economic growth'.⁷⁰³
- 5.82** Mr Varga argued that 'A post-mining land use led by Biortica Agrimed in the medicinal cannabis industry could bring a potential 1,500 jobs to the region in direct employment with additional to ancillary services while leverage existing assets and infrastructure'.⁷⁰⁴ Mr Varga also argued that repurposing former mine sites to grow medicinal cannabis would not only create jobs, it would also increase tax revenues and position New South Wales as leader in medicinal cannabis production:
- Biortica is well placed to support the New South Wales Government in not only creating jobs and tax revenue in New South Wales from the medicinal cannabis industry but also the repurposing of the site to maintain the jobs in the region and create a centre of excellence for the Australian cannabis market. This will create thousands of jobs, leveraging the existing skill base of the region, re-skill synergistic capabilities to cultivation and manufacturing, and bring significant investment and use of a significant footprint for cultivation, packaging, processing, manufacturing and storage.⁷⁰⁵
- 5.83** According to Mr Varga, 80 per cent of mining industry skills would be transferrable to medicinal cannabis cultivation, processing, manufacturing and distribution with the remaining 20 per cent of skills learned on the job.⁷⁰⁶ Biortica argued that the medicinal cannabis industry offers a 'viable solution', providing new jobs from agricultural technicians to advanced manufacturing and biotechnology'.⁷⁰⁷

⁷⁰⁰ Evidence, Mr Thomas Varga, Managing Director, Biortica, 12 August 2025, p 40.

⁷⁰¹ See, Evidence, Mr Thomas Varga, Managing Director, Biortica, 12 August 2025, p 40; Submission 71, Biortica Agrimed and Green Farmers, p 1.

⁷⁰² Submission 71, Biortica Agrimed and Green Farmers, p 1.

⁷⁰³ Submission 71, Biortica Agrimed and Green Farmers, p 1.

⁷⁰⁴ Evidence, Mr Thomas Varga, Managing Director, Biortica, 12 August 2025, p 40.

⁷⁰⁵ Evidence, Mr Thomas Varga, Managing Director, Biortica, 12 August 2025, p 40.

⁷⁰⁶ Evidence, Mr Thomas Varga, Managing Director, Biortica, 12 August 2025, p 43.

⁷⁰⁷ Submission 71, Biortica Agrimed and Green Farmers, p 2.

Tourism, recreation and conservation

- 5.84** A global review of 313 repurposed mine sites conducted by the Centre for Social Responsibility in Mining at the University of Queensland in 2020, found that over 60 per cent of the repurposed mines were renewed for tourism, recreation and ecosystem conservation purposes, including:
- 76 sites for community and culture spaces, such as historical precincts, art, museums, exhibitions, and event spaces;
 - 63 sites for conservation and ecosystem services, such as wildlife habitats and native woodlands;
 - 51 sites for non-invasive recreation activities, such as green parks, botanical gardens, hiking, cycling, horseriding and ecotourism.⁷⁰⁸
- 5.85** Other possible innovative tourist attractions were identified by inquiry participants including:
- greenhouses and botanical gardens, for example the Eden Project in United Kingdom⁷⁰⁹
 - interconnected artificial lakes built on final voids, for example Lusatian Lake District in Germany⁷¹⁰
 - mountain bike trails, for example Derby in Tasmania⁷¹¹
 - open air theatre and concert venue, for example Ferropolis in Germany⁷¹²
- 5.86** In addition, many stakeholders highlighted BlackRock Motor Resort in Lake Macquarie as a prime example of the economic potential and social benefits that can be achieved when repurposing former mine sites for recreation and tourism activity.⁷¹³ This is detailed in the case study below.

⁷⁰⁸ Email from Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, to Committee, received 2 July 2024 – Attachment 2, CRC TiME, *Preliminary Report Project 1.2 Post-mining land uses – a literature review*, (CRC TiME Limited Perth 2021), pp 17-18, citing Holcombe, S & Keenan, J, 'Mining as a temporary land use: transitions and repurposing', (2020), Brisbane: Centre for Social Responsibility in Mining, The University of Queensland.

⁷⁰⁹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), pp 4, 9, and 13.

⁷¹⁰ See, Submission 74, Hunter Lakes Corporation, p 2; Tabled document, Mr Dennis Bluth, Hunter Lakes Corporation, *The Hunter Water Bank*, 21 October 2024, pp 1-2; Evidence, Mr John Colvin, Consultant, Hunter Lakes Corporation, p 46.

⁷¹¹ Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

⁷¹² Dr Pete Whitbread-Abrutat, *A mine ends. Then what? Some reflections on best practice*, (Keynote address International Conference on Mine Closure, Perth 2024), p 9.

⁷¹³ See for example, Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, to the Committee, received 4 December 2024 – Attachment, Institute for Regional Futures, Policy Paper 3, *The NSW government role to activate the land supply for beneficial mining land use to drive economic development*, (Institute for Regional Futures, University of Newcastle, 2024), p 5; Submission 43, Mining & Energy Union, p 2; Submission 47, Lake Macquarie City Council, p 1; Submission 27, Lake Macquarie Economic Development Company - trading as Dantia, p 6; Submission 69, NSW Government, p 15; Submission 61, Yancoal Australia, pp 5-6; Evidence, Ms

Case study BlackRock Motor Resort, Lake Macquarie⁷¹⁴

The BlackRock Motor Resort, located on the repurposed Rhondda Colliery site in Lake Macquarie, was lauded by many stakeholders as exemplifying innovative post-mining land use.

The \$95 million project is expected to deliver a 5.2km state-of-the-art motorsport racetrack, a driver training centre, go-kart racing track, adventure tourism, function centre, luxury accommodation and café.⁷¹⁵

Originally closed in 1970 due to an underground fire, the Rhondda Colliery site has faced significant environmental and structural challenges.⁷¹⁶ Although the fire was fully extinguished in 2006, and initial rehabilitation efforts were completed in 2008, remediation works were ongoing until the final landform was deemed safe and stable.⁷¹⁷

BlackRock secured a council planning approval in 2019. But changes in regulatory requirements and new Rehabilitation Reforms led to significant delays, including new approvals needed before construction could commence.⁷¹⁸

BlackRock and mine lease holder Yancoal identified a number of areas for improvement which they say would have expedited the process, including improved communication, reducing inefficiencies, and streamlining regulation and consent process.⁷¹⁹

Noting these delays and challenges, a number of people attributed the success of the project to the persistence, determination, and resolve of BlackRock Founder, Mr Tony Palmer. Individuals from local council, government departments and other organisations have praised Mr Palmers efforts to get the project through the arduous regulatory process.⁷²⁰ Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council, told the committee:

Morven Cameron, Chief Executive Officer, Lake Macquarie City Council, 21 August 2024, p 3 and 7; Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, pp 38-40.

⁷¹⁴ Submission 27, Lake Macquarie Economic Development Company - trading as Dantia, p 3; Submission 61, Yancoal, p 5; Submission 69, NSW Government, pp 15-24; Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, pp 29-30; Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, pp 40-41; Evidence, Ms Morven Cameron, Lake Macquarie City Council, 21 August 2024, p 7.

⁷¹⁵ Submission 27, Lake Macquarie Economic Development Company - trading as Dantia, p 3; Submission 61, Yancoal, p 5; Submission 69, NSW Government, p 24.

⁷¹⁶ Submission 69, NSW Government, p 15.

⁷¹⁷ Submission 61, Yancoal, p 6; Submission 69, NSW Government, p 15.

⁷¹⁸ Submission 61, Yancoal, p 6.

⁷¹⁹ Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, p 30; Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 41.

⁷²⁰ See for example, Evidence, Mr Nick McDermott, Policy Specialist, Yancoal, 12 August 2024, p 29; Evidence, Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council, 21 August 2024, p 7.

Black Rock only became a reality because the proponent was absolutely dogged in saying, "This is the parcel of land I want. This is the location on the eastern seaboard of Australia that I want to be in. I'm going to keep chipping away."⁷²¹

The motor resort is expected to open in 2026, creating 450 jobs during the initial construction phase and 229 ongoing operational jobs, which will contribute to the region's economy.⁷²²

BlackRock is poised to become a blueprint for beneficial post-mining land use, by repurposing former mine land and infrastructure, while integrating new opportunities and supporting economic growth.

Committee comment

- 5.87** There are many beneficial and alternative uses of former mining land, from approaches that are founded on the concept of a circular economy, to the development of various renewable and alternative energy production sites. In addition, there are possibilities as diverse as the cultivation of medicinal cannabis to novel tourism opportunities.
- 5.88** For many years the breadth of post-mining land use opportunities has been treated as an afterthought. This was largely due to a focus on restoring land to its pre-mining state, allowing for grazing and agricultural uses with little room for other more innovative alternatives. The committee acknowledges this approach has at times discouraged the pursuit of other options that may have been of substantial benefit to regional communities.
- 5.89** It is apparent that many mine operators and lease holders have become risk averse as a result of the complex regulatory framework governing post-mining land use. This has understandably led many to choose simple restoration projects rather than exploring new land-use possibilities which might offer greater economic benefit. This preference may be especially pronounced when those responsible for the remediation of a site may not have a long-term interest in its future.
- 5.90** There is a need for those involved to see the ecological and economic potential of a place, and to have the will to pursue it. There is a role for Government in removing some of the obstacles that dampen the desire to pursue these innovative opportunities. The committee strongly encourages the Government to permit and incentivise a more flexible, iterative approach to post-mining land use. This approach should be adaptable to new technologies, demonstrate a greater understanding of landscapes, and be flexible enough to accommodate the evolving needs of regional communities and environment.
- 5.91** The committee finds that regional communities are on the cutting-edge of the post mining transition. Current land-use planning and mineral lease settings are not well-suited to adapt and respond with the necessary flexibility to rapidly changing circumstances.

⁷²¹ Evidence, Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council, 21 August 2024, p 7.

⁷²² Submission 69, NSW Government, p 15; Evidence, Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort, 21 August 2024, p 40.

Finding 4

That regional communities are on the cutting-edge of the post mining transition. Current land-use planning and mineral lease settings are not well-suited to adapt and respond with the necessary flexibility to rapidly changing circumstances.

- 5.92** Inquiry participants shared many inspiring examples of alternative land uses that could be considered. Some of these involved reusing and recycling mining infrastructure and equipment in groundbreaking ways.
- 5.93** The committee recognises that government and industry may not have the skill and expertise required for designing and developing cutting edge post-mining options. This may be best left with the 'visionary thinkers' and other 'out-of-the-box' creative thinkers. This could result in bold projects that significantly benefit workers, the economy, the environment, and the wider community.
- 5.94** The committee accordingly recommends that the Government explore how mine operators and lease holders could better work with visionary and creative thinkers in relation to post-mining land use and consider how policy frameworks could encourage this collaboration, including:
- exploring compatibility of post-mining land sites with commercial projects
 - exploration of former and legacy mining sites with modern mining technology to explore deposits in tailings and closed sites.
-

Recommendation 12

That the Government explore how mine operators and lease holders could better work with visionary and creative thinkers in relation to post-mining land use and consider how policy frameworks could encourage this collaboration, including:

- exploring compatibility of post-mining land sites with commercial projects
 - exploration of former and legacy mining sites with modern mining technology to explore deposits in tailings and closed sites.
-

- 5.95** A number of inquiry participants showcased the potential opportunities for repurposing and reusing former mining land and associated infrastructure. The committee acknowledges that this infrastructure may form a significant component of all infrastructure in remote areas. Irrespective of location, there is a strong argument for repurposing and recycling infrastructure rather than requiring its removal and the return of land to its pre-mining state.
- 5.96** The committee strongly encourages the Government to consider these opportunities and incentivise reuse. It is recommended that the Government consider incentivise post-mining land uses that leverage the reuse of essential infrastructure, such as transmission lines, rail lines, workspaces and utilities, to provide a return on closure expenses, and reduce decommissioning costs and waste. Such incentives should ensure companies do not retain the entire value of the reduction in the decommissioning costs which may be invested in environmental and community benefit projects.
-

Recommendation 13

That the Government consider incentivising post-mining land uses that leverage the reuse of essential infrastructure, such as transmission lines, rail lines, workspaces and utilities, to provide a return on closure expenses, and reduce decommissioning costs and waste. Such incentives should ensure companies do not retain the entire value of the reduction in the decommissioning costs which may be invested in environmental and community benefit projects.

- 5.97** The committee believes there are opportunities to leverage rehabilitated mine sites to assist governments in achieving a clean energy future. Former mining sites may be suitable for the location of renewable energy hubs that support a transition to clean, reliable and affordable energy, while providing employment opportunities for the local population. The selection of traditional mining areas for the location of renewable energy zones speaks to the potential of these regions. This potential is founded in many ways on the existing infrastructure and workforce in these areas.
- 5.98** The committee sees the value in authorising renewable energy and circular economy projects on former mine sites. These projects will also aid in recycling material so as to minimise waste, while simultaneously generating economic benefits and maximising land value.
- 5.99** While the committee notes the hesitation of some inquiry participants in pursuing solar farm projects on former mining land, it also sees the potential for dual-land use projects, which would enable solar farms to be co-located on sites together with other more profitable ventures. This was ably demonstrated by the Woodlawn Eco Precinct, which successfully combined solar farms with other renewable projects, agriculture, aquaculture and waste composting.
- 5.100** Pumped hydro was another exciting renewable energy technology explored throughout this inquiry. The committee recognises that some former mine sites offer a unique and advantageous setting for building pumped hydro facilities, including the reuse of final voids as one of two reservoirs required for energy generation.
- 5.101** In addition, the committee was impressed by the benefits of gravitational energy storage technology, which repurposes old underground mine shafts to generate and store energy. This innovation could offer significant environmental and economic benefits for the state.
- 5.102** The committee understands that tourism and recreation projects are among the most popular and lucrative uses of former mine sites, as they allow for the preservation of the site's history and landscape while creating cultural and economic value for local communities. The committee was particularly inspired by international examples, such as Ferropolis, the Ruhr and Lusatia regions in Germany. These projects demonstrate how diverse stakeholders – including industry, workers, communities, environmentalists, and creatives – can collaborate and produce innovative, revenue-generating tourism attractions that help diversify local economies and provide sustainable post-mining land uses. New South Wales has the opportunity to develop our own unique mining legacy and tourism attractions, including BlackRock Motor Resort at the former Rhondda Colliery in Lake Macquarie. It is imperative that opportunities such as these are not squandered as a result of regulatory inertia.

- 5.103** The committee finds that leadership and reforms are required in the form of collaboration within government, between industry and the community. Harnessing collaboration will increase opportunities to develop beneficial post-mining land use and position regional communities to take full advantage of the energy transition.

Finding 5

That leadership and reforms are required in the form of collaboration within government, between industry and the community. Harnessing collaboration will increase opportunities to develop beneficial post-mining land use and position regional communities to take full advantage of the energy transition.

Appendix 1 Submissions

No.	Author	Attachments
1	Name suppressed	
2	Mr Jim Allan	1
3	Miss Kristy Fontaine	
4	Miss Melissa Barrass	
5	Dr Deidre Stuart	
6	Mr Peter Coughlan	
7	Dr Rod Anderson	
8	MidCoast Council	
9	Confidential	
10	Confidential	
11	Ms Kim Grierson	
12	BCR Training Advisory Body	
13	Gravitricity Ltd	
14	Malabar Resources	
15	Green Gravity	
16	Wollondilly Shire Council	
17	Cessnock City Council	
18	Singleton Council	
19	Ms Angela Michaelis	
20	Ms Kimberley Crofts	1
21	MACH Energy Australia Pty Ltd	
22	Dr Corinne Unger	
23	Confidential	
24	Confidential	
25	Hunter Joint Organisation	
26	Hunter Innovation and Science Hub	
27	Lake Macquarie Economic Development Company - trading as Dantia	
28	Broula King Enterprises Pty Ltd	2
29	Wollar Progress Association	
30	Narrabri Shire Council	
31	Muswellbrook Shire Council	2
32	BHP	

No.	Author	Attachments
33	Mudgee District Environment Group	
34	SEATA Group and Global Product Stewardship Council	5
35	Dr Julia Imrie	
36	Mr Colin Imrie	
37	Ms Amanda Wetzel	
38	Lock the Gate Alliance	
39	Confidential	
40	Idemitsu Australia Pty Ltd	
41	Karin Fogarty	
42	Name suppressed	
43	Mining & Energy Union	
44	ServeGate	1
45	Property Council of Australia	
46	Association of Mining and Energy Related Councils NSW	
47	Lake Macquarie City Council	
48	The Association of Mining and Exploration Companies (AMEC)	
49	Name suppressed	
50	Professor Tim Roberts	
51	Dr Cameron Archer	
52	Name suppressed	
53	Cr Martin Scurrah	
54	Name suppressed	
55	Ms Christina M Smith	
56	Ms Janet Thompson	
57	Mr Kirk Hirsch	
58	Name suppressed	
59	NSW Minerals Council	
60	Advanced Simplicity	
61	Yancoal Australia Ltd	
62	Business Hunter	
63	Hunter Renewal	
64	Marg Mclean	
65	Glencore	
66	Nature Conservation Council of NSW	
67	CRC TIME	

No.	Author	Attachments
68	Liverpool Plains Shire Council	
69	NSW Government	
70	MeOH GigaBattery	
70a	MeOH GigaBattery	
71	Biortica Agimed & Green Farmers	
72	Natural Resources Canada	
73	CSIRO	
74	Hunter Lakes Corporation	
75	Phil Laird	
76	ZEN Energy	
77	Association of Mining and Energy Related Councils (NSW) Inc. (supplementary)	
78	Social Impacts Alliance	

Appendix 2 Witnesses at hearings

Date	Name	Position and Organisation
Monday 5 August 2024 Macquarie Room Parliament House, Sydney	Mr Jack Ayoub	NSW Branch Organiser, Australian Workers' Union
	Mr Martin Rush	Policy Director, Association of Mining and Energy Related Councils
	Mr Grahame Kelly	General Secretary, Mining and Energy Union
	Ms Donna Ausling	Director, Planning & Sustainability, Narrabri Shire Council (via videoconference)
	Mr Gary Murphy	General Manager, Liverpool Plains Shire Council (via videoconference)
	Cr Doug Hawkins OAM	Mayor, Liverpool Plains Shire Council (via videoconference)
	Ms Jacqueline Mills	Senior Climate and Energy Campaigner, Nature Conservation Council of NSW
	Mr Jaden Harris	Advocacy Manager, Nature Conservation Council of NSW
	Ms Georgina Woods	Head of Research and Investigations, Lock the Gate Alliance (via videoconference)
	Mr Steve Phillips	Hunter Coordinator, Lock the Gate Alliance (via videoconference)
	Dr Antonio Pantalone	Director, Advanced Simplicity
	Mr Garry Booth	Chairman, Wandarra
Monday 12 August 2024 Jubilee Room Parliament House, Sydney	Ms Georgina Beattie	Deputy Secretary, NSW Resources
	Mr Peter Day	Executive Director, NSW Resources Regulator
	Mr David Gainsford	Deputy Secretary, Development Assessment and Sustainability, NSW Department of Planning, Housing and Infrastructure
	Mr Tony Chappel	Chief Executive Officer, NSW Environment Protection Authority

Mr Stephen Galilee	Chief Executive Officer, NSW Minerals Council
Ms Claire Doherty	Policy Director, NSW Minerals Council
Ms Liz Watts	Vice President, NSW Energy Coal, BHP
Ms Amanda Walker	Manager, Corporate Affairs, NSW Energy Coal, BHP
Mr Nick McDermott	Policy Specialist, Yancoal
Mr Michael Moore	Group Manager, Approvals, Yancoal
Dr Corinne Unger	Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation (via videoconference)
Mr Thomas Varga	Managing Director, Biortica
Mr Simon Tolhurst	Chairman, Biortica
Mr Mark Swinnerton	Founder and Chief Executive Officer, Green Gravity
Mrs Tania Jones	Sustainable Development Manager, Green Gravity
Mr Craig Bagnall	Director, Environment and Regulatory, SEATA Group
Mr Scott Fairbairn	Director, Energy and Communication, SEATA Group
Mr Russ Martin	Chief Executive Officer, Global Product Stewardship Council
Mr Anthony Reid	Member and Technical Advisor, Global Product Stewardship Council

Tuesday 20 August 2024 Muswellbrook RSL Muswellbrook, NSW	Cr Steven Reynolds	Mayor, Muswellbrook Shire Council
	Mr Derek Finnigan	General Manager, Muswellbrook Shire Council
	Ms Shaelee Welchman	Director Community & Economy, Muswellbrook Shire Council
	Ms Sharon Pope	Director Environment & Planning, Muswellbrook Shire Council
	Mrs Melinda Curtis	Executive Manager, Singleton Council
	Mrs Mary-Anne Crawford	Manager, Development and Environment Services, Singleton Council
	Ms Beverley Smiles	Secretary, Wollar Progress Association
	Dr Julia Imrie	Individual (via videoconference)
	Mr Colin Imrie	Individual (via videoconference)
	Mr Christian William Lauritzen	General Manager, Resource Development, MACH Energy Australia
	Witness A	
	Witness B	
Wednesday 21 August 2024 Lake Macquarie City Council Chambers Lake Macquarie	Ms Morven Cameron	Chief Executive Officer, Lake Macquarie Council
	Mr Martin Johnson	Manager, Strategic Planning, Cessnock City Council
	Ms Jenny Mewing	Senior Strategic Planner, Cessnock City Council
	Cr Sue Moore	Mayor Singleton Council and Chair, Hunter Joint Organisation
	Mr Steve Wilson	Director, Hunter Joint Organisation
	Ms Kim Carland	Advocacy and Government Relations Lead, Hunter Joint Organisation
	Ms Sharon Pope	Director, Environment & Planning, Muswellbrook Shire Council
	Ms Sophie Nichols	Engagement Coordinator, Outreach Officer, Hunter Renewal

	Ms Kimberley Crofts	Individual (via videoconference)
	Ms Amanda Wetzel	Individual
	Mr Tony Palmer	Chief Executive Officer, BlackRock Motor Resort
	Mr Tim Browne	Chief Executive Officer, Dantia (Lake Macquarie Economic Development Company)
	Professor Tim Roberts	President, Hunter Innovation and Science Hub
	Mr Alec Roberts	Vice-President, Hunter Innovation and Science Hub.
Monday 21 October 2024 Jubilee Room Parliament House, Sydney	Ms Amanda Wetzel	Director, Research Programs, Institute for Regional Futures, University of Newcastle (via videoconference)
	Mr Myles Egan	Research Analyst, Institute for Regional Futures, University of Newcastle (via videoconference)
	Dr Agnes Samper	Senior Research Fellow, Sustainable Minerals Institute, University of Queensland (via videoconference).
	Mr Dylan Dyer	Indigenous Initiatives Manager, ServeGate
	Ms Tara Dever	Chief Executive Officer, Mindaribba Local Aboriginal Land Council
	Mr Fin Adamson	Development Manager, ZEN Energy
	Mr Tony McFadden	Chief Executive Officer, SADA Dunbier Group
	Professor Roberta Ryan	Founding Executive Director, Institute for Regional Futures, University of Newcastle
	Professor Ravi Naidu	Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle (via videoconference)
	Dr Guy Boggs	Chief Executive Officer, CRC TiME (via videoconference)
	Professor Tom Measham	Research Director, CRC TiME (via videoconference)

	Ms Jillian D'Urso	External Relations and Impact Director, CRC TiME (via videoconference)
	Mr Dennis Bluth	Director, Hunter Lakes Corporation
	Mr John Colvin	Consultant, Hunter Lakes Corporation
	Mr Peter Laux	Mining Technology, LEAG (via videoconference)
Tuesday 17 December 2024 Macquarie Room Parliament House, Sydney	Dr Pete Whitbread-Abrutat	Co-Author, '102 Things to Do with a Hole in the Ground', Founder and Director of Future Terrains (via videoconference)
	Dr Simon Wright	Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University
	Mr Bob Hawes	Chief Executive Officer, Business Hunter
	Mr James Purtill	Queensland Mine Rehabilitation Commissioner
	Mr Bola Oyetunji	Auditor-General, Audit Office of New South Wales
	Mr Aaron Green	Acting Deputy Auditor-General, Financial Audit Office of New South Wales
	Mr Andrew Anderson	Acting Assistant Auditor-General, Performance Audit, Audit Office of New South Wales
	Mr Tony Chappel	Chief Executive Officer, NSW Environment Protection Authority
	Ms Georgina Beattie	Deputy Secretary, NSW Resources
	Mr Peter Day	Executive Director, NSW Resources Regulator
	Mr Tom Loomes	Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure

Mr Chris Ritchie

Acting Executive Director,
Energy, Resources and Industry
Assessments, Department of
Planning, Housing and
Infrastructure

Appendix 3 Minutes

Minutes no. 15

Tuesday 14 May 2024

Standing Committee on State Development

Members Lounge, Parliament House, 3.05 pm

1. Members present

Ms Suvaal, *Chair*

Mr Farraway, *Deputy Chair*

Mr Buttigieg

Ms Faehrmann

Mr Farlow

Ms Hurst

Mr Lawrence

Mr Primrose

2. Apologies

Mr Farlow

3. Correspondence

The committee noted the following items of correspondence:

Received

- 3 May 2024 – Letter to Ms Suvaal Chair, Standing Committee on State Development, from Minister Houssos, Minister for Natural Resources, requesting that the committee consider terms of reference for an inquiry into beneficial and productive post-mining land use.

4. Consideration of ministerial terms of reference

The Chair tabled the following Chair terms of reference received from Minister Houssos, Minister for Finance, on 3 May 2024.

That the Standing Committee on State Development inquire into and report on beneficial and productive post-mining land use, and in particular:

- (a) the benefits of having multiple successive land uses including the positive benefits for local communities and the economy, business, industry, and the broader state,
- (b) changes in land use potential and demand in established or traditional mining areas, particularly those generated by the decarbonised economy, renewable technology, manufacturing, defence, skills, and training,
- (c) opportunities for investment and growth in training and skills in established or traditional mining areas, including:
 - (i) the need to reskill and or retrain current workforces,
 - (ii) the impact and effectiveness of existing and new education, training, and skills providers for mining communities,
- (d) opportunities to encourage innovative post-mining land uses including:
 - (i) the planning and implementation of essential supporting infrastructure for future site use,
 - (ii) the development of solar farms, pumped hydro, and other clean energy industries,
 - (iii) the compatibility of post mining land sites with commercial projects,
 - (iv) the potential of unlocking surrounding land for residential dwellings, amenities, environmental and educational facilities,

- (v) potential exploration of former and legacy mining sites with modern mining technology to explore deposits in tailings and closed sites,
 - (vi) the development of sites for use for advanced manufacturing, commercial and industrial use,
- (e) how to ensure the benefit from innovative post mine land uses are shared between the community and mine operators,
- (f) the expectations of mining communities in relation to post-mine land use, and how to balance this with innovative reuse of existing infrastructure,
- (g) the need to develop a robust independent regulatory framework to maintain and advance best practice in this area, and
- (h) any other related matter.

Resolved, on the motion of Mr Primrose: That the committee adopt the terms of reference.

5. Conduct of the inquiry into beneficial and productive post-mining land use

5.1 Inquiry reporting date

Resolved, on the motion of Mr Buttigieg: That the committee not adopt a reporting date at this stage.

5.2 Closing date for submissions

Resolved, on the motion of Ms Faehrmann: That the closing date for submissions be 25 June 2024.

5.3 Stakeholder list

Resolved, on the motion of Ms Hurst: That:

- the secretariat circulate to members the Chair's proposed list of stakeholders to be invited to make a submission
- members have two days from when the Chair's proposed list is circulated to make amendments or nominate additional stakeholders
- the committee agree to the stakeholder list by email, unless a meeting of the committee is required to resolve any disagreement.

5.4 Approach to submissions

Resolved, on the motion of Mr Buttigieg: That, to enable significant efficiencies for members and the secretariat while maintaining the integrity of how submissions are treated, in the event that 50 or more individual submissions are received, the committee may adopt the following approach to processing short submissions:

- All submissions from individuals 250 words or less in length will:
 - have an individual submission number, and be published with the author's name or as name suppressed, or kept confidential, according to the author's request
 - be reviewed by the secretariat for adverse mention and sensitive/identifying information, in accordance with practice
 - be channelled into one single document to be published on the inquiry website.
- All other submissions will be processed and published as normal.

5.5 Hearing dates and site visit

Resolved, on the motion of Ms Faehrmann: That the committee hold two or three hearings/site visits in August 2024, the dates of which are to be determined by the Chair after consultation with members regarding their availability. Further, that the location for the hearings and site visits be considered by the committee following the receipt of submissions.

6. Inquiry into the ability of local governments to fund infrastructure and services

The committee agreed to a revised hearing schedule for the inquiry's hearing on Friday 17 May 2024.

7. Adjournment

The committee adjourned at 3.18 pm until Friday 17 May 2024, 9.00 am, Jubilee Room, Parliament House (local governments public hearing).

Lauren Evans

Committee Clerk

Minutes no. 26

Monday 5 August 2024

Standing Committee on State Development

Macquarie Room, Parliament House, Sydney at 9.47 am

1. Members

Ms Suvaal, *Chair*

Ms Boyd (participating) (until 12.00 pm, and from 1.49 pm until 3.57 pm)

Mr Buttigieg (in-person until 12.19 pm and via videoconference from 1.49 pm)

Mr Fang (substituting for Mr Faraway for the duration of the inquiry into beneficial and post productive post-mining land use)

Mr Farlow (until 2.35 pm)

Ms Higginson (substituting for Ms Faehrmann for the duration of the inquiry into beneficial and productive post-mining land use) (from 9.59 am until 2.14 pm, and from 2.45 pm until 4.30 pm)

Mr Primrose (until 3.17 pm)

2. Apologies

Ms Hurst

3. Previous minutes

Resolved, on the motion of Mr Farlow: That draft minutes no. 15 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 24 May 2024 – Email from Stephanie Ralph, Cabinet Strategy Coordination, DPIE, to Chair requesting an extension for the NSW Government submission for the inquiry into post-mining land use
- 27 May 2024 – Email from Mitch Dudley, Transport NSW to the Chair confirming that Transport NSW will not be providing a submission to the inquiry into post-mining land use
- 30 May 2024 – Email from Jess Holgersson, Policy and Advocacy Advisor, Office of Cate Faehrmann MLC, advising that Ms Sue Higginson will substitute for Ms Faehrmann for the duration of the inquiry into beneficial and productive post-mining land use
- 31 May 2024 – Email from Riley Campbell, Policy Advisor and Parliament Liaison Officer of the Hon Courtney Houssos MLC to Chair requesting a submission extension for the inquiry into post-mining land use
- 11 June 2024 – Email from Angela Hudson, Director Policy and Reform Mining Exploration and Geoscience, Department of Regional NSW, confirming NSW Government submission extension for inquiry into post-mining land use
- 13 June 2024 – Email from Dan Coleman, Hunter Renewal Project Coordinator, to the secretariat requesting a submission extension
- 13 June 2024 – Email from Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW to Chair requesting a submission extension for the inquiry into post-mining land use
- 14 June 2024 – Email from Dr Sally Ann Walford, CSIRO to Chair providing document titled 'Enabling Mine Closure and Transitions: Opportunities for Australian Industry'

- 17 June 2024 – Email from Kevin Baker, Principal Corporate Affairs BHP to Chair requesting a submission extension for the inquiry into post-mining land use
- 18 June 2024 – Email from Amy De Lore, Lake Macquarie City to Chair requesting a submission extension for the inquiry into post-mining land use
- 21 June 2024 – Email from Nick McDermott, Yancoal Australia to Chair requesting a submission extension for the inquiry into post-mining land use
- 23 June 2024 – Email from Jillian D'Urso, CRC TiME to Chair requesting a submission extension for the inquiry into post-mining land use
- 24 June 2024 – Email from Andrew Abbey, NSW Mining to Chair requesting a submission extension for the inquiry into post-mining land use
- 25 June 2024 – Email from Alison Goodwin, Mining and Energy Union to Chair requesting a submission extension for the inquiry into post-mining land use
- 25 June 2024 – Email from Amy De Lore, Property Council of Australia to Chair requesting a submission extension for the inquiry into post-mining land use
- 18 July 2024 – Email from Abigail Boyd, advising that she will be a participating member for the duration of the inquiry into post-mining land use
- 29 July 2024 – Email from Anita Hugo, NSW Deputy Executive Director, Property Council of Australia declining the committee's invitation to appear at the hearing on 5 August 2024.

5. **Provision of documents to participating member**

Resolved, on the motion of Mr Farlow: That Ms Boyd, who has advised the committee that she intends to participate for the duration of the inquiry into the beneficial and productive post-mining land use, be provided with copies of all committee papers and that all costs associated with her participation in the inquiry be covered by the committee.

6. **Inquiry into beneficial and productive post-mining land use**

6.1 **Public/name suppressed submissions**

The committee noted the following submissions were published by the committee clerk under the authorisation of the resolution appointing the committee: submission nos: 1-8, 11-22, 25-38, 40-71.

6.2 **Confidential submissions**

Resolved, on the motion of Mr Primrose: That the committee keep submission nos. 9, 10, 23, 24, and 39 confidential, as per the request of the author, as it contains identifying and/or sensitive information.

6.3 **Regional hearings and site visits – 19 to 21 August 2024**

Committee discussed the regional hearings and site visits to the Hunter region between 19 and 21 August 2024, noting that the draft itinerary has been resolved via email, pending availability of Black Rock Motor Resort and Bloomfield Colliery.

6.4 **Election of Deputy Chair**

In the absence of the Deputy Chair, the Chair called for nominations for Deputy Chair for the duration of the inquiry, on an as needs basis.

Mr Farlow moved: That Mr Fang be elected Deputy Chair of the committee for the duration of the inquiry, on an as needs basis.

There being no further nominations, the Chair declared Mr Fang elected Deputy Chair, on an as needs basis, for the duration of the inquiry.

6.5 **Public hearing**

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witness was sworn and examined:

- Mr Jack Ayoub, NSW Branch Organiser, Australian Workers' Union

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr Martin Rush, Policy Director, Association of Mining and Energy Related Councils

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr Grahame Kelly, General Secretary, Mining and Energy Union

Ms Boyd left the meeting.

The evidence concluded and the witness withdrew.

Ms Boyd re-joined the meeting.

The following witnesses were sworn and examined:

- Ms Donna Ausling, Director, Planning & Sustainability, Narrabri Shire Council (via videoconference)
- Mr Gary Murphy, General Manager, Liverpool Plains Shire Council (via videoconference)
- Cr Doug Hawkins OAM, Mayor, Liverpool Plains Shire Council (via videoconference)

Ms Higginson left the meeting.

The evidence concluded and the witnesses withdrew.

Mr Farlow left the meeting.

Ms Higginson rejoined the meeting.

The following witnesses were sworn and examined:

- Ms Jacqueline Mills, Senior Climate and Energy Campaigner, Nature Conservation Council of NSW
- Mr Jaden Harris, Advocacy Manager, Nature Conservation Council of NSW

Mr Primrose left the meeting.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Ms Georgina Woods, Head of Research and Investigations, Lock the Gate Alliance (via videoconference)
- Mr Steve Phillips, Hunter Coordinator, Lock the Gate Alliance (via videoconference)

Ms Boyd left the meeting.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Dr Antonio Pantalone, Director, Advanced Simplicity
- Mr Garry Booth, Chairman, Wandarra

Ms Higginson left the meeting.

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 4.43 pm.

The public and the media withdrew.

7. Public hearing – 12 August 2024

Resolved on the motion of Mr Fang: That the following be invited to give evidence at the public hearing on 12 August 2024:

- Dr Corinne Unger
- Biortica Agimed & Green Farmers
- CSIRO

8. Adjournment

The committee adjourned at 4.48 pm until Monday 12 August 2024, Jubilee Room, Parliament House (post-mining land use inquiry public hearing).

Jessie Halligan
Committee Clerk

Minutes no. 27

Monday 12 August 2024

Standing Committee on State Development

Jubilee Room, Parliament House, Sydney at 8.31 am

1. Members

Ms Suvaal, *Chair*

Ms Boyd (participating) (from 8.32 am until 12.02 pm, and from 1.50 pm until 2.30 pm)

Mr Buttigieg (in-person until 12.15 pm, and via videoconference from 1.02 pm)

Mr Fang (via videoconference from 8.31 am, and in-person from 9.24 am)

Mr Farlow (from 8.45 am until 1.38 pm, from 1.59 pm until 2.15 pm)

Ms Higginson (until 1.38 pm, and from 3.05 pm)

2. Apologies

Ms Hurst

Mr Lawrence

Mr Primrose

3. Previous minutes

Resolved, on the motion of Mr Buttigieg: That draft minutes no. 26 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 2 July 2024 – Email from Jillian D'Urso, CRC TiME, detailing academic research resources in regards to post mining land uses
- 25 July 2024 – Email from Kerry Atkins, Association of Mining and Exploration Companies to the secretariat declining the committee's invitation to appear at the hearing on 12 August 2024
- 29 July 2024 – Email from Mr Ned Stephenson, Glencore, to secretariat declining the committee's invitation to appear at the hearing on 12 August 2024
- 31 July 2024 – Email from Mr Wayne Seabrook, Chairman, Malabar, to secretariat declining the committee's invitation to appear at the hearing on 12 August 2024
- 1 August 2024 – Email from Cooper Gannon, Opposition Whip's Advisor, advising that Hon Wes Fang MLC will substitute for the Hon Sam Faraway MLC for the duration of the post-mining land use inquiry
- 5 August 2024 – Email from Nicole Dukinfield, Team Leader Employment & Rural Industries, Wollondilly Shire Council, declining the invitation to appear at the hearing on 5 August 2024

- 7 August 2024 – Email from Sally Ann Walford, Partnership and Business CSIRO, declining invitation to attend hearing on 12 August 2024, and advising that CRC TiME is better placed to give evidence.

Resolved, on the motion of Mr Buttigieg: That the committee authorise the publication of CRC TiME academic research and resources focused on mine closures and post-mine transitions, provided by Jillian D'Urso on 2 July 2024.

5. Inquiry into beneficial and productive post-mining land use

5.1 Sub-committee for site visits – 19 and 20 August 2024

Resolved, on the motion of Mr Buttigieg: That the committee appoint:

- a sub-committee to undertake site visits in the Hunter Region on Monday 19 August and Tuesday 20 August 2024
- Mr Fang, Mr Farlow, Ms Higginson and Ms Suvaal as members of the sub-committee.
- Ms Suvaal to act as Chair of the sub-committee.

5.2 Public submissions

The committee noted the following submissions were published by the committee clerk under the authorisation of the resolution appointing the committee: submission nos: 72 and 73.

5.3 Public hearing

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witnesses were sworn and examined:

- Ms Georgina Beattie, Deputy Secretary, NSW Resources
- Mr Peter Day, Executive Director, NSW Resources Regulator
- Mr David Gainsford, Deputy Secretary, Development Assessment and Sustainability, NSW Department of Planning, Housing and Infrastructure
- Mr Tony Chappel, Chief Executive Officer, NSW Environment Protection Authority.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Stephen Galilee, Chief Executive Officer, NSW Minerals Council
- Ms Claire Doherty, Policy Director, NSW Minerals Council.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Ms Liz Watts, Vice-President, NSW Energy Coal, BHP
- Ms Amanda Walker, Manager, Corporate Affairs, NSW Energy Coal, BHP.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Nick McDermott, Policy Specialist, Yancoal
- Mr Michael Moore, Group Manager, Approvals, Yancoal.

Ms Boyd left the meeting.

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, (via videoconference).

The evidence concluded and the witness withdrew.

Mr Farlow and Ms Higginson left the meeting.

The following witnesses were sworn and examined:

- Mr Thomas Varga, Managing Director, Biortica (via videoconference)
- Mr Simon Tolhurst, Chairman, Biortica (via videoconference).

Mr Thomas Varga and Mr Simon Tolhurst tendered the following documents:

- Four photographs of existing Biortica sites: Bunyip in Victoria, Cannapacific in New South Wales, and Apollo Green in Canada.

Ms Boyd rejoined the meeting.

Mr Farlow rejoined the meeting.

The evidence concluded and the witnesses withdrew.

Mr Farlow left the meeting.

The following witnesses were sworn and examined:

- Mr Mark Swinnerton, Founder and Chief Executive Officer, Green Gravity
- Mrs Tania Jones, Sustainable Development Manager, Green Gravity.

Ms Boyd left the meeting.

The evidence concluded and the witnesses withdrew.

Ms Higginson rejoined the meeting.

The following witnesses were sworn and examined:

- Mr Craig Bagnall, Director, Environment and Regulatory, SEATA Group
- Mr Scott Fairbairn, Director, Energy and Communications, SEATA Group
- Mr Russ Martin, Chief Executive Officer, Global Product Stewardship Council
- Mr Anthony Reid, Member and Technical Advisor, Global Product Stewardship Council.

Mr Craig Bagnall tendered the following documents:

- Chart, SEATA – Diverting Biowastes & Problematic wastes from Landfill into Valuable Gas & Carbon Products
- NSW DPI, Biomass for Bioenergy Project documents.

Mr Russ Martin tendered the following document:

- Global Product Stewardship Council document titled 'Concepts for potential NSW regulatory reforms for improved circular economy and climate action in the land and primary industries sector using Biochar', dated August 2024.

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 4.12 pm.

The public and the media withdrew.

6. Tendered documents

Resolved on the motion of Mr Fang: That the committee accept and publish the following documents tendered during the public hearing:

- Four photographs of existing Biortica sites, Bunyip in Victoria, Cannapacific in New South Wales, and Apollo Green in Canada, tendered by Mr Thomas Varga and Mr Simon Tolhurst, Biortica
- Chart – Diverting Biowastes & Problematic wastes from Landfill into Valuable Gas & Carbon Products, tendered by Mr Craig Bagnall, SEATA Group
- Documents - NSW DPI, Biomass for Bioenergy Project, tendered by Mr Craig Bagnall, SEATA Group
- Document titled 'Concepts for potential NSW regulatory reforms for improved circular economy and climate action in the land and primary industries sector using Biochar', dated August 2024, tendered by Mr Russ Martin, Global Product Stewardship Council.

7. Adjournment

The committee adjourned at 4.14 pm until Monday 19 August 2024, Parliament House (post-mining land use inquiry site visit).

Jessie Halligan
Committee Clerk

Minutes no. 28

Monday 19 August 2024

Standing Committee on State Development

Guardhouse, Macquarie Street, Parliament House, Sydney at 9.00 am

1. Members

Ms Suvaal, *Chair* (from 11.00 am)

Mr Farlow (from 11.00 am)

Ms Higginson

2. Apologies

Ms Boyd (participating)

Mr Buttigieg

Mr Fang

Ms Hurst

Mr Lawrence

Mr Primrose

3. Inquiry into beneficial and productive post-mining land use**3.1 Site visit – BlackRock Motor Resort, Wakefield**

The committee attended BlackRock Motor Resort, Wakefield and was met by:

- Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort
- Mr Richard Gillis, Co-founder, BlackRock Motor Resort
- Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council
- Mr David Antcliff, Director Development, Planning and Regulation, Lake Macquarie City Council

Mr Palmer and Ms Cameron gave a presentation on the BlackRock Motor Resort.

The committee conducted a tour of inspection of the BlackRock Motor Resort site accompanied by Mr Tony Palmer.

3.2 Confidential site visit A

The committee attended site visit A.

4. Adjournment

The committee adjourned at 3.40 pm until Tuesday 20 August 2024, Idemitsu former Muswellbrook Coal Mine, Muswellbrook (post-mining land use inquiry site visit and regional hearing).

Jessie Halligan
Committee Clerk

Minutes no. 29

Tuesday 20 August 2024

Standing Committee on State Development

Idemitsu former Muswellbrook Coal Mine, Muswellbrook NSW at 8.30 am

1. Members

Ms Suvaal, *Chair*

Mr Fang, *Deputy Chair*

Mr Donnelly (substituting for Mr Lawrence via videoconference from 12.30 pm)

Ms Higginson

2. Apologies

Ms Boyd (participating)

Mr Farlow

Ms Hurst

Mr Primrose

3. Correspondence

Committee noted the following items of correspondence:

Received:

- 7 August 2024 – Email from Josh Black, Office of the Hon Stephen Lawrence MLC advising that Mr Greg Donnelly MLC will substitute for Mr Lawrence on 20 August 2024 and Mr Anthony D'Adam MLC will substitute on 21 August 2024.

4. Inquiry into beneficial and productive post-mining land use

4.1 Site visit - Idemitsu former Muswellbrook Coal Mine

The committee attended the Idemitsu former Muswellbrook Coal Mine where they were met by Mr Ray Balks, Managing Stakeholder Relations.

Also in attendance were:

- Mr Brett O'Kane, Head of Muswellbrook Site
- Mr Rod Gallagher, Production Manager
- Mr Serge Radojevic, Head of Renewables

Mr Balks and other staff gave a presentation on the former Muswellbrook Coal Mine.

The committee conducted a tour of inspection of the site, including current mine rehabilitation work, and the pumped hydro and solar project sites, accompanied by:

- Mr Ray Balks
- Mr Brett O'Kane
- Mr Rod Gallagher
- Mr Serge Radojevic

4.2 Public hearing

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witnesses were sworn and examined:

- Cr Steven Reynolds, Mayor, Muswellbrook Shire Council
- Mr Derek Finnigan, General Manager, Muswellbrook Shire Council
- Ms Shaelee Welchman, Director Community & Economy, Muswellbrook Shire Council
- Ms Sharon Pope, Director Environment & Planning, Muswellbrook Shire Council.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mrs Melinda Curtis, Executive Manager, Singleton Council
- Mrs Mary-Anne Crawford, Manager Development and Environment Services, Singleton Council.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Ms Beverley Smiles, Secretary, Wollar Progress Association
- Dr Julia Imrie, Individual (via videoconference)
- Mr Colin Imrie, Individual (via videoconference).

Ms Higginson declared that she had previously represented Ms Smiles in legal proceedings.

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Mr Christian William Lauritzen, General Manager Resource Development, MACH Energy Australia.

The evidence concluded and the witness withdrew.

The public hearing concluded at 3.30 pm.

The public and the media withdrew.

4.3 *In-camera* hearing

Resolved, on the motion of Mr Fang: That a support person be permitted to attend the *in-camera* hearing with Witness A and Witness B.

Resolved, on the motion of Mr Fang: That the committee proceed to take evidence *in-camera*.

The committee proceeded to take *in-camera* evidence.

Persons present other than the committee:

- Ms Talina Drabsch, Ms Jessie Halligan, Ms Mervé Sarikaya and Ms Faith Aghahowa (secretariat)
- Mr Simon Lovell and Mr Leo-pol Letronnier (AV)
- Amy Park and Yajun Ma (Hansard).

The following witnesses were sworn and examined:

- Witness A
- Witness B.

The evidence concluded and the witnesses withdrew.

The *in-camera* hearing concluded at 4.50 pm.

5. Adjournment

The committee adjourned at 4.50 pm until Wednesday 21 August 2024, Lake Macquarie City Council Chambers, Lake Macquarie (post-mining land use inquiry regional hearing).

Jessie Halligan
Committee Clerk

Minutes no. 30

Wednesday 21 August 2024

Standing Committee on State Development

Lake Macquarie City Council Chambers, Lake Macquarie at 8.52 am

1. Members

Ms Suvaal, *Chair*

Mr Farlow, *Acting Deputy Chair* (via teleconference until 8.55 am, and in-person from 9.05 am)

Ms Boyd (participating) (via videoconference until 3.10 pm)

Mr D'Adam (substituting for Mr Lawrence) (via videoconference)

Mr Donnelly (substituting for Mr Buttigieg) (via videoconference from 9.41 am until 10.30 am)

Ms Higginson

2. Apologies

Mr Fang

Ms Hurst

Mr Primrose

3. Draft minutes

Resolved, on the motion of Mr Farlow: That draft minutes nos. 27 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 9 August 2024 – Email from Craig Bagnall, SEATA Group, to the secretariat providing documents including Australian Biochar Industry 2030 Roadmap, SA Parliament Inquiry into Biochar 2023, submission by WSAA to CEMAG entitled 'Help us Help You', and SEATA submission to the commonwealth Transport and Infrastructure Net Zero Consultation Roadmap
- 13 August 2024 – Email from Ray Balks, Idemitsu Australia, to the secretariat declining invitation to appear at the hearing on Tuesday 20 August 2024.

Sent:

- 14 August 2024 – Email from Chair to Hon Greg Piper MP advising that the committee will be visiting Lake Macquarie
- 14 August 2024 – Email from Chair to Mr Clayton Barr MP advising that the committee will be visiting Cessnock
- 14 August 2024 – Email from Chair to Mr Dave Layzell MP advising that the committee will be visiting Upper Hunter
- 14 August 2024 – Email from Chair to Hon Jenny Aitchison MP advising that the committee will be visiting Maitland.

5. Inquiry into beneficial and productive post-mining land use

5.1 Public submissions

The committee noted the following submission was published by the committee clerk under the authorisation of the resolution appointing the committee: submission no: 70a.

5.2 Election of Deputy Chair

In the absence of the Deputy Chair, the Chair called for nominations for Deputy Chair for the purpose of the hearing.

Ms Higginson moved: That Mr Farlow be elected Deputy Chair of the committee for the purpose of the hearing.

There being no further nominations, the Chair declared Mr Farlow elected Deputy Chair for the purpose of the hearing.

5.3 Declaration of interest

Ms Suvaal declared that her husband is the Mayor of Cessnock City Council and that she would recuse herself from the hearing while representatives from Cessnock City Council appeared.

5.4 Public hearing

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witness was sworn and examined:

- Ms Morven Cameron, Chief Executive Officer, Lake Macquarie City Council

The evidence concluded and the witness withdrew.

Mr Donnelly joined the hearing.

The Chair recused herself from the hearing.

In the absence of the Chair, the Deputy Chair took the Chair for the purpose of the meeting.

The following witnesses were sworn and examined:

- Mr Martin Johnson, Manager, Strategic Planning, Cessnock City Council
- Ms Jenny Mewing, Senior Strategic Planner, Cessnock City Council.

The evidence concluded and the witnesses withdrew.

The Chair rejoined the hearing.

Mr Donnelly left the hearing.

The following witnesses were sworn and examined:

- Cr Sue Moore, Mayor Singleton Council and Chair, Hunter Joint Organisation
- Mr Steve Wilson, Director, Hunter Joint Organisation
- Ms Kim Carland, Advocacy and Government Relations Lead, Hunter Joint Organisation
- Ms Sharon Pope, Director, Environment & Planning, Muswellbrook Shire Council.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Ms Sophie Nichols, Engagement Coordinator, Outreach Officer, Hunter Renewal
- Ms Kimberley Crofts, Individual (via videoconference).

Ms Sophie Nichols tendered the following documents:

- Report, 'After the coal rush, the clean up: A community blueprint to restore the Hunter. A Report from Hunter Renewal' dated February 2023.

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Ms Amanda Wetzel, Individual

Ms Amanda Wetzel tendered the following documents:

- 4 Figures compiled by Ms Wetzel – Figure 1: Conceptual overview of time horizons in the mining life cycle, Figure 2: Regional Landscape integration envisaged at 2020 by the 1999 Synoptic Plan, Figure 3: Regional Landscape integration envisaged at 2020 by the 1999 Synoptic Plan, and Figure 4: Overlapping Regionally Significant Growth Areas nominated in the Hunter Regional Plan 2041.

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr Tony Palmer, Chief Executive Officer, BlackRock Motor Resort

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr Tim Browne, Chief Executive Officer, Dantia (Lake Macquarie Economic Development Company)

The evidence concluded and the witness withdrew.

Ms Boyd left the hearing.

The following witnesses were sworn and examined:

- Professor Tim Roberts, President, Hunter Innovation and Science Hub
- Mr Alec Roberts, Vice-President, Hunter Innovation and Science Hub.

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 4.19 pm.

The public and the media withdrew.

6. **Tendered documents**

Resolved, on the motion of Mr Farlow: That the committee accept and publish the following document tendered during the public hearing:

- Report, 'After the coal rush, the clean up: A community blueprint to restore the Hunter. A Report from Hunter Renewal', dated February 2023, tendered by Ms Sophie Nichols, Hunter Renewal
- 4 Figures compiled by Ms Wetzel – Figure 1: Conceptual overview of time horizons in the mining life cycle, Figure 2: Regional Landscape integration envisaged at 2020 by the 1999 Synoptic Plan, Figure 3: Regional Landscape integration envisaged at 2020 by the 1999 Synoptic Plan, and Figure 4: Overlapping Regionally Significant Growth Areas nominated in the Hunter Regional Plan 2041, tendered by Ms Amanda Wetzel.

7. **Adjournment**

The committee adjourned at 4.23 pm until Monday 21 October 2024, Preston Stanley Room, Parliament House (post-mining land use inquiry hearing).

Jessie Halligan
Committee Clerk

Minutes no. 31

Monday 21 October 2024

Standing Committee on State Development
Jubilee Room, Parliament House, Sydney at 10.19 am

1. Members

Ms Suvaal, *Chair*

Mr Fang, *Deputy Chair* (from 12.18 pm until 4.18 pm)

Mr Buttigieg (via videoconference) (from 2.03 pm)

Ms Higginson

Mr Lawrence (via videoconference) (until 1.00 pm, and from 3.00 pm until 4.17 pm)

Mr Murphy (substituting for Mr Buttigieg) (from 10.19 am until 10.27 am)

2. Apologies

Ms Boyd (participating)

Mr Farlow

3. Draft minutes

Resolved, on the motion of Mr Murphy: That draft minutes nos. 28, 29, and 30 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 13 August 2024 – Email from Hon Wes Fang MLC to the secretariat to advise that he will be an apology for the site visits and hearings on 19 August and 21 August 2024
- 14 August 2024 – Email from Mr Gary Murphy, General Manager, Liverpool Plains Shire Council, providing clarification for 5 August transcript
- 15 August 2024 – Email from Tess Vickery, Office of Hon Emma Hurst MLC to the secretariat to advise that Ms Hurst will be an apology for the site visits and regional hearings on 19 to 21 August 2024
- 15 August 2024 – Email from William Olive, Office of the Hon Scott Farlow MLC to the secretariat to advise that Mr Farlow will be an apology for the site visit and hearing on 20 August 2024
- 16 August 2024 – Email from Belinda Pevy JP on behalf of Gregory Piper MP, declining to attend 21 August 2024 offsite hearing due to prior engagements
- 19 August 2024 – Email from Dr Corinne Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, providing supplementary journal articles
- 20 August 2024 – Email from Mr Steve Wilson, Director, Hunter Joint Organisation advising that Cr Kay Fraser would no longer be appearing at the hearing on 21 August 2024
- 21 August 2024 – Email from Ms Sheena Martin, Policy and Public Affairs Manager, Business Hunter declining to attend the hearing on 21 August 2024 due to illness
- 21 August 2024 – Email from Max Kennedy, government Whip adviser, advising that Mr Donnelly MLC would be substituting for Mr Buttigieg MLC at the hearing on 21 August 2024
- 2 September 2024 – Email from Ms Kimberley Crofts providing transcript corrections and supplementary documents for public hearing on 21 August 2024
- 2 September 2024 – Email from Dr Antonio Pantalone, Director, Advance Simplicity, on behalf of Mr Garry Booth providing answers to questions on notice and clarification for 5 August transcript
- 2 September 2024 – Email from Ms Alison Goodwin, on behalf of Mr Grahame Kelly, General Secretary, Mining and Energy Union, providing answers to questions on notice and clarification for 5 August transcript
- 17 September 2024 – Email from Mr Jack Ayoub, NSW Branch Organiser, Australian Workers' Union, advising that they do not keep relevant data to answers to question taken on notice at 5 August 2024 hearing

- 18 September 2024 – Three emails from Mr Craig Bagnall, Director, Environment and Regulatory, SEATA Group, providing answers to question on notice, transcript corrections and additional information from hearing on 12 August 2024
- 26 September 2024 – Email from Ms Amanda Wetzel providing contact details to arrange a meeting between the committee and the PMLU Project team for the Hunter (CSIRO, University of Queensland's Sustainable Minerals Institute and the University of Newcastle's Institute for Regional Futures)
- 6 October 2024 – Email from Dr Pete Whitbread-Abrutat, Author and Founder of Future Terrains, advising that he is unable to attend the hearing on 21 October due to travel commitments
- 9 October 2024 – Email from Ms Sheena Martin, Policy and Public Affairs Manager, Business Hunter, advising that Business Hunter are unable to attend the hearing on 21 October due to travel commitments
- 14 October 2024 – Email from Ms Megan Hills, ServeGate, advising that she is no longer able to attend the hearing on Monday 21 October 2024
- 14 October 2024 – Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, providing an update on their ongoing research into post-mining land use opportunities and challenges in the Hunter region and expressing an interest to give evidence at a public hearing
- 14 October 2024 – Email from Ms Vanessa Gill, Executive Officer – Corporate, Experience and Strategy, Audit Office, advising that the Auditor-General is unavailable for the hearing on Monday 21 October, and the D/Auditor General is attending a conference. Ms Gill asks if the committee would consider the Audit Office representatives attending a later hearing date
- 15 October 2024 – Email from Mr Dennis Bluth, Director, Hunter Lakes Corporation, providing a summary of lessons learned from Lusatia Germany by LEAG titled 'From Europe's largest opencast mining region to the Lusatia lakes land'
- 16 October 2024 – Email from Dr Sally Ann Walford, NSW Engagement Lead, Partnerships & Business Development, Strategy and Engagement, CSIRO, providing the Hunter PMLU Reports:
 - Final Report titled 'The feasibility of developing regionally integrated transitions beyond mining in the Hunter Region', by Bolz, Egan, Eckert, Littleboy, Mackenzie, Ryan, Samper, Wetzel, and Worden, dated 27 September 2024
 - Summary Report titled 'Post mining land use in the Hunter: A scoping study of challenges and opportunities for governments, industries and communities' by Bolz, Egan, Eckert, Littleboy, Mackenzie, Ryan, Samper, Wetzel, and Worden, dated April 2024.

Resolved, on the motion of Mr Murphy: That the committee authorise the publication of the:

- email from Dr Corrine Unger, Convenor and Project Lead, Managing Mining Legacies Working Group, International Organisation for Standardisation, received on 19 August 2024, providing additional supplementary journal articles from the public hearing on 12 August 2024
- email from Ms Kimberley Crofts, received on 2 September 2024, providing additional supplementary journal articles from the public hearing on 12 August 2024
- document provided by Mr Dennis Bluth, Director, Hunter Lakes Corporation titled 'From Europe's largest opencast mining region to the Lusatia lakes land', received on 15 October 2024

5. Inquiry into beneficial and productive post-mining land use

5.1 Public submissions

The committee noted that the following submissions were published by the committee clerk under the authorisation of the resolution appointing the committee: submission nos. 74, 75, and 76.

5.2 Answers to questions on notice

The committee noted that the following answers to questions on notice and additional information were published by the committee clerk under the authorisation of the resolutions appointing the committee:

- Answers to questions on notice, Dr Antonio Pantalone, Advanced Simplicity, and Mr Garry Booth, Wandarra, received 2 September 2024

- Answers to questions on notice, Mr Grahame Kelly, Mining and Energy Union, received 2 September 2024.
- Answers to questions on notice, Ms Georgina Woods and Mr Steve Phillips, Lock the Gate Alliance, received 4 September 2024
- Answers to questions on notice, Mr David Gainsford, NSW Department of Planning Housing and Infrastructure, received 4 September 2024.
- Answers to questions on notice, Mr Stephen Galilee, NSW Minerals Council, received 12 September 2024.
- Answers to questions on notice, Mr Chris Lauritzen, MACH Energy, received 11 September 2024.
- Answers to questions on notice, Mr Tony Chappel, NSW Environment Protection Authority, received 16 September 2024.
- Answers to questions on notice, Ms Liz Watts and Ms Amanda Walker, BHP, received 16 September 2024.
- Answers to questions on notice and additional information, Mr Craig Bagnall, SEATA Group, received 18 September 2024
- Answers to questions on notice, Mr Nick McDermott and Mr Michael Moore, Yancoal, received 19 September 2024
- Answers to questions on notice, Professor Tim Roberts and Mr Alec Roberts, Hunter Innovation and Science Hub, received 19 September 2024
- Answers to questions on notice and attachments, Ms Kimberley Crofts, received 2 September 2024:
 - Future-proofing the Hunter. Voices from our community report
 - After the coal rush, the clean up. A community blueprint to restore the Hunter report
 - Diversification and growth, Transforming mining land in the Hunter.
- Answers to questions on notice and attachments, Ms Amanda Wetzel, received 17 September 2024:
 - IGF 'Current Status of mine closure readiness: Are governments prepared?' dated August 2021
 - ICMM's Integrated Mine Closure: Good Practice Guide – then and now, dated April 2020
 - Land Use Policy 'Multiple and sequential land use: A national policy for Australia?' by James J Walcott, dated 2019
 - SCER 'Multiple Land Use Framework'
 - Queensland Government 'Maximising post-mining land use: Queensland Government reforms', by S Cooper, dated 2019
 - NSW Department of Mineral Resources, 'Synoptic Plan Integrated Landscapes for Coal Mine Rehabilitation in the Hunter Valley of NSW', dated 1999.

Resolved, on the motion of Mr Murphy: That the committee keep the following information confidential, as per the request of the author:

- attachment to answers to question on notice, Ms Amanda Wetzel, received 17 September 2024: Institute for Regional Futures: 'Regional Economic Transitions in New South Wales' Model Options, dated July 2023

5.3 Transcript clarifications – 5 August 2024

Resolved, on the motion of Mr Murphy: That the committee authorise:

- the publication of the email from Mr Gary Murphy, General Manager, Liverpool Plains Shire Council, received on 14 August 2024, providing clarification to evidence given at the public hearing on 5 August 2024
- the publication of email from Dr Antonio Pantalone, Director, Advanced Simplicity, on behalf of Mr Garry Booth, received on 2 September 2024, providing clarification to evidence given at the public hearing on 5 August 2024
- the publication of email from Ms Alison Goodwin, on behalf of Mr Grahame Kelly, General Secretary, Mining and Energy Union, received 2 September 2024, providing clarification to evidence given at the public hearing on 5 August 2024

- the insertion of footnotes at the relevant points in the transcript of 5 August 2024, noting that correspondence clarifying the evidence had been received and providing hyperlinks to the published correspondence.

5.4 Public hearing

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witnesses were sworn and examined:

- Ms Amanda Wetzel, Director, Research Programs, Institute for Regional Futures, University of Newcastle (via videoconference)
- Mr Myles Egan, Research Analyst, Institute for Regional Futures, University of Newcastle (via videoconference)
- Dr Agnes Samper, Senior Research Fellow, Sustainable Minerals Institute, University of Queensland (via videoconference).

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Dylan Dyer, Indigenous Initiatives Manager, ServeGate
- Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Fin Adamson, Development Manager, ZEN Energy
- Mr Tony McFadden, Chief Executive Officer, SADA Dunbier Group

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, University of Newcastle

Professor Roberta Ryan tendered the following documents:

- Report, Institute for Regional Futures 'Responding to Structural Change in Lake Macquarie', Briefing Paper for Policy Makers, dated October 2023
- Report, Institute for Regional Futures 'Delivering the new economy: A local government response to structural change'.

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Professor Ravi Naidu, Global Innovation Chair and Director, Global Centre for Environmental Remediation, University of Newcastle (via videoconference)

The evidence concluded and the witness withdrew.

The following witnesses were sworn and examined:

- Dr Guy Boggs, Chief Executive Officer, CRC TiME (via videoconference)
- Professor Tom Measham, Research Director, CRC TiME in Mining Economies (via videoconference)
- Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME (via videoconference)

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Dennis Bluth, Director, Hunter Lakes Corporation
- Mr John Colvin, Consultant, Hunter Lakes Corporation
- Mr Peter Laux, Mining Technology, LEAG (via videoconference)

Mr Bluth tendered the following documents:

- Compiled documents, 'The Hunter Water Bank', by Hunter Lakes Corporation, including copy of 'Lessons learnt in 35 years on the way from Europe's largest opencast coal region to the Lusatia lakes land', and 9 photographs
- Email, from Mr Dennis Bluth, Director, Hunter Lakes Corporation to NSW Department of Planning and Environment, Subject: 'FW: AW: Parliament Committee', dated 17 October 2024.

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 5.21 pm.

The public and the media withdrew.

6. **Tendered documents**

Resolved, on the motion of Ms Higginson: That the committee accept and publish the following document tendered during the public hearing:

- Report, Institute for Regional Futures 'Responding to Structural Change in Lake Macquarie', Briefing Paper for Policy Makers, dated October 2023, tendered by Professor Roberta Ryan, Institute for Regional Futures
- Report, Institute for Regional Futures 'Delivering the new economy: A local government response to structural change', tendered by Professor Roberta Ryan, Institute for Regional Futures
- Compiled documents, 'The Hunter Water Bank', by Hunter Lakes Corporation, including copy of 'Lessons learnt in 35 years on the way from Europe's largest opencast coal region to the Lusatia lakes land', and 9 photographs, tendered by Mr Dennis Bluth, Hunter Lakes Corporation.

Resolved, on the motion of Ms Higginson: That the committee accept and publish the following document tendered during the public hearing with the name of public servant redacted:

- Email, from Mr Dennis Bluth, Director, Hunter Lakes Corporation to NSW Department of Planning and Environment, Subject: 'FW: AW: Parliament Committee', dated 17 October 2024, tendered by Mr Dennis Bluth, Hunter Lakes Corporation.

7. **Adjournment**

The committee adjourned at 5.23 pm, *Sine die*.

Jessie Halligan
Committee Clerk

Minutes no. 33

Tuesday 17 December 2024

Standing Committee on State Development

Macquarie Room, Parliament House, Sydney at 8.47 am

1. **Members**

Ms Suvaal, *Chair*

Mr Fang, *Deputy Chair* (via videoconference from 8.48 am)
 Mr Buttigieg (via videoconference from 8.47 am, in-person from 9.00 am until 10.30 am)
 Mr Farlow
 Ms Higginson
 Mr Lawrence (via videoconference until 9.00 am, and from 10.40 am)
 Mr Primrose (via videoconference until 9.00 am, and from 1.00 pm until 1.52 pm)

2. Apologies

Ms Hurst

3. Draft minutes

Resolved, on the motion of Ms Higginson: That draft minutes no. 31 be confirmed.

Resolved, on the motion of Mr Farlow: That draft minutes no. 32 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 28 October 2024 – Email from Emeritus Professor Will Rifkin, University of Newcastle, forwarding on details of 'Global Coal Transitions Workshop' to be held in Brisbane 13-14 May 2025 regarding closure of coal mines and power stations
- 29 October 2024 – Email from Mr Dennis Bluth, Director, Hunter Lakes Corporation, attaching a letter from Dan Repacholi MP Federal Member for the Hunter providing support for the Hunter Lakes Scheme to repurpose coal mine voids for water storage, renewable energy and economic development
- 31 October 2024 – Email from Dr Sally Ann Walford, NSW Engagement Lead, CSIRO providing a link to Hunter PMLU Final Report and Summary Report
- 21 November 2024 – Email from Ms Tara Dever, Chief Executive Officer, Mindaribba Local Aboriginal Land Council, requesting an extension for her post hearing responses from 21 October 2024 hearing
- 4 December 2024 – Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, providing four policy papers
- 10 December 2024 – Email from Ms Sheena Martin, Policy and Public Affairs Manager, Business Hunter, sending her apologies for the upcoming hearing on 17 December 2024
- 11 December 2024 – Email from Dr Pete Whitbread-Abrutat, co-author of '102 Things to Do with a Hole in the Ground' providing a paper presented at the ACG International Mine Closure Conference titled 'A Mine Ends. Then What?' along with a stories and case studies from his book
- 11 December 2024 – Email from Dr Pete Whitbread-Abrutat, co-author of '102 Things to do with a Hole in the Ground' providing a link to Australian Centre for Geomechanics Mine Closure 2024 Conference on Mine Closure paper titled '*A Mine Ends. Then What?*'

Resolved, on the motion of Mr Farlow: That the committee authorise the publication of the:

- Email from Dr Sally Ann Walford, NSW Engagement Lead, CSIRO providing a link to Hunter PMLU Final Report and Summary Report, received 31 October 2024
- Email from Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, providing four policy papers, received 4 December 2024
- Email from Dr Pete Whitbread-Abrutat, co-author of '102 Things to do with a Hole in the Ground' providing a link to Australian Centre for Geomechanics Mine Closure 2024 Conference on Mine Closure paper titled '*A Mine Ends. Then What?*', received 11 December 2024.

5. Inquiry into beneficial and productive post-mining land use

5.1 Public submissions

Resolved, on the motion of Ms Higginson: That the committee authorise the publication of submission nos. 77 and 78.

5.2 Answers to questions on notice

The committee noted that the following answers to questions on notice and additional information were published by the committee clerk under the authorisation of the resolutions appointing the committee:

- answers to questions on notice and additional information, Ms Jillian D'Urso, External Relations and Impact Director, CRC TiME, received 28 October 2024
 - Business Case, Gap Analysis and Roadmap for implementation, CRC TiME, 2024
 - Natural Capital and the Resources Sector, CRC TiME, 2024
 - Natural Capital Accounting in the Australian Mining Sector, Case Study, CRC TiME, 2024
 - Use of Natural Capital Accounting as a Forecasting & Planning Tool, CRC TiME, 2024
 - Final Report Project 1.9 Mine closure guidance: Review and comparative analysis, CRC TiME, 2024
 - Project 1.7 face sheet: Collaborative planning for people navigating mine land transition: progress in Australia's Latrobe Valley, CRC TiME.
- answers to questions on notice, transcript corrections and additional information, Mr Peter Laux, Mining Technology, LEAG, received 12 November 2024
- answers to questions on notice, transcript corrections and additional information, Mr Myles Egan, Research Analyst, Institute for Regional Futures, received 21 November 2024
- answers to questions on notice and additional information, Professor Roberta Ryan, Founding Executive Director, Institute for Regional Futures, received 22 November 2024.

5.3 Public hearing

Witnesses, the public and the media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witness was sworn and examined:

- Dr Pete Whitbread-Abrutat, Co-Author, '102 Things to Do with a Hole in the Ground', Founder and Director of Future Terrains (via videoconference)

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Dr Simon Wright, Senior Research Fellow, Energy and Circularity, Gulbali Institute, Charles Sturt University

The evidence concluded and the witness withdrew.

Mr Buttigieg left the meeting.

Mr Lawrence joined the meeting.

The following witness was sworn and examined:

- Mr Bob Hawes, Chief Executive Officer, Business Hunter

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr James Purtill, Queensland Mine Rehabilitation Commissioner

The evidence concluded and the witness withdrew.

Mr Primrose joined the meeting.

The following witnesses were sworn and examined:

- Mr Bola Oyetunji, Auditor-General, Audit Office of New South Wales
- Mr Aaron Green, Acting Deputy Auditor-General, Financial Audit, Audit Office of New South Wales

- Mr Andrew Anderson, Acting Assistant Auditor-General, Performance Audit, Audit Office of New South Wales

The evidence concluded and the witnesses withdrew.

The following witnesses were examined on their former oath:

- Mr Tony Chappel, Chief Executive Officer, NSW Environment Protection Authority
- Ms Georgina Beattie, Deputy Secretary, NSW Resources
- Mr Peter Day, Executive Director, NSW Resources Regulator

The following witnesses were sworn and examined:

- Mr Tom Loomes, Executive Director, Strategic Planning and Policy, Department of Planning, Housing and Infrastructure
- Mr Chris Ritchie, Acting Executive Director - Energy, Resources and Industry, Department of Planning, Housing and Infrastructure

Mr Primrose left the meeting.

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 2.45 pm.

The public and the media withdrew.

6. **Adjournment**

The committee adjourned at 2.45 pm, until Thursday 10 April 2025, Room 1043, Parliament House (post-mining land use report deliberative).

Jessie Halligan
Committee Clerk

Draft minutes no.34

Thursday 10 April 2025

Standing Committee on State Development

Room 1043, Parliament House, Sydney at 12.03 pm

1. **Members**

Ms Suvaal, *Chair*
Mr Buttigieg (via videoconference)
Mr Farlow (via videoconference)
Ms Higginson (via videoconference)
Ms Hurst
Mr Lawrence (via videoconference)
Mr Primrose

2. **Apologies**

Mr Barrett
Ms Boyd (participating)

3. **Draft minutes**

Resolved, on the motion of Mr Farlow: That draft minutes no. 33 be confirmed.

4. Correspondence

Committee noted the following items of correspondence:

Received:

- 16 December 2024 – Email from Stephanie Ralph, Cabinet Strategy & Coordination, Department of Planning, Housing and Infrastructure to the secretariat, requesting an additional witness, Mr Chris Ritchie, Acting Executive Director - Energy Resources and Industry, attend the hearing on 17 December 2024 for the inquiry into post-mining land use
- 17 December 2024 – Email from Emeritus Professor Will Rifkin, University of Newcastle, to the Chair providing 'ACG Mine Closure 2024 Post Mine Land Use insights – Detailed Summary of Survey Results'
- 13 January 2025 – Email from Faseeha Hashmi, Advisor, Policy Development and Evaluation, Policy Coordination, Net Zero Economy Authority, to the secretariat requesting a submission extension request
- 14 January 2025 – Email from Faseeha Hashmi, Advisor, Policy Development and Evaluation, Policy Coordination, Net Zero Economy Authority, to the secretariat confirming Net Zero Economy Authority would no longer be making a submission.

Sent:

- 14 January 2025 – Correspondence from the secretariat to Faseeha Hashmi, Advisor, Policy Development and Evaluation, Policy Coordination, Net Zero Economy Authority advising of an extension until 31 January 2025 to provide a submission.

5. Inquiry into beneficial and productive post-mining land use

5.1 Answers to questions on notice

The committee noted that the following answers to questions on notice and additional information were published by the committee clerk under the authorisation of the resolutions appointing the committee:

- additional information, Dr Simon Wright, Senior Research Fellow, Energy & Circularity, Gulbali Institute, Charles Sturt University, received 8 January 2025
- answers to questions on notice, Auditor-General NSW, received 24 January 2025
- answers to questions on notice, Mr Tom Loomes and Mr Chris Ritchie, Department of Planning, Housing and Infrastructure, received 24 January 2025
- answers to questions on notice, Mr Tony Chappel, Chief Executive Officer, NSW Environment Protection Authority, received 24 January 2025
- answers to questions on notice, Department of Primary Industries and Regional Development,, NSW Resources and Department of Planning, Housing and Infrastructure, received 28 January 2025.

5.2 Consideration of the Chair's draft report

The Chair submitted her draft report entitled '*Beneficial and productive post-mining land use*', which, having been previously circulated, was taken as being read.

Chapter 1

Resolved, on the motion of Ms Higginson: That paragraph 1.49 be amended by omitting 'suggesting up to a 40 or 45 per cent decrease' and inserting instead 'suggesting a 40 per cent decrease under existing climate policies, and up to a 90 per cent decrease with intensifying efforts to achieve net zero emissions as pledged in the Paris Agreement'

Ms Higginson moved: That Finding 2 be amended by omitting: 'and as the need to develop new resources critical to the energy transition gathers pace.'

Question put.

The committee divided.

Ayes: Ms Higginson, Ms Hurst.

Noes: Mr Buttigieg, Mr Farlow, Mr Lawrence, Mr Primrose, Ms Suvaal.

Question resolved in the negative.

Chapter 2

Ms Higginson moved: That Recommendation 1 be amended by omitting: 'aligning biodiversity and conservation requirements with future beneficial use and for opportunities to create nature positive outcomes.'

Question put.

The committee divided.

Ayes: Ms Higginson, Ms Hurst.

Noes: Mr Buttigieg, Mr Farlow, Mr Lawrence, Mr Primrose, Ms Suvaal.

Question resolved in the negative.

Resolved, on the motion of Ms Higginson: That Recommendation 1 be amended by inserting a dot point at the end:

- 'ensuring biodiversity outcomes and mine rehabilitation standards are maintained or improved by the above-listed reforms.'

Resolved, on the motion of Ms Higginson: That Recommendation 2 be amended by inserting the following dot points at the end:

- 'facilitate community engagement in identifying priority land uses and local aspirations
- identify priority regions and communities in need of economic diversification.'

Resolved, on the motion of Ms Higginson: That Recommendation 3 be amended by omitting 'such as the Upper Hunter Regional Dialogue and.'

Ms Higginson moved: That Recommendation 4 be omitted: 'That the Government continue to evaluate if current security deposits are sufficient for meeting rehabilitation requirements', and the following new recommendation be inserted instead:

'That the Government implement a financial assurance mechanism to place the risk of long-term environmental degradation on mining companies.'

Question put.

The committee divided.

Ayes: Ms Higginson, Ms Hurst.

Noes: Mr Buttigieg, Mr Farlow, Mr Lawrence, Mr Primrose, Ms Suvaal.

Question resolved in the negative.

Resolved, on the motion of Ms Higginson: That Recommendation 5 be amended by inserting a dot point at the end:

- 'work with the Resources Regulator to improve standards of mine rehabilitation, and timeliness of rehabilitation outcomes.'

Chapter 4

Resolved, on the motion of Ms Higginson: That Recommendation 9 be amended by inserting 'and make this information publicly available' after: 'map legacy sites in New South Wales'.

Resolved, on the motion of Ms Higginson: That Recommendation 11 be amended by inserting a dot point at the end:

- 'improvements in best practice land rehabilitation.'

Chapter 5

Ms Higginson moved: That Recommendation 13 be amended by inserting at the end: 'which should be invested in environmental and community benefit projects.'

Mr Primrose moved: That the motion of Ms Higginson be amended by omitting 'which should be invested' and inserting instead 'which may be invested'.

Amendment of Mr Primrose put and passed.

Original motion of Ms Higginson, as amended, put and passed.

Resolved, on the motion of Ms Hurst: That:

The draft report as amended be the report of the committee and that the committee present the report to the House;

The transcripts of evidence, submissions, tabled documents, answers to questions on notice and supplementary questions, and correspondence relating to the inquiry be tabled in the House with the report;

Upon tabling, all unpublished attachments to submissions be kept confidential by the committee;

Upon tabling, all unpublished transcripts of evidence, submissions, tabled documents, answers to questions on notice and supplementary questions, and correspondence relating to the inquiry, be published by the committee, except for those documents kept confidential by resolution of the committee;

The committee secretariat correct any typographical, grammatical and formatting errors prior to tabling;

The committee secretariat be authorised to update any committee comments where necessary to reflect changes to recommendations or new recommendations resolved by the committee;

Dissenting statements be provided to the secretariat within 24 hours after receipt of the draft minutes of the meeting;

The report be tabled on 14 April 2025;

The Chair to advise the secretariat and members if they intend to hold a press conference, and if so, the date and time.

6. Adjournment

The committee adjourned at 12.35 pm, *sine die*.

Jessie Halligan
Committee Clerk

