

# Regulatory Impact Statement

Proposed Mineral Resources (Sustainable Development)  
(Mineral Industries) Amendment Regulations 2022



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**This Regulatory Impact Statement (RIS) has been prepared in accordance with the *Subordinate Legislation Act 1994* to facilitate public consultation on the draft Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2022 (proposed Regulations). A copy of the draft proposed Regulations is provided as an attachment to this RIS.**

**This RIS was prepared by the Department of Jobs, Precincts and Regions (the Department) with the assistance of Ernst & Young (EY) ABN 75 288 172 749.**

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# Abbreviations

'the Act' – *Mineral Resources (Sustainable Development) Act 1990 (Vic)*

'the Amendment Act' – *Mineral Resources (Sustainable Development) Amendment Act 2019 (Vic)*

'the Authority' – Mine Land Rehabilitation Authority

'the department' – Department of Jobs, Precincts and Regions

'the Fund' – Declared Mine Fund

'2019 Regulations' – *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019*

'the proposed Regulations' – *Mineral Resources (Sustainable Development) (Mineral Industries) Amendment Regulations 2022*

'the regulator' – Earth Resources Regulation unit (ERR)

'the Subordinate Legislation Act' – *Subordinate Legislation Act 1994 (Vic)*

AA – Anglo-American

ABARES – Australian Bureau of Agricultural and Resource Economics and Sciences

CBA – cost-benefit analysis

CGRSWS – Central and Gippsland Region Sustainable Water Strategy

DELWP – Department of Environment, Land, Water and Planning

DMRP – Declared Mine Rehabilitation Plan

EA – Environmental authority

EES – Environment Effects Statement

EJA – Environmental Justice Australia

EPA – Environment Protection Authority

EV – Environment Victoria

GSV – Geological Survey of Victoria

HMFI – Hazelwood Mine Fire Inquiry

ICMM – International Council on Mining and Metals

LVRRS – Latrobe Valley Regional Rehabilitation Strategy

MCA – Multi-criteria Analysis

MCP – Mining Closure Plan

MMP – Mining Management Plan

NUMA – non-use management area

OCBR – Office of the Commissioner for Better Regulation



PER – Program for Environment Protection and Rehabilitation

PRCP – Progressive Rehabilitation and Closure Plan

RMP – Rehabilitation Management Plan

RIS – Regulatory Impact Statement

r – regulation

s – section

SARC – Scrutiny of Acts and Regulations Committee

VAGO – Victorian Auditor-General's Office

VGR – Victorian Guide to Regulation

# Executive Summary

## Background

### Declared mines

The Victorian Government is proposing changes to better manage the rehabilitation risks associated with large mining sites, which are classified as declared mines. These changes will impact the three Latrobe Valley coal mines, which are currently the state's declared mines. The proposed changes provide clarity to operators on actions that need to be taken and greater transparency to the community.

All mining operations create some degree of risk, both within the mine site and through impacts on the surrounding landscape and to local communities. Some mines pose greater risks to public safety, the environment and/or infrastructure. A partial collapse of the Yallourn coal mine in 2007 resulted in a complete diversion of the Latrobe River into the mine. Following this incident, in 2009 Parliament amended the *Mineral Resources (Sustainable Development) Act 1990* ('the Act') to enable mines with significant geotechnical or hydrogeological risks to be 'declared'.<sup>1</sup> Further changes were made to the Act by the *Mineral Resources (Sustainable Development) Amendment Act 2019* ('the Amendment Act'). The Amendment Act introduced new rehabilitation and post-closure requirements for declared mines including:

- the need for Declared Mine Land Rehabilitation Plans (DMRPs) that recognise the sites will require ongoing monitoring and management to remain safe, stable and sustainable after rehabilitation is completed;
- establishing a register of declared mine land that includes the land, any conditions or prescribed matters applying to the land, and a post-closure plan against it;<sup>2</sup>
- a Mine Land Rehabilitation Authority ('the Authority') to be created with functions and responsibilities for the rehabilitation of declared mine land through guidance provided by the Latrobe Valley Regional Rehabilitation Strategy (LVRRS) where appropriate;<sup>3</sup> and
- the Declared Mine Fund to meet the ongoing costs associated with the post-closure management of declared mine land, or rehabilitation activity if the land is transferred to the Authority.

Declared mines are subject to these specific regulatory measures designed to manage and mitigate the greater risks they pose.<sup>4</sup> They are also subject to more extensive rehabilitation requirements compared to other mines.<sup>5</sup>

All three Latrobe Valley coal mines have been declared since January 2021. These coal mines are some of the largest in the world. Their size and proximity to nearby townships, infrastructure and waterways carry significant safety and stability risks, which led to them being declared.

### Scope of Regulatory Impact Statement (RIS)

The *Subordinate Legislation Act 1994* ('the Subordinate Legislation Act') requires a regulatory impact statement (RIS) to be prepared for significant new or amending regulations.

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<sup>1</sup> By the Minister for Resources under s 7C of the Act.

<sup>2</sup> The Act, s 84AZZL(3).

<sup>3</sup> The LVRRS provides a blueprint to progress mine rehabilitation planning and activities that achieve safe, stable and sustainable landforms that support the next land use. The LVRRS builds on the recent reforms to the Act and provides guidance to the mine licensees, government, the community and other key stakeholders on issues that need to be considered in planning for and undertaking rehabilitation of the Latrobe Valley's three coal mines.

<sup>4</sup> In 2019, the declaration criteria extended to include hydrological and water quality risks as well as stability (geotechnical) and hydrogeological risks.

<sup>5</sup> The Mineral Resources (Sustainable Development) Amendment Act 2019 introduced a new framework for the regulation of declared mine rehabilitation designed to address the key findings and recommendations from the Hazelwood Mine Fire Enquiry.

The scope of this RIS is limited to the assessment of various pathways to put into practice the declared mine rehabilitation framework under the Act. It does not assess the broader LVRRS actions, works being undertaken to repair damage to the Morwell River Diversion at the Yallourn coal mine, other supporting government rehabilitation actions or decisions required under other legislation such as Environmental Effects Statements (EES). Financial costs such as fees and royalties are not within the scope of this RIS and will be considered as part of a broader fees and charges review for minerals and extractives that the department is currently undertaking.

## Problem

New regulations are needed to support the powers and processes introduced by the Amendment Act as they relate to the rehabilitation and post-closure management of declared mine land. Without new regulations, accountability gaps for enforcement are present as current liability for declared mine land rehabilitation is attached to mining operation licenses which are at risk of expiry or cancellation if a declared mine licensee has not complied with a declared mine rehabilitation plan under Ministerial Order. Upon cancellation of a mining licence relating to declared mine land, the regulations lack the level of detail required to delineate responsibility for mine rehabilitation activity. In the case that a declared mine site operator experiences the extinction of their licence, a new land holder will be exposed to significant disadvantages in terms of liability and financial implications related to rehabilitating a declared mine site. This exists due to a new land holder possessing less knowledge to monitor and evaluate the risks posed by geotechnical, hydrogeological, water quality or hydrological factors for declared mine land in relation to public safety, the environment and relevant infrastructure and are less capable of introducing effective and efficient controls to curtail these mine land risks.

The Amendment Act does not effectively require declared mine licensees to submit a DMRP. The amendments to the Act that introduced the declared mine rehabilitation framework were designed to be enabling. If a DMRP is not submitted to Earth Resources Regulation unit (ERR), the Act lacks detail on the matters to be included in a DMRP, the criteria requirements for mine closure status to be determined or provide direction on how rehabilitation requirements will continue to be funded. This creates uncertainty for the operators of mine sites that become declared, impacted communities of declared mines and for government. With the Act in place and no relevant supporting regulations, there is no regulatory guidance on the information to be included with an application for a closure determination or the process and matters relevant to the Minister's consideration of the application. As it stands, there is insufficient detail in the Act to give operators and government sufficient clarity to make decisions relating to declared mine land risks. In the absence of such detail, ERR and mine licensees consider mine rehabilitation matters by reference to the guidance provided by the LVRRS and brief mentions of declared mine requirements in the *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019* ('2019 Regulations').

Currently, licensees are still required to address additional prescribed matters in the Rehabilitation Plans in their Work Plans. The matters that must be addressed depend on when the Work Plan, or variation to the Work Plan, is lodged for approval. The requirements differ depending on whether lodgement was between 1 July 2019 and 30 June 2020, or if it was on or after 1 July 2020. While future declared mine operators bear an obligation to submit a DMRP, this situation is not guaranteed to apply to current declared mine operators since insufficient guidance exists on how to satisfy closure criteria.

The proposed Regulations sit within the broader program of reform for the resources sector, which builds on the Victorian Government's commitment to a modern, fit-for-purpose regulatory regime built around increased investment and community confidence. They include improvements to the regulatory framework that address outcomes from Victorian Auditor-General audits on mine rehabilitation.<sup>6</sup>

## Objectives of the proposed regulations

The purpose of the Act is to encourage mineral exploration and economically viable mining and extractive industries which make the best use of, and extract the value from, earth resources in a way that is compatible

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<sup>6</sup> Rehabilitating Mines (2020), Unconventional Gas: Managing Risks and Impacts (2015), Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment (2012).

with the economic, social and environmental objectives of the State.<sup>7</sup> These objectives are met in accordance with the principles of sustainable development.

The proposed Regulations aim to enable the Victorian Government and mining operators to make decisions about the risks and liabilities attached to declared mine land, and to inform the community on those risks. The proposed Regulations seek to do this by prescribing details to operationalise the following elements of the Amendment Act:

- Declared Mine Rehabilitation Plans – effectively facilitate adequate rehabilitation planning and activity to manage risks posed by declared mine land through:
  - › facilitating assessment of declared mine rehabilitation liability;
  - › enabling appropriate and integrated regulatory rehabilitation-related decision making by government; and
  - › providing a transparent and flexible approach to planning.
- Mine closure determinations
  - › Support informed decision-making to ensure that rehabilitation meets legislative objectives and provides a clear and transparent decision-making process.
- Mine land registration
  - › Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder, and community decision-making.
  - › Support the fair and accurate determination of fund contribution amounts to sufficiently fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.

## Options

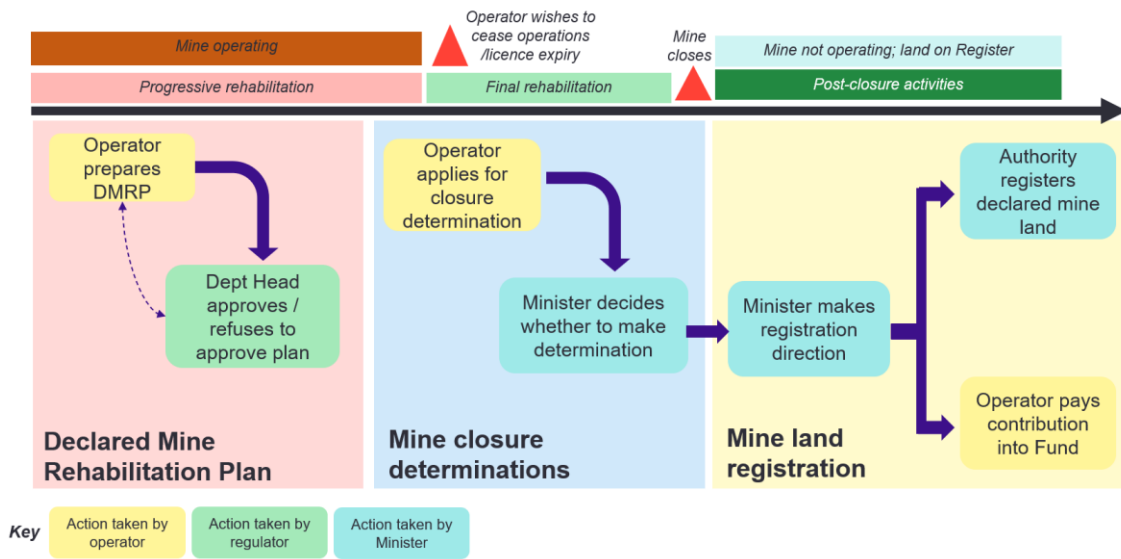
The proposed Regulations cover the three areas that support operationalising the Act, and are the subject of this RIS:

- Declared Mine Rehabilitation Plans,
- Mine closure determinations, and
- Mine land registration.

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<sup>7</sup> *Mineral Resources (Sustainable Development) Act 1990* ('the Act'), Part 1.1.

Figure 1: Simplified declared mine land regulatory framework



The Subordinate Legislation Act requires a RIS to consider “other practicable means of achieving those objectives, including other regulatory as well as non-regulatory options”.<sup>8</sup>

The Department of Jobs, Precincts and Regions has investigated rehabilitation planning regulations in other jurisdictions to guide the development of options. It reviewed regulations in Queensland, Western Australia, New South Wales, South Australia, the Northern Territory, Canada (Saskatchewan), USA (Wyoming) and Germany (see Appendix A). It also reviewed the best practice guidance published by the International Council of Mining and Metals and Anglo American. Informed by this review, and recognising the regulatory burden on the minerals sector and the objectives of the Act, two viable options have been identified:

**Option 1 ('up-front approach')** is a licensee-driven programme. The focus of the rehabilitation plan is on identifying the post-closure landform for the mine site at the outset of rehabilitation planning. The aim is to enable the Minister to set adequate bonds through the provision of early, detailed information through the rehabilitation plan to return the mine land to a safe, stable and sustainable landform.

**Option 2 ('iterative approach')** is designed to drive continuous improvement. This option centres on promoting rehabilitation planning, progressing towards rehabilitation outcomes that are acceptable against legislative standards, but do not focus early in the process on the exact end landform. This option seeks to develop the evidence base about mine sites over time and have this inform the rehabilitation plans and activities. The key differences and similarities between the options are summarised below.

Table 1: Simplified summary of options considered

Elements	Option 1: 'up-front approach'	Option 2: 'iterative approach'
DMRP Outcomes & objectives	<ul style="list-style-type: none"> <li>• Safe, stable and sustainable landform for a specified land use</li> <li>• Objectives defined against that land use</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of safe and stable landform</li> <li>• Prescribed matters to be included in the plan, informed by the LVRRS, and based on accepted regulatory or industry best practice</li> </ul>

<sup>8</sup> Subordinate Legislation Act, s 10.

Elements	Option 1: 'up-front approach'	Option 2: 'iterative approach'
DMRP Milestones	<ul style="list-style-type: none"> <li>A description of, and schedule for, rehabilitation milestones</li> </ul>	<p>Milestones for all rehabilitation and closure objectives must identify each relevant event or step necessary to:</p> <ul style="list-style-type: none"> <li>rehabilitate the land to a safe, stable and sustainable condition</li> <li>minimise the risks posed by declared mine land as far as practicable</li> <li>obtain the relevant legal approvals and permissions required for the rehabilitation of the mine, the closure of the mine and post-closure of the mine</li> </ul>
DMRP Closure Criteria	<ul style="list-style-type: none"> <li>Closure criteria must address the risks to public safety, the environment and infrastructure</li> <li>Licensee sets criteria for measuring whether the DMRP objectives are met</li> </ul>	<ul style="list-style-type: none"> <li>Closure criteria must address the risks to public health and safety, the environment and infrastructure</li> <li>Licensee must outline standards or levels of success for all rehabilitation and closure objectives in the DMRP rehabilitation plan</li> </ul>
DMRP Post-closure plan	<ul style="list-style-type: none"> <li>Include a schedule for ongoing monitoring and maintenance activities</li> <li>Identify who is responsible for post-closure monitoring and maintenance activities; and</li> <li>Include a risk management plan for known and credible risks e.g. fire management, stability and groundwater management plans.</li> </ul>	<p>The post-closure plan must:</p> <ul style="list-style-type: none"> <li>As far as reasonably practicable, identify who is responsible for post-closure monitoring and maintenance activities</li> <li>Identify the ongoing monitoring and maintenance activities required to maintain the declared mine land in a safe and stable state</li> <li>Include a risk management plan for known and credible risks</li> <li>As far as reasonably practicable, specify the time and manner in which the ongoing monitoring and maintenance activities will be carried out</li> <li>As far as reasonably practicable, specify any data, reports and information to be provided to the Authority once the plan is registered</li> </ul>
Decision-making on DMRP and mine closure	<ul style="list-style-type: none"> <li>Nothing prescribed because objectives are bespoke and site-specific</li> </ul>	<p>Regulations prescribe:</p> <ul style="list-style-type: none"> <li>Evidence to be provided with approval/closure application</li> <li>Matters to be considered</li> <li>Extended list of referrals/consultations to be undertaken by decision-maker</li> </ul>
Expectation at DMRP approval	<ul style="list-style-type: none"> <li>Full detail for all elements of plan</li> </ul>	<ul style="list-style-type: none"> <li>Each core element of the plan must be addressed</li> <li>Detail can develop over time, and less detail may be required depending on the mine lifecycle stage</li> </ul>
How plans are updated	<ul style="list-style-type: none"> <li>Licensee-initiated plan variation, with the threshold for variation set in Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Annual review of rehabilitation and post-closure management risks</li> </ul>

Elements	Option 1: 'up-front approach'	Option 2: 'iterative approach'
	<ul style="list-style-type: none"> <li>Regulator can request an application for variation under the Act</li> </ul>	<ul style="list-style-type: none"> <li>Plans can also be varied at the request of the regulator, per Option 1, and at the direction of the Department Head.</li> </ul>
Reporting requirements	Annual reporting on: <ul style="list-style-type: none"> <li>Rehabilitation activities and progress against defined milestones</li> <li>Assessment of remaining rehabilitation liability</li> </ul>	Annual reporting on: <ul style="list-style-type: none"> <li>Progress on components of plan requiring additional detail</li> <li>Review of risks</li> <li>Reasons for non-compliance with milestones (and associated remedial action)</li> <li>Technical and economic studies undertaken</li> <li>Status summary in relation to required regulatory processes</li> <li>Summary of community engagement programs</li> <li>Summary of reportable events</li> <li>Potential rehabilitation issues</li> </ul> Trigger reporting on reportable events and plan updates
Determining the Fund contribution amount	<ul style="list-style-type: none"> <li>No method or process is prescribed in Regulations</li> </ul>	Regulations require Licensee to include information to enable the Minister to determine the amount of any contribution to the Declared Mine Fund including: <ul style="list-style-type: none"> <li>An estimate of the present value of the future costs associated with the monitoring and maintenance obligations; and</li> <li>Definitions and calculations of the costs relating to adverse events</li> </ul>

Non-regulatory options were not considered feasible as the amendments to the Act, which introduced the declared mine rehabilitation framework, were designed to be enabling. Without a DMRP being submitted to ERR, the rest of the framework does not function. This means that there are no other practicable means of achieving the objectives of the Amendment Act apart from amending the existing Regulations.

## Assessment of options

The regulatory impact assessment process seeks to ensure that proposed Regulations are well targeted, effective and appropriate, and impose the lowest possible burden on businesses and the community. Essential to this process is the comparison of the options of each proposal to assess which has the highest net-benefit. Due to the limited information available about the costs of rehabilitation planning for the existing declared mines, most of the assessment in this RIS is qualitative in nature. In relation to this, a number of factors account for why total costs borne by industry to achieve the proposed Regulations cannot be reliably quantified in monetary terms. Namely, the implications of the proposed Regulations will take effect over many decades as the Victorian Government and minerals industry continue to negotiate mining rehabilitation to achieve safe, stable and sustainable landforms. Due to these ongoing negotiations, the department does not have access to commercial-in-confidence industry material.

Overall assessment of the regulations was completed with a multi-criteria analysis (MCA) decision tool. A MCA assigns and aggregates scores for a range of criteria and compares the results across different options. MCA is used where it is not possible to assign monetary values to all the impacts. Due to the limited information available about the costs of rehabilitation planning for the existing declared mines, an MCA is the most appropriate way of assessing impacts of the proposed options in this RIS.

The benefits in this RIS refer to the effectiveness of the option in achieving the objectives of the relevant part of the regulatory framework and the costs refer to both the costs imposed on businesses in the regulated sector and



those borne by government and taxpayers. The three criteria adopted for the MCA, the weights assigned for each criteria and their respective weighted scores are indicated and totalled across each criterion for the two assessed design options in the table below. In summary, Option 2 was evaluated as having the highest net benefit overall with a total weighted score of 5.92 as compared to 1.83 under Option 1.

Table 2: Summarised MCA results

Criteria	Weighting	Weighted Scores	
		Option 1	Option 2
<b>Declared Mine Rehabilitation Plans</b>			
<b>Benefits Criteria</b>			
Manage the risks posed by declared mine land through:			
Facilitating assessment of declared mine rehabilitation liability	16.7%	1.17	1.33
Enabling appropriate and integrated regulatory rehabilitation-related decision making by government	16.7%	0.67	1.00
Providing a transparent and flexible approach to planning	16.7%	0.50	1.33
<b>Sub total</b>	<b>50%</b>	<b>2.33</b>	<b>3.67</b>
<b>Cost Criteria</b>			
Costs to industry (including time delays) relative to the base case	25%	-1.25	-1.75
Costs to government relative to the base case in:			
> Assessing and approving DMRPs;			
> Monitoring rehabilitation carried out under DMRPs; and	25%	-0.25	-0.50
> Responding to reported events or circumstances in relation to the plan.			
<b>Sub total</b>	<b>50%</b>	<b>-1.50</b>	<b>-2.25</b>
<b>Element 1 - weighted score</b>	<b>100%</b>	<b>0.83</b>	<b>1.42</b>
<b>Mine closure determinations</b>			
<b>Benefit Criteria</b>			
Support informed decision-making to ensure rehabilitation meets legislative objectives	25%	2.00	1.25
Provide a transparent, clear decision-making process	25%	0.00	1.50
<b>Sub total</b>	<b>50%</b>	<b>2.00</b>	<b>2.75</b>
<b>Cost Criteria</b>			
Costs to industry (including time delays) relative to the base case	25%	-1.00	-0.75
Costs to government relative to the base case of administering and enforcing the system	25%	-0.25	-0.75
<b>Sub total</b>	<b>50%</b>	<b>-1.25</b>	<b>-1.50</b>
<b>Element 2 - weighted score</b>	<b>100%</b>	<b>0.75</b>	<b>1.25</b>
<b>Mine land registration</b>			
<b>Benefit Criteria</b>			
Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making.	25%	0.25	1.75

Criteria	Weighting	Weighted Scores	
		Option 1	Option 2
Support the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.	25%	0.00	1.50
<b>Sub total</b>	<b>50%</b>	<b>0.25</b>	<b>3.25</b>
<b>Cost Criteria</b>			
Costs to industry (including time delays) relative to the base case	25%	0.00	0.25
Costs to government relative to the base case of administering and enforcing the system	25%	0.00	-0.25
<b>Sub total</b>	<b>50%</b>	<b>0.00</b>	<b>0.00</b>
<b>Element 3 - weighted score</b>	<b>100%</b>	<b>0.25</b>	<b>3.25</b>
<b>TOTAL WEIGHTED SCORE</b>		<b>1.83</b>	<b>5.92</b>

The weights assigned to each criterion in MCA can have a significant effect on the outcome of the assessment. Neutral weights of 50 per cent in total for the benefit related criteria and 50 per cent in total for the cost related criteria have been applied to ensure that there is no cost or benefit bias in the weighted scores.

The sub-weights assigned for each criterion reflect the equal weighting that government gives to achieving the objectives within each part of the regulatory frameworks and the cost impost on government and industry.

Results of the analysis are summarised below. Options 1 and 2 are both preferred to the status quo. This reflects that:

- Options 1 and 2 are expected to result in better management of declared mine risks compared to the status quo as mine operators are required to submit a DMRP and provide additional detail with regard to rehabilitation planning; and
- Options 1 and 2 provide additional clarity around decision-making processes with regards to mine closure compared to the status quo.

Option 2 received a higher score than Option 1 in the majority of assessment criteria (see chapter 6 for further detail). In all three elements of the regulatory framework, the benefits achieved by Option 2 also outweighed the associated costs to industry and government. This reflects that Option 2 facilitates better management of declared mine risk and more accurate assessment of liability through a transparent and flexible planning approach, which is more suited to the uncertain environment in which declared mine rehabilitation is occurring.

Option 2 yielded a higher net benefit when accounting for costs to industry and government by prescribing details to operationalise three areas of the Amendment Act, the criteria, outlined below.

## Declared Mine Rehabilitation Plans

DMRPs submitted under Option 2 would enable improved management of the risks posed by declare land compared with Option 1 due to longer time periods to assess declared mine rehabilitation liability amounting to more information collected on declared mines over time. Option 2 accounts for the risk under Option 1 that DMRPs will require information about the mine site to be collected before all the technical features and potential risks posed by the land are understood. The additional requirement of extended consultation referrals on the matters that must be considered in DMRPs and evidence to be provided on how matters required of a DMRP by the decision-maker will be met, provide strengthened transparency and accountability for the rehabilitation requirements of the landowner and the monitoring party under Option 2.

Collection, reporting and outsourcing activities will be greater under Option 2 for industry compared to Option 1 and will also result in greater costs to government due to increased assessment, monitoring and evaluation of industry rehabilitation planning and activity.

## Mine closure determinations

Mine closure determinations were better aided by Option 2 relative to Option 1 overall. Since the landform outcomes of the declared mine land after rehabilitation are known at the outset, Option 1 in fact scored higher than Option 2 on the criterion of supporting informed decision-making to ensure rehabilitation meets legislative objectives. While Option 2 still supports informed decision-making to ensure rehabilitation meets legislative objectives, the final landform is known in the distant future and hence more uncertainty exists for industry, government and community under Option 2 compared to Option 1 on decision-making that concerns rehabilitation that is consistent with legislative objectives. It must also be recognised that the decreased certainty of rehabilitation meeting legislative objectives under Option 2 is accompanied by a more transparent decision-making process over Option 1 since more time to decide rehabilitation outcomes allows for more stakeholders to have legitimate input into decision-making and the preferred option does not presuppose rehabilitation outcomes without consulting with those who are most affected by the declared mines.

Option 1 would entail more costs to industry than Option 2 due to the external verification requirements on matters to be considered for closure, but Option 2 has greater costs to government than Option 1 as the Minister is required to assess the evidence provided by the licensee in support of their closure determination.

## Mine land registration

As compared to Option 1, Option 2 yields greater benefit to the sub-criterion of obtaining sufficiently more information about declared mine sites being registered and hence available to government, stakeholders and the community to inform future decision-making about the declared mine sites after closure. The improved information registered against declared mine land aids fairer and more transparent estimations of operator contribution requirements into the Declared Mine Fund in Option 2 compared to Option 1.

While Option 2 imposes more costs to industry than Option 1 through requiring licensees to collect and provide more mine site information, this is outweighed by the cost savings resulting from greater certainty about the extent of post-closure liability. It is considered that Option 2 would lead to slightly higher costs for government compared to Option 1, due to the increased efforts associated with calculation of the post closure liability following the prescribed method.

On this basis, the draft Regulations (based on Option 2), provide the best outcome for government, community and industry in effectively facilitating rehabilitation and planning to manage risks posed by declared mine land.

### Summary of the analysis of Option 2 – iterative approach

- Supports better integrated government decision-making and rehabilitation planning due to the additional information required under the DMRP and annual reporting.
- Facilitates better management of declared mine risk and more accurate assessment of liability through a flexible approach.
- Is more suited to the uncertainties of large-scale mine rehabilitation, allowing for changing circumstances through the iterative approach to planning and the annual review of rehabilitation and post-closure management risks.
- Enables appropriate and integrated decision-making as it prescribes matters to be considered and parties to be consulted, providing a greater level of clarity for both government and industry.
- Provides a significantly more transparent approach to the mine closure determination decision-making process.
- Allows government to more effectively obtain and record information about declared mine land.

## Preferred option

Overall, Option 2 is assessed as providing the highest net benefit across all the elements of the regulatory framework and is significantly more effective at operationalising the declared mine framework and achieving the objectives of the Act. As such, it is the preferred option. The preferred option is incorporated in the attached draft Regulations – the Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2022 which can be found at Engage Victoria.

The department has undertaken pre-RIS consultation to inform the development of the proposed Regulations and the RIS. Operators and other consulted mining regulators supported the consideration of Option 2, as it aligns with international best practice and planning approaches for large, complex mines.

## Small business impact & competition assessment

Small businesses may experience disproportionate effects from regulatory requirements for a range of reasons, including limited resources to interpret compliance requirements, or to keep pace with regulatory changes and the cumulative effect of different requirements. However, the proposed Regulations support a legislative framework that applies only to especially hazardous mines. Three mines have been declared by the Minister since the introduction of the power to declare mines in 2010. All three mines are owned by very large, multi-national companies. Given the characteristics of the existing declared mines, it is considered highly unlikely that any mine declared in future would be operated by a small business. Accordingly, the proposed Regulations are not considered to have any small business impacts.

Any regulatory proposal needs to be scrutinised carefully to assess whether it is having an adverse impact on the ability of firms or individuals to enter and participate in the market. The preferred option is expected to have very small impacts on competition.

## Implementation plan

Implementation will require a deliberate and extensive program of preparatory work, capacity building of the regulator, the Authority and coordination with co-regulators. The immense complexity and volume of information expected to be received and assessed under these regulations, dictates the regulator will need to scale-up its in-house expertise and/or engage procured specialists to undertake this significant work to meet the expectations of the community. The Authority will require similar expertise and adequate resourcing in its role in relation to declared mines, with the capacity and understanding of co-regulators also critical to effective implementation of these regulations.

The majority of implementation activities for the proposed Regulations are scheduled to be completed by 2024, namely consisting of developing Ministerial guidance, policies and procedures on how to prepare adequate rehabilitation plans under the proposed Regulations, matters to be addressed in operator post closure management plan submissions to achieve closure criteria, the information requirements concerning risk of the declared mine sites to be submitted into the declared mine land register and how to evaluate mining rehabilitation liability. Activities such as communication and direction around commencement of the regulations have already begun and will continue throughout the 2023 financial year. The register of declared mine land will take effect from 2025 as will the creation of the Fund.

## Evaluation strategy

The proposed Regulations will be subject to an ongoing evaluation strategy, which will focus on assessing the costs and benefits of the proposed Regulations. The department will continue to engage with stakeholders on a regular basis to discuss the effectiveness of the Regulations and any suggestions for change. Periodic review of the data and key performance indicators may indicate changes in the overall trends and may provide indicative information about the effectiveness of the proposed Regulations in reducing negative impacts and enhancing positive impacts for the minerals industry. Earth Resources Policy and Programs staff will liaise with ERR and field staff to monitor the effectiveness of the proposed Regulations on an ongoing basis.

## Public consultation

The department welcomes feedback from all interested members of the public on any matters they feel would improve the proposed Regulations.

The consultation period for this RIS will be for 28 days, with written comments required by **5.00 pm, 17 August 2022**. The drafted Regulations are not final, and improvements or changes may be made in response to public comment.

# 1. Introduction

## 1.1. Regulatory Impact Statement process

This Regulatory Impact Statement ('RIS') assesses proposed Regulations to be made under the *Mineral Resources (Sustainable Development) Act 1990* ('the Act').

Changes were made to the Act by the Amendment Act which introduced new rehabilitation and post-closure requirements for declared mines, established the Mine Land Rehabilitation Authority ('the Authority') and a Declared Mine Fund. The declared mine regulatory framework in the Act is enabling; it is designed to be supported by detail in accompanying regulations. New regulations are needed to support the powers and processes introduced by the Amendment Act. This RIS assesses the impacts of possible options for these regulations.

Before new regulations are made, the Subordinate Legislation Act requires:



To support good decision-making and assist parties with review and comment on the proposed Regulations, the *Subordinate Legislation Act 1994* requires the preparation of a RIS for any regulations that impose a significant economic or social burden on a sector of the public, to be made available with the proposed Regulations.

A RIS must include:


- a statement of the objectives of the proposed regulations;
- a statement explaining the effect of the proposed regulations;
- a statement of other practicable means of achieving those objectives, including other regulatory as well as non-regulatory options;
- an assessment of the costs and benefits of the proposed Regulations and of any other practicable means of achieving the same objectives; and
- the reasons why the other means are not appropriate.

The Commissioner for Better Regulation provides an independent assessment of RIS' against the *Victorian Guide to Regulation*. The Commissioner has advised that this RIS meets the requirements of the Subordinate Legislation Act on 16 May 2022.

Following consideration of all submissions received in response to the proposed Regulations, a notice of decision and statement of reasons will be published. Once the Regulations are made, copies of all submissions are provided to the Parliament's Scrutiny of Acts and Regulations Committee (SARC). SARC examines these submissions to check that the department has considered the views of stakeholders.

## 1.2. Consultation on the proposed Regulations

The Department of Jobs, Precincts and Regions has undertaken targeted pre-consultation program and impact assessment with parties likely to be directly affected by the proposed Regulations. Affected parties and the public will have 28 days to consider the proposed Regulations and may make submissions to the department by 5:00 pm, 17 August 2022.



The Engage Victoria website is the preferred method for receiving submissions. Submissions can also be received by post, marked 'Mineral Resources (Sustainable Development) (Mineral Industries) Amendment Regulations 2022 ('Draft Regulations')' and addressed to:

Director, Policy and Legislation  
Earth Resources Policy and Programs  
Department of Jobs, Precincts and Regions  
GPO Box 4509  
Melbourne VIC 3001

Copies of the RIS and proposed Regulations can be obtained from the Engage Victoria website at <https://engage.vic.gov.au/draft-declared-mine-regulations-ris>.

## 2. Context

### 2.1. Mining in Victoria

The resources sector is important to Victoria's economy, particularly in regional areas. The Act regulates two distinct groups: 'minerals' (including exploration and mining for coal, gold and heavy mineral sands) and 'extractives' (e.g., sand, quarrying stone, gravel). Coal mining makes up a significant portion of the minerals industry and has played a key role in the social and economic development of the Latrobe Valley region over many decades. Victoria has one of the largest brown coal (lignite) deposits in the world, with a total estimated resource of around 430 billion tonnes. More than 80 per cent of the resource is in the Latrobe Valley, with around 65 billion tonnes of measured resource identified. Brown coal is produced primarily at large, open-cut mines in the Latrobe Valley (Loy Yang and Yallourn) to provide fuel for electricity generation. These mines are the state's largest mines. The production of coal increased by 4.7 per cent from 40,372 tonnes in 2019-20 to 42,263 tonnes in 2020-21. As Victoria transitions to a net zero emissions future, planning for the end of coal mining for power generation is accelerating. The Hazelwood mine and power station retired operations in 2017 and the Yallourn mine and power station are scheduled to conclude operations in 2028. Earlier this year AGL announced plans to end coal mining at Loy Yang around 2040-2045.

### 2.2 Regulation of mining in Victoria

The Crown asserts ownership of all minerals in Victoria, subject to some minor exemptions.<sup>9</sup> In terms of realising the economic value of these assets, the private sector has greater financial risk appetite and expertise in mining compared to the government. The Act establishes a system where rights to Crown-owned minerals are allocated to private parties.<sup>10</sup> This framework is designed to ensure that mining works are only undertaken where there is evidence of a mineral resource to minimise unnecessary disturbance to the environment and communities. Of relevance to the proposed Regulations, the Act also ensures that extractive mining activity is only undertaken by appropriately qualified and equipped parties, capable of managing the associated risks.

Communities and government expect mined land to be rehabilitated to a safe, stable and sustainable landform that supports future land uses. Where effective risk management and rehabilitation does not occur, mining can result in significant negative impacts on the environment and communities. When these costs are not 'internalised' or taken into account by the operator through rehabilitation and post-closure management, the costs are imposed on the community and Government. This is a type of market failure known as an 'externality.'<sup>11</sup> In order to address this externality and manage risks, the Act imposes obligations on mining licensees to minimise risks associated with their works and to rehabilitate disturbed land to a safe, stable and sustainable landform.

#### 2.2.1 The Act

The Minister for Resources is responsible for administering the Act. The purpose of the Act is to encourage economically viable mining and extractive industries that make the best use of resources, compatible with the economic, social and environmental objectives of the State. The Act seeks to do this by encouraging and facilitating minerals exploration and development by providing for an efficient and effective system for the granting of licences and co-ordination of related approvals. It also seeks to establish an economically efficient

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<sup>9</sup> The Act, s 9.

<sup>10</sup> The Act, s 8. The full range of minerals licences and authorities available under the Act are: Miner's right, Tourist Fossicking Authority, Prospecting Licence, Exploration Licence, Mining Licence, Retention Licence.

<sup>11</sup> Previous edition, *Victorian Guide to Regulation*, April 2007, page 2-2. The *Victorian Guide to Regulation* has described externalities as follows: External costs and benefits, commonly referred to as externalities or spill overs – which occur when an activity imposes costs (which are not compensated) or generates benefits (which are not paid for) on parties not directly involved in the activity. Without regulation, the existence of externalities results in too much (where external costs or negative externalities occur) or too little (where external benefits or positive externalities arise) of an activity taking place from society's point of view. Pollution is the most common example of a negative externality.

system of royalties, rentals, fees and charges, and sets out principles of sustainable development, applicable to the administration of the Act.

The Act includes provisions to manage risks posed to the environment, to members of the public, or to land, property or infrastructure by work being done under a licence. This ensures that risks are identified and eliminated, or minimised as far as reasonably practicable, and that land is rehabilitated.

All mining operations create some degree of risk, both within the mine site and through impacts on the surrounding landscape. However, some mines pose particularly significant risks to public safety, the environment and/or infrastructure. Under section 7C of the Act, the Minister has the power to 'declare' such mines. Mines that are declared are subject to special regulatory measures designed to manage and mitigate the greater risks they pose. Declared mines are subject to additional risk prevention requirements and pay a mine stability levy to fund research and technical advice. There are three declared mines in Victoria: Hazelwood, Yallourn and Loy Yang coal mines.

## 2.2.2 Declared mine rehabilitation framework

The DMRP must include criteria for the closure of the mine and a plan for the management and monitoring of the mine land after closure. Rehabilitation is the responsibility of the mine licensee until the Minister determines that the criteria for the closure of the mine have been met, and their licence is relinquished. After closure and registration, post-closure management of the mine land becomes the responsibility of the landowner (which may be the mine licensee) and/or the Mine Land Rehabilitation Authority. The rehabilitation of declared mine land is regulated by both the general provisions relating to rehabilitation of all mines under the Act<sup>12</sup> and by the special declared mine rehabilitation framework introduced by the Amendment Act. Declared mines are subject to more extensive rehabilitation requirements compared to other mines. Continuing the Victorian Government's response to the Hazelwood Mine Fire Inquiry (HMFI) (see section 2.4.3 below), the Amendment Act introduced a new framework for the regulation of declared mine rehabilitation designed to address the HMFI's key findings and recommendations.

Rehabilitation of mine sites occurs during the operation of the mine ('progressive rehabilitation') and as part of its closure ('final rehabilitation'). For mines other than declared mines, the Act prescribes that rehabilitation of the mine site creates a safe, stable and sustainable landform by the point of closure, and that the mine licensee's obligations in relation to the mine land and any risks it poses cease upon closure and the relinquishment of the relevant licence. For declared mines, the Act requires the Minister to determine whether closure criteria in the declared mine rehabilitation plan have been met before returning the bond. These provisions were added to the Act to address HMFI concerns about the lack of regulatory certainty over success of rehabilitation which led to a recommendation for the regulatory framework to include closure criteria (see section 2.4.2 below).

Another key difference between the declared mine rehabilitation framework and rehabilitation obligations for other mines is that the Act provides for the planning and undertaking of the management of declared mine sites after the point of closure. This recognises that the significant and complex nature of the risks posed by the declared mines means that the mine sites will require ongoing management to protect against damage to surrounding infrastructure, environment, landscapes and communities for a considerable period into the future. As such, the rehabilitation component of the work plan that must be prepared by mine licensees includes activities for progressive rehabilitation of the mine land during operation, and concepts for the post-closure landform of the mine site.<sup>13</sup>

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<sup>12</sup> The Act requires licensees to undertake the progressive rehabilitation of land (that is, the rehabilitation of mining land through activities taken during the course of mining operations before closure). Licensees must rehabilitate land in accordance with the rehabilitation plan approved by the Department (the Act, s78). The Act sets out factors to be taken into account by rehabilitation plans, including special characteristics of the land, its surrounding environment, and the need to stabilise it (the Act, s79). This obligation applies to all licences under the Act, including those covering declared mine land. The Act provides for a rehabilitation plan to be a component of a work plan in most circumstances (the Act, s 40(3)(e)).

<sup>13</sup> Work plans detail the precise works a licensee will undertake, and how risks will be eliminated or minimised as far as reasonably practicable. Work plans are also aimed at ensuring that there is support for the efficient use of assigned resources. When a work plan is submitted ERR will consider whether the proposed program of work is consistent with the expenditure conditions in the licence. Reporting requirements (especially relating to exploration) are focussed on expenditure and production. A licensee is not permitted to undertake works without an authorised work plan (the Act, s 40(2)).



The scheme for the rehabilitation and post-closure management of declared mine land introduced by the Amendment Act includes:

- the need for Declared Mine Land Rehabilitation Plans (DMRPs) that recognise the sites will require ongoing monitoring and management to remain safe, stable and sustainable after rehabilitation is completed;
- establishing a register of declared mine land that includes the land, any conditions or prescribed matters applying to the land, and a post-closure plan against it;<sup>14</sup>
- a Mine Land Rehabilitation Authority ('the Authority') to be created with functions and responsibilities for the rehabilitation of declared mine land through guidance provided by the Latrobe Valley Regional Rehabilitation Strategy (LVRRS) where appropriate;<sup>15</sup> and
- the Declared Mine Fund to meet the ongoing costs associated with the post-closure management of declared mine land if the land is transferred to the Authority.

The declared mine land framework in the Act is enabling: much of the detail is 'prescribed', meaning that it is assumed to be set out in supporting regulations.

### 2.2.3 Regulations and other subordinate instruments

The Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019 operationalise some key elements of the Act, including by providing detail around licence applications, information required in work plans, reporting and notice obligations and fees.

The 2019 Regulations remade the previous set of regulations under the Act and included the introduction of new requirements for the rehabilitation plan component of work plans. Under Regulation 43, work plans must include details about the proposed rehabilitation of the mine site, including a safe, stable and sustainable landform, a proposed land use, rehabilitation objectives, closure criteria, progressive rehabilitation milestones and relevant post-closure management information. Regulation 43 applies to all mines, including declared mines, but only to work plans lodged or varied on or after 1 July 2020. This is discussed in greater detail below.

In addition to the regulations, there are two other forms of subordinate instrument made under the Act – Ministerial Guidelines and Codes of Practice. The department also publishes a considerable amount of (non-statutory) guidance material.

The Act empowers the Minister to make guidelines relating to any of the objectives or purposes of the Act or the Regulations made under the Act.<sup>16</sup> Guidelines have been published in relation to the rehabilitation of mine sites, and in support of other aspects of rehabilitation under the Act (such as rehabilitation bonds). The Act also empowers the Minister to make Codes of Practice.<sup>17</sup> Codes of practice have been issued for minerals exploration, and for low-risk mines as defined in the Act.<sup>18</sup>

### 2.2.4 Earth Resources Regulation

The Minister and Department Head have powers under the legislation to administer the Act. The Earth Resources Regulation unit ('ERR') is their operational delegate and, in practice, is responsible for regulating Victoria's resources sector. ERR's roles include licensing, work plan approvals, risk management, enforcing compliance and stakeholder engagement. Much of ERR's focus over the past few years has been on implementing a risk-based approach to regulation; particularly through approvals processes.

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<sup>14</sup> The Act, s 84AZZL(3).

<sup>15</sup> The LVRRS provides a blueprint to progress mine rehabilitation planning and activities that achieve safe, stable and sustainable landforms that support the next land use. The LVRRS builds on the recent reforms to the Act and provides guidance to the mine licensees, government, the community and other key stakeholders on issues that need to be considered in planning for and undertaking rehabilitation of the Latrobe Valley's three coal mines.

<sup>16</sup> The Act, s120A.

<sup>17</sup> The Act, Part 8A.

<sup>18</sup> There is also a Code of Practice for small quarries, which is relevant to the Extractives Regulations and out of scope of this RIS.

ERR has the following responsibilities pursuant to nine Acts of Parliament:

- allocating rights to explore and extract earth resources through licensing and tenders;
- authorising exploration, production and other activities (e.g. retention);
- assessing and approving licensee operations works and rehabilitation (through work plans);
- compliance and enforcement activities; and
- other functions such as stakeholder engagement and education.

The Victorian Budget 2020/21 provided \$16.5 million over two years to ensure Victoria's resources sector can continue to grow and support jobs across the state through efficient regulation and industry development. This includes new funds for ERR to ensure it can meet the minerals licensing and work authority demand created by a booming resources sector. The Victorian Budget 2020/21 also provided \$21.1 million over four years to ensure effective rehabilitation for the Latrobe Valley coal mines and resources sites across the state, including funding for the new Mine Land Rehabilitation Authority.

### ***Audit by the Victorian Auditor-General's Office ('VAGO')***

On 5 August 2020, the Victorian Auditor-General tabled an audit of the Victorian government's management of its exposure to liabilities from the rehabilitation of mines.<sup>19</sup> The report, *Rehabilitating Mines*, examined how the department regulates mining rehabilitation through ERR, and whether ERR's work effectively minimises and manages the State's exposure to rehabilitation liabilities. VAGO also considered the department's coordination with other government agencies.

The Latrobe Valley coal mines were expressly excluded from the scope of the audit because of the ongoing work on the regional strategy for the area at the time the audit was undertaken.<sup>20</sup> The audit's findings are relevant to this RIS insofar as ERR is responsible for administering key elements of the declared mine rehabilitation framework, and any new regulations made in support of it. As such, the findings are discussed in sections of the RIS assessment as context related to ERR's regulatory capacity and how changes made through new regulations might or might not support improved administration of the framework.

The audit concluded that the department 'is not effectively regulating operators' compliance with their rehabilitation responsibilities [which] exposes the state to significant financial risk'.<sup>21</sup>

VAGO recommended that the department:

- reduce the state's mining rehabilitation contingent liability by ensuring that the rehabilitation bonds are sufficient to cover rehabilitation costs and are compliant with regulatory requirements;
- review all mine and quarry rehabilitation plans to ensure regulatory compliance;
- consult with the department of Environment, Land, Water and Planning (DELWP), the Environment Protection Authority (EPA) and the Latrobe Valley Mine Rehabilitation Commissioner (now the Mine Land Rehabilitation Authority) on the definition of terms in the Act that trigger increased rehabilitation information requirements from licensees;
- develop and implement a rehabilitation-specific inspection and monitoring program;
- develop and implement policy and guidance documents for various aspects of the regulatory framework, including setting, reviewing and returning bonds;
- develop and implement an evaluation and reporting framework for ERR's *2020 Regulatory Practice Strategy*;
- advise relevant Ministers on options to eliminate the conflict of interest between ERR's role as regulator and the department's role in supporting and developing the mining industry; and
- develop an updated information management system.

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<sup>19</sup> Victorian Auditor-General's Office, *Rehabilitating Mines* (August 2020) Independent assurance report to Parliament 2020-21: 1 available at < <https://www.audit.vic.gov.au/report/rehabilitating-mines>>

<sup>20</sup> Victorian Auditor-General's Office, *Rehabilitating Mines* (5 August 2020), Appendix C ('VAGO Audit').

<sup>21</sup> *Ibid*1.

The department has accepted in full all but one of these recommendations, accepting in principle one recommendation to advise the Ministers on eliminating the conflict of interest.<sup>22</sup> ERR has committed to ten recommendations from the VAGO audit and accepted eight in full.<sup>23</sup> Two recommendations were accepted in principle given their complexity and need for Government consideration. ERR agreed to undertake 37 actions to address the 10 recommendations from VAGO and had completed more than half of those actions by March 2022.<sup>24</sup>

VAGO also recommended that the department and DELWP develop a state-wide framework for managing abandoned mines and quarries, and that the departments update their memorandum of understanding.<sup>25</sup> Both recommendations were accepted. A joint statement between the department, DELWP and Parks Victoria about respective roles in managing of abandoned and legacy mines and quarries was released on 29 December 2020, and the memorandum of understanding was updated in 2021, with supporting schedules due to be finalised in 2022.<sup>26</sup> The MLRA provides further instruments of governance to the future administration and monitoring of declared mines.

## 2.3 Regulation of declared mine land rehabilitation

As described in 2.2.2 above, the rehabilitation of declared mine land is regulated by the general provisions relating to rehabilitation of all mines under the Act and 2019 Regulations, and the special declared mine rehabilitation framework introduced by the Amendment Act.

The declared mine land framework in the Act is enabling, with much of the detail to be 'prescribed', i.e., an assumption this information will be set out in supporting regulations.

Figure 2 illustrates how the elements of the framework operate together over a mine's lifecycle and indicates where the Act refers to prescribed matters or processes that are to be included in new supporting regulations. Options for these supporting regulations are the subject of the assessment in this RIS.

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<sup>22</sup> Ibid 16.

<sup>23</sup> ERR, *Site rehabilitation and VAGO response*, available at < <https://earthresources.vic.gov.au/community-and-land-use/rehabilitation/site-rehabilitation-vago-response>>

<sup>24</sup> ERR.

<sup>25</sup> Ibid 17.

<sup>26</sup> Victorian Government, *Management of legacy and abandoned mines on Crown Land*, available at [https://earthresources.vic.gov.au/\\_data/assets/pdf\\_file/0006/614922/13262-DJPR-RRV-DELWP-Abandoned-and-Legacy-Mines-Joint-Statement\\_WEB-V1.pdf](https://earthresources.vic.gov.au/_data/assets/pdf_file/0006/614922/13262-DJPR-RRV-DELWP-Abandoned-and-Legacy-Mines-Joint-Statement_WEB-V1.pdf).

Figure 2: Declared mine land regulatory framework

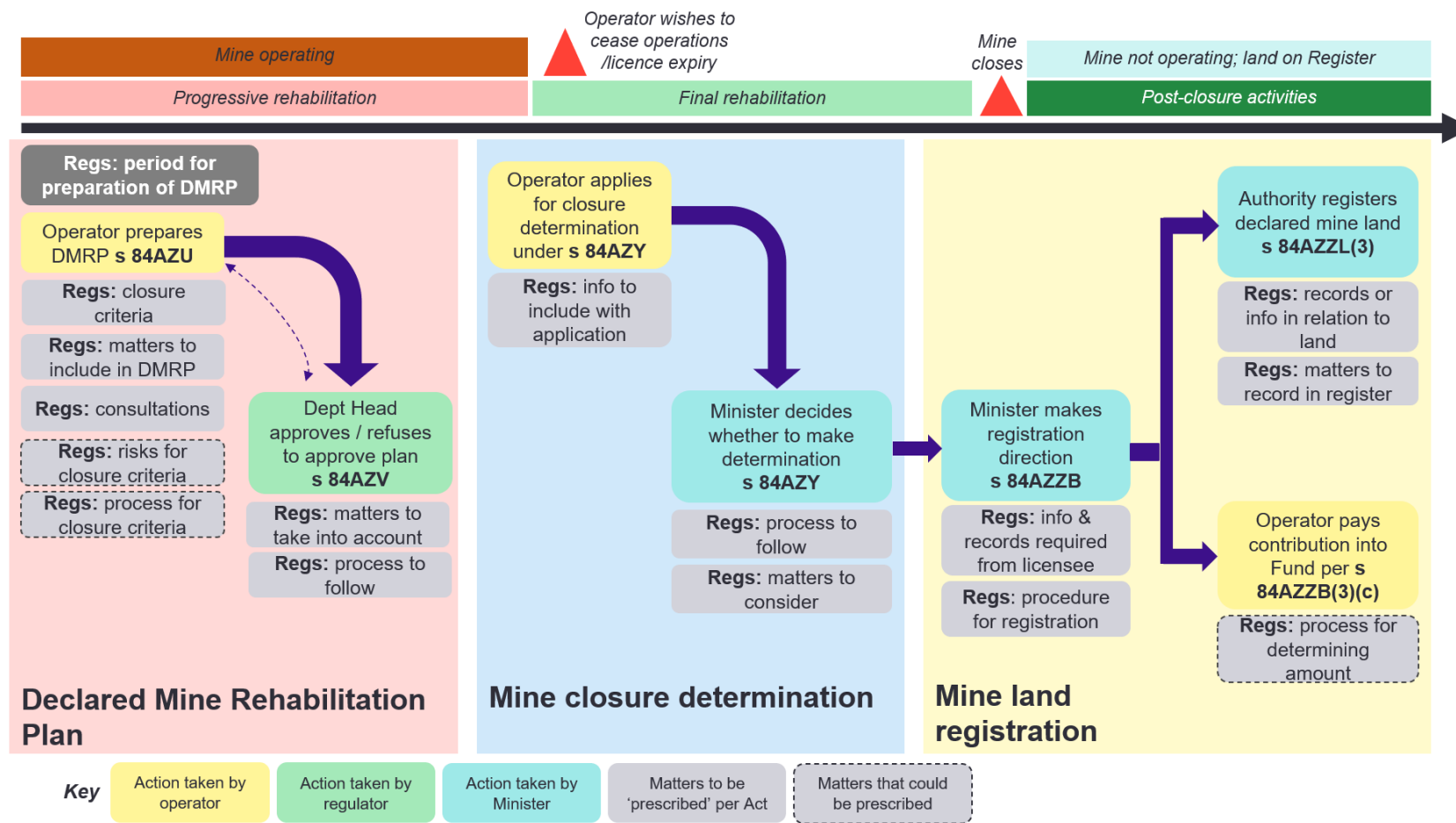


Figure 2 identifies the provisions within the Act that govern each action or decision, and the matters to be 'prescribed' in supporting regulations (the grey boxes). A full list of the prescription powers relating to declared mine rehabilitation is at Appendix C. The grey boxes with dotted outlines indicate areas that could be the subject of supporting regulations but are not specifically called out as being prescribed in the Act. For example, s.84AZU(3)(b) of the Act requires a DMRP to include 'the *prescribed* closure criteria',



indicating that regulations will prescribe criteria. In contrast, the Act does not state that the DMRP must consider ‘the prescribed risks’ in developing closure criteria, but regulations *could* be made to prescribe a set of risks for this purpose.

## **Mine Land Rehabilitation Authority (the Authority)**

The Authority was created by the Amendment Act. The Authority commenced operations on 1 July 2020, taking over the Latrobe Valley Mine Rehabilitation Commissioner's roles in relation to rehabilitation and development and implementation of the LVRRS. Where the Commissioner was responsible for coordinating planning and improvements in mine rehabilitation in the Latrobe Valley, the Authority's role also extends to declared mines more generally. More information about the LVRRS is provided at section 4.2.2.

The Authority was established in response to the recommendation by the Hazelwood Mine Fire Inquiry that a Statutory Authority be established with 'ongoing tenure until all mines have been successfully rehabilitated, and monitoring and maintenance of the Latrobe Valley mines is no longer required'.<sup>27</sup> The LVRRS findings demonstrate that the Latrobe Valley mines will need to be managed for a considerable period into the future in order to manage the risks the declared mines pose to local communities, infrastructure and the environment. The Authority has been set up to hold responsibility for ongoing monitoring and management of the declared mine sites even after rehabilitation is complete.

The Authority's functions are to:

- monitor and evaluate the risks posed by geotechnical, hydrogeological, water quality or hydrological factors for declared mine land in relation to public safety, the environment and relevant infrastructure;
- monitor and evaluate declared mine licensees' rehabilitation activities;
- promote information sharing between parties;
- inform the public of matters relating to declared mine rehabilitation;
- advise the Minister on the Regional Rehabilitation Strategy and post-closure maintenance of declared mine land; and
- carry out investigations referred by the Minister.

The Authority will work with mine operators and Government departments and agencies to resolve rehabilitation issues as required. DMRPs or variations will be referred to the Authority so that they can provide independent, expert and authoritative advice to government on the content of plans.

The Authority is also responsible for registering post-closure declared mine land and may become the owner of such land if this is necessary to protect the public, infrastructure and the environment. The Authority is empowered to perform or contract for any functions arising from its role as landholder of declared mine land, for example managing ongoing risks associated with the land.

### **Declared mine rehabilitation plans**

Under the Amendment Act, declared mine licensees must prepare plans for the rehabilitation of the declared mine land covered by their licence.<sup>28</sup> Regulations will set the timeframe in which the licensee must prepare their initial plan. The Act requires DMRPs to include:<sup>29</sup>

- any rehabilitation plan or requirement that the licensee enter into a further rehabilitation bond;
- the prescribed criteria to be met by the licensee for the closure of the mine;
- a post-closure plan setting out the monitoring and maintenance to be carried out on the land;
- an undertaking by the licensee to pay the registration amount;
- an assessment of the risks posed by factors within the declared mine land; and
- any other prescribed matter.

The licensee must consult with the prescribed person or prescribed class of people in relation to the DMRP.<sup>30</sup>

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<sup>27</sup> Victoria, *Parliamentary Debates*, Legislative Assembly, 5 June 2019, Hansard 1943, (Tim Pallas, Treasurer).

<sup>28</sup> The Act, s 84AZU(1).

<sup>29</sup> The Act, s 84AZU(3).

<sup>30</sup> The Act, s 84AZU(4).

DMRPs differ from the rehabilitation component of work plans that all mine licensees are required to prepare under the Act because they must respond specifically to the risks that led to the mine being declared and accommodate the long-term, post-closure management of declared mine sites. The new provisions also empower ERR to prescribe a timeframe in which the rehabilitation plan must be prepared and submitted, in contrast to the largely licensee driven timeframes for the development and variation of the work plan.

The DMRP was introduced in the Act to address known issues with regards to government having insufficient information about mine sites and rehabilitation planning, as a result of the lack of detail in the Latrobe Valley mines' current approved rehabilitation plans. The ways in which the DMRP responds to these issues are set out in the following paragraphs.

#### *More detailed rehabilitation plans to facilitate accurate bond-setting*

The Act manages the risk that the State may become liable for rehabilitating mine sites by requiring mine licensees to provide bonds based on the liability assessment for undertaking planned rehabilitation.<sup>31</sup> Rehabilitation bonds are calculated based on a point in time assessment of rehabilitation liability, which is estimated via information contained in the licensee's rehabilitation plan.

Where rehabilitation plans are inadequate, it is difficult to assess rehabilitation costs. Subsequently, rehabilitation bonds may be insufficient to incentivise rehabilitation and protect the State from the costs of rehabilitation in the event of default by the licensee. This issue manifested in the mid-1990s when the Benambra Mine went into receivership and the Victorian Government was left with rehabilitation responsibilities and associated costs. The licensee's rehabilitation plan did not contain sufficient detail, which contributed to government holding a bond amount that did not cover rehabilitation costs.

The bonds for the Latrobe Valley mines were reassessed in 2014 as part of ERR's Bond Review Project. At the same time, the HMF I considered the rehabilitation liability estimates and bond levels for the Latrobe Valley mines as part of its investigations. At the time of the HMF I, the bonds for the mines had not been increased during the 20 years since the bonds were set.<sup>32</sup> The HMF I raised concerns about the discrepancies between:

- the bond levels;
- the mine operators' rehabilitation liability estimates; and
- estimates prepared by an independent consultant for the Inquiry.<sup>33</sup>

Since the HMF I published its report, the Latrobe Valley mine bonds have been progressively increased by ERR as follows:

*Table 3: Latrobe Valley mines bond amounts*

	Bond amount				
	1995/96	2014/15	2015/16	2016/17	2017/18
Loy Yang	\$15m	\$15m	\$56m	\$112m	\$154m
Yallourn	\$15m	\$11.46m	\$34.25m	\$68.5m	\$148m
Hazelwood	\$15m	\$15m	\$36.7m	\$73.4m	\$289m
<b>Total</b>	<b>\$45m</b>	<b>\$41.46m</b>	<b>\$126.95m</b>	<b>\$253.9m</b>	<b>\$591m</b>

Source: The department

<sup>31</sup> Rehabilitation bonds provide a mechanism to encourage industry investment in mine rehabilitation, with the aim to ensure that rehabilitation costs do not fall to the taxpayer and government. Licensees are required to provide a rehabilitation bond, which Earth Resources Regulation ('ERR', a branch of the Department) determines on behalf of the Minister based on estimates of rehabilitation liabilities arising from works specified in the licensee's work plan. The amount of the bond is calculated to address the rehabilitation liability in full, with an assumption that rehabilitation will be undertaken by a party other than the licensee, and the Minister may increase a bond if they are of the opinion that it is 'insufficient' (the Act, s 80(4)). The bond calculation factors in the additional expense expected to arise from third-party rehabilitation (stemming from the rehabilitator not holding the experience and knowledge of the mine site that the operator would have had to assist with rehabilitation planning and execution).

<sup>32</sup> Hazelwood Mine Fire Inquiry Report ('HMF I Report'), vol 4, 142.

<sup>33</sup> HMF I Report, vol 4, 143.

The rehabilitation bond increases, informed by a thorough assessment, have ensured that mine operators have greater accountability for rehabilitation costs.

Rehabilitation liabilities calculations are based on the rehabilitation activities set out in the mine's rehabilitation plan. If the plan does not comprehensively set out the necessary activities, there is a risk that the liability will be incorrectly assessed – as was illustrated in the Benambra Mine event. Where this is the case, government may be liable for risks that are the responsibility of mine operators. The HMF I also concluded that the work plans of the mines (including the rehabilitation components) are conceptual and lack detail.<sup>34</sup> The DMRP requirements in the Act require more detailed and comprehensive rehabilitation planning by declared mine operators than was previously required under work plans. This is designed to support more accurate liability assessments which will, in turn, enable more accurate rehabilitation bond setting by government and more appropriate allocation of risk.

#### *Promoting the orderly and collaborative completion of rehabilitation obligations for licensees*

The Act requires that the DMRP must include a set of closure criteria for the declared mine. Closure criteria provide a mechanism for ERR and licensees to reach an agreement on an acceptable standard for which rehabilitation is considered to be complete. This is designed to ensure that mine closure is an orderly, collaborative process which better manages and minimises the risks posed by declared mine land. Specifying closure criteria allows operators and the State to negotiate the optimal point at which responsibilities for land management can be transferred.

#### *Obtaining more information to minimise costs and risks in the event of third-party rehabilitation*

The DMRP provides a means for ERR to obtain more information about the technical characteristics of declared mine sites and proposed rehabilitation activities.

If mining operators default on their rehabilitation obligations, government is left with the responsibility of rehabilitating mine land, as occurred at the Benambra Mine. This potential cost can be considered as the contingent liability and poses a significant financial risk for government. Further, given the ongoing risks posed by declared mine land after mine closure, responsibility for ongoing monitoring and management of the mine sites also rests with government.

Analysis supporting the Hazelwood Mine Fire Inquiry found that rehabilitation is likely to be costlier if undertaken by a third party, such as government, rather than the mine licensee.<sup>35</sup> In other words, the government's contingent liability for mine rehabilitation exceeds the costs that would be incurred by mine operators for rehabilitating their own mine sites. This is in part because government does not have the same degree of technical information and experience relating to the mine as the operator.

The DMRP addresses this issue by providing a new mechanism to obtain detailed information relevant to rehabilitation from mining operators before mine closure.

#### **Registration and post-closure management**

As noted above, the size, volatility, geotechnical and hydrogeological features of the current set of declared mines mean that active controls are needed to manage the fire and instability risks posed by the mine sites for some time into the future.<sup>36</sup> Prior to the amendments to the Act, there was no clear allocation of responsibility for ongoing monitoring and maintenance, creating significant uncertainty for operators, the State and communities.

Additionally, there was no capacity for ERR to obtain or manage information about the post closure management of declared mine sites. The amendments to the Act recognise that maintenance, monitoring and management of the declared mines will be required for a considerable period after the expected closure of the mines, and return of their associated licences.

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<sup>34</sup> HMF I Report, vol 4, 177.

<sup>35</sup> It is expected that the cost of rehabilitation would be higher if rehabilitation is undertaken by a third party without the mine operators' infrastructure or personnel. Estimates of the cost of rehabilitation developed by AECOM on the assumption that the rehabilitation would be undertaken by a third party are significantly higher than other estimates. HMF I Report, vol 4, 105.

<sup>36</sup> See Appendix E for definitions of active and passive controls.



The Amendment Act addressed these issues by introducing a system for the registration of declared mine land and its rehabilitation plan, including the post-closure plan. Now, the landowner (which may be the Authority) will be responsible for the ongoing management of registered declared mine land, and the Minister will have the power to enforce declared mines' post-closure plans.<sup>37</sup>

A declared mine licensee can apply to the Minister for a determination that the closure criteria for the declared mine land have been met. The Minister must request advice from the Authority in considering the application, consult with other relevant Ministers, take into account any prescribed matter, and follow any other prescribed process.<sup>38</sup> This determination is a condition of rehabilitation bonds being repaid to declared mine licensees.<sup>39</sup> If the Minister determines the closure criteria are met, they may return the balance of the rehabilitation bond, consent to the surrender of the mine licence, and direct the Authority to register the declared mine land and its post-closure plan.<sup>40</sup>

The registration direction may require the declared mine licensee to give the prescribed information and records to the Authority, and pay the Minister the specified registration amount. The registration direction may also require the Authority to register the post-closure plan and land with any specified conditions, and in accordance with the prescribed procedure (if any).<sup>41</sup> One of the functions of the Authority is to assess the amount of funds to be paid by licensees into the Declared Mine Fund upon registration.<sup>42</sup>

The Authority is responsible for establishing and maintaining the register of declared mine land. The Authority must, for each registration of declared mine land, register the following documents:<sup>43</sup>

- Any licence (whether or not in force) that covers the land;
- The post-closure plan for the land; and
- Any prescribed records or information that relate to the land.

The Authority must also record in the register:

- The declared mine land;
- Any conditions that apply to the recording of the land; and
- Any prescribed matters.

When a post-closure plan is registered, the Authority must lodge with the Registrar notice of any land other than unalienated Crown land (land in which no other person has a legal interest) affected by the registered post-closure plan.<sup>44</sup> The Registrar must record in the Register of land any information necessary to give effect to the notice.<sup>45</sup>

A licence (other than an exploration licence during its first year) may only be transferred with the Minister's approval.<sup>46</sup> If the existing licensee has not paid all the outstanding fees, bonds, royalties and rents in respect of the licence, such approval may be subject to the proposed transferee agreeing to pay the amounts outstanding.<sup>47</sup> If the Minister is not satisfied that the existing licensee's work plan is adequate, approval may be subject to the proposed transferee being required to submit a new work plan for approval by the Department Head within the time specified by the Minister.<sup>48</sup>

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<sup>37</sup> For guidance, a Register of land has the same meaning as 'Register' in the *Transfer of Land Act 1958* (Vic) outlined in s 84AZS of The Act.

<sup>38</sup> The Act, s 84AZZ(1).

<sup>39</sup> The Act, s 82(1)(c).

<sup>40</sup> The Act, s 84AZZB(1).

<sup>41</sup> The Act, s 84AZZB(3).

<sup>42</sup> The Act, s 84AL(1)(kf).

<sup>43</sup> The Act, s 84AZZL(3)(a).

<sup>44</sup> The Act, s 84AZZD(1).

<sup>45</sup> The Act, s 84AZZD(2).

<sup>46</sup> The Act, s 33(2).

<sup>47</sup> The Act, s 33(3B).

<sup>48</sup> The Act, s 33(3C).

If the Minister cancels a mining licence relating to declared mine land because of non-compliance with a DMRP, the balance of a rehabilitation bond(s) may be paid into the Declared Mine Fund.<sup>49</sup> The Minister has discretion as to when the remaining bond money is paid into the Fund: the Minister can either use the bond money for the purposes of rehabilitation under the Act, or transfer it into the Fund for the Authority to use in rehabilitating the land itself. One outcome after a licence is cancelled is that the Authority is likely to assume responsibility for management of the land. In such a circumstance, the Minister would transfer the bond money into the Fund for the Authority to use.

The Minister may direct that registered declared mine land be removed from the register if satisfied that the factors which posed a significant risk that existed upon registration are no longer present.<sup>50</sup>

### **Declared Mine Fund**

Currently, government and the Victorian community may become liable for the ongoing risks associated with the declared mines, at significant expected cost. The licensees are liable to rehabilitate mine land under the Act. However, should they be unable to do so the Government and the community will bear the risks. The Amendment Act and the Declared Mine Fund recognise that there will be ongoing risks and liability because rehabilitation of these mines is likely to leave a need for active controls (ongoing monitoring and maintenance) for which there is currently no responsibility. This is also the case for all potential declared mines. For example, a 'tailings dam' is an earth-filled embankment that can be used to store the toxic minerals that become exposed during mining activity that would otherwise be introduced to and contaminate adjacent waterways. These tailing storage facilities are a reason for declaration and require maintenance to ensure that toxic material does not leach out and to avoid catastrophic failure of the facility.

Under the Act, the Minister may direct declared mine licensees to make a contribution into the Fund as part of their determination that the closure criteria for the mine have been met or make a direction for the mine land to be registered. The Act requires that all money be paid into the Fund which is:<sup>51</sup>

- appropriated by Parliament for the purposes of the Fund;
- received from investment of money in the Fund; and
- directed or authorised to be paid into the Fund under either the Act or other legislation.

The Act requires that amounts be paid out of the Fund which are authorised by the Minister to:<sup>52</sup>

- fund the cost of all or any part of the ongoing maintenance and rehabilitation of registered mine land;
- fund the cost of unforeseen events in relation to declared mine land;
- pay costs and expenses incurred in administering the Part of the Act relating to the monitoring and maintenance of declared mine land; and
- pay the costs of monitoring and reporting on the financial operations and position of the Fund.

The part of the Act relating to the rehabilitation of mine land generally provides that where government is required to expend money in relation to rehabilitation, that money is payable out of the Consolidated Fund.<sup>53</sup> The Consolidated Fund is the Victorian Government's primary account, and payments from it are governed by the *Financial Management Act 1994* (Vic).

### **2.3.1 Rehabilitation requirements in the 2019 Regulations**

The declared mines have work plans like all other mines licensed and regulated under the Act. As noted above, these work plans include rehabilitation components. The 2019 Regulations introduced new requirements for the

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<sup>49</sup> The Act, s 83A.

<sup>50</sup> The Act, s 84AZZM.

<sup>51</sup> The Act, s 84AZZH.

<sup>52</sup> The Act, s 84AZZI.

<sup>53</sup> The Act, s 84.

rehabilitation part of work plans for all mines, including declared mines, although for existing mines these new requirements only apply to the existing rehabilitation plans if varied after 1 July 2020.<sup>54</sup>

Prior to the remake of the Regulations in 2019, the information required in work plan approvals or variations were:

- concepts for end utilisation of the mine site;
- proposals for progressive rehabilitation, stabilisation and revegetation;
- proposals to minimise visual impact; and
- proposals for final rehabilitation and closure of site.<sup>55</sup>

The 2019 Regulations introduced new rehabilitation requirements. As these requirements involved a substantial change in what was expected, they were set to commence on 1 July 2020 to give time for guidelines to be developed.

Under the 2019 Regulations, all work plans lodged on or after 1 July 2020 must include:

- details of the proposed rehabilitation including proposed land uses;
- a land form to achieve complete rehabilitation (must be safe, stable and sustainable and capable of supporting the proposed land uses);
- objectives setting out rehabilitation domains;
- criteria for measuring objectives;
- description and schedule of rehabilitation milestones; and
- identification of risks.<sup>56</sup>

If a licensee holding an approved work plan (whether lodged pre or post July 2020) wishes to apply to vary the work plan, the application must include the information listed above for new plans lodged after 1 July 2020.<sup>57</sup>

The new information requirements only apply to new work plans lodged from 1 July 2020 and will apply for existing lodged work plans if a plan variation is submitted after 1 July 2020.<sup>58</sup> There is an exception: if the Department Head determines that the work set out in a licensee's work plan 'may pose an unacceptable risk to the environment, to any member of the public, or to land, property or infrastructure in the vicinity of that work', they may direct the work plan be varied so that it meets the new information requirements.<sup>59</sup> ERR is not able to set a time by which the variation must be submitted.

Mine operators can apply for approval of a variation to their work plan at any time.

## 2.4 Declared mines

The power to declare mines was established in 2009, in response to the recommendations of an inquiry into a collapse in the walls of the Yallourn brown coal mine in 2007.<sup>60</sup> The three Latrobe Valley mines were declared in 2010.

The power was originally limited to scenarios in which there were geotechnical or hydrogeological factors within mines (or quarries) that posed significant risks to public safety, the environment, or infrastructure or the environment. The Amendment Act expanded the list of triggering factors to include 'water quality or hydrological' as well.

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<sup>54</sup> *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019*, r 48(1) ('2019 Regulations').

<sup>55</sup> 2019 Regulations, r 43(4).

<sup>56</sup> 2019 Regulations, r 43(2).

<sup>57</sup> 2019 Regulations, r 48(1).

<sup>58</sup> The Act, sch 9, cl 3(2).

<sup>59</sup> The Act, sch 9, cl 3(4).

<sup>60</sup> By the Minister for Resources under s7C of the Act.

### 2.4.1 Mines currently declared

As of April 2022, the only mines that have been declared are the three Latrobe Valley brown coal mines. Any mine with a current mining licence can be declared if the Minister is satisfied that the requirements in the Act are met, that is, it has geotechnical, hydrogeological, hydrological or water quality factors that pose a significant risk to public safety, the environment or infrastructure. The Minister for Resources may decide to declare other mines in future.

The three opencut brown coal mines in the Latrobe Valley have been at the centre of Victoria's coal mining and power generation activities since the beginning of the 20<sup>th</sup> century.<sup>61</sup> The Yallourn power station was constructed in 1924, Hazelwood was opened in 1971 and Loy Yang A in 1988. Following decades of state ownership, the mines – and the associated power stations – were privatised in the mid-1990s. The Hazelwood power station and open cut mine were privatised in 1996 and were owned and operated by GD Suez (now known as ENGIE) from that point until the power station was decommissioned in 2017. Hazelwood is the first of the Latrobe Valley power stations to be decommissioned. Yallourn station and mine were also privatised in 1996 and are currently owned by EnergyAustralia. Loy Yang was privatised in 1995 and is currently owned by AGL (Loy Yang mine and Loy Yang A power station) and Alinta (Loy Yang B power station).

The three mines (and the associated power stations) are at different stages in their lifecycle:

- Hazelwood power station has been decommissioned and ENGIE are working towards closure and relinquishment of the mine site.
- Yallourn is scheduled to cease mining activity in 2028.
- Loy Yang is scheduled to finish mining operations in 2048, though AGL recently announced that this may be brought forward to 2040-2045. Alinta Energy acknowledged the Loy Yang B power generator may shutdown not long after 2030.<sup>62</sup>

The Latrobe Valley brown coal mines are some of the largest in the world, and the voids' size and proximity to nearby townships, infrastructure and waterways carry significant consequences for their safety and stability. The Latrobe Valley coal mines are markedly different from other mines in the State, for several reasons:

- The mines are exceptionally large – the Latrobe Valley coal mine licences cover roughly 13,000 hectares and are among the biggest mines in the world.
- The mines cannot be rehabilitated using mining waste – relative to the volumes of coal, the Latrobe Valley mines excavate only minor amounts of excess material including sand, clay, and silt as these deposits are highly concentrated. As a result, these mines have created large voids over their operating lives.
- The mines need to be constantly maintained to prevent harms to human life, the environment or infrastructure, as the coal mine walls and floor are inherently unstable and fire prone. Ground instability could harm workers in the mine and/or damage nearby infrastructure and communities, and fire is a constant risk. Smoke from the fire at Hazelwood caused long-term harm to both workers and people in the surrounding community.

These mines are extremely large, deep incisions into unstable ground, intersected by significant volumes of groundwater, and the coal itself is capable of self-combustion. This combination of features makes the mines prone to hazardous events, and, as noted throughout the following section, several major incidents over the history of the mines have damaged nearby infrastructure and endangered community safety in the region.

### 2.4.2 Physical risks associated with declared mines

The following section discusses the types of major physical risks associated with the current declared mines. The presence of these risks is a factor for consideration in the potential declaration of future mines.

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<sup>61</sup> Hazelwood Mine Fire Inquiry Report, Vol. 4, 32 ('HMF1 Report').

<sup>62</sup> Australian Financial Review, *Alinta concedes coal plant may shut 15 years early*, October 13, 2021, <<https://www.afr.com/policy/energy-and-climate/alinta-concedes-coal-plant-may-shut-15-years-early-20211012-p58z8x>>

## Land instability

Ground movement associated with mining occurs when stresses within the earth are redistributed during or because of mining works. Incidents and consequences of land instability can be confined to the mine site or can extend beyond its perimeters.

The Latrobe Valley mines involve large-scale excavation of coal, a material that is friable and mechanically weak, leading to the potential for ground movements in the surrounding land that spread a considerable distance from the mine perimeters.<sup>63</sup> Ground movements occur due to the nature of the rocks/geology within the Latrobe Valley, the significant volumes of coal and sediments extracted through mining, the nature of the surface and subsurface water bodies and the hydraulic pressures that they exert on the rocks. The following types of ground movement have been identified as being of significance to the rehabilitation of the current declared mines:<sup>64</sup>

- Block sliding
- Sinkhole formation
- Floor heave
- Subsidence.

**Block sliding** occur when high groundwater levels developing within joints/cracks exert a horizontal pressure, destabilizing the mine wall and potentially inducing large blocks of coal to slide along low-friction clay layers (inter-seams). Despite significant operational efforts to mitigate groundwater pressures within coal (most significantly, a network of horizontal drains and surface water diversions), several large-scale batter movements involving block sliding have occurred over the recent history of the Latrobe Valley coal mines:

- In February 2011, cracks appeared in the Princes Highway just north of the Hazelwood mine, leading to the closure of portions of the highway for seven months. The incident followed a period of unusually heavy rains and was partly caused by poor maintenance of a large drain located on the mine site.<sup>65</sup>
- In November 2007, a section of the Yallourn coal mine wall/batter collapsed, encompassing approximately 6 million cubic metres of material moving across an area 500m long from a height of 80m.<sup>66</sup> An Inquiry by the Mining Warden found that the failure was attributable to water pressure in a crack in the coal seam behind the area that collapsed exerting horizontal pressure on the coal block, and to water pressures in the seam of clay underneath the block of coal.<sup>67</sup> These pressures caused a buoyancy effect on the coal, reducing its resistance to sliding.

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<sup>63</sup> Victorian Mining Warden, Parliament of Victoria, *Yallourn Mine Batter Failure Inquiry* (2008),vi.

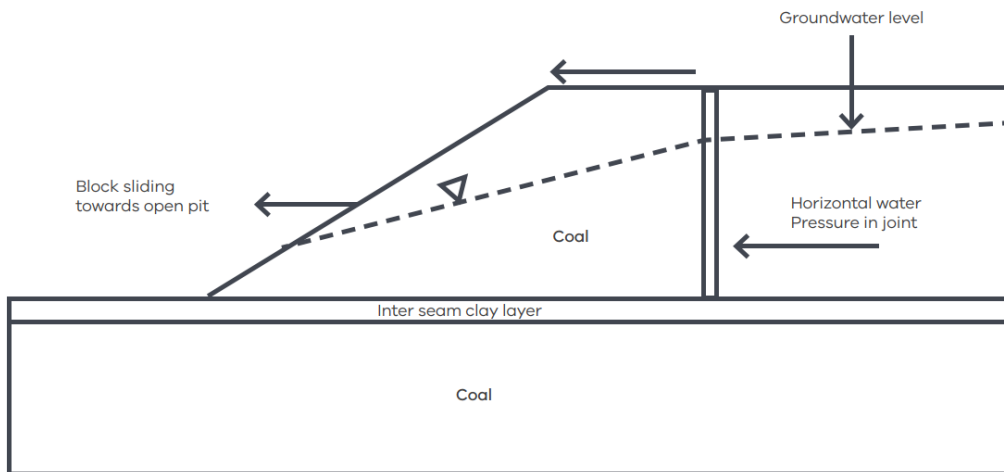
<sup>64</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy: Regional Geotechnical Study Synopsis Report* (2019), p 5.

<sup>65</sup> *Hazelwood Power Partnership v Latrobe City Council* [2016] VSCA 129.

<sup>66</sup> Victorian Mining Warden, Parliament of Victoria, *Yallourn Mine Batter Failure Inquiry* (2008), i.

<sup>67</sup> *Ibid.*

Figure 3: Simplified cross-section showing 'block sliding' mechanism



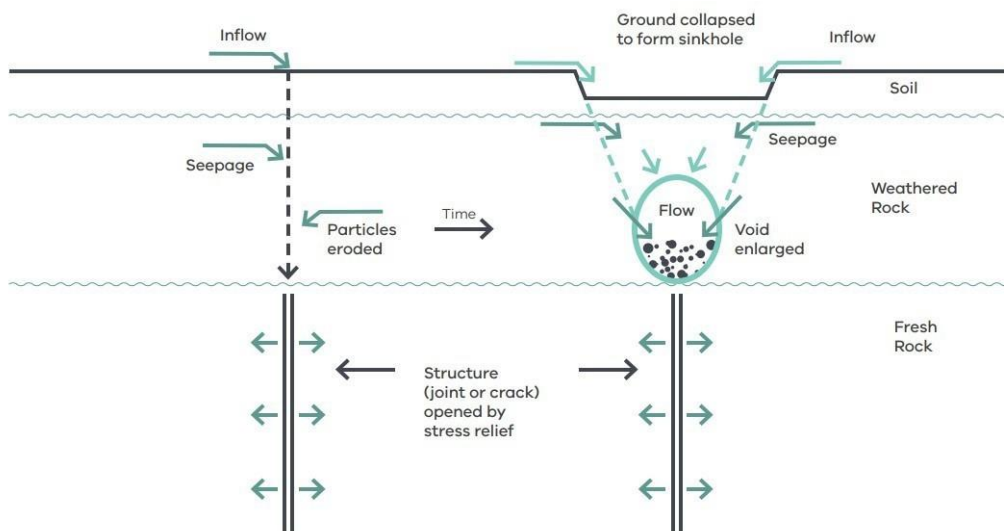
Source: LVRRS, *Geotechnical Study Synopsis, version 9, pg. 7.*

**Sinkholes** can form when surface water flows into cracks or joints in the coal or surrounding land, leading to internal erosion that ultimately creates a void large enough to cause surface collapse. This process is known as 'piping erosion'.<sup>68</sup> Sinkholes have been identified in and around the declared mine sites, including:

- In the Morwell Main Drain in 2011, when the ground cracked due to internal movement and significant amounts of water entered during heavy rainfall.
- Along forest drains near the Yallourn boundary, evident in November 2018.

A geotechnical study completed in 2019 to assist in regional rehabilitation planning considered that 'sinkhole formation is likely to be an ongoing feature of the areas adjacent to the [Latrobe Valley]' mines.<sup>69</sup>

Figure 4: Before and after schematic representation of sinkhole formation



<sup>68</sup> See Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy: Regional Geotechnical Study Synopsis Report* (2019), 8.

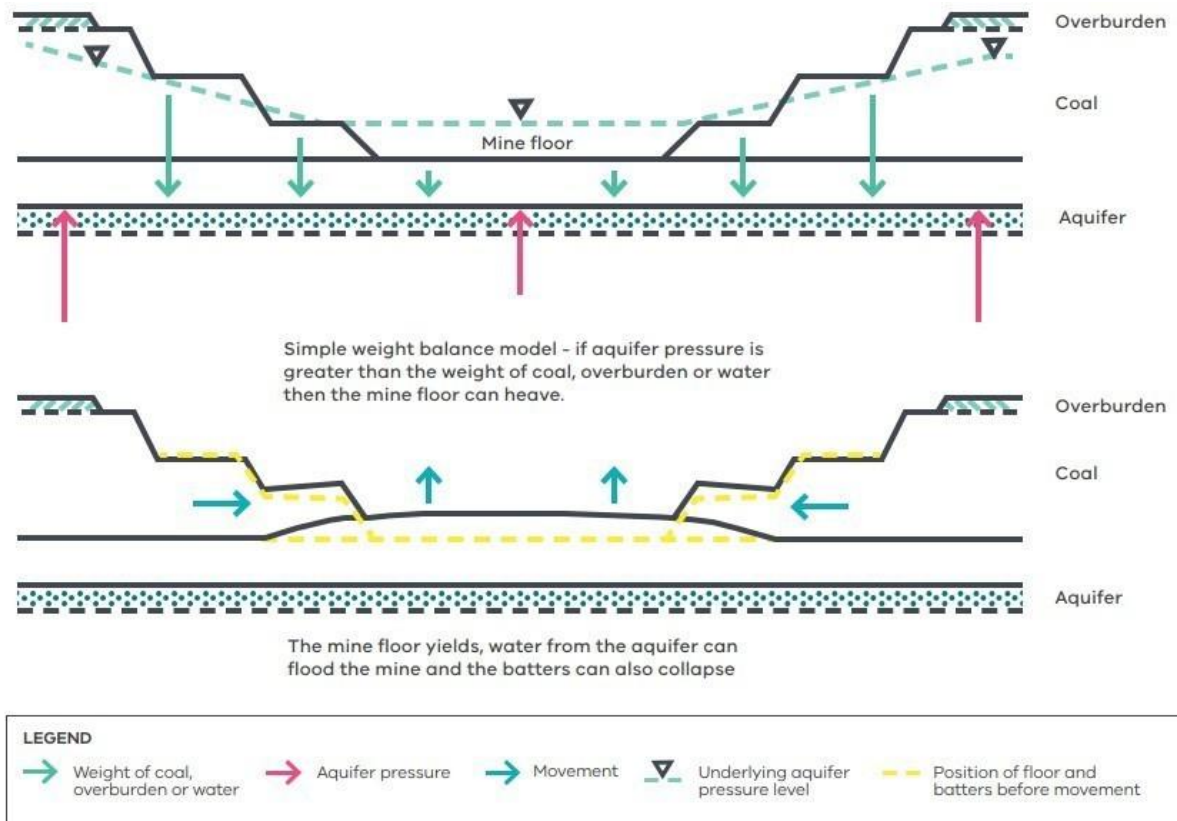
<sup>69</sup> *Ibid.*

Source: Latrobe Valley Regional Rehabilitation Strategy, Geotechnical Study Synopsis, version 9, pg. 8.

**Floor heave** refers to the upward movement of mine floors. It occurs when the upward pressure created by groundwater in aquifers below the mine floor exceeds the downward pressure created by the weight of the remaining coal and sediments above the floor. Floor heave impacts on the stability of mining machinery and can reduce the lateral resistance forces that keep mine batters (walls) in place.

Currently, floor heave is avoided by pumps at each mine site which remove considerable amounts of groundwater from the aquifers to maintain the balance between the groundwater and coal weight pressures;<sup>70</sup> but if pumping were to cease, it could be expected that groundwater pressures will increase over time.<sup>71</sup>

Figure 5: Simplified cross-section showing 'floor heave' mechanism



Source: Latrobe Valley Regional Rehabilitation Strategy, Geotechnical Study Synopsis, version 9, pg. 9.

**Subsidence** is the gradual or sudden sinking of the Earth's surface. Subsidence can occur when large volumes of groundwater are extracted from or otherwise leave geological layers within the Earth. Changes in land level have been observed across the Latrobe Valley region since the 1950s, resulting from the steady removal of groundwater from aquifers underlying the region.<sup>72</sup> The geotechnical study for the LVRRS concluded that while a total subsidence of up to 2.6m has been observed so far across the Latrobe Valley region, this subsidence, and

<sup>70</sup> HMF I Report, Vol 4, 31.

<sup>71</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy: Regional Geotechnical Study Synopsis Report* (2019), 9.

<sup>72</sup> *Ibid*, 10.

the rebound that can be expected to occur if aquifer pumping ceases, have not had and are not expected to have significant impacts on the region's built or natural environment.<sup>73</sup>

## Fire

Extreme fire danger routinely occurs in Victoria during the summer period. Since the 1970s, extreme fire weather has increased and fire seasons across Australia, including in Victoria, have lengthened.<sup>74</sup> Victoria has an annual fire season, some of which are catastrophic and lead to significant loss of life and property, many of which affect the Gippsland region. Bushfires can spread through wind blowing embers ahead of the fire, which start spot fires beyond the main fire front. This adds to the difficulty of fire-fighting responses.

The mining of brown coal, especially in open-cut mines, creates particular fire risks. Brown coal is volatile when dry: it can self-combust and is also highly flammable. Brown coal is also porous, such that there is sufficient space for oxygen within the coal seams to sustain and spread a smouldering fire below ground making fire extinguishment extremely difficult.<sup>75</sup> Victoria's brown coal deposits are also particularly vulnerable because the coal seams are located relatively close to the surface; there is only a thin layer of other material ('overburden') sitting above thick coal seams.<sup>76</sup> Numerous 'fire holes' in the area from historic lightning strike and spontaneous combustion events further elucidate the volatility of resource and the inherent fire risks posed by exposed brown coal.

Fires have occurred at the Latrobe Valley coal mines throughout their history. In 1944, a fire at the Yallourn coal mine ignited as a result of burning material floating into the mine from a nearby bushfire.<sup>77</sup> In 1977, a fire at the Hazelwood mine was started by a spark from a vehicle.<sup>78</sup> The fire spread to cover about one-third of the open cut mine.<sup>79</sup>

In February 2014, spotting embers from a nearby bushfire ignited material at the Hazelwood mine. The resulting fire at the mine burned for 45 days, sending smoke and ash over the town of Morwell and much of the surrounding areas.

The subsequent Inquiry into the fire found that the fire started as a series of smaller fires that ignited in various places on the batters and floor of the Hazelwood mine on 9 February 2014.<sup>80</sup> The fires spread quickly, and firefighting efforts by both mine staff and emergency services personnel were hampered by various factors including the failure of power supply to water pumping stations and the mine's Emergency Command Centre; a lack of optimum firefighting equipment for brown coal fires; and the fact that the fire services water system did not extend to large parts of the mine area.<sup>81</sup>

The fire also caused significant amounts of pollutants, including particulate matter; ash and smoke to spread over the surrounding areas. Inhalation of these pollutant and exposure to smoke can be hazardous to community health, particularly the elderly, those with pre-existing cardiovascular and respiratory conditions, children, pregnant women and their unborn babies.<sup>82</sup> The Inquiry found that although local residents sought more advice from general practitioners than usual during and after the fire, there was no increase in attendances at emergency departments or other hospital admissions.<sup>83</sup> However, the Inquiry noted serious concerns of longer-term health consequences from the extended exposure to particulate matter, including the aggravation or progression of existing conditions.<sup>84</sup> Firefighters and mine staff were exposed to particular hazardous conditions

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<sup>73</sup> Ibid.

<sup>74</sup> HMF I Report, vol 2, 59.

<sup>75</sup> HMF I Report, vol 2, 60.

<sup>76</sup> Ibid.

<sup>77</sup> *Stretton Royal Commission*, Royal Commission on Yallourn Bush Fires, *Report* (1944) 5.

<sup>78</sup> 'A timeline of Hazelwood power station' (30 March 2017) SBS News available at <<https://www.sbs.com.au/news/a-timeline-of-hazelwood-power-station>>.

<sup>79</sup> Gerry Carman, 'Firefighters battle Morwell coal mine inferno' (5 November 1977), *The Age* available at <<https://www.theage.com.au/national/victoria/from-the-archives-1977-400-battle-giant-morwell-coal-mine-fire-20191031-p5367g.html>>.

<sup>80</sup> HMF I Report, Executive summary, p 13.

<sup>81</sup> Ibid, 14.

<sup>82</sup> Ibid, 23.

<sup>83</sup> Ibid, 24.

<sup>84</sup> HMF I Report, Executive summary, p 24.



associated with the brown coal fire, particularly elevated levels of potentially lethal carbon monoxide. Some presented to hospital but none ultimately required admission.<sup>85</sup>

### Water quality

Mining activities can pose risks to local water quality through contamination of adjacent waterways with minerals exposed during the mining process. A ‘tailings dam’ is an earth-filled embankment dam that can be used to store these kinds of toxic by-products. There is also a contamination risk to groundwater or aquifers from poorly managed mine waste, or storage facilities within or adjacent to mine workings.

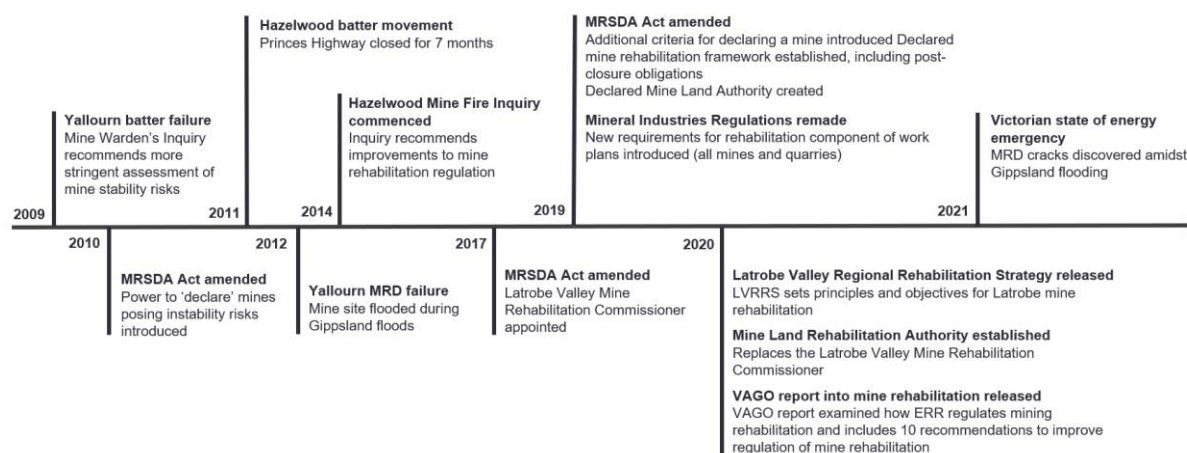
The Benambra copper mine provides an example of a mine creating serious risks to water quality. This mine was operational in the 1990s and was based on extraction of copper ore from an orebody containing copper and zinc sulphides. Sulphides turn to sulphates when exposed to oxygen and water, which in turn produces sulphuric acid. The toxic by-products of the copper mine were stored in a seven-hectare tailings dam, where water was kept at a sufficient depth to cover the sulphides and prevent oxidation – known as a ‘wet cover’.

A wet cover requires an unending maintenance regime for safety, both to ensure that the water retains a sufficient depth to prevent oxidation; and to ensure that the dam wall is stable. In the case of the Benambra mine, a collapse of the tailings dam wall could lead to the leakage of toxic waste into the adjacent Tambo River, which drains into the environmentally significant Gippsland wetlands. The Benambra mine site now requires ongoing management to ensure that the tailings dam holds sufficient water and does not collapse and affect local water quality.

### 2.4.3 Mining rehabilitation inquiries and developments

The hazardous events that have occurred over the course of the Latrobe Valley coal mines’ history have led to several inquiries into the regulation and management of the mines, which have led to incremental changes to the regulatory framework governing the mines and their rehabilitation. The inquiries and reforms are summarised in Figure 6, and more detail is provided below. The resulting regulatory framework that currently applies to declared mines is described in detail at section 2.3.

Figure 6: Timeline of Latrobe Valley mining events, inquiries and developments



### Yallourn Mine Batter Failure – Mining Warden’s Inquiry

The large-scale batter failure at Yallourn mine in November 2007 was investigated by appointed Mining Warden Tim Sullivan. The Warden’s report, published in 2008, described the physical causes of the failure – water

<sup>85</sup> Ibid, pp 24-5.

pressure in a crack in the coal, and water pressures in the interseam clays underlying the coal.<sup>86</sup> The Warden's report also made broader findings about planning and risk management for both Yallourn and the Latrobe Valley coal mines in general. The Warden recommended a 'more all-encompassing approach' to ground and surface water and to planning in the Latrobe Valley, that Government investigate the establishment of a technical review board to review mining operations and their potential impacts; and that mine plans are thoroughly evaluated from a geotechnical and hydrogeological perspective before being adopted.<sup>87</sup>

The Warden's findings led to regulatory changes implemented by the *Energy and Resources Legislation Amendment Act 2009*. This Act created the Minister's power to declare mines and a new set of stability obligations for declared mines.

### *Risks identified since Mining Warden's Inquiry*

Since the Warden's findings, cracks appeared immediately north of the Hazelwood mine in February 2011, leading to closure of portions of the Princes Highway for seven months. A Supreme Court of Victoria hearing determined that one of the factors leading to the event was inadequate maintenance of the Morwell main drain.<sup>88</sup> Soon after, the elevated Morwell River Diversion (MRD) channel traversing the Yallourn mine collapsed amidst flooding to Gippsland in June 2012, sending millions of litres of water into the open cut mine. A subsequent inquiry by the Victorian Department of Primary Industries in 2013 outlined that the failure occurred due to a flaw in the design and construction process where the materials required to fulfill the design were not available.<sup>89</sup> Subsequent flooding to Gippsland from June 2021 also led to the identification of damage to the elevated MRD channel traversing the Yallourn mine. The 2021 event forced EnergyAustralia to operate power production at one-quarter of its capacity, resulting in over 25,000 Dandenong Ranges properties being empovered during the peak of Victoria's winter. On Thursday 17 June 2021, Victoria declared a state of energy emergency. The 2021 flooding was one of the most significant rainfall events to occur in Victoria for 14 years with EnergyAustralia noting the river channel saw more than 30 times the standard volume of water to impact the MRD area.<sup>90</sup>

Work is underway to redirect river flows around the MRD channel traversing the Yallourn mine to conduct remediation repairs since 2021, but any future excessive flows or flooding event will be a risk to the integrity of the MRD, temporary works, and the mine site. The operator is progressing repairs on the MRD water bypass system with temporary repairs finalised. The operator has been granted Victorian Government approval to dewater the MRD channel to assess the damage to the MRD and estimate what additional repairs are needed. After dewatering, construction and repairs are estimated to take up to 18 months to complete.<sup>91</sup>

### *Hazelwood Mine Fire Inquiry (HMFI)*

The Inquiry into the 2014 fire at the Hazelwood mine investigated the causes, management, and consequences of the fire. The final report released by the HMFI made extensive findings in relation to the viability of proposed rehabilitation options for the Latrobe Valley coal mines, the accuracy of the liability assessments for the rehabilitation of the mines, and the framework regulating mining rehabilitation.

In relation to the rehabilitation options for the mines, the HMFI concluded that there were many unresolved issues and gaps in mine operators' and government knowledge about rehabilitation pathways for the Latrobe Valley coal mines, particularly in relation to the viability of rehabilitation to the mines' proposed post-mining pit lake landform.<sup>92</sup> In response, a process for developing a region-wide rehabilitation planning strategy, with parallel research into the mine sites and rehabilitation pathways, was initiated. The resulting *Latrobe Valley Regional Rehabilitation Strategy* ('LVRRS') is described in more detail below. The role of the Latrobe Valley Mine Rehabilitation Commissioner was also created through amendments to the Act in 2017. The Commissioner's role was to oversee and report to government on progress in developing the regional strategy and in rehabilitation

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<sup>86</sup> Victorian Mining Warden, *Yallourn Mine Batter Failure Inquiry* (2008), i.

<sup>87</sup> Victorian Mining Warden, *Yallourn Mine Batter Failure Inquiry* (2008), vii.

<sup>88</sup> *Hazelwood Power Partnership v Latrobe City Council* [2015] VSC 638.

<sup>89</sup> Seddon, K, *Review of Failure of Morwell River Diversion Yallourn*, ATC Williams Report Ref.112179.01R01 to Department of Primary Industries, (2013).

<sup>90</sup> EnergyAustralia, '*EnergyAustralia statement on the Yallourn mine*' (30 July 2021), <<https://www.energyaustralia.com.au/about-us/media/news/energyaustralia-statement-yallourn-mine-30-july-2021>>

<sup>91</sup> Premier of Victoria, '*Repairing The Yallourn Mine To Ensure Our Energy Security*' (30 July 2021), <<https://www.premier.vic.gov.au/repairing-yallourn-mine-ensure-our-energy-security>>

<sup>92</sup> HMFI Report, Vol 4, p 82 and p106.

planning by the mine operators. The Commissioner also played a role in promoting participation of local community and stakeholders within the Latrobe Valley in mine rehabilitation.<sup>93</sup>

The HMF I concluded that the rehabilitation liability estimates for the mine were likely to be based on some unsound assumptions, and that significant further research and planning would be required to accurately determine the likely rehabilitation costs for the mines.<sup>94</sup> The Inquiry also considered the functioning of the system for setting bonds, and the adequacy of the bonds set for each of the Latrobe Valley mines. Several liability assessments were reviewed by the HMF I, including the mine operators' assessments and an independent set completed by consultant AECOM. The bonds set for the mines were lower than both sets of liability assessment, which the HMF I concluded exposed the State to the risk that it would bear a significant proportion of the cost of rehabilitation in the event of default by one or more of the mine operators.<sup>95</sup>

Finally, the HMF I concluded that the work plans of the mines (in relation to rehabilitation) were conceptual and lacked detail.<sup>96</sup> This was considered to be a consequence of the regulatory framework. More generally, the HMF I considered that the regulatory scheme was 'ill-suited to contemporary needs', and that the legislation should be 'more concerned with ensuring that relevant risks are addressed by mine operators'.<sup>97</sup> In part, this was because although the mine operators had complied with their rehabilitation obligations under the Act, the obligations themselves and their implementation were insufficient to ensure that rehabilitation would be successful.<sup>98</sup> In light of its findings about the regulatory framework, the HMF I recommended improvements to the Act and its supporting regulations to address the need for:<sup>99</sup>

- A dedicated Part of the Mineral Resources Act that exclusively regulates the Latrobe Valley coal mines
- Definitions and criteria for progressive and final rehabilitation
- Definitions and criteria for closure
- Transparent processes for the referral of work plans and work plan variations to relevant State agencies and referral authorities, which compel the Mining Regulator to act on the advice received
- Strengthened criteria for community consultation and engagement under s. 39A of the Mineral Resources Act and/or in community engagement plans
- Clarity about the roles of the mine operators and the State in ongoing post-closure monitoring and maintenance
- Clarity about the role and required skills and expertise of auditors of rehabilitation liability assessments and the auditor accreditation process

These findings and recommendations ultimately led to the development and enactment of the Amendment Act in 2019. More detail about how each element of the declared mine rehabilitation framework introduced by the Amendment Act responds to the HMF I recommendations is included in 2.2.2.

### ***Latrobe Valley Regional Rehabilitation Strategy***

The LVRRS is the centrepiece of the government's response to the Hazelwood Mine Fire Inquiry, and delivers on the legislated requirement under the Act for the Minister for Resources to prepare a document that sets out a strategy in relation to:

- the safety, stability and sustainability of coal mine land and any adjacent land;
- the planning for the Latrobe Valley region in relation to the rehabilitation of coal mine land and any adjacent land, and the relationship between each mine void; and
- the development of a plan for the monitoring and evaluation of coal mine land after rehabilitation of that land is complete.<sup>100</sup>

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<sup>93</sup> Latrobe Valley Regional Rehabilitation Strategy, p 32.

<sup>94</sup> HMF I Report, Vol 4, p 129.

<sup>95</sup> HMF I Report, Vol 4, p 142.

<sup>96</sup> HMF I Report, Vol 4, p 177.

<sup>97</sup> HMF I Report, Vol 4, p 180.

<sup>98</sup> Ibid.

<sup>99</sup> HMF I Report, Vol 4, p 181.

<sup>100</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), p 5. See The Act, s 84AZM.

The LVRRS supports integrated planning and decision-making for the rehabilitation of the Latrobe Valley coal mines by providing guidance to the community, mine licensees, public sector bodies and other stakeholders on matters relevant to the rehabilitation of the mines.<sup>101</sup>

The LVRRS also sought to address knowledge gaps that have been identified in the viability of proposed rehabilitation options for the mines (i.e., pit lakes).<sup>102</sup> Technical studies of the region's water and geotechnical characteristics were completed as part of the LVRSS program.

The LVRRS Geotechnical Study found that without active rehabilitation controls (i.e., maintaining horizontal bores in the batters, groundwater depressurisation, surface water diversions, ground movement monitoring, fire suppression systems) and regulation practices cannot guarantee the prevention of major ground movements or coal fires. Rehabilitation would implement and maximise the use of passive controls to supplant active controls i.e., the use of materials to stabilise mine floors and batters and cover exposed coal faces to provide a more sustainable and effective way of minimising these risks.<sup>103</sup> Accordingly, the LVRRS considers that as the Latrobe Valley coal mines close, it will be 'highly desirable' to rehabilitate i.e., transition to passive controls rather than using active controls to keep empty mine voids safe.<sup>104</sup>

The LVRRS Water Study assessed the regional water resource and ecological impacts arising from the full or partial filling of the mine voids with water taken from the Latrobe Valley river system and aquifers. The LVRRS water study assessed the amount of water required to fill the mine voids and the rate at which the voids would need to be filled. It concluded that there is 'significant uncertainty' about whether water required for water-based rehabilitation would be available from the Latrobe River systems under the expected drying climate conditions. The LVRRS water study also found that in a dry climate scenario, water from the river system would not be available for mine rehabilitation because it would have 'unacceptable impacts' on existing water entitlement holders and environmental flows.<sup>105</sup>

The LVRRS outlined a series of implementation actions, including the development of the Declared Mine Regulations and other implementation activities include:

- The provision of guidance on the use of climate change scenarios for water resource planning for mine rehabilitation.
- Preliminary findings on guidance on potential water sources and access arrangements, the feasibility of alternative water sources and alternative/contingency rehabilitation options to manage land stability and fire risks if sufficient water is not available. These findings have been discussed with stakeholders and are being finalised.
- Continued support for the Integrated Mines Research Group.

The consideration of relevant regional/other policy documents is envisaged at various points in the Act. The principles from the LVRRS informed the development of the regulatory options assessed in this RIS and are set out in section 4.2.2.

#### **2.4.4 Challenges in declared mine rehabilitation planning**

The current set of declared mines pose significant physical risks to the communities, environment and infrastructure that surround them. As noted above, rehabilitation during mine operation, and management of residual risks after closure, seek to mitigate these risks.

However, there are several risks and uncertainties that both mine operators and government need to consider in planning for the rehabilitation of these declared mines. Inter-related economic and environmental factors – particularly concerning water allocations, climate change and environmental policies – bring uncertainty to the operating environment and can impact the commercial feasibility of the mines. These uncertainties also directly affect the rehabilitation options available to the licensees. Managing and regulating the current set of declared

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<sup>101</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), p 5.

<sup>102</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy: Program Summary* (February 2018), p 3.

<sup>103</sup> See Appendix E for definitions of active and passive controls.

<sup>104</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), p 10.

<sup>105</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), 11-12.

mines also carries potential implications for energy security in Victoria because of possible flow-on impacts to the power stations attached to the mines.

### ***Viable rehabilitation options***

All three of the Latrobe Valley mines have current work plans that have identified a form of pit lake as their preferred rehabilitation option. The safest solutions to rehabilitating the mines depend on three key factors of the mine sites that must be adequately managed, namely:

- Vertical groundwater pressures of the mine pit floor must be managed to prevent sinkhole and floor heave formation as outlined in 2.4.2. This upward pressure is currently managed at the Hazelwood and Loy Yang mine sites through continuous groundwater pumping to minimise the risks associated with vertical pressures.
- Horizontal pressures of the mine pit walls must be managed to prevent the risks of land instability events associated with groundwater that exert lateral pressures on the mine site. For example, this can include block sliding as outlined in 2.4.2. Currently, such pressure at the Hazelwood and Loy Yang mine sites are managed through continued drainage of groundwater from behind the mine pit walls.
- Coal that has become exposed due to the open cut nature of the mine site must be managed to control for fire risks that arise from the porous and flammable properties of the resource. Any rehabilitation solution must account for the maintenance of cover material used to cover this exposed coal.

These factors all currently involve a significant level of active controls being applied to mediate the risks of land instability and fire events associated with the Latrobe Valley coal mines. The most ideal rehabilitation solution needs to transition active mine site controls to that of passive controls in the future. Ranking the rehabilitation solutions from the most ideal to the least safe option consists of:

- A 'full pit lake' that fills the mine void with water is recognised as the safest solution to rehabilitating the coal mines by mediating the vertical and horizontal pressures applied to open pit mine voids that result in ground land instability events and the coverage provided to exposed coal to control for fire risks. This solution would reduce the level of active controls required of the mine site in the future which would be supplanted to passive controls which are more feasible practically and financially to the landowner.
- A 'partial pit lake' involves filling part of the mine pit void with water and some earthwork material that includes less water than a full pit lake solution. This option opposes the vertical pressures exerted on the pit void but does not adequately mediate the lateral pressures that exist on the pit void and results in more exposed coal which must be covered by some other material to control for fire risks.
- A 'dry void' solution is deemed the most unideal solution for mine rehabilitation due to the significant level of active controls that remain to keep the pit void stable. A dry void option does not adequately combat the horizontal and lateral pressures experienced in pit voids and implicates the largest amount of coal resources exposed to the open environment. This option also relies on a significant amount of earthworks material to fill the mine void which cannot be sourced from local material or onsite mining waste due to the high concentration of coal deposits in the Latrobe Valley mines as outlined in 2.4.1.

### ***Available resources for mine site rehabilitation***

The declared mines are extremely large structures. For example, the area of the Loy Yang mine alone is as large as Melbourne City from Docklands to Richmond with a maximum depth of over 200m. Ensuring that the mine walls and floor are stable is critical to ensure future productive uses of the mine site as well as protecting local waterways and infrastructure around the mine. The current rehabilitation options for each of the mines requires a significant amount of water over many decades. Future water volume entitlements have a significant impact on the timeframes for planning rehabilitation and the objectives of the proposed landform after closure. These timeframes could be significantly extended if dry conditions reduce the availability of surface water sources.<sup>106</sup>

The total amount of water estimated to create full pit lakes at the three Latrobe Valley mine sites is more than four times the amount of water that exists in the Sydney Harbour Bay.<sup>107</sup> The LVRRS Water Study found that given the volumes required for a comprehensive water-based approach to mine site rehabilitation, it is unlikely such an option can be fulfilled from surface water catchments alone in the Latrobe River and Gippsland

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<sup>106</sup> Latrobe Valley Regional Rehabilitation Strategy – Regional Water Study Synopsis Report (October 2019), 3

<sup>107</sup> HMF1 vol 4, 34.

system.<sup>108</sup> The mines' current rehabilitation bonds have also been determined based on their current work plans to undertake a pit lake rehabilitation.

Water from the Latrobe River system must be responsibly managed by considering the diversity of users seeking resource entitlements, the various uses for which water entitlements are intended and where future water supplies will be sourced from. The variety of users that rely on water in the Central and Gippsland Region and values underpinning their use is plentiful; including farmers, town, regional and urban users, and private industry who all possess a claim on water entitlements for use which includes domestic and stock use, agriculture, electricity generation, mine land rehabilitation and environmental preservation, among others.

Recent drier and warmer climate conditions have been accompanied by less average rainfall and more variability each year.<sup>109</sup> As a result, the amount of water flowing into river systems to refill water storages has been declining since the early 2000s accompanied by increased surface temperatures, extended periods of drought and greater environmental damage to dry lands from flooding events and extreme bushfires.<sup>110</sup> Climate change will continue to affect streamflow and the conditions of already stressed waterways.<sup>111</sup> Although it makes up less than 25 per cent of Victoria's land area, the Central and Gippsland Region supplies water to more than 90 per cent of Victoria's population, placing this figure at over 6 million individual urban users and growing. While not the only sources of water, less than 10 per cent of the surface and groundwater entitlements in the Central and Gippsland Region are dedicated to electricity generation and mine site rehabilitation, with greater entitlement volumes reserved for energy production than mining rehabilitation.<sup>112</sup> The LVRRS outlines that decisions on water allocation for rehabilitation will be made 5 years before the scheduled closure date of each mine.

### *Market-led proposals for future water security*

Part of the Victorian Government strategy to address anticipated future water shortages involves establishing a commercial solution on alternative water sources that account for diverse stakeholders and planned usage. Setting the market value of bulk water entitlements is a highly complex process that must capture relevant factors including but not limited to current and future market segments, demand forecasting, regulator revenue requirements, the feasibility and quality of proposed water sources and the pricing structure adopted for the Victorian market.<sup>113</sup> The sources of manufactured water responses for example can include recycled water from wastewater processing, desalinated water and stormwater. The current operating environment has prompted a Victorian Government strategy to develop viable policy initiatives that use water more efficiently and incrementally expand the available water resource pool for all users. Options for rehabilitation that do not solely rely on water from the Latrobe River system are being considered under this which, for instance, includes manufactured water sources.

The region's drying and variable climate presents both challenges and opportunities for developing future rehabilitation options that include water sourcing. Future rehabilitation solutions that can adapt to new climate realities while curtailing the financial costs of viable options that protect water security will be integral to the feasibility of rehabilitating mine sites.

The instruments governing the allocation of water entitlements fall outside the scope of the Act and the proposed Regulations assessed in this RIS.

### *Economic uncertainty*

The operators of the declared mines are currently operating in a climate of significant economic uncertainty, with the COVID-19 pandemic, and government policies relating to climate change and the transition towards renewable power generation, all impacting on the commercial feasibility of the mines and associated power stations. These factors influence the operating environment of the mines, including planning for rehabilitation.

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<sup>108</sup> LVRRS, 11.

<sup>109</sup> The State of Victoria Department of Environment, Land, Water and Planning, *Central and Gippsland Region Sustainable Water Strategy: Discussion Draft* (CGRSWS) (November 2021), 15.

<sup>110</sup> Bureau of Meteorology & Commonwealth Scientific and Industrial Research Organisation, *State of the Climate 2020* (Canberra, Australian Government: 2020), 2.

<sup>111</sup> Rauniyar, S. P., and Power, S. B. (2020). The Impact of Anthropogenic Forcing and Natural Processes on Past, Present, and Future Rainfall over Victoria, Australia. *Journal of Climate* 33, 18, 8087-8106, < <https://doi.org/10.1175/JCLI-D-19-0759.1>>.

<sup>112</sup> CGRSWS, 47.

<sup>113</sup> Essential Services Commission, *Water Pricing Framework and Approach: Implementing PREMO from 2018* (October 2016).

The Victorian Government has set a long-term emissions reduction target of zero net emissions by 2050 under the *Climate Change Act 2017*.<sup>114</sup> The Government has also committed to sourcing 50 per cent of the state's energy needs from renewable sources by 2030.<sup>115</sup> These targets set the scene for a transition away from the state's traditional reliance on coal-fired power generation, which becomes a factor in decision-making by the declared mines.

This decline in demand for coal is echoed on a national and global scale. Primary energy production from brown coal in Australia decreased from mid-2009 to mid-2019 at an average rate of -5.1 per cent per annum.<sup>116</sup> Approximately 83 per cent of Australia's brown coal reserves reside in Victoria.<sup>117</sup> According to the International Energy Association's ('IEA') *World Energy Outlook* released in October 2021, a future global outlook based on stated policy scenarios from public and private sectors shows aggregate fossil fuel demand slowing to a plateau in the 2030s with subsequent falls up until 2050.<sup>118</sup> This is particularly noted for coal where its demand is anticipated to grow sluggishly up until 2024 and subsequently rapidly decline after 2030.<sup>119</sup> There has been a steep increase in coal energy plant retirements across the globe and approvals of new coal-fired plants have slowed dramatically in recent years, stemmed by decreases in the cost of energy generation from renewable sources and greater costs associated with financing raw mineral resource mining activity.<sup>120</sup> Since 2010, international coal power plant retirements have averaged around 25 GW each year, largely reflecting the closure of ageing plants in Europe and the United States. The same IEA report predicts that by 2030, carbon emissions from existing coal-fired power plants will be three-quarters below the levels of 2020. IEA's modelling shows almost all future net growth in energy demand will come from low emissions sources. A separate report by British Petroleum the *Statistical Review of World Energy* released July 2021 found global coal consumption fell by 4.2 per cent in 2020.<sup>121</sup>

These local and global conditions can impact the commercial feasibility of the declared mines. The energy executive of EnergyAustralia, Yallourn's operator, indicated in late July 2020 that the company could be forced to bring forward the power station's scheduled closure date as a result of such external factors. The company announced the potential purchase of an aluminium smelter in Portland in an attempt to secure the demand for its power created by the smelter's operations.<sup>122</sup> On 30 June 2021, AGL planned to demerge its business to become two entities, AGL Australia and Accel Energy.<sup>123</sup> The demerger included their power generation assets in the Latrobe Valley and was to be subject to regulatory, court and shareholder approvals. If the demerger went ahead, it would have resulted in an application to transfer licences held by subsidiaries of AGL under the Act. AGL were targeting a demerger to be implemented through a court-approved Scheme of Arrangement by the end of June 2022 but advised the ASX it would withdraw the demerger proposal on 20 May 2022.<sup>124</sup>

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<sup>114</sup> Victorian Government Department of Environment, Land, Water and Planning, 'Emissions reduction targets' (30 August 2019) <<https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets>>.

<sup>115</sup> Victorian Government Department of Environment, Land, Water and Planning, 'Victoria's renewable energy targets' (9 April 2020) <<https://www.energy.vic.gov.au/renewable-energy/victorias-renewable-energy-targets>>.

<sup>116</sup> Geoscience Australia, *Australia's Energy Commodity Resources* (2021) <<https://www.ga.gov.au/digital-publication/aecr2021/coal>>

<sup>117</sup> Senior, A., Britt, A.F., Summerfield, D., Hughes, A., Hitchman, A., Cross, A., Champion, D., Huston, D., Bastrakov, E.N., Sexton, M., Moloney, J., Pheeney, J., Teh, M., Schofield, A. 2021. *Australia's Identified Mineral Resources 2020*. Geoscience Australia, Canberra. <http://dx.doi.org/10.11636/1327-1466.2020>

<sup>118</sup> International Energy Association, *World Energy Outlook 2021* (Flagship report, December 2021), 'Executive Summary, Key themes of WEO-2021' <<https://www.iea.org/reports/world-energy-outlook-2021>>

<sup>119</sup> International Energy Association, *World Energy Outlook 2020* (Flagship report, October 2020), 'Global coal demand by scenario, 2010-2040' graph <<https://www.iea.org/data-and-statistics/charts/global-coal-demand-by-scenario-2010-2040>>

<sup>120</sup> BloombergNEF, *New Energy Outlook (NEO)*, 2020. Historic LCOE benchmark dataset; G Samuel, *Independent Review of the EPBC Act – Final report* (Canberra, Department of Agriculture, Water and the Environment, 2020), 1. International Energy Association, *Coal 2021* (December 2021), 'Executive Summary, Key themes of WEO-2021' <<https://www.iea.org/reports/world-energy-outlook-2021>>

<sup>121</sup> British Petroleum Group, *Statistical Review of World Energy* (70<sup>th</sup> edition, July 2021), 'Coal consumption' <<https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/coal.html.html#coal-consumption>>

<sup>122</sup> Williams Perry, 'Energy Aust eyes smelter rescue to keep coal firing' (27 July 2020) *The Australian*.

<sup>123</sup> AGL Energy, 'Confirmation of intention to demerge, announcement of dividend actions and affirmation of earnings guidance' (30 June 2021, Media Release) <<https://www.agl.com.au/about-agl/media-centre/asx-and-media-releases/2021/june/confirmation-of-intention-to-demerge-announcement-of-dividend-and-affirmation-of-earnings-guidance>>

<sup>124</sup> AGL Energy, 'AGL Energy Demerger – Investor Presentation' (6 May 2022, ASX & Media Release) <<https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/media-centre/2022/220506-agl-energy-demerger-investor-presentation.pdf>>

Mine operator ENGIE announced the retirement of its Hazelwood power station in November 2016, citing the company's planned transition to low-carbon projects for power generation along with 'difficult market conditions' for the power station.<sup>125</sup> The ENGIE announcement illustrates how mine operators may respond to changing government environment and energy policies combined with significant economic uncertainty.

### **Impacts on electricity supply**

The two declared mines that are still operational contribute significantly to Victoria's electricity supply. Managing and regulating the current set of declared mines carries potential implications for energy security in Victoria because of possible flow-on impacts to the power stations attached to the mines. These impacts may not be relevant to future declared mines.

In 2019, Victoria sourced 70 per cent of its electricity from burning brown coal produced by the three Latrobe Valley coal mines.<sup>126</sup> Although this represents a reduction on previous years – in 2015, brown coal accounted for 85 per cent of Victoria's electricity production<sup>127</sup> – Victoria remains heavily reliant on coal-fired power stations for its electricity supply.

Unexpected or unmanaged disruption to electricity supplies, including those caused by the unexpected or early closure of mines and associated power stations, or fire and ground instability events, can have significant negative consequences.

While critical facilities such as hospitals and aged care units typically have emergency back-up electricity supplies, the average household does not. Some parts of the Victorian community are vulnerable to harm associated with extreme heat – particularly the elderly, sick or injured, and the very young.<sup>128</sup> Electricity supply disruption can also have adverse effects on public health, for example making it difficult to store food safely.<sup>129</sup>

Meanwhile, numerous economic and infrastructure-related consequences can arise from prolonged and temporary electricity supply disruptions, including transport, healthcare and banking system failures, issues in agricultural processes such as milking, and overall productivity losses.<sup>130</sup> Environmental problems can also ensue. For example, the failure of electricity to a sewage treatment facility could lead to untreated sewage being discharged directly into waterways.<sup>131</sup>

Although there are other sources of electricity in Victoria, including solar, wind, hydro and natural gas, renewable energy sources are intermittent. However, the construction of energy infrastructure is a time and resource intensive process, requiring considerable planning and implementation lead-in. In relation to the Yallourn mine and power station specifically, modelling by the Australian Energy Market Operator (AEMO) identified increased energy supply scarcity risks in Victoria's network due to decreased reliability of coal-fired power generation.<sup>132</sup> It is anticipated that this trend of decreased energy reliability from coal-fired generators will continue. AEMO also highlighted that the Yallourn power station's planned retirement being brought forward from 2029-2032 to 2028 raises a potential reliability gap in Victoria in 2030-31 due to the power system becoming more exposed to extreme weather events that could lead to supply scarcity.<sup>133</sup> This capacity risk exists due to a high reliance on proposed renewable energy projects in Victoria that are not yet committed or commenced which must be delivered to satisfy the predicted energy generation gap. This identified supply gap is also independent of the increased likelihood of Loy Yang A and B power stations closing earlier than planned.<sup>134</sup>

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<sup>125</sup> ENGIE, 'Hazelwood power station in Australia to close at the end of March 2017' (3 November 2016, Media Release) <<https://www.engie.com/en/journalists/press-releases/hazelwood-power-station-australia>>.

<sup>126</sup> Department of the Environment and Energy, *Australian Energy Update 2020*, Table O.

<sup>127</sup> Ibid.

<sup>128</sup> Victorian Department of Human Services, *January 2009 Heatwave in Victoria: an Assessment of Health Impacts* (2009).

<sup>129</sup> Emergency Management Victoria, 'State Emergency Response Plan: Electricity and Gas Supply Disruption Sub-Plan' (2016).

<sup>130</sup> Ibid.

<sup>131</sup> Ibid.

<sup>132</sup> Australian Energy Market Operator, *2021 Electricity Statement of Opportunities* (August 2021), 4,

<[https://www.aemo.com.au/-/media/files/electricity/nem/planning\\_and\\_forecasting/nem\\_esoo/2021/2021-nem-esoo.pdf?la=en](https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2021/2021-nem-esoo.pdf?la=en)>

<sup>133</sup> Australian Energy Market Operator, *Victorian Annual Planning Report* (October 2021), 5, <[https://aemo.com.au/-/media/files/electricity/nem/planning\\_and\\_forecasting/vapr/2021/2021-victorian-annual-planning-report.pdf?la=en](https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/vapr/2021/2021-victorian-annual-planning-report.pdf?la=en)>

<sup>134</sup> Australian Energy Market Operator, *Draft 2022 Integrated System Plan* (December 2021), 44, <<https://aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation>>



The immediate, unmanaged or unexpected closure of any of the current declared brown coal mines, irrespective of the cause, would have significant adverse effects for Victoria's people, environment and economy.

## 2.5 Current state of declared mine regulation and planning

This RIS assesses potential options for new regulations under the Act. These regulations are developed to align with ongoing broader reform and planning for the rehabilitation of the Latrobe Valley mines, and to apply to any mines that are declared in future.

### 2.5.1 Regulation and policy instruments in effect

In summary, the current state of play with respect to regulation and policy instruments governing the rehabilitation of declared mine land is:

- The declared mine rehabilitation framework introduced by the Amendment Act is in force but requires supporting regulations to ensure it can be effectively applied to the mines and their licensees.
- The new, more detailed requirements for the rehabilitation component of work plans introduced by the 2019 Regulations are in force, but do not apply retrospectively and will not automatically apply to the mines and their licensees. In February 2020, the department issued guidelines on making a rehabilitation plan under the 2019 Regulations.<sup>135</sup>
- The LVRRS has been published and sets out principles for decisions, by government and licensees alike, made in relation to the rehabilitation of the Latrobe Valley coal mine sites.

### 2.5.2 Next steps in the reform project

The LVRRS established the strategic framework for rehabilitation planning in the Latrobe Valley. The Water Study and Geotechnical Study prepared to support the LVRRS made progress towards filling the knowledge gaps identified by the HMF.

The LVRRS has set out the parameters within which water decisions in the Latrobe Valley will be made.

Work is underway to deliver the six implementation actions prescribed within the LVRRS. This work will include, among other things, further consideration of the costs, benefits and risks associated with alternative water sources to support mine rehabilitation, as well as rehabilitation options that don't rely on water.

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<sup>135</sup> Earth Resources Regulation, *Preparation of Rehabilitation Plans: Guideline for Mining and Prospecting Projects* (February 2020).

## 3 The nature and extent of the problem

### 3.1 Scope of this RIS

This RIS assesses options for new regulations to support the declared mine rehabilitation framework introduced by the Amendment Act. The RIS also considers whether non-regulatory options could be sufficient to achieve the objectives of the framework.

The scope of the RIS is limited to the assessment of various pathways to operationalise the declared mine rehabilitation framework under the Act, and will not assess the broader LVRRS actions, other supporting government rehabilitation actions or decisions required under other legislation.

### 3.2 The need to give effect to rehabilitation planning obligations

The Amendment Act and the 2019 Regulations both introduced requirements designed to increase the level of detail in rehabilitation planning by declared mine licensees. However, neither set of requirements apply unconditionally to the current set of declared mines. This means that without supporting regulations the problems associated with vague and conceptual rehabilitation plans will persist, diminishing the objectives of the legislative reforms. The current 2019 Regulations requirements do not encompass post-closure planning. As a result, responsibility for planning and undertaking the ongoing work to monitor and maintain the mine sites after closure would remain unclear.

#### 3.2.1 Prescribing a period for the preparation of the DMRP

The DMRP element of the Act is designed to promote comprehensive and adequate rehabilitation planning (including post-closure management) by licensees, to ensure that government has sufficient information to assess and manage rehabilitation-related risk to the State, and to manage the mine sites post closure. The obligation to prepare a DMRP forms the crux of the rehabilitation framework introduced by the Amendment Act, and was developed in response to the issues identified by the Hazelwood Mine Fire Inquiry with respect to the existing declared mines' work plans, and to problems with rehabilitation regulation more broadly found by other inquiries in recent years.

The Act requires declared mine licensees to prepare a DMRP 'within the prescribed period.'<sup>136</sup> Without regulations to prescribe this period, this obligation, which underpins much of the declared mine rehabilitation framework, is effectively redundant.

#### 3.2.2 The 2019 Regulations do not apply to the current declared mines

While the 2019 remaking of the Regulations sought to address the risk of inadequate rehabilitation planning, these obligations do not automatically apply to the current set of declared mines. The requirements introduced in the 2019 regulations will only apply if and when:

- A mine licensee submits a variation to their work plan; or
- The Department Head determines that operations at the mine pose an 'unacceptable risk' and directs that the licensee submit a work plan variation.

There is no direct capacity for ERR to set a timeframe around the submission of a work plan variation, so the timeframe for the application of the 2019 Regulations requirements cannot be specified under either scenario.

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<sup>136</sup> The Act, s 84AZU(2).

Delays in operators' submission and regulatory approval of detailed rehabilitation plans create uncertainty for government and operators in reaching an agreement on acceptable closure outcomes and rehabilitation plan requirements to meet obligations in the Act.

### 3.2.3 The 2019 Regulations do not extend to post-closure planning

Even if the 2019 Regulations were to apply to the current declared mines as a result of a work plan variation, the rehabilitation planning requirements do not require detailed post-closure planning. The 2019 Regulations only require information about likely post closure risk, activities to mitigate risks and cost for the rehabilitation land for the purpose of assessing whether the proposed rehabilitation outcome has been achieved. The licensee is not bound to plan for or undertake the activities to mitigate risks.

Due to the nature of the mine sites and the surrounding landscapes, intervention, management, and monitoring will need to continue in perpetuity dependent on the rehabilitation landform achieved and the end of the licensees' rehabilitation obligations to avoid and mitigate the risks identified at section 2.4.1.

This means that without new regulations, there is a continued lack of clarity on assigning responsibility for the planning and undertaking of ongoing management at the declared mine sites, creating significant risks for the State and community.

## 3.3 The need to operationalise the declared mine rehabilitation framework

The Act provides a framework for managing the risks and associated financial liability of declared mines but without additional supporting detail this framework cannot function effectively.

As noted in the amending bill's second reading speech, most of the declared mine rehabilitation provisions in the Amendment Act were 'enabling', with detail to be contained in regulations. Without supporting regulations, the Act's provisions have insufficient detail to achieve legislative objectives and ensure adequate regulatory decision-making to manage risks and liability, to create certainty for operators around their responsibilities, or to inform the community around the post-closure state of declared mine land.

### 3.3.1 Rehabilitation planning and oversight

#### Problem statement

The current rehabilitation plans and planning requirements do not identify and respond to ongoing declared mine risks sufficiently to achieve legislative objectives.

As noted above, the HMF I concluded that the current declared mines' rehabilitation plans (contained in the mines' work plans) were conceptual and vague, and that the regulatory framework was not sufficiently concerned with ensuring that relevant risks were addressed by mine operators. Although the mine operators were complying with their rehabilitation obligations under the former framework, these obligations were not successfully ensuring that rehabilitation would be successful.<sup>137</sup>

The requirement to prepare a DMRP introduced by the Amendment Act seeks to address this problem. However, the Act does not provide any guidance as to what is to be included in the plan beyond the core components of closure criteria, a post-closure plan, an undertaking to pay the registration amount, and an assessment of the risks posed by the declared mine. The Act envisages that detail to support these requirements will be 'prescribed' by Regulations.

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<sup>137</sup> HMF I Report, vol 4, 180.

Without additional detail, the current plans and planning requirements do not provide enough guidance to promote rehabilitation to a safe, stable and sustainable landform and to ensure the comprehensive planning for the post-closure management of the site.

The lack of supporting detail also impairs the Act's ability to ensure that government has sufficient information about the declared mine sites to:

- understand the risks and technical features of mine sites;
- set appropriate rehabilitation bond amounts;
- undertake its own rehabilitation in the event of default;
- plan for and undertake post-closure management of declared mine sites; and
- engage in integrated and informed decision-making across government (for example, with respect to water allocation decisions).

## Mine closure determination

### Problem statement

The current regulatory framework does not include specific requirements for the closure process or decisions on whether rehabilitation is satisfactory, or ensure integrated decision-making with relevant regulators and other appropriate parties.

The Act provides that an application for determination that the closure criteria for a mine have been met must be accompanied by the prescribed information, and that the Minister must make their decision upon closure by taking into account the prescribed matters and following the prescribed process. This part of the Act provides an added mechanism for ensuring that decision-making in relation to mine closure is integrated across government and fully informed by appropriate material and advice. However, without additional detail, the Act cannot achieve these objectives.

Currently, there is no information or process prescribed in regulations to support decision-making on mine closure criteria, meaning that the decision on mine closure may not be informed by sufficient information on the ongoing risks of the post-closure landform, technical understanding of the post-closure management process or properly integrated with other government decisions.


## Mine land registration

### Problem statement

Declared mine land will require ongoing monitoring, maintenance and management to meet legislative rehabilitation objectives. The current framework does not ensure that sufficient information is handed over to government to enable the ongoing monitoring, maintenance and management of rehabilitated land.

The Act creates a mechanism for mine operators to contribute to the costs of post-closure management of declared mine land through the declared mine fund, but does not set a process for how contributions to the fund will be calculated, creating uncertainty for mine operators and the government on how contribution amounts will be determined.

Declared mine operators hold technical information about the operation and rehabilitation of their mine sites. Under the current regulatory framework there are limited mechanisms for the government to require mining operators to provide information about the mine sites (including details of their historic and future rehabilitation) upon mine closure. Once mining operations cease and licences are relinquished, important information about the characteristics, rehabilitation activities and safety of the mine land can therefore be lost. This creates the risk of events similar to what occurred following the closure of the Benambra copper mine, where government was left with the responsibility for rehabilitating the mine land without detailed information about the mine site, increasing the costs of rehabilitation (see section 2.4.2). There is also a public interest in information about declared mine land because of the ongoing risks of negative impacts introduced to areas beyond the area of declared mine land. For example, subsidence and other ground stability issues created by the Latrobe Valley coal mines may occur in adjacent land.



The Amendment Act sought to address these issues through the introduction of the public Declared Mine Land Register. Information about declared mine rehabilitation and risks are obtained by government through two mechanisms under the Amendment Act and the Act:

- the Minister's direction to the Authority to register declared mine land may require the licensee to give the prescribed records and information to the Authority; and
- the Authority's obligation to record the post-closure plan and prescribed records or information for the declared mine land on the Register.

Neither mechanism will function effectively without additional regulations to detail the records and information to be transferred or registered.

The Declared Mine Fund was implemented by the Amendment Act to provide a source of funds to supplement the post-closure costs of the ongoing management of declared mine sites. The Act provides for the Fund to be set up, and for payments to be made into and out of it through the Minister's registration direction. However, the Act does not specify how contribution amounts are to be determined.

The declared mine regulations need to prescribe a transparent and fair mechanism to calculate Fund contribution amounts to manage post-closure risks, and to ensure that sufficient funds are recovered and apportioned to manage the financial liabilities flowing from ongoing management of the mine sites.

## 4 Objectives of the regulations

### 4.1 Legislative purpose and objectives

Relevant to the proposed Regulations, the purpose of the legislation is to encourage economically viable mining and extractive industries which make the best use of, and extract the value from, earth resources in a way that is compatible with the economic, social and environmental objectives of the State.<sup>138</sup> The Act came into force in 1990 and has undergone incremental amendments over the years to reflect changes in the expectations of society and to respond to safety concerns prompted by hazardous events at various mines.

In summary, the Act establishes a regulatory framework that provides for:

- an efficient and effective process for licensing and approvals; co-ordinating applications; rights allocation; decision-making for mineral resources; and economically efficient royalties, rental, fees and charges; and
- a legal framework aimed at ensuring:
  - › risks to the public, environment and infrastructure are identified and eliminated or minimised as far as reasonably practicable;
  - › consultation mechanisms are effective;
  - › mined land is rehabilitated;
  - › appropriate compensation is paid for the use of private land for extractive mining;
  - › conditions in licences and approvals are enforced; and
  - › dispute resolution procedures are effective.

The Act also provides that the principles of sustainable development should be considered in the administration of its provisions.

Relevant to this RIS, the objectives of the 2019 amendments to the Act were to implement recommendations from the Hazelwood Mine Fire Inquiry relating to responsibility for the rehabilitation and ongoing management of the Latrobe Valley coal mines.<sup>139</sup> However, the amendments were also designed to enable expansion of the framework to future mines that present a significant risk to public safety, the environment and infrastructure.<sup>140</sup>

### 4.2 Government policy

The proposed Regulations form the latest step in a series of reforms designed to implement changing government policy with respect to mining in Victoria, in particular policy relating to the regulation of mining rehabilitation.

#### 4.2.1 Minerals policies

In May 2018, ERR released *Statement of Operating Change: Our New Approach to Earth Resources Regulation* (statement). This statement focuses on outcomes that minimise costs to businesses, meet community expectations and support government objectives.

In August 2018, the Government released *State of Discovery – Mineral Resources Strategy 2018-2023*. This strategy states that the Government is committed to responsibly growing the minerals sector in a way that keeps Victoria clean and safe while meeting community expectations. This strategy is targeting significant mineral

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<sup>138</sup> *Mineral Resources (Sustainable Development) Act 1990* ('the Act'), Part 1.1.

<sup>139</sup> *Mineral Resources (Sustainable Development) Amendment Bill 2019 – Second Reading Speech* (5 June 2019) (Tim Pallas, Treasurer) Hansard, 1944.

<sup>140</sup> *Ibid.*

discoveries through increased mineral exploration investment over the next decade under a more modern, proportionate and robust regulatory system. The Government's strategy provides settings to underpin the long-term development of socially and environmentally responsible mineral exploration and mining in regional Victoria.<sup>141</sup>

## 4.2.2 LVRRS

The planning principles included in the LVRRS guide decisions, by government and licensees alike, about the rehabilitation of the current set of declared mines.

The LVRRS sets six outcomes deemed necessary to achieving the transformation of the coal mine land to safe, stable and sustainable landforms supportive of a next beneficial land use:

1. People, land, environment and infrastructure are protected
2. Land is returned to a safe, stable and sustainable landform
3. Aboriginal values are protected
4. Community are engaged, and their aspirations inform the transformation
5. Long-term benefits and future opportunities to the community are optimised
6. An integrated approach to rehabilitation and regional resource management is adopted.

On the basis of the Geotechnical and Water studies, a land use study, and consultation with stakeholders and local communities, the LVRRS sets out the following principles to guide rehabilitation planning for the Latrobe Valley mines:<sup>142</sup>

1. The fire risk of the rehabilitated land should be no greater than that of the surrounding environment.
2. Ground instability and ground movement risks and impacts during rehabilitation and in the long-term, and requirements for ongoing management to sustain a safe and stable landform, should be minimised as far as practicable.
3. Mine rehabilitation should plan for a drying climate. Rehabilitation activities and final landforms should be climate resilient.
4. Any water used for mine rehabilitation should not negatively impact on Traditional Owners' values, environmental values in the Latrobe river system, or the rights of other existing water users.
5. Traditional Owners should be involved in rehabilitation planning, assessment and decision-making.
6. The community should be consulted on rehabilitation proposals, the potential impacts, and have the opportunity to express their views.
7. Mine rehabilitation and regional land use planning should be integrated, and the rehabilitated sites should be suitable for their intended uses.

Finally, the LVRRS states that the Authority will be responsible for developing a plan for the monitoring and evaluation of coal mine land after rehabilitation is complete, and proposes a process for the integrated planning of rehabilitation by relevant government departments and other bodies.<sup>143</sup>

## 4.3 Objectives of the proposed Regulations

The proposed Regulations aim to enable government, mining operators and the community to make decisions relating to declared mine land and the risks and liability attaching to it, including the exercise of government functions relating to the assessment and management of risk.

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<sup>141</sup> State of Victoria, Minister for Resources, *State of Discovery: Mineral Resources Strategy 2018-2023*, 1.

<sup>142</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), 15-20.

<sup>143</sup> Victorian Government, *Latrobe Valley Regional Rehabilitation Strategy* (June 2020), 21-22.

The proposed Regulations seek to do this by prescribing details to operationalise the following elements of the Act:

- DMRPs;
- Mine closure determination;
- The registration of declared mine land and post-closure plans;
- Calculation of the amount to be paid into the Declared Mine Fund.

### **4.3.1 Rehabilitation planning**

The regulations aim to engender rehabilitation planning by licensees that is capable of:

1. managing risks posed by declared mine land;
2. facilitating the assessment of declared mine rehabilitation liability;
3. enabling appropriate and integrated rehabilitation-related decision-making by government; and
4. optimising long term benefits and future opportunities for the community.

### **4.3.2 Mine closure and registration**

The regulations aim to:

1. ensure that informed decisions are made with respect to whether rehabilitation is satisfactory to meet legislative objectives for mine closure;
2. establish a clear and transparent process for making mine closure decisions; and
3. establish a clear set of standards for closure that will assist declared mine licensees to better understand their obligations and to plan for mine closure and licence relinquishment.

### **4.3.3 Administration of the Fund**

The regulations aim to enable the fair and accurate determination of fund contribution amounts in a way that accommodates the ongoing and long-term nature of declared mine rehabilitation.

## **4.4 Design principles for the proposed Regulations**

As discussed throughout chapter 2, the operating environment for the current regulatory framework and proposed Regulations is extremely complex, with multiple contextual factors needing to be balanced by and through any regulatory intervention. These include:

- the challenges faced by the existing declared mine operators;
- managing impacts on electricity supply;
- new information about the contingent liability held by the State in relation to rehabilitation;
- changing community expectations about mine rehabilitation and responsibilities;
- problems with ERR's historic management of mine rehabilitation regulation; and
- the LVRRS objectives and principles for mine rehabilitation.

In order to develop options for proposed Regulations that are likely to achieve the above objectives, take account of all these contextual factors, and encompass the possibility of other mines being declared in the future, a set of design principles have been developed. These were drawn principally from the LVRRS to leverage the considerable policy work and consultation that fed into that strategy, and have been amended to accommodate the potential expansion of the declared mine framework to mines that pose similar risks to those of the Latrobe Valley coal mines.

There are two sets of principles: one set that are broadly applicable to the proposed Regulations, and the other set designed to specifically guide options for the declared mine rehabilitation plan component.



#### **4.4.1 Principles for the proposed Regulations**

The proposed Regulations should:

- effectively facilitate rehabilitation and planning to manage the risks posed by declared mine land;
- support adequate regulatory decision-making, monitoring and evaluation, and liability assessment;
- promote the comprehensive acquisition of information by ERR and other oversight agencies (such as the Authority);
- allow for flexibility and adaptability in rehabilitation planning to accommodate changing circumstances and information over time; and
- promote principles of sustainable development.

#### **4.4.2 Principles for the DMRP**

The requirements for the DMRP should address or accommodate the following principles:

- Water use for rehabilitation should not negatively impact on other users' water rights, Traditional Owner values, or environmental values.
- Rehabilitation and final landforms should be climate resilient.
- The fire risk of rehabilitated land should be no greater than that of the surrounding environment.
- Ground instability risks during and after rehabilitation should be minimised.
- The need for ongoing management of mine sites after closure to sustain a safe and stable landform should be minimised.
- Traditional Owners should be involved in rehabilitation planning, assessment and decision-making.
- Rehabilitated mine sites should be suitable for their intended use.
- Plans should be comprehensive and unambiguous.
- Plans should incorporate and allow for flexibility to manage uncertainty and changing circumstances and information.

## 5 Options

This RIS assesses options for regulations to support those parts of the Act relating to the declared mine framework implemented by the Amendment Act. This RIS only assesses the impacts of these proposed Regulations and does not assess the regulatory burden imposed by the Act and the existing 2019 Regulations.

In this RIS, two options for regulations and their expected impacts are compared to each other, and to the base case. The base case refers to the situation where no new regulations are made, and it provides the basis against which options can be assessed and compared.

### 5.1 Regulatory options development

The department investigated rehabilitation planning regulation in other jurisdictions to guide the development of the options assessed in this RIS. The department considered regulation in Queensland, Western Australia, New South Wales, South Australia, the Northern Territory, Wyoming and Saskatchewan, and best practice guidance published by the International Council of Mining and Metals and Anglo American. The interjurisdictional comparison found that the basic components of rehabilitation plans are similar across all models, with a similar ultimate objective of ensuring that mine land is safe and stable during and after mine operations.

The mining rehabilitation and closure regulatory frameworks in other Australia jurisdictions are outcomes-based that require mining operators / tenement holders / licensees to develop rehabilitation plans which set out progressive rehabilitation milestones to rehabilitate the land to a safe and stable landform that can sustain the approved post-mining land use.

All jurisdictions legislatively obligate mining operators to complete a rehabilitation plan. Regulations are outcomes-based, and there are minimal prescriptive regulatory requirements, recognising that each mine site is individual and will have different rehabilitation and post-closure management requirements.

The detailed contents of the plan are set out in jurisdictional guidelines (either statutory or departmental). Core contents of other jurisdictional rehabilitation plans (as per guidelines) include:

- General information about the site and operation.
- Requirement to undertake community consultation.
- Identification of post-mining land use.
- Identification of progressive rehabilitation milestones and method to achieve those milestones.

Closure criteria in the rehabilitation plan are set by the mining operators. Closure criteria must be measurable and approved by the jurisdictional regulator. These criteria, once approved, are enforceable, and must include progressive milestones. The final milestone criteria are considered the requirements of closure criteria.

The rehabilitation plans of other Australian jurisdictions include a section on the post-closure monitoring and management activities required to maintain the site once rehabilitation is completed. Funding for post-closure activities is either collected by the jurisdiction through a levy calculated as part of its rehabilitation cost calculator, or mining operators must demonstrate that adequate resources have been set aside for the period outlined in the post-closure section of the rehabilitation plan.

However, there is some variation between the different models, particularly in relation to:

- how and when outcomes are set (for example, defined post-mining land uses drive outcomes in Victoria and Queensland);
- the extent of detail required in the plan at the point of initial approval; and
- how the plan changes over time (i.e., are changes driven by the licensee or by regulators through an obligation for regular review).

No other Australian jurisdiction has enforceable post-closure plans. More detail about the regulatory approaches in the jurisdictions reviewed is set out in Appendix A.

The core difference that emerges from answering these questions is the degree to which the plan is expected to develop over time: whether the plan is designed to be an iterative, living document, or whether the expectation is that at any one point in time, there will be a comprehensive plan of activities against determined milestones. This conceptual difference has consequences for the level of detail the plan is required to include initially the focus of effort by the regulator, how knowledge about the mine site is obtained, and so on. Another key difference is the way in which the plans are developed or changed. In the case of iterative plans, changes tend to occur as part of continuous improvement through and because of regular review obligations in relevant regulation. In models where a complete plan is expected to be in place from the outset of mining operations, changes are usually licensee-driven (like the current process in Victoria for work plan variations initiated by licensee application).

These distinctions were used as the basis to design two options for regulations assessed in this RIS.

**Option 1** is an up-front approach and is licensee driven. The focus of the rehabilitation plan is on identifying the post-closure landform for the mine site and obtaining enough information about the rehabilitation required to achieve that landform to allow for bond setting.

**Option 2** is an iterative approach designed to facilitate continuous improvement. This option centres on promoting rehabilitation planning that progress towards rehabilitation outcomes that are acceptable against legislative standards, but agnostic as regards the exact landform the mine site will take. This option also seeks to develop the evidence base about mine sites over time, and requires the rehabilitation plan and rehabilitation activities to be informed by that growing evidence base.

Because both options are for regulations supporting the same provisions in the Act, they share the core features as dictated by the Act:

- The elements of the DMRP; for example, the post-closure plan.
- The consultation and referral requirements.
- The requirement that rehabilitation be aligned with sustainable development principles.
- The ultimate landform must be safe, stable and non-polluting.
- Rules for plan variation and notification;
- Requirements for annual reporting on rehabilitation; and
- Fire risk, stability and groundwater management plans, review and reporting.

Table 4 sets out the key elements of, and differences between, the two options. More detail is provided in sections 5.3 and 5.4, following the description of the base case in section 5.2.

Table 4: Summary of options considered

	Option 1: 'up-front approach'	Option 2: 'iterative approach'
DMRP Outcomes & objectives	<ul style="list-style-type: none"> <li>• Safe, stable and sustainable landform for a specified land use</li> <li>• Objectives defined against that land use</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of safe and stable landform</li> <li>• Broad set of matters to be considered based on accepted regulatory or industry best practice</li> </ul>
DMRP Milestones	<ul style="list-style-type: none"> <li>• A description of, and schedule for, rehabilitation milestones</li> </ul>	<ul style="list-style-type: none"> <li>• Milestones for all rehabilitation and closure objectives must identify each relevant event or step necessary to: <ul style="list-style-type: none"> <li>› rehabilitate the land to a safe, stable and sustainable condition;</li> <li>› minimise the risks posed by declared mine land as far as practicable; and</li> <li>› obtain the relevant legal approvals and permissions required for the rehabilitation of the mine, the closure of the mine and post-closure of the mine</li> </ul> </li> </ul>
DMRP Closure Criteria	<ul style="list-style-type: none"> <li>• Closure criteria must address the risks to public safety, the environment and infrastructure to be taken into account in determining if the closure criteria are met i.e. the risks posed by geotechnical, hydrogeological, water quality or hydrological matters</li> <li>• Licensee sets criteria for measuring whether the DMRP objectives are met</li> </ul>	<ul style="list-style-type: none"> <li>• Closure criteria must address the risks to public health and safety, the environment and infrastructure</li> <li>• Licensee must outline standards or levels of success for all rehabilitation and closure objectives in the DMRP rehabilitation plan</li> </ul>
DMRP Post-closure plan	<ul style="list-style-type: none"> <li>• Include a schedule for ongoing monitoring and maintenance activities</li> <li>• Identify who is responsible for post-closure monitoring and maintenance activities; and</li> <li>• Include a risk management plan for known and credible risks e.g. fire management, stability and groundwater management plans.</li> </ul>	<ul style="list-style-type: none"> <li>• The post-closure plan must: <ul style="list-style-type: none"> <li>› As far as reasonably practicable, identify who is responsible for post-closure monitoring and maintenance activities</li> <li>› Identify the ongoing monitoring and maintenance activities required to maintain the declared mine land in a safe and stable state</li> <li>› Include a risk management plan for known and credible risks e.g. fire management, stability and groundwater management plans</li> <li>› As far as reasonably practicable, specify the time and way the ongoing monitoring and maintenance activities will be carried out</li> <li>› As far as reasonably practicable, specify any data, reports and information to be provided to the</li> </ul> </li> </ul>

	Option 1: 'up-front approach'	Option 2: 'iterative approach'
		Authority once the plan is registered
Decision-making on DMRP and mine closure	<ul style="list-style-type: none"> <li>Nothing prescribed because objectives are bespoke and site-specific</li> </ul>	<ul style="list-style-type: none"> <li>Regulations prescribe: <ul style="list-style-type: none"> <li>Evidence to be provided with approval/closure application</li> <li>Matters to be considered by decision-maker</li> <li>Extended list of referrals/consultations to be undertaken by decision-maker</li> </ul> </li> </ul>
Expectation at DMRP approval	<ul style="list-style-type: none"> <li>Full detail for all elements of plan</li> </ul>	<ul style="list-style-type: none"> <li>Each core element of the plan must be addressed</li> <li>Detail can develop over time, and less detail may be required depending on the mine lifecycle stage</li> </ul>
How plans are updated	<ul style="list-style-type: none"> <li>Licensee-initiated plan variation, with the threshold for variation set in Regulations</li> <li>Regulator can request an application for variation under the Act</li> </ul>	<ul style="list-style-type: none"> <li>Annual review of rehabilitation and post-closure management risks</li> <li>Plans can also be varied at the request of the regulator, per Option 1, and at the direction of the Department Head</li> </ul>
Reporting requirements	<ul style="list-style-type: none"> <li>Annual reporting on: <ul style="list-style-type: none"> <li>Rehabilitation activities and progress against defined milestones</li> <li>Assessment of remaining rehabilitation liability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Annual reporting on: <ul style="list-style-type: none"> <li>Progress on components of plan requiring additional detail</li> <li>Review of risks</li> <li>Reasons for non-compliance with milestones (and associated remedial action)</li> <li>Technical and economic studies undertaken</li> <li>Status summary in relation to required regulatory processes</li> <li>Summary of community engagement programs</li> <li>Summary of reportable events</li> <li>Potential rehabilitation issues</li> </ul> </li> <li>Trigger reporting on: <ul style="list-style-type: none"> <li>Reportable events</li> <li>Plan updates</li> </ul> </li> </ul>
Determining the Fund contribution amount	<ul style="list-style-type: none"> <li>No method or process is prescribed in Regulations (the Minister would convene an advisory committee under the Act to determine the amount)</li> </ul>	<ul style="list-style-type: none"> <li>Regulations require Licensee to include information to enable the Minister to determine the amount of any contribution to the Declared Mine Fund including: <ul style="list-style-type: none"> <li>An estimate of the present value of the future costs associated with the monitoring and maintenance obligations; and</li> <li>Definitions and calculations of the costs relating to adverse events</li> </ul> </li> </ul>

## 5.2 Base case – What will happen if the regulations are not amended

Under the base case, the declared mine rehabilitation framework under the Act would stand alone, without additional supporting regulations. The base case is described below.

The way the Act amendments and the 2019 Regulations were drafted means that under the base case, there is no effective requirement for declared mine operators to submit a new rehabilitation plan for their mines. As at April 2022, none of the current declared mines have rehabilitation plans approved under the 2019 Regulations. Therefore, the base case is not a feasible option, as the changes to the declared mine rehabilitation framework introduced in the Amendment Act will not apply unconditionally to the current declared mines.

### 5.2.1 Rehabilitation planning – base case

#### ***Rehabilitation and closure outcomes and principles***

The outcomes and principles for rehabilitation specified in the Act and existing Regulations are limited to:

- the general principle that sustainable development principles should be taken into consideration in the administration of the Act;<sup>144</sup>
- the requirement under the Act that a rehabilitation plan must take into account matters such as the surrounding environment, need to stabilise the land and potential for long-term degradation of the environment;<sup>145</sup> and
- the outcome applicable to work plans lodged or varied after 1 July 2020 that to complete rehabilitation, a land form must be achieved which is safe, stable and sustainable, and be capable of supporting the proposed post-closure land use.<sup>146</sup>

The only specifications about the post-closure land use for mine sites in the Act and existing Regulations are:

- the requirement that a rehabilitation plan take into account the desirability of restoring mining land that was once agricultural land to its pre-mining state;<sup>147</sup>
- the requirement that licensees comply with any conditions specified in a land use activity agreement under the *Traditional Owner Settlement Act 2010* that have been accepted by the licensee;<sup>148</sup> and
- the requirement for work plans lodged after 1 July 2020 to include proposed land uses for the mine site after it has been rehabilitated, that consider community views expressed during consultation.<sup>149</sup>

#### ***Rehabilitation planning***

The work plans to be prepared by all licensees (including declared mine licensees) must include a rehabilitation plan component, which sets out activities for progressive rehabilitation and some content relating to the final landform to be achieved through rehabilitation of the mine site.

In addition, declared mine licensees are required to prepare a DMRP. The DMRP must include any rehabilitation plan previously prepared for the mine (i.e., the work plan rehabilitation component), as well as a plan for the rehabilitation of the land covered by the licence, closure criteria for the mine and a plan for the post-closure management of the mine site. However, declared mine licensees are required to prepare the DMRP 'within the prescribed period'. In the base case, there are no regulations to prescribe this period. This means that the

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<sup>144</sup> The Act, s 2A.

<sup>145</sup> The Act, s 79.

<sup>146</sup> Regulations, r 43.

<sup>147</sup> The Act, s 79(a)(iv).

<sup>148</sup> The Act, s 26(7).

<sup>149</sup> Regulations, r 43(2)(a).

obligation to prepare a DMRP is effectively redundant. It is assumed for the purposes of this analysis that in the absence of an effective obligation to prepare a DMRP, declared mine licensees would not do so.

Significant parts of the rest of the declared mine rehabilitation framework hinge on the preparation and completion of the DMRP. These parts of the Act form the base case, and are described below, but will not function effectively without a DMRP being submitted to ERR. Other obligations under the Act that are relevant to the planning and carrying out of declared mine rehabilitation and that operate independently to the DMRP form part of the base case, and are also set out below.

### *Work plans*

All current work plans must include information relevant to rehabilitation and rehabilitation planning:<sup>150</sup>

- a risk management plan;
- a community engagement plan;
- specified details about the mining work, such as sensitive receptors, a site map and description and a general description of geological information about the work;<sup>151</sup>
- if the work will involve coal mining, a fire risk management plan;<sup>152</sup> and
- an identification of hazards and risks.<sup>153</sup>

Licensees who lodged work plans prior to 1 July 2020 were required to include the following information about rehabilitation in their work plan:

- concepts for end utilisation of the mine site;
- proposals for progressive rehabilitation, stabilisation & revegetation;
- proposals to minimise visual impact; and
- proposals for final rehabilitation and closure of site.<sup>154</sup>

Licensees within this class who do not vary their work plans after 1 July 2020 are bound by the terms of the rehabilitation plans approved by the department when they commenced their operations (i.e. prior to 1 July 2020). In this scenario, Licensees are required by the Act to complete the rehabilitation of the land envisaged in their plan as much as possible prior to the expiration of their licence (progressive rehabilitation).

Licensees who lodge or vary work plans after 1 July 2020 must include in their application (in line with the 2019 Regulations):

- details of the proposed rehabilitation including proposed land uses;
- a land form to achieve complete rehabilitation (must be safe, stable and sustainable and capable of supporting the proposed land uses);
- objectives setting out rehabilitation domains;
- criteria for measuring objectives;
- description and schedule of rehabilitation milestones; and
- identification of risks.<sup>155</sup>

Licensees may apply under the Act at any time to vary their rehabilitation plan through the work plan variation process under the Act.<sup>156</sup> The Department Head can direct a licensee to lodge a work plan variation (after giving the licensee written notice of the reasons and an opportunity to comment).<sup>157</sup> The new information requirements do not apply retrospectively to work plans lodged prior to the commencement of the amendments unless the work

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<sup>150</sup> The Act, s 40(3).

<sup>151</sup> Regulations, r 42.

<sup>152</sup> Regulations, r 40.

<sup>153</sup> Regulations, r 44.

<sup>154</sup> 2019 Regulations, r 43(4).

<sup>155</sup> 2019 Regulations, r 43(2).

<sup>156</sup> The Act, s 41(1).

<sup>157</sup> The Act, s 41AA.

plan has been varied after the commencement date.<sup>158</sup> There is one exception: if the Department Head determines that the work set out in a licensee's work plan 'may pose an unacceptable risk to the environment, to any member of the public, or to land, property or infrastructure in the vicinity of that work', they may direct the work plan be varied so that it meets the new information requirements.<sup>159</sup>

Licensees of newly declared mines must lodge a work plan variation within 60 days of the mine being declared.<sup>160</sup>

### DMRPs

Licensees of declared mine land are required under section 84AZU of the Act to prepare DMRPs which include:

- any existing rehabilitation plan;
- the prescribed closure criteria for the mine;
- a post-closure plan setting out the monitoring and maintenance to be carried out on the closure of the land; and
- an undertaking to pay the registration amount and an assessment of the risks posed by the declared mine land.

The Act does not specify any supporting documents or evidence to be provided alongside the DMRP.

It is assumed for the purpose of the analysis in this RIS that in the absence of defined closure criteria in the DMRP or rehabilitation plans made under the 2019 regulations, the Minister would need to come to a view on what the appropriate criteria are. That view would likely be informed by the objectives of the LVRSS, as the current declared mines are all located in the Latrobe Valley.

The Act also stipulates that the declared mine licensee must prepare the DMRP within the prescribed period and consult with the prescribed people or class of people in relation to the plan.

Under the base case, there would be no prescribed period in which the licensee must prepare and submit their DMRP. This means that under the base case, there is effectively no obligation on declared mine licensees to submit a DMRP and it is assumed for the purpose of the base case that they would not do so.

While there would be no prescribed people or class of people to consult with in relation to the DMRP, licensees have a variety of existing consultation obligations under the Act (separate to the DMRP provision in the Act). There is a general duty on licensees under section 39A of the Act to consult with the community throughout the period of the licence by sharing information about activities under the licence that may affect the community, and giving members of the community a reasonable opportunity to express their views about those activities. Licensees must include information about how they will fulfil this duty in their work plan.<sup>161</sup> Licensees must also:

- obtain the consent of the Crown land Minister where work is proposed to be undertaken on restricted Crown land;<sup>162</sup>
- obtain the consent of the Melbourne Water Corporation or water authority where land under the licence is owned by, vested in or managed by them;<sup>163</sup> and
- where land is privately owned, consult with the landowner regarding the rehabilitation plan, and with the landowner and local council before the bond is returned;<sup>164</sup>

It is assumed for the purposes of the analysis in this RIS that without regulations prescribing a list of people or class of people to be consulted, declared mine licensees would not undertake any additional consultation in relation to rehabilitation planning beyond the general engagement required under section 39A.

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<sup>158</sup> The Act, sch 9, cl 3(2).

<sup>159</sup> The Act, sch 9, cl 3(4).

<sup>160</sup> The Act, s 41AE.

<sup>161</sup> Regulations, r 46 in relation to r 40(c) and the Act, s 40(3)(g).

<sup>163</sup> The Act, s 44(1), s 44(2).

<sup>164</sup> The Act, s 79(b)(ii); 82(2).



The Act provides that, when the Department Head receives and is considering a DMRP for approval, they must:<sup>165</sup>

- consult the Authority;
- in respect of the closure criteria for the plan, consult with the Crown Land Minister and the Minister responsible for administering –
  - › the Crown Land (Reserves) Act 1978
  - › the Environment Protection Act 1970
  - › the Forests Act 1958
  - › the Land Act 1958
  - › the National Parks Act 1975
  - › the Planning and Environment Act 1987
  - › the Water Act 1989
  - › the Wildlife Act 1975
- follow any other prescribed process; and
- consider any other prescribed matter.

It is assumed for the purpose of the analysis in this RIS that the Department Head would consult with other parties and consider other matters at their discretion.

This process is ineffective under the base case, where no DMRP is submitted.

### **Rehabilitation reporting**

There are existing annual reporting obligations that apply to all licensees, and some reporting obligations that apply specifically to declared mine licensees.

Annual reporting obligations that are relevant to rehabilitation and apply to all licensees include:<sup>166</sup>

- expenditure on rehabilitation;<sup>167</sup>
- details of rehabilitation undertaken over the reporting period, including any area of progressively rehabilitated land that contributes to achieving the landform set out in the licensee's work plan;<sup>168</sup>
- progress that has been made towards the achievement of rehabilitation milestones;<sup>169</sup>
- an estimate of the rehabilitation liability for the licence area at the end of the reporting period;<sup>170</sup>
- the net change in estimated rehabilitation liability from the previous reporting period;<sup>171</sup>
- a technical report including all geological, geophysical, geochemical and other technical investigations undertaken during the reporting period.<sup>172</sup>

In addition, declared mine licensees must report, every 6 months:<sup>173</sup>

- a description of activities taken to implement mine stability control measures;
- the results of the monitoring taken out under the work plan;
- the outcomes of reviews relating to the declared mine, taking into account any significant changes in the operation of the declared mine and implications for mine design components; and

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<sup>165</sup> The Act, s 84AZV.

<sup>166</sup> The general obligation to provide information to the Department Head is set out in section 116 of the Act. Regulations 53-57 prescribe the information and the periods in which it must be provided.

<sup>167</sup> Regulations, r 55(1)(a)(v).

<sup>168</sup> Regulations, r 56(4)(a)(i).

<sup>169</sup> Regulations, r 56(4)(a)(ii).

<sup>170</sup> Regulations, r 56(4)(a)(iii).

<sup>171</sup> Regulations, r 56(4)(a)(iv).

<sup>172</sup> Regulations r 53(4)(b) and r 57.

<sup>173</sup> The Act, s 41AB and Regulations, r 64.

- any recommended changes to the work plan arising from these reviews.

In addition, section 41AC of the Act requires licensees to notify the Chief Inspector of certain 'reportable events' specified in regulation 51, such as explosions or fires, slope failures or injuries to members of the public.

### **Review and updating rehabilitation plans**

There is no formal review mechanism in the Act for the review of DMRPs as a whole. However, regulated parties may have review provisions in their work plan conditions.

As described above, licensees may submit a work plan variation application to the Department Head, and the application must contain the prescribed information. The Department Head can also direct a licensee to lodge a work plan variation, in the circumstances set out above.

Similarly, declared mine licensees can apply to the Department Head to vary their DMRP,<sup>174</sup> and the Department Head can also, on their own initiative, direct declared mine licensees to apply for a DMRP variation.<sup>175</sup>

DMRP variation applications are assessed by the Department Head after consulting with the same list of ministers as in relation to the initial plan approval decision, considering any prescribed matter and following any prescribed process. This part of the Act would be ineffective under the base case, where no DMRP is submitted.

## **5.2.2 Mine closure determination – base case**

Mines can be progressively closed: licensees can surrender part of the land covered by a licence with the consent of the Minister.<sup>176</sup> The Minister is also able to return part of a licensee's rehabilitation bond, or require the licensee to enter a further bond for any further rehabilitation required.<sup>177</sup>

In relation to the full and final closure of a mine, special processes apply to declared mines additional to other mines. However, these processes hinge on the submission of a DMRP containing closure criteria for the mine, which would not occur under the base case. The Act's provisions in relation to closure determinations are described here because they do apply under the base case and would function if a licensee submitted a DMRP, even though this RIS assumes for the purposes of its analysis that in the absence of an effective obligation, this would not occur.

The first step in the closure of a declared mine is an application by the licensee to the Minister for a determination that the closure criteria for the declared mine land have been met. The application must be accompanied by the prescribed information and 'any other document or information reasonably required by the Minister'.<sup>178</sup> Upon receiving the application, the Minister must request advice from the Authority, consult with the above-listed ministers, take into account any prescribed matter and follow any prescribed process.<sup>179</sup> The Authority is able to convene an advisory panel in relation to its advice.<sup>180</sup> The Minister must consider the application and any advice or consultations carried out in the determination decision.<sup>181</sup>

Under the base case, with the Act in place and no relevant supporting regulations, there is no regulatory guidance as to the information to be included with an application for a closure determination nor as to the process and matters relevant to the Minister's consideration of the application. As noted above, it is assumed for the purpose of the analysis in this RIS that in the absence of closure criteria in the DMRP and rehabilitation plans made under the 2019 regulations, the Minister would need to come to a view on what the appropriate criteria are. This could be related to the objectives of the LVRRS, as the current declared mines are all located in the Latrobe Valley.

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<sup>174</sup> The Act, s 84AZW.

<sup>175</sup> The Act, s 84AZX.

<sup>176</sup> The Act, s 37.

<sup>177</sup> The Act, s 82(3).

<sup>178</sup> The Act, s 84AZY.

<sup>179</sup> The Act, s 84AZZ(1).

<sup>180</sup> See the Act, Part 4A.

<sup>181</sup> The Act, s 84AZZA(1).

If the Minister determines the closure criteria have been met, the Act provides that they may return the balance of the rehabilitation bond; consent to the surrender of the mine licence; and direct the Authority to register the declared mine land and its post-closure plan.<sup>182</sup> For all mines, including declared mines, the Minister may require a licensee to engage an auditor to certify that land has been rehabilitated in accordance with the rehabilitation plan for the purposes of deciding whether the rehabilitation bond should be returned.<sup>183</sup>

### 5.2.3 Mine land registration and the Fund – base case

The process for registering declared mine land is conditional upon the Minister determining that the declared mine's closure criteria have been met. This, in turn, is dependent upon the licensee having submitted a DMRP which, under the base case, would not occur. The following description of the mine land registration process is included to explain how the Act operates and would operate if a licensee decided to submit a DMRP in the absence of an effective obligation to do so.

The Minister's registration direction may require the declared mine licensee to give the prescribed information and records to the Authority and to pay the Minister the specified registration amount. The Minister's direction may also require the Authority to register the post-closure plan and land with any specified conditions and in accordance with the prescribed procedure (if any).<sup>184</sup> One of the functions of the Authority is to assess the amount of funds to be paid by licensees into the Declared Mine Fund upon registration.<sup>185</sup>

The Authority is responsible for establishing and maintaining the declared mine land register. For each registration of declared mine land, the Authority must register certain documents and record certain information. The documents to be registered are: any licence (include expired/relinquished licences) that covers the land; the post-closure plan for the land; and any prescribed records or information relating to the land.<sup>186</sup> The information required to be recorded is the declared mine land, any conditions applying to the recording of the land and any prescribed matters.<sup>187</sup> When a post-closure plan is registered, the Authority must lodge with the Registrar notice of any land other than unalienated Crown land affected by the registered post-closure plan.<sup>188</sup> The Registrar must record in the Register of land any information necessary to give effect to the notice.<sup>189</sup>

It is assumed for the purpose of the analysis in this RIS that under the base case, the documents and information about declared mine land recorded or included in the register will be limited to those set out in the Act.

If the Minister cancels a mining licence relating to declared mine land because of non-compliance with a declared mine rehabilitation plan, the balance of a rehabilitation bond(s) may be paid into the Declared Mine Fund.<sup>190</sup>

The Minister may direct that registered declared mine land be removed from the register if satisfied that the factors which posed a significant risk that existed upon registration are no longer present.<sup>191</sup>

The Authority calculates the amount required to be paid into the Fund upon registration of declared mine land. The Act does not set out any process to be followed in making this calculation.

The Act does not state that the process for calculating payments into the Fund will be prescribed. In the base case, this process would be the subject of internal department or ERR policy.

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<sup>182</sup> The Act, s 84AZZB(1).

<sup>183</sup> The Act, s 81A.

<sup>184</sup> The Act, s 84AZZB(3).

<sup>185</sup> The Act, s 84AL(1)(kf).

<sup>186</sup> The Act, s 84AZZL(3)(a).

<sup>187</sup> The Act, s 84AZZL(3)(b).

<sup>188</sup> The Act, s 84AZZD(1).

<sup>189</sup> The Act, s 84AZZD(2).

<sup>190</sup> The Act, s 83A.

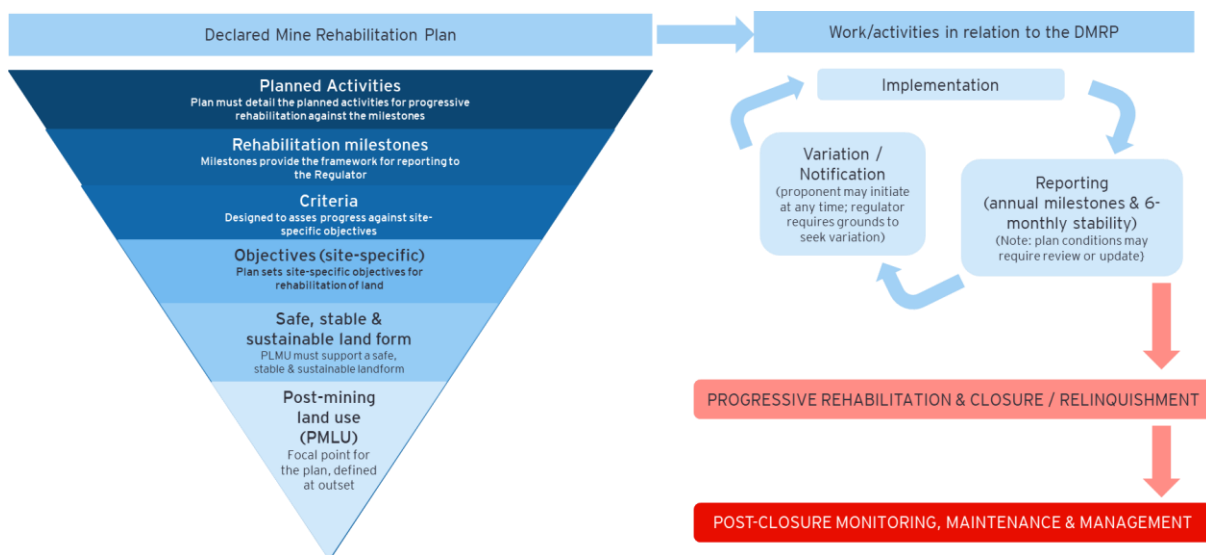
<sup>191</sup> The Act, s 84AZZM.

## 5.3 Option 1: 'up-front' approach

This option adopts a similar approach to the 2019 Regulations in Victoria and, similar to rehabilitation regulation in Queensland, revolves around a post-mining land use defined from the outset. Operators are required to prepare a detailed rehabilitation plan at the start of or before operations commence (noting that the plans for existing declared mines will necessarily be developed after this point). The aim of the plan is to enable the Minister to set adequate bonds through requiring the operator to provide early, detailed information about the rehabilitation that will be necessary to return the mine land to a safe, stable and sustainable form.

At any point in time, the expectation under Option 1 is that there will be a complete rehabilitation plan with comprehensive rehabilitation activities measurable against defined milestones. The elements of Option 1 and the relationship between them are illustrated in Figure 7. The post-mining land use is the focal point for the plan and must be defined and approved at the outset (or when the plan is submitted for approval). The post mining land use must support a safe, stable and sustainable landform. The plan must set site-specific objectives for the rehabilitation of the land towards the defined post mining land use. Success criteria for the plan are designed to assess progress against these site-specific objectives, and rehabilitation milestones provide the framework for reporting to and oversight by the regulator. Finally, the plan details the planned activities for progressive rehabilitation against the milestones.

Figure 7: Option 1 – up-front declared mine rehabilitation plan



### 5.3.1 Rehabilitation planning – Option 1

#### **Rehabilitation and closure outcomes and principles**

Under this option, rehabilitation and closure outcomes revolve around a specified post mining land use. The regulations would state the planning objective as: rehabilitation to a safe, stable and sustainable landform capable of supporting the identified post-mining land use.

The licensee will also be required to include rehabilitation domain-specific outcomes and objectives in the plan, which collectively amount to the landform that will support the proposed post mining land use.

#### **Rehabilitation planning**

##### Prescribed requirements relating to the contents of plan

The mine operator will be required to define the post mining land use to be achieved through rehabilitation from the outset, and the regulations would set a requirement for post mining land uses equivalent to the work plan requirement in the 2019 Regulations: 'proposed land uses for the affected land after it has been rehabilitated, that considers community views expressed during consultation'.

The plan would be required to specify what (if any) consents, permissions or approvals are required to authorise the post mining land use, and would need to consider the views of any relevant authority or referral agencies from whom such approvals must be sought.

The regulations will also require the DMRP to contain a description and schedule of rehabilitation milestones.

In addition to the risk assessments required under the Act, the plan would be required to include an assessment of the post-closure risks posed by the declared mine land., Specifically, risks that may require monitoring, maintenance, treatment, or other ongoing land management activities after rehabilitation is complete and the mine has been closed.

Under this option, the regulations would require closure criteria defined in relation to each objective, and criteria must be 'SMART': specific, measurable, achievable, realistic and timely, as defined in the Guidelines for Preparation of Rehabilitation Plans for Mining and Prospecting Projects.<sup>192</sup>

### Consultation on the plan

The regulations would not prescribe persons or classes of persons to be consulted by licensees preparing a DMRP, but the licensee would be required to prepare a community engagement report. This report would include:

- a list of the people and/or classes of people likely to be affected;
- a description of how the licensee shared information relating to the plan to inform consultation;
- a summary of stakeholders' views, expectations and concerns in relation to the plan; and
- a strategy for ongoing engagement during rehabilitation and closure planning, and for publicly reporting on the outcomes of the engagement.

### Post-closure plan

The post-closure plan will be required to include a schedule for ongoing monitoring and maintenance activities, identify the responsible party for these activities, a plan for the management of known and credible risks (including fire management, stability and groundwater management plans), and a description of review and reporting that may be required.

### Level of detail and timeframe for submission

The plan must include all details when submitted to ERR for approval, but the regulations would not prescribe any supporting documents or evidence to be included with the DMRP when submitted to the Department Head. Under Option 1, DMRPs must be prepared within one year from either the commencement of the regulations or the date on which a variation direction is made by the Department Head, whichever is later. These regulations would provide that licensees could apply to the Minister for an extension of time to prepare the DMRP of up to one year.

### Approval decision

Under this option, the regulations would not prescribe any additional matters to be considered or processes to be followed by the Department Head in their decision on the plan. This means that this aspect of Option 1 is the same as the base case.

### **Rehabilitation reporting**

Reporting obligations under Option 1 would be the same as under the base case, with the exception of a specific requirement that all declared mine licensees must report on their fire management plan (as opposed to just licensees mining coal, as is required under the base case).

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<sup>192</sup> Earth Resources Regulation, *Preparation of Rehabilitation Plans: Guideline for Mining & Prospecting Projects* (February 2020).

## **Review and updating rehabilitation plans**

The processes and requirements for the review of rehabilitation plans would be the same under Option 1 as under the base case (that is, periodic reviews arising out of ERR Operational Policy's 5-year bond review practice). In the past, ERR has also set conditions on work plans requiring the periodic review of rehabilitation plans.

Option 1 would also be the same as the base case in relation to the updating of rehabilitation plans, with one additional requirement prescribed for DMRP variations: the Department Head would be required to consult with the Authority in relation to any DMRP variation.

### **5.3.2 Mine closure determination – Option 1**

The process for progressive closure under Option 1 would be the same as for the base case.

When it comes to final closure and the application for a closure determination, the main difference between the base case and Option 1 is that under Option 1, the regulations would prescribe that applicants must provide a third-party verification that the closure criteria have been met.

Under this option, no additional processes or matters would be prescribed in relation to the Minister's closure determination decision, meaning that this part of Option 1 is the same as the base case.

### **5.3.3 Mine land registration and the Fund – Option 1**

Under Option 1, the regulations would require licensees provide an audited costing of their post-closure plan, which the Authority would assess, and which would then form the basis of the Minister's direction requiring the licensee to pay the Minister the registration amount.

The regulations would prescribe that registration documents may be submitted to the Authority electronically, where practicable, or using a process or protocol agreed to by the licensee and specified by the Minister in their registration direction. This is a difference to the base case, where no particular registration process is prescribed. We note, in practice the documents would likely be sent electronically in both the base case and option 1.

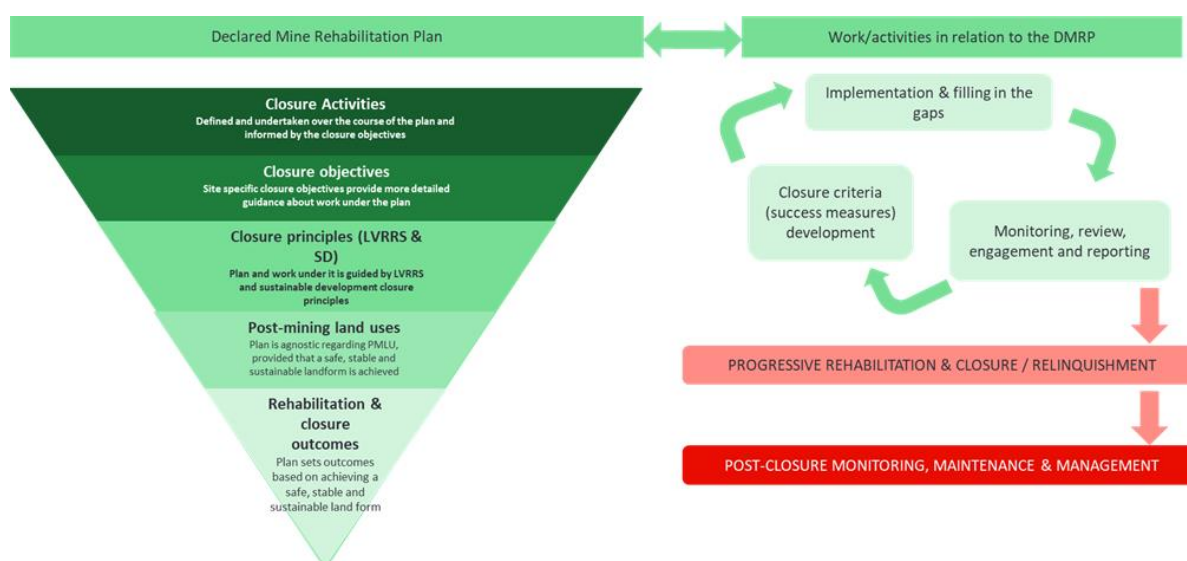
Under Option 1, no process or method for determining the amount to be paid into the Fund would be set by Regulations, leaving that as a matter of discretion. The Minister could convene an advisory committee under Part 4A of the Act to advise on the registration amount, but this process would not be prescribed in regulations under Option 1.

## **5.4 Option 2: iterative approach**

Option 2 draws on aspects of the staged approach to rehabilitation planning taken in WA, as well as best practice guidance from Anglo-American and the International Council on Mining and Metals (ICMM). Under this option, rehabilitation is planned according to prescribed matters, rather than being oriented towards a defined landform from the outset (as in Option 1). The DMRP is designed to be developed over time as knowledge gaps about the mine site are filled through investigations and mining activities, and regulations will provide directly for this ongoing development. The aim of the plan is to set rehabilitation outcomes compatible with achieving a final safe, stable and sustainable landform.

Figure 8 illustrates how the elements of Option 2 relate to each other. The DMRP sets rehabilitation and closure outcomes based on achieving a safe, stable and sustainable landform. At the outset, the plan is agnostic regarding the post-mining land use chosen to achieve this outcome; this is expected to be defined over time in response to the building evidence base about the technical specifications and limitations of the mine site. The rehabilitation and work under it are guided by relevant site-specific closure criteria which provide more detailed guidance about work under the plan. Finally, closure activities are defined and undertaken over the course of mine operations and are informed by the closure outcomes in the plan.

Figure 8: Option 2 - iterative declared mine rehabilitation plan



## 5.4.1 Rehabilitation planning – Option 2

### **Rehabilitation and closure considerations**

Targeted matters that align with the sustainable development principles in s 2A of the MRSD Act would be included in the proposed Regulations. These prescribed matters would guide decision-makers in administering the declared mine obligations over the life of mine, through closure and during post-closure, and assist licensees in meeting their obligations. The matters would also provide licensees and the community with clear expectations about how sustainability would be embedded in government decisions relating to declared mines.

The matters would extend beyond the specified sustainable development principles included in the Act, to encompass principles in the LVRRS and accepted best practice industry guidance. They would also reflect policy commitments by the State, such as those contained in s 20 of the Climate Change Act 2017. The proposed Regulations set out those matters that indicate what the outcome of successful rehabilitation and closure planning would look like (e.g. a safe and stable landform that, with appropriate post-closure management, is climate resilient), as well as how those outcomes are achieved (e.g. through integrated and informed decision-making that adopts adaptive management and proportionate and risk-based approaches).

The proposed matters that must be taken into account when considering a plan for the rehabilitation of declared mine land are:

- in relation to the landform to be achieved on the declared mine land:
  - > the physical safety of humans and animals,
  - > the geotechnical and hydrogeological stability,
  - > the maintenance of hydrological regimes, the quality and quantity of groundwater and surface water to the extent that existing or proposed uses, including ecosystem maintenance, will be protected,
  - > be non-polluting/non-contaminating,
  - > protect land use and infrastructure in adjacent areas,
  - > minimise the fire risk to be no greater than the surrounding environment,
  - > be climate resilient,
  - > promote ecological integrity so that the post-closure ecosystems are either stable or heading towards being regenerative and self-sustaining, biodiversity is protected, and the need for ongoing active monitoring, maintenance or management is minimised to a level that is acceptable to the State.

- in relation to rehabilitation and the closure plan:
  - › that the benefits to the wellbeing and prosperity of the community are promoted;
  - › the views of the community and Aboriginal persons are taken into account; and
  - › that the knowledge, rights and aspirations of Traditional Owner groups in caring for country is acknowledged.

These matters would be included in the regulations as an explicit consideration to be taken into account by the licensee in meeting their obligations, and by a decision-maker in making relevant decisions. Further details about specific regulations in this regard, are set out below in this section.

## **Rehabilitation planning**

### **Prescribed requirements relating to the contents of plan**

Under Option 2, regulation 43 of the Mineral Industries Regulations would be revised to exclude declared mines from the rehabilitation plan information requirements. Instead, the regulations would prescribe information requirements that are specific to declared mines.

The rehabilitation plan content requirement of a DMRP for the purposes of s84AZU(3) of the MRSD Act, would require information relating to outcomes, objectives, rehabilitation milestones, post-mining land uses, closure criteria, a stakeholder engagement plan, and a risk assessment and risk management plan.

Under Option 2, declared mine licensees would be required to include, in the plan, information setting out the use of passive controls to maximise the rehabilitation outcome that any landforms are to be safe, stable and sustainable. This provides a different outcome standard to that in regulation 43(2)(b)(i) for declared mine land, in recognition that rehabilitation of these complex mines may require ongoing active controls.<sup>193</sup> It would also not require outcomes to reference a proposed land use as per regulation 43(2)(b)(ii), as it is possible that no use of the land will be possible after rehabilitation.

Declared mined licensees would be required to include rehabilitation or closure objectives consistent with Ministerial guidelines or information approved by the Department Head. This would not require objectives that set out distinct rehabilitation domains that collectively amount to the landform proposed as per regulation 43(3), as this would limit the objectives to the landform. Site-specific closure objectives could, via the guidelines or Department Head approval, be required to be set for domains (e.g. mining installations such as pits, infrastructure, and mine waste deposits) may be derived from the mine's licence to operate, compliance conditions, risk assessments and technical designs. Site-specific closure objectives could also be required to be set for a variety of physical and social aspects (e.g. culture and heritage, biodiversity, groundwater). Not all aspects will be applicable at all sites.

The milestone element of the rehabilitation plan would require declared mine licensees to include information on the proposed rehabilitation and closure milestones which identify each relevant event or step necessary to rehabilitate the land to a safe, stable and sustainable condition. Milestones would be required to be included for all the rehabilitation and closure events or steps that are relevant to the ongoing monitoring, management and maintenance of declared mine land after the closure of a mine including:

- milestones necessary for the rehabilitation of land to a safe, stable and sustainable condition; and to
- minimise the risks posed by declared mine land as far as practicable.

Milestones will also be required to be included for:

- meeting the closure criteria. This is necessary because the contents of the post-closure plan will have to be developed over time as specific post-closure monitoring and maintenance activity requirements are dependent on the outcomes of the rehabilitation and closure process; and
- obtaining legal approvals and permissions required for rehabilitation, closure and post-closure listed in the register. This is necessary because not all legal approvals and permissions will be able to be obtained at the

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<sup>193</sup> See Appendix E for definitions for active and passive controls.



point a DMRP is required e.g. the government has decided that water allocations for rehabilitation of the Latrobe Valley coal mines can only be sought 5 years before the end of power generation/coal mining.

The risk assessment and management plan element of the rehabilitation plan requirement would require declared mine licensees to include information regarding the identification and management of rehabilitation hazards that may arise from the rehabilitation of declared mine land. The risk assessment and risk management plan would need to identify and provide management plans for risks that may lead to early or sudden cessation of operations or mine closure, and risks that may affect the rehabilitation outcomes, objectives and milestones in the DMRP. The post-mining land use requirement of the DMRP would require declared mine licensees to nominate a post-mining land use or uses. The regulations would enable a 'null/non-use' post-mining land use to be proposed for some domains of the land. PMLUs would need to be described in a manner that is consistent with relevant Ministerial guidelines.

The closure criteria requirement of s84AZU(3)(b) of the MRSD Act would require the declared mine licensee to specify closure criteria. The closure criteria would include the measures to address the risks to public health and safety, the environment and infrastructure posed by geotechnical, hydrogeological, water quality or hydrological status of the declared mine land; and outline standards or levels to be met by the licensee for surrender of the licence. Closure criteria would need to be set out in a way that is 'SMART.'

In relation to the registration undertaking component of s84AZU(3)(d) of the MRSD Act, declared mine licensees would be required to include an undertaking to pay the registration amount that is required to be included in the DMRP in s84AZU(d), being given for the declared mine land.

As any other prescribed matters pursuant to s84AZU(3)(f) of the MRSD Act, the DMRP would be required to include:

- a register setting out
  - › all the legal approvals and permissions required for the rehabilitation and closure activities or outcomes in the DMRP;
  - › whether each such legal approval or permission has been obtained.
- a stakeholder engagement plan identifying:
  - › key stakeholders for the DMRP; and
  - › a strategy for ongoing engagement with key stakeholders.

#### Post-closure plan

The post-closure plan requirements pursuant to s84AZU(3)(c) of the MRSDA Act would be the same as Option 1, that is: identification of ongoing monitoring and maintenance activities; identification of the responsible party for these activities; and a plan for the management of known and credible risks. In addition, Option 2 will include a requirement for the post-closure plan to specify, as far as reasonably practicable, any data, reports and information to be provided to the Authority once the plan is registered to support the Authority's function of ensuring the monitoring and maintenance for registered mine land is carried out (see s84AL(1)(kb)).

#### Consultation on the plan

Under Option 2, the regulations would list classes of people with whom declared mine licensees must consult in the preparation of the DMRP. The list would include (non-exhaustive):

- declared mine licensees to consult with prescribed persons during the preparation of a DMRP to ensure that relevant matters are taken into account in its preparation. The relevant persons for the purposes of this requirement are:
  - › The Authority.
  - › The Minister responsible for the *Environment Effects Act 1978* about whether an Environment Effects Statement (EES) is required for the proposed activities under the DMRP.
  - › The Crown Land Minister, if the declared mine land is Crown Land.
  - › Responsible authorities under the *Planning and Environment Act 1987* for the area in which the declared mine land is located (usually the local council).
  - › Public sector bodies responsible for authorisation or oversight of matters in the proposed DMRP (e.g. catchment management authorities, the Environment Protection Authority etc).

- declared mine licensees to consult with prescribed classes of persons including Traditional Owner groups or group entities; communities in the vicinity of the mine; owners/occupiers of the declared mine land affected by the plan; and owners/occupiers of land adjacent to the declared mine land. relevant public sector bodies responsible for authorisation or oversight of matters in the proposed DMRP (e.g. catchment management authorities, the Environment Protection Authority etc).

#### Public consultation on the plan prior to approval

Once a DMRP is prepared but before submitting it for approval the licensee should consult with the community about the proposal. The regulations will require the declared mine licensee to seek submissions through a notice seeking community submissions on the proposed DMRP. The submission process should be open for at least 28 days from the date of publication. The notice should contain sufficient information to enable a member of the public to identify the licensee, the area subject to the licence and the key elements of the proposed DMRP.

#### Level of detail and timeframe for submission

Existing declared mine licensees would be required to submit a DMRP to ERR within three years from September 2022, with the possibility of an extension of a year. However, under Option 2, the regulations would set out a staged approach to the approval decision, such that the Department Head could seek further information as part of their review of the plan.

Under Option 2, the level, specificity and finality of the information required in a DMRP should reflect the stage of mine operations and activities, with specific and final detail increasing the closer the declared mine gets to closure. Where specific technical information is not available at the time of DMRP lodgement or review, it is expected that any knowledge gaps would be identified and included in the DMRP and subsequently defined in later reviews and iterations of the plan. This is in contrast to Option 1, where all DMRP plan detail must be required upfront.

In contrast to Option 1, the regulations under Option 2 would prescribe a requirement for the declared licensee to submit with the DMRP sufficient evidence in support of the DMRP to enable the Department Head to make a decision considering the prescribed matters. The regulations will require some specific documents and evidence to be included with the DMRP when it's submitted to the Department Head. In particular, the regulations will require information to be provided on:

- The licensee's assessment of how the proposed DMRP will meet the proposed rehabilitation outcome;
- The consultation undertaken by the licensee on the proposed DMRP, see 6.3 above including information on:
  - › the matters raised in consultation; and
  - › the declared mine licensee's response to those matters.

#### Approval decisions

In contrast to Option 1, the regulations under Option 2 would enable the Department Head to request further information from the declared mine licensee prior to making approval decisions; require the Department Head to consult with an extended list of referrals; and prescribe a list of matters for the Department Head to take into account in their DMRP approval decisions.

Under Option 2, within 28 days of receiving a DMRP for approval, the Department Head must consult with:

- The Minister responsible for the *Environment Effects Act 1978*, if the DMRP is subject to an EES;
- The Environment Protection Authority;
- The responsible authority for the declared mine land covered by the DMRP; and
- Any public sector body, or referral authority within the meaning of s 77TA of the MRSD Act, that performs functions relevant to the DMRP.

Consultees will be required to provide comments in response to the DMRP no later than 90 days after receiving the DMRP. Any advice provided from the parties consulted is intended to be recommendatory and not binding on the Department Head.

Within 90 days of receiving a DMRP plan for approval, the Department Head would also be able to request further information from the declared mine licensee in relation to the prescribed matters to be considered, or to assist in the assessment of the DMRP. The Department Head may consult with the declared mine licensee prior

to making the formal request which should set a timeframe for the provision of the information. The Department Head would also have a discretion to grant further time to provide information in writing.

In making an approval decision, the Department Head would be required to consider the following prescribed matters:

- The nature or the landform to be achieved on the declared mine land (by reference to a list of prescribed matters, including the physical safety of humans and animals, the geotechnical and hydrogeological stability, and resilience to climate change).
- The evidence provided by the licensee on the consultation undertaken on the proposed DMRP application.
- Any additional information requested by the Department Head and provided by the licensee.
- The comments provided by those persons the Department Head consulted with on the DMRP.

The Department Head may approve the DMRP, require changes to the DMRP, or refuse to approve the work plan under s 84AZV(3) of the MRSD Act.

### **Rehabilitation reporting**

In addition to the annual reporting obligations set out in the Act, under Option 2, declared mine licensees' annual reports would be required to include, for the reporting period:

- Progress on plan components which require the additional submission of detail. This detail may be required, for example, because it was not reasonably practicable to provide the relevant detail at an earlier stage;
- Reasons for non-compliance with rehabilitation and closure milestones, and remedial action that will be undertaken in response to non-compliance with rehabilitation milestones.
- A review of rehabilitation and post-closure management risks.
- Technical and economic studies undertaken.
- Status summaries in relation to related regulatory processes that are necessary to be undertaken for the purposes of mine rehabilitation under the licence (e.g. environmental audits, land contamination assessments etc).
- A summary of rehabilitation-focussed community engagement programs, including feedback and outcomes.
- 'Reportable events' that have occurred. This reporting obligation would be in addition to the existing reporting obligation under s 41AC of the MRSD Act and Regulation 51 of the Mineral Industries Regulations, which forms part of the base case reporting requirements.
- Reporting of potential problems with the DMRP and/or progressive rehabilitation.

### **Review and updating rehabilitation plans**

Under Option 2, the regulations would prescribe the annual review of rehabilitation and post-closure management risks identified in the DMRP.

When submitting a variation application, declared mine licensees will be required to submit with the variation application, sufficient evidence to enable the Department Head to make a decision considering the prescribed matters, in particular, the declared mine licensee will be required to be provided information on the licensee's assessment of how the DMRP will meet the proposed rehabilitation outcome.

In relation to variation approvals, the consultation requirements imposed on the Department Head (extended list of referrals, timing for provision of comments from consultee, and requirements to consider consultees' comments) are the same as with respect to DMRP approvals. The Department Head would also have a right to require additional information in relation to prescribed matters or to assist with a variation request within 90 days of receiving a variation request. The Department Head may approve the variation application, require changes to the variation or refuse to approve the variation application under s 84AZW(3) of the MRSD Act.

## **5.4.2 Mine closure determination – Option 2**

Under Option 2, the regulations would require the declared mine licensee to provide evidence alongside their application for determination to prove that the closure criteria for the mine have been met. In particular, the regulations will require declared mine licensees to provide information:

- on the licensee’s assessment that the closure criteria have been met, including relevant evidence that criteria have been met;
- on the community and stakeholder engagement undertaken by the licensee on the closure determination application;
- to enable determination of the contribution to the declared mine fund, including the information required for registration of the declared mine.

The Minister would be able to provide prescribed people with the application for closure and any of the documents accompanying the application. The Minister would also be able to request such people provide information relevant to determining the closure application. Any advice from those consulted would be recommendatory and not binding on the Minister.

There will be no specified timeframe for the Minister to make a closure determination following a closure determination application. Given the complexity of the closure determination and the possibility for the final decision to involve negotiations or Cabinet decisions, it would not be possible to estimate the likely time for a decision.

### 5.4.3 Mine land registration and the Fund – Option 2

Under Option 2, the following records or information relating to the land would need to be included on the Register for the purposes of s 84AZZL(3)(b)(iii) of the MRSD Act:

- Location of the declared mine land.
- A map of the DM land that shows the boundaries of private and Crown land.
- Identification of the current landowner or land manager of the declared mine land.
- A map of the location of the key structural features of the DM land in relation to the boundaries of the DM land.
- A description of the mine previously located on the registered declared mine land including the activities that were conducted on that land.
- In the case of a DM licence cancelled under s 38(1B)(ab) for failure to comply with a DM rehab plan, the instrument of cancellation.

Under Option 2, the regulations would prescribe the baseline evidence which -the Minister would use to determine the amount to be paid into the Declared Mine Fund. This would be:

- an estimate of the present value of the future costs associated with the monitoring and maintenance obligations; and
- definitions and calculations of the costs relating to adverse events.

## 5.5 Non-regulatory options

The *Subordinate Legislation Act 1994* requires a RIS to consider “other practicable means of achieving those objectives, including other regulatory as well as non-regulatory options.”<sup>194</sup>

The Act does not effectively require declared mine licensees to submit a DMRP. The preparation of a DMRP is expected to pose additional burdens to the existing declared mine licensees and it is considered that in the absence of an enforceable obligation to prepare a DMRP, the licensees would not do so.

The amendments to the Act which introduced the declared mine rehabilitation framework were designed to be enabling. Without a DMRP being submitted to ERR, the rest of the framework does not function. This means that there are no other practicable means of achieving the objectives of the Amendment Act apart from amending the Minerals Regulations.

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<sup>194</sup> SLA, s 10



## 6 Assessment of Options

The regulatory impact assessment process seeks to ensure that proposed Regulations are well-targeted, effective and appropriate, and impose the lowest possible burden on businesses and the community. Essential to this process is understanding the costs and benefits that can be expected to flow from each potential option.

### 6.1 Assessment method

RIS's are required to use decision-making tools, such as cost-benefit analysis (CBA) or multi-criteria analysis (MCA), to identify a preferred option. MCA is a decision tool that is used when it is not possible to quantify and value the main costs and benefits of an option. This includes situations where some data is available but provides information at too broad a level to enable the specific effects of the proposed options to be isolated. MCA provides a structured, systematic and transparent framework for comparing options with non-quantified costs and benefits. It allows stakeholders and decision-makers to see (and comment on) which factors were taken into account, the weighting given to different aspects of a decision, and the logical path between the issues being addressed and the decision. A CBA provides a method for assessing the total costs and benefits associated with a proposed change. Cost and benefits are converted into standard units of measurement (i.e. dollars) to enable a comparison of the cost and benefits of each option.

The costs of each option can theoretically be readily expressed in monetary terms. In practice, however, it is often difficult to obtain adequate data to precisely identify the costs that an option would impose, and decision makers must rely on approximate or relative cost estimates. There is limited information available about the costs of rehabilitation planning for the existing declared mines, as outlined in section 6.6. Due to this, most of the assessment in this RIS is qualitative in nature. As such, effectiveness for these Regulations cannot be expressed in strict monetary terms, as the benefits sought to be achieved from the proposed amendments to the Regulations mostly relate to improved information, planning and decision-making – and therefore any flow-on impacts would be indirect and harder to quantify and value. For these reasons, MCA is the most appropriate way of assessing impacts of the proposed options in this RIS.

#### 6.1.1 Defining the assessment criteria

The assessment criteria for MCA falls into either a 'benefits' or a 'costs' category and must align with the identified problems and objectives.

##### Benefits

Benefits in this RIS refer to the effectiveness of the option in achieving the objectives of the relevant part of the regulatory framework. Within the regulatory framework, there are three distinct elements that seek to achieve different objectives (shown in the figure below) and as such they are assessed separately (sections 6.3, 6.4 and 6.5) so that appropriate criteria can be defined. The benefits criteria correspond to the three assessment sections as shown in the table below relating to:

- Declared Mine Rehabilitation Plans,
- Mine closure determinations, and
- Mine land registration.

Figure 9: Simplified declared mine land regulatory framework

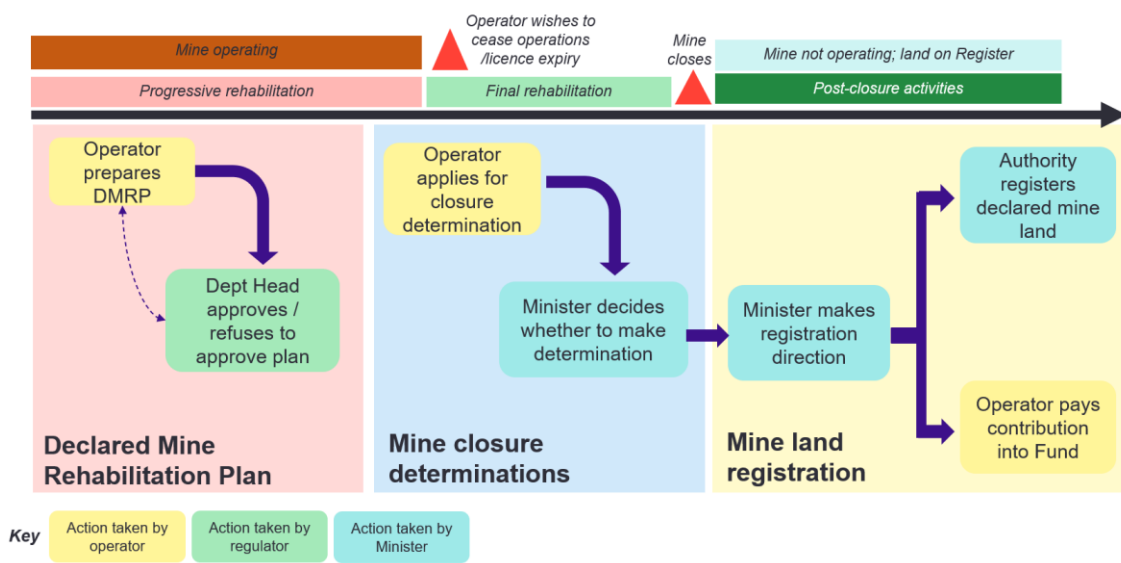


Table 5: Benefit criteria

Assessment	Benefit criteria
<b>6.3 Declared Mine Rehabilitation Plan</b>	Effectiveness in facilitating adequate rehabilitation planning and activity to manage risks posed by declared mine land through: <ul style="list-style-type: none"> <li>Facilitating assessment of declared mine rehabilitation liability</li> <li>Enabling appropriate and integrated regulatory rehabilitation-related decision making by government</li> <li>Providing a transparent and flexible approach to planning.</li> </ul>
<b>6.4 Mine closure determinations</b>	Effectiveness in supporting informed decision-making to ensure rehabilitation: <ul style="list-style-type: none"> <li>Meets legislative objectives and</li> <li>Provides a transparent, clear decision-making process.</li> </ul>
<b>6.5 Mine land registration</b>	Effectiveness in: <ul style="list-style-type: none"> <li>Obtaining and recording relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making</li> <li>Supporting the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.</li> </ul>

**Costs**

Costs in this RIS refer to both the costs imposed on businesses in the regulated sector (administrative compliance, substantive compliance, and delay costs) and those borne by government and taxpayers (administering the regulations). Financial costs such as fees and royalties are not within the scope of this RIS.

The scope of this RIS is limited to assessing the impact of the options for proposed Regulations to support the Amendment Act. There are already obligations under the Amendment Act that will continue in the base case, and these impacts are not considered in this RIS.

The costs criteria corresponding to the three assessment sections are shown in the table below

Table 6: Cost criteria

Assessment	Cost criteria
<b>6.3 Declared Mine Rehabilitation Plan</b>	Costs to government relative to the base case in: <ul style="list-style-type: none"> <li>Assessing and approving DMRPs;</li> <li>Monitoring rehabilitation carried out under DMRPs; and</li> <li>Responding to reported events or circumstances in relation to the plan.</li> </ul> Costs to industry (including time delays) relative to the base case
<b>6.4 Mine closure determinations</b>	Costs to government relative to the base case of administering and enforcing the system Costs to industry (including time delays) relative to the base case
<b>6.5 Mine land registration</b>	Costs to government relative to the base case of administering and enforcing the system Costs to industry (including time delays) relative to the base case

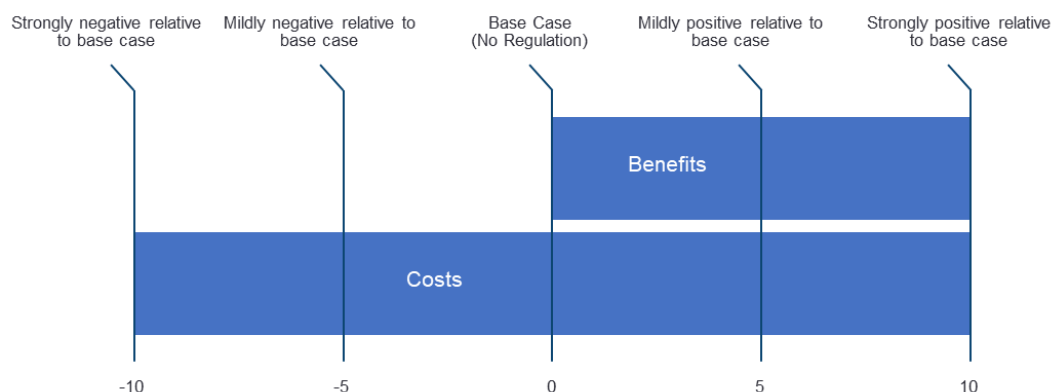
## 6.2 Scoring

MCA allows a decision to be made based on weighted scores. Each option is scored against the defined criteria and the option assigned the highest weighted score is the 'preferred option'.

### 6.2.1 Assigning scores for each option

A symmetric scoring scale ranging from -10 to +10 is used in this RIS to score the proposed options against each criterion, shown in the diagram below.

Figure 10: MCA scale used in scoring options



Benefits are scored between 0 and +10. A score of 0 means that the option does not further the objectives of the Principal Act in any way, relative to the base case. A score of +10 means that the option furthers the objectives of the Act to the optimum extent possible. A negative score is not possible for effectiveness, as no option would be considered which was contrary to the objectives of the Principal Act.

Costs are scored from +10 to -10. Cost criteria are defined as 'cost' rather than 'cost minimisation', meaning that an option that is more costly than the base case will receive a negative score. A score of 0 means that the option does not add any regulatory costs over the base case. A score of -10 means that the option imposes much higher costs than the benefits gained from introducing the regulations compared with the base case. A positive score would be given where the regulations reduce costs relative to the base case. While theoretically possible, it is unlikely that any option would return a strongly positive score.

Factors that contributed to the scoring includes:

- The scale of the impact, assuming it does eventuate
- The likelihood of a cost or benefit eventuating, based on the current state
- Whether a cost is likely to impact all declared mines, or only some mines/in some circumstances



- The extent to which a potential impact arising relies on other events not guaranteed by the proposed option (for example, a change in practice by the regulator)

### 2.1.1. Assigning a weighting to each criterion

The weights assigned to each criterion in MCA can have a significant effect on the outcome of the assessment. Neutral weights of 50 per cent in total for the benefit-related criteria and 50 per cent in total for the cost-related criteria have been applied to ensure that there is no cost or benefit bias in the weighted scores.

The sub-weights assigned for each of the criterion reflect the equal weighting that government gives to achieving the objectives within each part of the regulatory frameworks and the cost imposed on government and industry.

Table 7: MCA criteria and weightings

Criteria	Weighting
<b>Declared Mine Rehabilitation Plan</b>	
<b>Benefits Criteria</b>	
Manage the risks posed by declared mine land through:	
Facilitating assessment of declared mine rehabilitation liability	16.7%
Enabling appropriate and integrated regulatory rehabilitation-related decision making by government	16.7%
Providing a transparent and flexible approach to planning	16.7%
<b>Total</b>	<b>50%</b>
<b>Cost Criteria</b>	
Costs to industry (including time delays) relative to the base case	25%
Costs to government relative to the base case in:	
<ul style="list-style-type: none"> <li>• Assessing and approving DMRPs;</li> <li>• Monitoring rehabilitation carried out under DMRPs; and</li> <li>• Responding to reported events or circumstances in relation to the plan.</li> </ul>	25%
<b>Total</b>	<b>50%</b>
<b>Mine closure determinations</b>	
<b>Benefit Criteria</b>	
Support informed decision-making to ensure rehabilitation meets legislative objectives	25%
Provide a transparent, clear decision-making process	25%
<b>Total</b>	<b>50%</b>
<b>Cost Criteria</b>	
Costs to industry (including time delays) relative to the base case	25%
Costs to government relative to the base case of administering and enforcing the system	25%
<b>Total</b>	<b>50%</b>
<b>Mine land registration</b>	
<b>Benefit Criteria</b>	
Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making.	25%

Criteria	Weighting
Support the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.	25%
<b>Total</b>	<b>50%</b>
<b>Cost Criteria</b>	
Costs to industry (including time delays) relative to the base case	25%
Costs to government relative to the base case of administering and enforcing the system	25%
<b>Total</b>	<b>50%</b>

Once an option has been scored on all the above criteria, these are multiplied by the above weightings. The results are then summed. The option which returns the highest value is preferred.

## 6.2.2 Summary of scores for each of the assessment sections

A summary of the scores for each of the assessment sections is detailed below, with the in-depth analysis and rationales for each score detailed in sections 6.3, 6.4 and 6.5. Overall, Option 2 provides the highest net benefit across the three elements of the regulatory framework.

Table 8: Summary weighted scores for each option

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
<b>Declared Mine Rehabilitation Plan</b>					
<b>Benefits Criteria</b>					
Manage the risks posed by declared mine land through:					
Facilitating assessment of declared mine rehabilitation liability	16.7%	7	8	1.17	1.33
Enabling appropriate and integrated regulatory rehabilitation-related decision making by government	16.7%	4	6	0.67	1.00
Providing a transparent and flexible approach to planning	16.7%	3	8	0.50	1.33
<b>Total</b>	<b>50%</b>			<b>2.33</b>	<b>3.67</b>
<b>Cost Criteria</b>					
Costs to industry (including time delays) relative to the base case	25%	-5	-7	-1.25	-1.75
Costs to government relative to the base case in:					
<ul style="list-style-type: none"> <li>• Assessing and approving DMRPs;</li> <li>• monitoring rehabilitation carried out under DMRPs; and</li> <li>• responding to reported events or circumstances in relation to the plan.</li> </ul>	25%	-1	-2	-0.25	-0.5
<b>Total</b>	<b>50%</b>			<b>-1.50</b>	<b>-2.25</b>
<b>Total weighted score</b>				<b>0.83</b>	<b>1.42</b>

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
<b>Mine closure determinations</b>					
<b>Benefit Criteria</b>					
Support informed decision-making to ensure rehabilitation meets legislative objectives	25%	8	5	2.00	1.25
Provide a transparent, clear decision-making process	25%	0	6	0.00	1.50
<b>Total</b>	<b>50%</b>			<b>2.00</b>	<b>2.75</b>
<b>Cost Criteria</b>					
Costs to industry (including time delays) relative to the base case	25%	-4	-3	-1.0	-0.75
Costs to government relative to the base case of administering and enforcing the system	25%	-1	-3	-0.25	-0.75
<b>Total</b>	<b>50%</b>			<b>-1.25</b>	<b>-1.50</b>
<b>Total weighted score</b>				<b>0.75</b>	<b>1.25</b>

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
<b>Mine land registration</b>					
<b>Benefit Criteria</b>					
Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making.	25%	1	7	0.25	1.75
Support the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.	25%	0	6	0.00	1.5
<b>Total</b>	<b>50%</b>			<b>0.25</b>	<b>3.25</b>
<b>Cost Criteria</b>					
Costs to industry (including time delays) relative to the base case	25%	0	1	0.00	0.25
Costs to government relative to the base case of administering and enforcing the system	25%	0	-1	0	-0.25
<b>Total</b>	<b>50%</b>			<b>0.00</b>	<b>0.00</b>
<b>Total weighted score</b>				<b>0.25</b>	<b>3.25</b>

### 6.3 Analysis of options for DMRPs

Table 9 summarises the key differences between the options for DMRPs. Under both Option 1 and 2, licensees are required to submit a detailed DMRP within a prescribed period of the regulations commencing, or the mine being declared. The DMRP forms the crux of the declared mine rehabilitation framework and must therefore achieve or progress each of the fundamental objectives of the Amendment Act and the proposed Regulations.

Table 9: Summary of options for DMRPs

Base case	Option 1	Option 2
<ul style="list-style-type: none"> <li>Existing rehabilitation plans apply until licensee or regulator seeks variation under 2019 regulations</li> <li>Rehabilitation plan variations submitted before 1 July 2020 are under old rehabilitation plan requirements</li> <li>Plan variations submitted after 1 July do not transition to a new declared mine rehabilitation (including post-closure plan)</li> <li>Regulations are needed to create the obligation to prepare a declared mine rehabilitation plan within a prescribed time frame</li> <li>Plans do not include specified closure criteria that address key risks and must be considered</li> </ul>	<p><b>Outcomes and objectives</b></p> <ul style="list-style-type: none"> <li>Safe, stable and sustainable land form for a specified land use</li> <li>Licensee-driven</li> <li>Objectives set against that use (objective site-specific and bespoke)</li> </ul>	<p><b>Outcomes and objectives</b></p> <ul style="list-style-type: none"> <li>Maintenance of safe and stable land form</li> <li>Prescribed matters to be included in the plan informed by the LVRRS and based on accepted regulatory or industry best practice</li> </ul>
	<p><b>Decision making</b></p> <ul style="list-style-type: none"> <li>Nothing prescribed because objectives are bespoke and site-specific</li> </ul>	<p><b>Decision making</b></p> <ul style="list-style-type: none"> <li>Evidence to be provided with plan approval, e.g. evidence of how the matters in the regulations are addressed</li> <li>Matters to be considered by decision-maker</li> </ul>
	<p><b>Expectation at plan approval</b></p> <ul style="list-style-type: none"> <li>DMRPs are to contain all the details of their planned rehabilitation works, risk assessments, as specified under the Act, and a post-closure plan for the management of known and credible risks</li> <li>Regulator has limited ability to set plan conditions where details are not required or provided</li> </ul>	<p><b>Expectation at plan approval</b></p> <ul style="list-style-type: none"> <li>Each core element of plan must be addressed</li> <li>Less detail may be required depending on stage of mine life cycle</li> </ul>
	<p><b>How plans are updated</b></p> <ul style="list-style-type: none"> <li>Licensee applies for variation of plan</li> <li>Threshold for variation set in regulations</li> <li>Regulator can request application for variation</li> </ul>	<p><b>How plans are updated</b></p> <ul style="list-style-type: none"> <li>Annual review of rehabilitation and post-closure management risks identified in plans</li> <li>Plans can also be varied at the request of the regulator, as Option 1, and at the direction of the Department Head</li> </ul>



Base case	Option 1	Option 2
in future decision-making	<p><b>Reporting requirements</b></p> <p>Annual report on rehabilitation milestones/ activity and liability assessment</p>	<p><b>Reporting requirements</b></p> <ul style="list-style-type: none"><li>• Annual report on research undertaken, site status information, rehabilitation planning update (notification of progress on detail of plan), rehabilitation milestones/activity and community engagement</li><li>• Trigger reporting on reportable events and plan updates</li></ul>

### 6.3.1 Benefits

The effectiveness of each option in relation to each of the benefits sub-criteria is analysed below.

#### *Facilitate accurate assessment of rehabilitation liability*

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Facilitate assessment of declared mine rehabilitation liability	16.7%	7	8

#### *Option 1*

Option 1 is considered to be much more effective than the base case in facilitating accurate assessment of rehabilitation liability, and managing financial risk to the state, due to the additional information required under the DMRP relative to the base case. As such, Option 1 has been scored as moderately positive (+7) relative to the base case.

Under Option 1, licensees are required to provide information in the DMRP around planning of rehabilitation activities, risk assessments and post closure plans around site specific objectives. The regulations require licensees to undertake rehabilitation of declared mine land to a safe, stable and sustainable final landform, supported by:

- Rehabilitation and closure outcomes related to a specified post closure plan,
- Defined post mining land use, and
- Post closure plans.

The licensees' current work plans were approved prior to the introduction of the 2019 Regulations, and do not include the post-closure risks arising from rehabilitated land (e.g., known costs and foreseeable risks associated with ongoing land management for a rehabilitated landform). As such, the licensees' rehabilitation plans are currently vague and conceptual, leading to the inadequate management of declared mine land risks and inaccurate assessment of rehabilitation liability. The Hazelwood Mine Fire Inquiry found that plans under the regulations in force prior to 2019 did not adequately ensure that land that had been mined would be rehabilitated to a safe and stable condition. Under the base case, licensees are not required to prepare a declared mine rehabilitation plan within a prescribed time frame, so these issues would continue.

Option 1 addresses the issues associated with the current conceptual nature of rehabilitation planning by requiring much more detailed and specific rehabilitation planning to be included in the DMRP relative to the base case, including explicit consideration of additional factors with the potential to increase liability. This includes requiring licensees to:

- investigate and address a wider range of potential rehabilitation risks in the DMRP, and
- set site-specific planning objectives, along with activities and milestones for structuring and measuring progress towards those objectives.

The detailed information is required to be provided at plan approval, which provides the government with more comprehensive information around declared mine risks at first plan approval, and any point in time over the life of the declared mines than under the base case. The additional information requirements will lead to more effective regulation of rehabilitation works and will allow the government to make a more accurate assessment of the rehabilitation liability of each of the mines, resulting in rehabilitation bonds that better reflect the true cost of rehabilitation. This ensures the State (and community) are protected from rehabilitation costs that rest with the operator.

Option 1 will be more effective than the base case in achieving the objectives of the Act, and managing financial risks posed by declared mine by virtue of setting a timeframe in which licensees must prepare and submit their DMRP. Requiring licensees to prepare and submit a DMRP within one year of the regulations commencing means that the above benefits can be achieved once the DMRP has been approved. As such, the overall risks to government and the community are significantly reduced under Option 1 relative to the base case.

Under Option 1, licensees could apply to the Minister for an extension of time to prepare the DMRP of up to one year. A delay of one year in submitting a DMRP, would mean the benefits noted above would not be achieved for a further year, and the risks, associated with declared mines outlined in section 2.3 may not be managed sufficiently in this timeframe. Any delay in moving into the new framework under Option 1 carries financial risk for the State that rehabilitation liabilities and bonds are not accurately assessed. However, such a delay does not materially impact on the effectiveness of this option relative to the base case.

### *Option 2*

Option 2 is considered to be much more effective than the base case in facilitating accurate assessment of rehabilitation liability, due to the additional information required under the DMRP and annual reporting relative to the base case. As such, Option 2 has been scored as moderately positive (+8) relative to the base case.

Similar to Option 1, Option 2 addresses the issues associated with the current conceptual nature of rehabilitation planning by requiring much more detailed and specific rehabilitation planning relative to the base case, including explicit consideration of additional factors with the potential to increase liability. This includes requiring licensees to:

- Investigate and address a wider range of potential rehabilitation risks in the DMRP
- Provide evidence including how the objectives in the regulations relating to rehabilitation will be met
- Set specific rehabilitation activities and milestones for structuring and measuring progress towards rehabilitation objectives
- Contingency planning including projected costing.

The additional information requirements under Option 2 will lead to more effective regulation of rehabilitation works and rehabilitation bonds that better reflect the true cost of rehabilitation than under the base case, ensuring the State (and community) are protected from rehabilitation costs that rest with the operator. The additional requirements around contingency planning relative to Option 1 is likely to facilitate more accurate assessment of rehabilitation liability by accommodating a wider range of possible outcomes and pathways than Option 1, which assumes rehabilitation according to the plan set out in the DMRP. Further, this liability assessment will be updated regularly alongside the regular reviews of the DMRP, which ensures the State (and community) are protected from unexpected changes in rehabilitation costs over time.

Option 2 requires existing licensees to submit their DMRP within three years from September 2022. Under this option, licensees can apply to the Minister for an extension of time to prepare the DMRP of up to one year. As with Option 1, on balance, Option 2 will be more effective than the base case in achieving the objectives of the Act, and managing financial risks posed by declared mine by virtue of setting a timeframe in which licensees must prepare and submit their DMRP.

In the shorter-term, the iterative approach to rehabilitation planning under Option 2 may mean that a DMRP is less detailed than a DMRP under Option 1, especially for the mines that are earlier in their lifecycle. As such, the government is likely to have less comprehensive information around declared mine risks earlier in the life of the declared mines than under Option 1. This may make the assessment of rehabilitation liability more difficult at first plan approval, which may result in less accurate assessment of liability in the shorter-term. However, compared to the base case, a DMRP under Option 2 will include more information than the current approved rehabilitation plans of the declared mines.

Over the longer-term, Option 2 is expected to result in better management of declared mine risks, and more accurate assessment of liability, as it is more flexible, more suited to the uncertain environment in which declared mine rehabilitation is occurring (as described in section 2.3.4). Option 2 allows for and accommodates changing circumstances that impact on the level and nature of risk posed by declared mine sites through the iterative approach to rehabilitation planning and the yearly review of rehabilitation and post-closure management risks. This allows for more frequent review of the rehabilitation liability, that can be more readily assessed over time as the detail in the DMRP is developed. As such, in the long-term, Option 2 facilitates better management of mining risks and a more accurate assessment of rehabilitation liability than Option 1.

## Appropriate and integrated government decision-making

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Enable appropriate and integrated regulatory rehabilitation-related decision making by government	16.7%	4	6

### Option 1

Option 1 is considered to be slightly positive relative to the base case, as it enables better decision-making by government from the additional information required in the DMRP. As such, it has been scored as mildly positive (+4) relative to the base case.

Option 1 does not prescribe matters to be considered by the decision-maker or consultation / referrals to other agencies when approving DMRPs. As such, this aspect is the same as the base case and does not improve on integrated government decision-making.

However, Option 1 does improve on the base case insofar as it will give practical effect to the obligation to submit the DMRP. As outlined above, the additional information in the DMRP allows for government to make regulatory decisions that are better aligned to the objectives of the Act, and consequently reduce risks to the community and environment from declared mining operations.

One of the mine operators submitted that this option is the appropriate approach because it recognises that the mine operator is best placed to understand the risks and opportunities posed by their mine site. The department also recognises that mine operators have the best access to technical on-site information. Assuming however that rehabilitation has been carried out to safe, stable and sustainable landform, post-mining opportunities are less dependent on risk or site knowledge and better informed by other parties. Through requiring increased information and additional detail for the DMRP in Option 1, the government is in a better position than in the base case to approve DMRPs to meet the objectives of the Act, facilitate adequate rehabilitation planning and activity, and subsequently managing the risks to the community and environment from declared mining operations.

### Option 2

Option 2 is considered to be much more effective than the base case in enabling appropriate and integrated government decision making, as it prescribes matters to be considered, and parties to be consulted for government decisions. As such, it has been scored as moderately positive (+6) relative to the base case.

Option 2 requires declared mine licensees to consult with a wider range of parties in the preparation of the DMRP than the base case and Option 1, including affected public sector bodies and regulators, such as the EPA and the Authority. Option 2 also requires ERR, in its decision about whether to approve a submitted DMRP, to consider the views of any relevant Ministers, regulators and authorities. This enables more integrated government decision-making, as these consultations will allow other regulators and authorities to provide information to ERR that may be relevant to decisions around rehabilitation planning (e.g. on matters that fall outside ERR's remit, such as decisions on water allocations)

Both of these additional requirements under Option 2 mean that Option 2 is considered to be more effective in promoting appropriate and integrated government decision-making than Option 1, and considerably more effective than the base case.

Option 2 is also considered to promote more appropriate government decision-making by obliging ERR to specifically consider a range of matters pertinent to rehabilitation planning, in contrast to Option 1 and the base case where no such considerations are prescribed. This ensures that ERR consistently considers all relevant factors when assessing DMRPs, which allows government to make regulatory decisions that are better aligned to the objectives of the Act, and consequently reduce risks to the community and environment from declared mining operations.

In addition, additional information under Option 2 with regard to defining closure criteria for each of the rehabilitation and closure objectives in the DMRP means the closure criteria will:

- take into account the risks to public safety, the environment and infrastructure by geotechnical, hydrogeological, water quality or hydrological status of the declared mine land, (similar to Option 1)



- outline standards or measures of success for all rehabilitation and closure objectives in the DMRP

This provides more information for government to make more informed decisions around mine closure, and is most consistent with findings of best practice in the interjurisdictional analysis, as noted in Appendix A.

### **Transparent and flexible planning approach**

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Provide a transparent and flexible approach to planning	16.7%	3	8

#### **Option 1**

Option 1 is considered to be slightly positive relative to the base case, as it improves the transparency of rehabilitation planning and activity relative to the base case. However, Option 1 does not improve the flexibility of rehabilitation planning relative to the base case. As such, it has been scored as mildly positive (+3) relative to the base case.

#### **Transparent planning approach**

Relative to the base case, Option 1 provides more transparency around rehabilitation planning and activity, as licensees are required to submit detailed DMRPs with suggested rehabilitation outcomes, post mining land uses, objectives and activities that they contend meet the requirements for rehabilitation under the Act. This detailed information is required to be provided at plan approval, which provides the government with more comprehensive information around declared mine risks at any point in time over the life of the declared mines than under the base case. In addition, the annual reporting on rehabilitation activity and milestones improves transparency around rehabilitation planning and activity.

The increased requirements of Option 1 also provides greater clarity on regulatory and government expectations on agreed rehabilitation activities and defined milestones, which allows more certainty with regards to planning and undertaking rehabilitation activities and consequently facilitates better management of declared mine risks.

The responsibility for defining the rehabilitation outcome rests with the licensee and is tied to the final land use. Under Option 1, the details of the DMRP are also tied to site specific rehabilitation objectives. This limits the transparency of rehabilitation planning under Option 1, as different objectives across different declared mines, and it may not be clear how government decisions around rehabilitation are made.

However, relative to the base case, this does not impact the effectiveness of this option, as less information is in the declared mines' current rehabilitation plans, and there is no requirement for licensees to prepare a declared mine rehabilitation plan within a prescribed time frame.

#### **Flexible planning approach**

There is no difference between Option 1 and the base case with regards to the timing of when detailed rehabilitation information is required, and variations to the DMRP for changes to rehabilitation planning. Any changes that a licensee may need or wish to make subsequent to a DMRP being approved must go through a formal variation process.

#### **Option 2**

Option 2 is considered to be moderately positive relative to the base case, as it improves the transparency of rehabilitation planning and activity relative to the base case, and allows more flexibility of rehabilitation planning by virtue of the iterative approach to rehabilitation planning and increased information required in the DMRP. As such, it has been scored as strongly positive (+8) relative to the base case.

#### **Transparent planning approach**

Similar to Option 1, Option 2 provides more transparency around rehabilitation planning and activity relative to the base case because of the additional detail required in DMRPs.

Compared to Option 1, Option 2 requires licensees to develop DMRPs based on a defined set of outcomes that apply to all declared mines. This increases the transparency of planning relative to Option 1, as the same defined outcomes apply across the industry.

In addition, under Option 2 licensees are required to provide additional information as part of the annual reporting, and to include information and data supporting their DMRP when it is submitted to ERR for approval. This improves the transparency of rehabilitation planning as:

- Additional content as part of annual reports allows this process to be used as an additional tool to monitor rehabilitation progress and planning relative to Option 1 and the base case. This allows ERR to ensure that risks are being appropriately managed, and that problems with the DMRP and/or progressive rehabilitation are identified as early as possible.
- Additional information and data supporting the DMRP enables ERR to understand and interrogate the basis for rehabilitation planning decisions by licensees relative to the base case and Option 1.

Further, the annual review of the rehabilitation and post-closure management risks identified in the DMRP improves the transparency around rehabilitation planning and activity, as ERR has greater oversight on how rehabilitation planning is progressing, and how licensees are planning for, and mitigating rehabilitation risks. Overall, Option 2 is considered to be moderately more transparent than the base case and Option 1.

### Flexible planning approach

In contrast to the base case and Option 1, Option 2 provides more flexibility in rehabilitation planning due to the iterative approach adopted for the DMRP. Option 2 allows licensees to develop the detail of their DMRP over time, provided that a plan to address any known gaps is also included in the DMRP. This allows more flexibility in the planning approach, and allows licensees to better manage the uncertainties in rehabilitation planning outlined in section 2.3.4.

The iterative approach to rehabilitation planning under Option 2 also better aligns with what the declared mine licensees report as their usual approach to rehabilitation planning, where information and knowledge about mine sites is accrued over time and informs planning as it is developed. Such information could include the discovery of new factors or features within declared mine land that change existing understandings of the risks posed by the mine site. The submission by Hazelwood's operator, ENGIE, indicated that they have accrued hundreds of technical studies about the Hazelwood mine (which is now closed). However, it is likely to be more difficult for mines that are still operational, and hence further out from closure to prepare equally comprehensive DMRPs to adequately manage mine risks. This is also considering non-operational mines are less likely to develop or encounter new risks relative to an active mine site. Another mine operator submitted that delaying detailed planning has the added benefit that it enables planning to be undertaken when site knowledge is most evolved. This iterative approach is consistent with the approach to rehabilitation planning in Western Australia and Germany, where plans are developed over time, with more detail required prescribed in the plan as more knowledge and information is gathered and the mine approaches closure.

The iterative approach in Option 2 addresses the limitations and risks inherent in the upfront planning approach in Option 1. By requiring licensees to provide all of the detailed information in the DMRP at the outset, Option 1 creates a risk that DMRPs will require information about the mine site to be collected before all the technical features and potential risks posed by the land are fully known and understood. Declared mines are inherently complex and dangerous, and as has been illustrated by the hazardous events that have occurred at the Latrobe Valley coal mines and their subsequent investigations – understanding and planning for the full extent of the potential risks they pose is challenging. In addition, the challenges and uncertainties outlined in relation to rehabilitation planning in section 2.3.4 impact on licensees' ability to undertake detailed rehabilitation planning.

The annual review of the rehabilitation and post-closure management risks identified in the DRMP can be expected to ensure that emerging risks are captured in the planning process, and that progress in managing and minimising known risks is continuously monitored by both the licensee and ERR. The yearly review cycle also allows for small changes in rehabilitation planning to be incorporated in the plan without the need for a formal variation.

This stands in contrast to the base case and Option 1, where there is no ongoing monitoring of the adequacy of the DMRP in managing risk, and variations to the DMRP are a formal process triggered by specified, relatively major events, such as:

- an explosion or outbreak of fire;

- slope failure, unexpected slope movement, progressive slope collapse or failure of slope stability control measures;
- an injury to a member of the public caused by the carrying out of mining or associated operations;
- an uncontrolled outburst of gas;
- an unexpected or abnormal inrush of groundwater, other water or other fluid;
- blasting that results in an ejection of fly rock outside the work plan area of the approved work plan for the licence;
- an escape, spillage or leakage of a harmful or potentially harmful substance, slurry or tailings;
- a breach of a licence condition or non-compliance with the approved work plan or work plan conditions for the licence that results in, or is likely to result in, a risk to the environment, any member of the public or property, land or infrastructure in the vicinity of the licence;
- an abnormal event;
- an event that results or may result in significant impacts on public safety, the environment or infrastructure.<sup>195</sup>

Under Option 1, the variation process can be lengthy and costly, which may disincentivise mine operators from proposing a variation. One of the mine operators submitted that the lengthy and laborious nature of the existing plan variation process acts as a disincentive for operators to formally vary their plans. Similar sentiments about the delays created by ERR's processing of formal work plan variations were expressed by another of the licensees.

Option 2 could avoid or reduce the obstacles and effort involved in updating rehabilitation plans, in turn improving the comprehensiveness of the plan's risk management.

In the longer-term, Option 2 is expected to result in better management of declared mine risks, as it is more flexible, and more suited to the uncertain environment in which declared mine rehabilitation is occurring (as described in section 2.3.4) and the nature of declared mine land rehabilitation risks. As such, Option 2 allows for and accommodates changing circumstances that impact on the level and nature of risk posed by declared mine sites through the iterative approach to rehabilitation planning, the more comprehensive annual reporting and the yearly review of rehabilitation and post-closure management risks.

### Benefits scores

Table 10 sets out the scores allocated to the DMRP options, Option 1 and Option 2, against the benefits criterion. Overall, Option 2 provides the highest benefit across all the benefits criteria. Option 1 is considered to be more effective compared to the base case across all of the sub-criteria. While it does improve rehabilitation planning requirements against most of the benefits sub-criteria, a not insignificant proportion of this impact is derived merely from its effect in activating the obligations and processes under the Act.

Option 2 is considered to be significantly more effective than the base case. Option 2 includes and builds on all the aspects of Option 1 that are more effective than the base case, particularly in relation to supporting integrated government decision-making and more transparent and flexible planning, resulting in a higher score overall.

Table 10: Options for DMRPs - benefits scores

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
Facilitate assessment of declared mine rehabilitation liability	16.7%	7	8	1.17	1.33
Enable appropriate and integrated regulatory rehabilitation-related decision making by government	16.7%	4	6	0.67	1.00

<sup>195</sup> Reportable events are prescribed in the 2019 Regulations in r 51(2).

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
Provide a transparent and flexible approach to planning	16.7%	3	8	0.50	1.33
<b>Total</b>	<b>50%</b>			<b>2.33</b>	<b>3.67</b>

### 6.3.2 Cost to industry

Both Option 1 and Option 2 will impose greater costs on declared mine licensees than the base case, because the core obligation under the declared mine rehabilitation framework, submitting a DMRP, does not effectively apply under the base case.

There is limited data available regarding specific cost burdens associated with regulation in the minerals industry. The information that is available around the current regulatory costs is unsuitable for use as a baseline costing for this RIS because of limitations in the accuracy of the data and because of changes to the regulatory requirements that have occurred since the analysis was undertaken, as outlined in section 6.6. Due to this, the assessment of costs is qualitative in nature.

#### Option 1

Overall, Option 1 is considered to impose moderately more costs on declared mine licensees than the base case, because the regulations require licensees to develop a DMRP within a year of regulations commencing. As such, it has been scored moderately negative (-5) compared to the base case.

#### Costs compared to the base case

Under Option 1, licensees are required to submit a DMRP that includes the prescribed requirements for rehabilitation plans under the 2019 Regulations. In addition, licensees would need to meet the additional requirements under the Act (post-closure plan; various risk assessments, etc.) and to prepare a community engagement report describing the consultations undertaken in relation to the plan. These are all new requirements compared to the base case, where the declared mine licensees' current work plans were approved prior to the 2019 Regulations coming into effect, and include:

- concepts for end utilisation of the mine site;
- proposals for progressive rehabilitation, stabilisation & revegetation;
- proposals to minimise visual impact; and
- proposals for final rehabilitation and closure of site.

Overall, the additional requirements in preparing a DMRP under Option 1 impose additional costs on licensees in preparing the information required relative to the base case. These additional requirements include:

- rehabilitation plan content as required under the 2019 Regulations;
- assessments of the risks posed by the geotechnical, hydrogeological, water quality or hydrological factors within the declared mine land;
- a post-closure plan, including a schedule of activities and a plan of management for known and credible risks; and
- a community engagement report.

The costs of each of the additional requirements are assessed below.

#### Rehabilitation plan content

In the Regulatory Impact Statement Proposed Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019, it was estimated that meeting the requirements of the 2019 Regulations in relation to rehabilitation planning would cost an additional 20-30 per cent compared to complying with the previous rehabilitation obligations. Option 1 would practically apply the prescribed requirements for rehabilitation plans under the 2019 Regulations to the existing declared mines by introducing the timeframe in which to prepare a DMRP within one year of the commencement of the regulations. As such, Option 1 is estimated to cost at least 20-30 per cent more than the base case with regard to the rehabilitation plan content.

## Risk assessments

It is considered that the requirement to prepare the required risk assessment would impose minor costs on the licensees relative to the base case. One of the mine licensees submitted that it had completed 'more than 100 technical studies' addressing a wide range of risk and physical features at the mine site, which draw on years of data and operational knowledge of the site. None of the other mines commented on this consultation question. While the other mines did not comment, they have been in operation for a similar period of time and, given that each of the Latrobe Valley coal mines shares similar physical characteristics that create hazardous conditions, and have each been involved in the studies and processes for the LVRRS, it is assumed that the other mines would also have a similar amount of data and operational knowledge.

## Post closure plan

Option 1 introduces the requirement to prepare a post-closure plan. It is considered that this is likely to impose significant additional costs for declared mine licensees relative to the base case. The post-closure plan is required to set out activities for the management of residual risks identified by the licensee as persisting after the rehabilitation outcome they define in the DMRP has been achieved.

There is significant uncertainty that impact on licensees' ability to develop the post closure plan's content. Findings from the LVRRS indicate that there are uncertainties around the practicability of the existing mines' proposed rehabilitation outcomes, especially in relation to water availability and the impacts from climate change. As noted in section 2.5.2, Government is undertaking further work to address some of these uncertainties identified in the LVRRS. Requiring licensees to develop a detailed post-closure plan early in the rehabilitation planning process, as required under Option 1, creates additional cost for licensees, because the uncertainty noted above is likely to result in licensees being required to undertake a broader range of assessments to fill the information gap and ultimately prepare a post closure plan within one year of the regulations coming into force.

Notwithstanding this uncertainty, one of the mine operators estimated that a 'good plan' could be developed within 12 months.

## Community engagement report

It is not considered that the obligation to prepare a community engagement report would add significant costs relative to the base case for licensees already complying with existing consultation obligations, as they would merely need to record and compile the nature of, and responses to, community consultations.

Licensees are already required to undertake consultation on their work plans under the Act, and there are no prescribed entities or parties for licensees to consult under Option 1. One licensee submitted that, as part of business-as-usual operations, it holds consultations for any interested party, presumably in fulfillment of its general consultation obligations under the Act. The lack of prescription in relation to parties to consult is similar to the approach taken in Western Australia and Germany.

## Timing

Under Option 1, the DMRP is required to include detailed plans 'upfront'. This upfront approach is similar to the approach taken in Queensland. Under Option 1, the detailed information required to develop a complete DMRP and post closure plan needs to be completed within one year of the regulations commencing. One of the mine operators in their submission noted that the more detail and more certainty required up front, increases the effort, and therefore cost, required. This suggests that the overall cost of developing the detailed plan elements, described above, is likely to be significantly higher than the base case, as there is no timeframe in which a DMRP would need to be submitted under the base case. As the detail is required upfront, it is anticipated that the DMRP may require frequent revision to incorporate additional information that is developed over the life of the mine, which would add to the overall cost of developing and updating the DMRP relative to the base case.

## Option 2

Overall, Option 2 is considered to impose greater costs to industry than under the base case, because the regulations require existing declared mine licensees to develop, and submit to ERR, a DMRP within three years from September 2022, with the possibility of an extension of a year. Compared to Option 1, Option 2's iterative approach is anticipated to result in cost savings initially, however, the requirements to consider and incorporate a broader range of factors in the DMRP is considered to increase the cost of this approach overall. It is noted however that since costs incurred by the operator are spread over a longer period, this results in a lower financial burden on the licensees. The time value of money outlines that a sum of money is worth more now than the same sum paid at a future date. A sudden or unplanned cessation of mining would likely translate to lower sunk

costs under Option 2 relative to Option 1. As such, it is expected to be more costly than Option 1 and has been scored moderately negative (-7) compared to the base case.

### *Costs compared to the base case*

Option 2 requires the same core elements of the DMRP as Option 1 – a post-closure plan, the specified risk assessments, and proposed closure criteria. The differences between Option 1 and Option 2 in terms of the preparation of the DMRP are that Option 2:

- Involves rehabilitation according to prescribed matters, (rather than towards a defined post mining land use and land form);
- Allows the detail of DMRPs and post closure plans to be developed over time (rather than requiring all the detail at the point of initial approval);
- Requires licensees to demonstrate how they have considered a range of factors in their DMRP (additional to Option 1);
- Requires licensees to assess additional risks including the cumulative/regional impacts of the proposed rehabilitation, the sudden or unplanned cessation of mining, and climate change (additional to Option 1); and
- Requires licensees to consult with a prescribed list of parties, and demonstrate how the outcomes of these consultations are considered in the DMRP (additional to Option 1).

Under Option 2, the final outcome of rehabilitation would be prescribed in regulations as:

- The land form is safe, stable and non-polluting,
- The land form minimises the need for ongoing active monitoring, maintenance or management,
- The land is rehabilitated to optimise beneficial uses, with controls in place to manage any residual risks to community, environment and infrastructure, and
- As far as reasonably practicable, the land is ecologically regenerative and self-sustaining in the context of the local and regional environment.

### *Rehabilitation plan content*

The core components of the rehabilitation plan under Option 2 are the same as under Option 1. As such, these aspects of the DMRP will have the same relative impact on cost to industry as Option 1. The differences to Option 1, and their impact on cost to industry are discussed below.

Under Option 2, both the list of matters prescribed in regulations, and the requirement to demonstrate consideration of the prescribed factors listed above introduce a broader range of matters to be encompassed in the DMRP than the base case or under Option 1. While there are broad sustainable development principles which all rehabilitation decision-making must consider under the Act, the list of matters under Option 2 would introduce a much longer list of more detailed considerations, including and extending beyond general concepts of sustainable development. Mine operators may have already considered some of these concepts in rehabilitation planning indirectly or as a result of other regulatory frameworks, however, the obligation to factor these matters into their rehabilitation planning is new and could lead to considerable additional costs compared to the base case.

For example, demonstrating that the DMRP is 'climate resilient' could involve extensive climate change modelling and the research of complex technologies and controls – which, for the current declared mines that are already hazardous in a dry and/or warm environment, could involve significant effort. The Department of Environment, Water, Land and Planning has released Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria<sup>196</sup>, which provides guidance for mine operators as to how to assess future water availability for rehabilitation plans. Planning to encompass this wide range of considerations and principles, and to meet a

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<sup>196</sup> Department of Environment, Land, Water and Planning, November 2020, *Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria*, available at [https://www.water.vic.gov.au/\\_\\_data/assets/pdf\\_file/0023/502934/GuidelinesClimateChangeWaterAvailVic\\_2020\\_FINAL.pdf](https://www.water.vic.gov.au/__data/assets/pdf_file/0023/502934/GuidelinesClimateChangeWaterAvailVic_2020_FINAL.pdf)

different objective than has been required from licensees to date, can be expected to create significant costs for industry under Option 2 compared to the base case.

Planning against prescribed matters rather than towards a defined, technical outcome (as required under Option 1) increases uncertainty and creates a risk of differing interpretations of what is required in a DMRP between the licensees and ERR. This could lead to a DMRP being rejected by ERR, or going through lengthy review processes, and the licensee needing to prepare alternative criteria or negotiate for their acceptance, leading to additional costs. One of the mine operators has noted that lack of clarity or direction can create multiple reworks and resubmissions by the mine operators which creates cost burden. Another mine operator noted that every month a rehabilitation plan is not actioned (e.g. because it has not yet been approved) costs millions in holding costs, and significant risks being carried (such as fire risk to site and community, site management, safety, mining risk) that require active management until rehabilitation works can occur.

Option 2 requires licensees to provide a range of documents and evidence with their DMRP when it is submitted for approval. Two operators indicated that ERR's handling of requests for similar evidence in the past has been a demanding process because of, in their opinion, ERR's lack of capacity to assess the requested material. ERR's handling of evidence and information requests is perceived by the operators to create more costs/effort than compiling the documents, because the operators already gather information to support their operations and rehabilitation planning.

The requirement to submit evidence under Option 2 is an additional obligation and is likely to create costs for industry. However, mine operators are likely to already have created this information as part of developing the rehabilitation plan content. As such, it is considered that the requirement to provide the prescribed documents with the DMRP would impose minor costs on the licensees relative to the base case and Option 1.

Overall, Option 2 requires greater information to be developed for the DMRP than Option 1. As such, it is considered to impose a greater cost to industry relative to the base case than Option 1.

#### Risk assessments

The core risk assessment under Option 2 are the same as under Option 1. As such, these aspects of the risk assessment will have the same relative impact on cost to industry as Option 1. In addition, under Option 2, licensees must address risks relating to:

- regional impacts;
- sudden or unplanned cessation of mining operations and/or mine closure;
- climate change.

The costs and effort incurred in preparing management plans to address risks associated with climate change, the sudden/early closure of the mine, and in assessing the cumulative/regional impact of the proposed DMRP, will depend on the level of detail required for the DMRP. Option 2 does not specify the level of detail required, however, submissions from the mine operators and more general findings by VAGO have indicated that ERR has historically taken a risk-averse and conservative approach to its decision-making with respect to rehabilitation planning. As such it is considered that more, rather than less, detail and therefore effort would be required in meeting these obligations.

Planning for risks associated with climate change is likely to involve considerable effort given the complexity and specialist nature of climate change modelling, especially for modelling at a regional level, and the challenges in finding technologies and controls to ensure that the mine site is safely managed. One of the mine operator's responses noted that it would not be appropriate, in its opinion, to require operators to plan for a high cost assumption of extreme, worst-case scenarios, rather they considered that it was more appropriate for them to be planning for a 'mid-case' scenario. In addition, the mine operators raised concerns about their ability to factor in mitigating actions due to the state's transition to a net zero emissions target by 2050 into their planning for risks associated with climate change. The department accepts there is inherent complexity and uncertainty involved in planning for risks associated with climate change, which will increase costs for licensees to develop risk assessments and risk management plans relative to the base case.

Overall, the requirement for additional risk assessments under Option 2 are expected to create significant costs for licensees relative to the base case.

#### Post closure plan

The requirement for a post closure plan under Option 2 is the same as under Option 1. However, under Option 2, the detail of the post closure plan can be developed over time, which addresses the challenges associated with

Option 1 in developing a detailed post-closure plan early in the rehabilitation planning process before the uncertainties around rehabilitation related issues, such as water availability, are resolved. This may result in some cost savings to mine operators relative to Option 1, as they may not be required to undertake as broad a range of assessments to fill information gaps as under Option 1.

On the other hand, not having a confirmed post closure plan until very late in the mine lifecycle can add uncertainty for licensees in the short-term, which increases financial risk. One of the mine operators submitted that the potential for frequent changes to closure objectives and criteria under Option 2 presents a material risk to mine operators in terms of mine closure planning.

While Option 2 does not envisage frequent significant changes to closure objectives and criteria, having more frequent reviews and flexibility in rehabilitation planning does introduce an element of uncertainty for the post closure plan. However, a well-informed, consistent approach from the regulator should result in changes of diminishing significance as mine closure approaches. The post closure plan needs to be confirmed before rehabilitation is complete, as changes to the plan can impact on the rehabilitation a licensee needs to undertake before it can demonstrate the closure criteria have been met. The later the post closure plan is finalised increases the risk for mine licensees that changes to the post closure plan may impact the rehabilitation that needs to be completed before the licensee can apply for a mine closure determination. The later changes are made that materially impact rehabilitation activity, the less likely a mine operator will be able to respond and update its rehabilitation approach, due to the decline in earnings over the operational phases of the mine.

### Community engagement

Option 2 defines a non-exhaustive list of consultees and requires licensees to include evidence of how the views of consultees have been considered in the DMRP. In addition, licensees are required to consult with the community about the proposed DMRP. This requirement to address the views of consultees in the DMRP is an additional obligation compared to Option 1, which just requires licensees to report on the substance of the views expressed, and the base case, which does not require a report on consultation.

Three operators noted that the requirement to show how views of consultees have been considered in the DMRP increases reputational risk for licensees, as views of some stakeholders can be unrealistic and are not technically supported. These risks for operators arising from community consultation are greater under Option 2 because of the increased requirement to incorporate the expressed views into the DMRP.

The prescription of a list of parties to be consulted may reduce the risk of ERR determining that consultation has been insufficient under Option 2 than Option 1, resulting in potential cost reductions for operators, as expectations about stakeholder consultation are clearer upfront.

Overall, the risk for licensees associated with an obligation to incorporate potentially 'unrealistic' expectations or concerns into planning under Option 2 means that this option is considered to create higher costs for licensees than the base case, or Option 1.

### Timing

The prescribed rehabilitation outcome and ability to develop the DMRP over time under Option 2 allows more flexibility for licensees in developing their DMRP compared to the base case and Option 1. The expectation under Option 2 is that DMRPs would develop over time as knowledge about the mine site and how it can most effectively be rehabilitated develops. This expectation aligns with the preference for iterative rehabilitation planning expressed by all mine operators in their responses to the consultations:

- One of the mine operators expressed the opinion that requiring all the detail for rehabilitation at the outset was 'unrealistic', because the detailed knowledge necessary for in-depth planning is accrued over the operational and rehabilitation life of the mine.
- Another operator considered that the level of detail within rehabilitation plans increases as planning moves through the stages of rehabilitation.

These views suggest that, allowing plans to develop over the course of rehabilitation may result in cost savings, when compared to Option 1. This is because mine operators can draw on information about the mine site as it is accumulated through usual business operations and plan accordingly, rather than needing to research potential risks and viable rehabilitation activities without as in-depth a knowledge base about the technical characteristics of the mine site. These cost savings would occur at the time of developing the initial plan. This approach is consistent with the approach taken by Western Australia and Germany in relation to its rehabilitation and closure framework.



Relative to the base case, Option 2 will be more costly, as there is no requirement to develop a DMRP.

#### *Review and updating rehabilitation plans*

Option 2 requires that the rehabilitation and post-closure management risks identified in the DMRP must be reviewed every year. This may require mine operators to provide an updated DMRP, as well as required supporting documents, to ERR every year. As this is proposed to be more of a 'notification' type process, and mine operators will be updating and refining the plan as part of their normal operations, this is not expected to impose significant additional cost compared to the base case.

One of the operators commenting on this aspect of Option 2 indicated that while they were generally supportive of an ongoing development process, they consider that the scope of the ongoing reviews must be clear.

Variations of the DMRP under Option 2 would only occur where there is a 'significant increase in risk' as identified through the risk matrix assessment used for a variation. The process to undertake a variation is the same as Option 1 and the base case, and would not impose any additional costs. However, by adopting an iterative approach to rehabilitation planning, it is expected that variations may not be required as frequently as under Option 1, as there is more flexibility in the regime to accommodate variations to rehabilitation planning under Option 2.

#### **Cost to industry scores**

Table 11 sets out the scores allocated to Option 1 and Option 2 in relation to the cost to industry criterion. Both options impose higher costs than the base case simply by virtue of enforcing the obligation to submit a DMRP. In terms of the comparative magnitude of the costs imposed by each option, Option 2 is considered likely to create higher costs for licensees over time. While Option 2's iterative approach is deemed to align more closely to the actual rehabilitation planning undertaken by the current declared mine licensees, and would result in cost savings initially compared to Option 1, the requirements to consider and incorporate a broader array of factors in the DMRP is considered to significantly increase the effort and cost of this approach compared to Option 1 or the base case.

*Table 11: Options for DMRPs - cost to industry scores*

<b>Option</b>	<b>Weighting</b>	<b>Unweighted score</b>	<b>Weighted score</b>
Option 1	25%	-5	-1.25
Option 2	25%	-7	-1.75

### **6.3.3 Cost to government**

The costs to government associated with the DMRPs relate to the effort involved in administering this part of the proposed Regulations, including:

- Assessment and approval of DMRPs,
- Monitoring rehabilitation carried out under the DMRP, and
- Responding to reported events or circumstances in relation to the plan.

The cost to government related to the risks posed by declared mine land and the liability for rehabilitating it is assessed as part of the benefit criteria.

#### **Option 1**

Overall, Option 1 results in higher costs to government than the base case, because this option requires additional information compared to the base case, which requires ERR to assess greater volumes of information, including more detailed risk assessments and a post closure plan for each of the mine. As such, it has been scored somewhat negative (-1) compared to the base case.

#### *Assessment and approval of DMRPs*

The process for approving the DMRP under Option 1 would be similar to the base case, and to ERR's current role in assessing the rehabilitation component of work plans. Licensees propose final land forms and the

activities they believe are necessary to achieve that land form, and ERR assesses whether the plan is adequate to achieve that outcome and whether both activities and outcome are in line with what the Act requires.

The existing rehabilitation plans for the declared mines were approved some decades ago. All three currently declared mines will be required to submit DMRPs under Option 1 within one year of the regulations coming into effect. The DMRP will be required to include more comprehensive risk assessments and planning than the previously submitted rehabilitation plans for the mines, as outlined in section 6.3.2. The extent and complexity of the risks posed by the declared mines, and their somewhat unique physical characteristics, heightens the difficulty in planning for their rehabilitation, but also in determining whether proposed rehabilitative works are likely to achieve the required outcomes. The depth of technical knowledge required to assess the DMRPs may translate into additional costs for ERR, potentially through the need to engage contractors to assist in the assessment. Further, the additional information required by Option 1 compared to the 2019 Regulations requires ERR to assess greater volumes of information, including more detailed risk assessments and a post closure plan for each of the mine.

In terms of timing, the bulk of ERR's work (and costs) under Option 1 would be expected to occur at the initial point of DMRP approval, with the possibility of further costs arising in the situation that a variation is submitted by a licensee.

#### *Monitoring rehabilitation carried out under the DMRP*

Reporting obligations under Option 1 would be the same as under the base case. As such, the cost to government is expected to be the same as the base case for this component.

#### **Option 2**

Overall, Option 2 results in higher costs to government than the base case, because this option requires additional information compared to the base case, which requires ERR to assess greater volumes of information, including more detailed risk assessments and a post closure plan for each of the mines. In addition, the need for ongoing involvement and monitoring by operators increases cost for industry under Option 2 compared to Option 1. As such, it has been scored somewhat negative (-2) compared to the base case.

#### *Assessment and approval of DMRPs*

The timing and cost to government would differ under Option 2 compared with both the base case and Option 1. This is due to the iterative approach to rehabilitation planning adopted in Option 2. Under Option 2, assessment and approval of DMRPs occurs over a number of stages:

- Initial plan approval
- Regular review

Overall, the assessment and approval of DMRPs under Option 2 results in higher costs to government than the base case, due to the additional information contained in DMRPs, and the annual review of rehabilitation and post-closure risk identified in the DMRPs.

#### *Initial plan approval*

Under Option 2, the DMRP approval decision requires ERR to assess the plan against the prescribed matters, and also take into account the list of prescribed considerations. The DMRP, when submitted, may not describe all the activities required to rehabilitate the land, but will include a plan for filling any knowledge gaps.

Option 2 requires the same increase in detail and coverage under the DMRP compared Option 1 and is considered, as a starting point, to impose a similar level of increase to government costs compared to the base case.

The requirement for ERR to assess plans against prescribed matters rather than against a defined rehabilitation outcome may impact further on the costs involved in the approval process, particularly in the short-term, as ERR adjusts to a developing assessment approach. As noted in the 'cost to industry' assessment above, there is a risk of ambiguity in an iterative approach, especially given that the change from a post mining land use-based outcome to a more agnostic outcome is a significant change in the regulatory approach to rehabilitation planning in Victoria. As a result, ERR would likely need to issue guidance to the licensees as to its expectations under the new approach, whether through correspondence with each of the mines or by developing formal guidelines for publication. This would entail higher costs for government under Option 2 than under Option 1.

The level of effort involved in ERR's initial assessment of the DMRP would also depend on how complete the plan is, but it is assumed for the purpose of this analysis that any DMRP submitted under Option 2 would be at least somewhat less detailed than under Option 1, as two of the mines are still operational and would be in the process of actively developing rehabilitation plans. The DMRP submitted for Hazelwood is likely to be relatively more detailed, as it has already ceased operations and is working towards closure and relinquishment. The iterative approach under Option 2 may reduce the level of effort required by ERR to undertake the initial assessment of the DMRP, compared to assessing a more complete plan under Option 1. On balance, however, this is unlikely to offset the additional cost of assessing plans against prescribed matters noted above.

#### Regular review

Under Option 2, the operator is also required to undertake an annual review of the rehabilitation and post-closure management risks identified in the DMRPs, which is in addition to requirements either under the base case or Option 1.

The annual review would entail a 'light touch' approach, focussed on assessing whether identified knowledge gaps have been, or are being filled, and monitoring the progress of risk management activities. However, towards the point of closure, the review may become more intensive as the mine moves into the final rehabilitation stage of its life cycle. The need for ongoing reviews by operators increases cost for industry under Option 2 compared to Option 1 and the base case. On the other hand, the annual review allows for knowledge-building amongst operator staff, both generally and in relation to the specific mines, which may increase the efficiency of operators in undertaking reviews. This cost reduction is not considered likely to outweigh the additional costs involved in the ongoing program of review.

#### Monitoring rehabilitation carried out under the DMRP

In addition to the annual reporting obligations set out in the Act, under Option 2, declared mine licensees' annual reports would be required to include:

- research undertaken over the year;
- updated site status information;
- an update on the development of the rehabilitation plan (i.e., a description of progress made in adding detail to the plan);
- rehabilitation activities and progress against rehabilitation milestones; and
- an updated estimate of the rehabilitation liability for the mine site and the net change in the estimated rehabilitation liability of the mine.

As such, the cost to government is expected to be slightly higher than the base case for this component. It would also be higher than Option 1, as there is additional information ERR would need to review.

#### Cost to government scores

Table 12 sets out the scores allocated to Option 1 and Option 2 in relation to the cost to government criterion. Both options impose higher costs than the base case because they require additional information compared to the base case, which requires ERR to assess greater volumes of information, including more detailed risk assessments and a post closure plan for each of the mine. The need for ongoing involvement and monitoring by ERR increases the relative cost for government under Option 2 compared to Option 1.

Table 12: Options for DMRPs - cost to government scores

Option	Weighting	Unweighted score	Weighted score
Option 1	25%	-1	-0.25
Option 2	25%	-2	-0.5

## 6.4 Analysis of options for mine closure determinations

Table 13 summarises the key differences between the options for mine closure determinations.

Table 13: Summary of options for mine closure determinations

Base case	Option 1	Option 2
<p><b>Application for closure determination</b></p> <p>Plans do not include specified closure criteria that address key risks and must be considered in future decision making</p> <p><b>Decision making – closure determination</b></p> <p>No prescribed decision-making process, because objectives are bespoke and site-specific</p>	<p><b>Application for closure determination</b></p> <p>Licensees are required to provide third-party verification that the closure criteria for the mine have been met with their closure determination application</p> <p><b>Decision making – closure determination</b></p> <p>No prescribed decision-making process, because objectives are bespoke and site-specific</p>	<p><b>Application for closure determination</b></p> <p>Licensees are required to provide evidence that closure criteria have been met</p> <p><b>Decision making – closure determination</b></p> <p>Regulations set out matters to be considered by the decision-maker</p> <p>Regulations set out an extended list of referrals (e.g. EPA, councils)</p>

### 6.4.1 Benefits

#### Support informed decision-making to ensure rehabilitation meets legislative objectives

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Support informed decision-making to ensure rehabilitation meets legislative objectives	25%	8	5

#### Option 1

Option 1 requires licensees to provide third party verification that closure criteria have been met. This is an additional requirement compared to the base case, and would ensure that additional information is provided to government to support its decision. Assuming the closure criteria defined for the mine are adequate, this additional information requirement promotes rehabilitation that meets legislative objectives.

In addition, having independent third-party verification that the closure criteria have been met potentially improves government decision making compared to the base case where ERR is assessing the information. The recent VAGO audit found that ERR had historically lacked key capabilities (e.g. geotechnical expertise and data analytics) to effectively regulate mine rehabilitation and has capacity challenges. ERR is continuing to build its' technical expertise since the audit, but this historical lack of capability has eroded trust in the regulator by the industry and other stakeholders. As such, an independent third party verification addresses this challenge, and potentially allows government to make quicker decisions. This is a significant improvement on the base case.

#### Option 2

Under Option 2 licensees are required to provide evidence that closure criteria have been met, supporting their adherence to the prescribed matters set out in the regulations. This requirement would mean that much more information is available to government in its decision than under the base case, which is a moderate improvement on the base case and supports informed decision making by government.

However, as noted above, ERR has historically lacked key internal capacity to assess whether closure criteria have been met in a timely manner. As such, decision-making would take longer under Option 2 than Option 1, and key stakeholders may not trust the assessment of the regulator.

### Provide a transparent, clear decision-making process

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Provide a transparent, clear decision-making process	25%	0	6

#### Option 1

Under this option, no process is prescribed for the Minister to follow in making their determination in addition to that set out in the Act. This is no improvement on the base case.

#### Option 2

Option 2 prescribes a list of matters to be considered by the Minister in their determination, and an extended list of referrals beyond those set out in the Act. Both requirements are considered to improve the clarity and transparency of decision-making relative to the base case, by making clear, to government, industry, and the community, what matters are relevant and important in the decision. Including a list of considerations also means that there is more certainty and transparency in the Minister's decision making. This is a significant improvement on the base case.

### Benefits scores

Table 14 sets out the scores allocated to Option 1 and Option 2 against the benefits criterion. While both options are more effective than the base case, the increased transparency and clarity of decision-making afforded by Option 2 means that it is scored higher than Option 1.

Table 14: Benefits scores - mine closure determinations

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
Support informed decision-making to ensure rehabilitation meets legislative objectives	25%	8	5	2.00	1.25
Provide a transparent, clear decision-making process	25%	0	6	0.00	1.50
<b>Total</b>	<b>50%</b>			<b>2.00</b>	<b>2.75</b>

## 6.4.2 Cost to industry

### Option 1

Overall, Option 1 is considered to impose moderately more costs on declared mine licensees than the base case, as the regulations require licensees to provide third party verification that the closure criteria for the mine have been met. As such, it has been scored moderately negative (-4) compared to the base case.

The additional requirement to provide third-party verification that the closure criteria for the mine have been met as part of the application for a closure determination compared to the base case would impose additional costs on mine operators. One of the mine operators indicated that this would cost 'millions of dollars in consultancies alone'. Another operator responded to the question about the cost of providing this verification that, 'using Hazelwood as an example the initial suite of reports, studies and investigations was in excess of \$2m' (this was not Hazelwood's operator). Presumably this operator was referring to Hazelwood's costs in applying for closure, noting that this process occurred outside the declared mine rehabilitation framework covered in this RIS.

It is considered that the cost to industry of Option 1 would be in the order of several million dollars, based on these submissions.

## Option 2

Overall, Option 2 is considered to impose moderately more costs on declared mine licensees than the base case, as the regulations require licensees to provide evidence that the closure criteria have been met. However, these costs are considered to be lower than Option 1, as external verification is not required. As such, it has been scored moderately negative (-3) compared to the base case.

Option 2 also requires additional information and evidence to be provided that the closure criteria have been met as part of the application for a closure determination, which impose additional costs compared to the base case.

The two operators that responded directly to consultation questions relating to this additional requirement commented primarily on the costs incurred as a result of ERR's handling of information requests rather than the effort or cost involved in compiling the information/evidence itself. Each of the operators emphasised, in its submission, that the collection of information about their mine site is an important part of their business-as-usual practices, and that rehabilitation planning is based on the factual, scientific evidence accrued about their mine sites.

The flexibility and capacity for operators to develop the closure criteria for their mine over time under the iterative rehabilitation approach under Option 2 relative to the base case, combined with business-as-usual data gathering practices means that Option 2 may impose lower costs on licensees than Option 1, relative to the base case. This is because rather than having to commission and facilitate an independent audit, licensees could both reasonably readily ensure over the course of planning that their closure criteria are practically achievable, and rely on data they already gather as part of normal operating practices. However, this would depend on ERR's handling of the information and evidence: if this created extra effort for licensees, as has been experienced in relation to other information requests, the cost reduction of Option 2 relative to Option 1 would be less clear. It is clear the level of change involved in shifting to the iterative approach under Option 2 (overall) would require capacity-building within ERR, and it is assumed that at least some of the issues previously experienced by operators in relation to information requests by ERR would be ameliorated by this process. However, this is as yet speculation, so it is considered that, on balance, although the costs for industry under Option 2 are likely to be lower than Option 1, the difference may not be considerable.

### Cost to industry scores

Table 15 sets out the scores allocated to Option 1 and Option 2 against the cost to industry criterion. Both options impose additional costs on licensees compared to the base case. It is considered that the costs likely to be incurred under Option 2 are slightly lower than those imposed by Option 1, but that both options will be moderately more costly than the base case for operators to comply with.

Table 15: Cost to industry scores - mine closure determinations

Option	Weighting	Unweighted score	Weighted score
Option 1	25%	-4	-1.00
Option 2	25%	-3	-0.75

## 6.4.3 Cost to government

### Option 1

Overall, Option 1 is considered to result in slightly more cost to government than the base case, as the Minister would have additional information to consider as part of their closure determination. As such, Option 1 has been scored as slightly negative (-1) compared to the base case.

#### Assessment of application for closure determination

Under Option 1, the Minister would be provided with a third-party verification that the closure criteria for the subject mine have been met, in addition to the information provided under the base case.

The provision of additional information which the Minister must consider, is considered to increase the effort of the Minister in making a closure determination, as the validity of the third-party verification must be considered.

However, the third-party verification may reduce the overall effort and time of undertaking a closure determination, as expert evidence could create efficiencies in considering the other information provided as part of the base case. This can curtail the ongoing cost requirements of the ERR to maintain specialist capability to assess and verify closure criteria.

Further, prescribing the information required for a closure decision may reduce the costs to government compared to the base case, although this is unlikely to be significant. This is because it provides clarity around the requirements of a closure application, meaning that the likelihood of questions and queries being posed to the department is reduced, and there is less follow up required by the regulator to obtain required information that was not included in the closure application.

On balance, the additional cost to government of Option 1 relative to the base case is considered to be low.

#### *Decision making – closure determination*

Under Option 1 the regulations would not prescribe any other processes or matters for consideration beyond those in the Act. As such, this aspect of Option 1 would not impose any additional cost to government relative to the base case.

#### **Option 2**

Overall, Option 2 is considered to result in moderately more cost to government than the base case, as the Minister is required to undertake an assessment of the evidence provided by the licensee in support of their closure determination, and consider the prescribed matters. As such, Option 2 has been scored as moderately negative (-3) compared to the base case.

The time and effort required to assess the evidence provided by the licensee under Option 2 will be greater than Option 1, as the Minister (or the Minister’s delegate) is required to assess the information provided and come to a view of whether the evidence supports a decision that the closure criteria have been met.

#### *Assessment of application for closure determination*

Under Option 2, the Minister would be required to undertake their own assessment of the evidence provided by the licensee in support of their closure determination.

The assessment of the evidence supporting the application for closure determination is considered to considerably increase the effort of the Minister in making a closure determination compared to Option 1. While the Authority and other government agencies could advise the Minister of their opinion as to whether the criteria have been met, the Minister would also need to come to a decision based on all these opinions and advice. It is considered that Option 2 would result in moderately more costs for government than the base case.

#### *Decision making – closure determination*

Under Option 2, the Minister would also need to consider the prescribed matters and refer to the listed entities, which is considered to involve greater effort, and cost, than the base case. As such, it is considered that Option 2 would result in moderately more costs for government than the base case.

#### **Cost to government scores**

Table 16 sets out the scores allocated to Option 1 and Option 2 in relation to the cost to government score. Option 2 is considered likely to impose somewhat higher costs than the base case (or Option 1) because of the extra processes government is obliged to undertake under this option.

*Table 16: Cost to government scores - mine closure determinations*

Option	Weighting	Unweighted score	Weighted score
Option 1	25%	-1	-0.25
Option 2	25%	-3	-0.75

## 6.5 Analysis of options for mine land registration

Table 17 summarises the key differences between the options for mine land registration.

Table 17: Summary of options for mine land registration

Base case	Option 1	Option 2
<p><b>Mine land registration</b></p> <p>No information is prescribed to be provided upon registration.</p> <p>No registration process is prescribed</p> <p><b>Declared Mine Fund contribution</b></p> <p>No prescribed process for calculating the Fund contribution amount</p>	<p><b>Mine land registration</b></p> <p>Licensees are required to submit the post-closure plan and audited costing of the plan for their declared mine upon registration</p> <p>No prescribed procedure for the Authority to follow in registering declared mine land.</p> <p><b>Declared Mine Fund contribution</b></p> <p>No prescribed process for calculating the Fund contribution amount.</p>	<p><b>Mine land registration</b></p> <p>Licensees are required to submit the post-closure plan for their declared mine upon registration</p> <p>Licensees are required to submit an extensive list of documents and evidence upon the registration of their declared mine land.</p> <p>Prescribed procedure for the Authority to follow in registering declared mine land.</p> <p><b>Declared Mine Fund contribution</b></p> <p>A method for the calculation of the fund contribution is prescribed</p>

### 6.5.1 Benefits

The effectiveness of each option in relation to each of the benefits sub-criteria is analysed below.

#### Obtain and record relevant information about declared mine sites

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making.	25%	1	7

#### Option 1

Option 1 requires licensees to submit the post closure plan and audited costing of the plan for their declared mine upon registration. The audited costing is in addition to what is required under the Act. As such, Option 1 is considered to be a slight improvement on the base case, as additional information about the cost of the post closure plan will be available relative to the base case.

#### Option 2

Option 2 is considered to be more effective than the base case in relation to the first benefits sub-criterion of obtaining and recording information about declared mines to support informed decision-making, as an extensive list of documents and evidence is prescribed to be provided upon registration of the declared mine land. As such, more information about declared mine sites will be registered, relative to the base case, and available to government, stakeholders and the community to inform future decision-making about the declared mine sites post closure.



## Support the fair and accurate determination of fund contribution amounts

Criteria	Weighting	Unweighted Scores	
		Option 1	Option 2
Support the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.	25%	0	6

### Option 1

Option 1 does not prescribe any additional processes or procedures in addition to what is required under the Act, in relation to the calculation of the Fund contribution amount. The department considers that the Minister would convene an advisory committee to provide advice on an appropriate Fund contribution amount, but this would not be prescribed in the regulations and is therefore not part of Option 1.

Accordingly, Option 1 is not considered to be an improvement on the base case.

### Option 2

Under Option 2, the regulations would prescribe a method for the calculation of the Fund contribution amount. This is based on an estimate of the present value of the future costs associated with the monitoring and maintenance obligations under the post-closure plan and an amount reflecting the cost of adverse events. Compared to the base case, this improves the transparency and fairness of the calculation of Fund contribution amounts. This increased transparency, relative to the base case also reduces risk for government and licensees:

- Greater transparency and certainty of calculation of Fund contribution amounts reduces risk to government of licensees providing insufficient contributions and government being liable for future cost of managing declared mine land.
- Greater transparency and certainty of calculation of Fund contribution amounts reduces financial risks to declared mine operators, as they are able to predict likely contribution amounts, and accordingly plan for this future contribution.

Further, the accuracy of the contribution amounts is improved by ensuring that the contribution amount is closely tied to the expected and planned activities set out in the post-closure plan.

Overall, this is considered to be moderately more effective than the base case in supporting the determination of contribution amounts to the Fund.

### Benefits scores

Table 18 sets out the scores allocated to Option 1 and 2 against the benefits criterion. Option 2 is considered to be much more effective than the base case, especially in obtaining and recording information about declared mine land, whereas Option 1 is considered to be a slight improvement from the base case.

Table 18: Benefits scores - mine land registration

Criteria	Weighting	Unweighted Scores		Weighted Scores	
		Option 1	Option 2	Option 1	Option 2
Obtain and record relevant information about declared mine sites, risks and necessary post-closure management to support informed government, stakeholder and community decision-making.	25%	1	7	0.25	1.75
Support the fair and accurate determination of fund contribution amounts sufficient to fund ongoing and post-closure declared mine rehabilitation activities and achieve overall regulatory objectives.	25%	0	6	0.00	1.5
<b>Total</b>	<b>50%</b>			<b>0.25</b>	<b>3.25</b>

## 6.5.2 Cost to industry

### Option 1

Overall, Option 1 is not expected to have any cost implications for industry relative to the base case. As such, it has been scored the same as the base case (0).

#### Mine land registration

The only prescription under Option 1 in relation to the transfer of information upon registration is that documents can be submitted electronically. Beyond this, the requirements are limited to those under the Act. Accordingly, this part of Option 1 is not expected to have any cost implications for industry.

#### Declared Mine Fund contribution

There is no prescribed process for calculating Fund contributions under Option 1. The department considers that the Minister would convene an advisory committee under Part 4A of the Act to advise on the registration amount, but this process is not prescribed in regulation. As such it would be a matter of discretion, the same as under the base case.

One of the operators submitted a concern that the lack of a prescribed method 'provides no certainty to licensees on the extent of post-closure liability' and thus 'presents an unacceptable risk'. This operator also perceived this option to impede financial management and to create the potential for inconsistent decision-making across declared mines. None of the other operators commented specifically on the options for Fund calculation regulations.

It is considered that costs for operators would arise under both the base case and Option 1 in this respect, as neither provides clarity for licensees about the likely extent of their post-closure liability.

### Option 2

Overall, Option 2 is considered to impose less costs on industry relative to the base case, as the increased clarity, and lower risk associated with a prescribed calculation method for the Declared Mine Fund reduces costs for licensees. As such, Option 2 has been scored as slightly positive relative to the base case (1).

#### Mine land registration

Option 2 requires licensees to provide additional documentation and information for registration. Preparing these documents would impose additional costs on licensees compared to the base case. However, these costs are not likely to be extensive as the documents are limited to records and information that it is would be kept as part of rehabilitation works and monitoring, rather than creating new information. As such, Option 2 would slightly increase costs relative to the base case for this component.

### *Declared Mine Fund contribution*

Option 2 prescribes a calculation method for contributions to the Declared Mine Fund. In relation to this, one of the operators expressed a preference for Option 2 because it provides licensees with ‘the certainty they need to effectively manage their exposure’. This operator felt that a more prescriptive approach that indicates the period that the contribution would be expected to cover would be even better from this perspective.

It is considered that the aspect of Option 2 relating to the contribution amounts would lead to lower costs for operators compared to the base case, by:

- Providing increased certainty to operators around the calculation of the contribution amount; and
- Reducing risk as to the extent of post-closure liability, as operators can anticipate the liability and manage finances in anticipation of the future liability.

As such, this component of Option 2 is considered to be slightly positive relative to the base case.

### **Cost to industry scores**

Table 19 sets out the scores allocated to Option 1 and 2 against the cost to industry criterion. Option 1 does not impose additional obligations with regard to mine closure determinations and the declared mine fund, therefore it is equivalent to the base case, whereas Option 2 is considered to lead to lower costs overall. While Option 2 would impose some extra costs through requiring licensees to provide more information and documents, this is considered to be outweighed by the cost savings resulting from greater certainty about the extent of post-closure liability.

Table 19: Cost to industry scores - mine land registration

Option	Weighting	Unweighted score	Weighted score
Option 1	25%	0	0
Option 2	25%	1	0.25

## **6.5.3 Cost to government**

### **Option 1**

Overall, Option 1 is not considered to impose any extra costs to government compared to the base case, as there is no prescribed process or materials required from licensees at registration, and no prescribed process for calculating the Fund contribution amount. As such, it has been scored equivalent to the base case (0).

#### *Mine land registration*

Under Option 1, there are no prescribed processes or materials required from licensees at registration, meaning that there would be no extra costs imposed on government under this part of Option 1 compared to the base case.

#### *Declared Mine Fund contribution*

There would be no prescribed process for calculating the Fund contribution amount under Option 1. The Minister would convene an advisory committee to advise on an appropriate amount, which would involve costs for government, but this would not be prescribed in the regulations and hence falls outside the scope of this assessment. As such, Option 1 is not considered to impose any extra costs to government compared to the base case.

### **Option 2**

Overall, Option 2 will lead to a small increase in costs for government due to the calculation of the post closure liability, and additional information provided by licensees at registration. As such, it has been scored as slightly negative (-1) compared to the base case.

### *Mine land registration*

Option 2 prescribes additional information licensees are required to submit upon the registration of their declared mine land. It also prescribes a procedure for the Authority to follow in registering declared mine land.

There may be a small amount of extra effort involved under Option 2 relative to the base case in checking that operators have provided all the required documents and information upon registration, and in registering those materials. As such, this component is considered slightly more costly than the base case.

### *Declared Mine Fund contribution*

Option 2 prescribes a method for the calculation of the fund contribution. There could be additional effort involved for government in calculating and, potentially, negotiating on the contribution amount to the Fund relative to the base case. It is difficult to determine the magnitude of these costs, as an amount is required to be determined under both the base case and Option 2. However, the prescribed calculation method is expected to be more time consuming, and the related costs are considered likely to be not insignificant given that the process would involve assessing whether the adverse failure amount proposed by the licensee would be sufficient and acceptable.

It is considered that Option 2 would lead to slightly higher costs for government compared to the base case, due to the calculation of the post closure liability following the prescribed method.

### **Cost to government scores**

Table 20 sets out the scores allocated to Option 1 and 2 against the cost to government criterion. Option 1 is not considered to impose any extra costs to government compared to the base case, whereas Option 2 will lead to a small increase in costs for government due to the calculation of the post closure liability.

*Table 20: Cost to government scores - mine land registration*

Option	Weighting	Unweighted score	Weighted score
Option 1	25%	0	0
Option 2	25%	-1	-0.25

## **6.6 Data sources and limitations**

### **6.6.1 Information about the costs of mining rehabilitation**

There is limited data available regarding specific cost burdens associated with regulation in the minerals industry. The information that is available is unsuitable for use as a baseline costing for this RIS because of limitations in the accuracy of the data and because of changes to the regulatory requirements that have occurred since the analysis was undertaken. However, the data is presented here to provide an indication of the magnitude of regulatory burden experienced by regulated parties.

#### **Costing in 2018**

The department engaged ACIL Allen Consulting in 2018 to analyse regulatory costs imposed by the minerals and extractive industry regulations in force at the time.

The regulatory reforms that have occurred since this analysis mean that the costs identified cannot be used as a baseline for the impact assessment in this RIS. Additionally, it is not clear that the costings accurately distinguish between the burden imposed by the Act and that incurred as a result of supporting regulations, and there is some evidence that the parties providing input data found it difficult to differentiate between costs imposed by the regulations and costs imposed by the Act and other legislation.

However, the costings do provide an indication of the scale of regulatory burden experienced by the mine operators and because they are the only available data about regulatory costs are included in this RIS for this limited purpose.

ACIL Allen found that the per annum regulatory burden imposed by the minerals and extractive regulations was \$63.8M on the minerals sector and \$10.3 million on the extractives sector. The per annum burden imposed by the current minerals regulations represents approximately 25 per cent of the overall regulatory burden (\$259.2 million in total) imposed upon the sector. Regulatory burden imposed outside these regulations includes planning system requirements and native vegetation offsets.

Table 21 summarises the regulatory costs across the mining industry:

- administrative costs refer to costs associated with reporting to government, e.g., licence applications, reportable events, annual activity and expenditure returns; and
- substantive compliance costs refer to costs incurred because of complying with the regulations, e.g. advertising requirements, costs of surveying a mining area, preparation of work and rehabilitation plans.

Table 21 shows that administrative costs imposed by the regulations are considerably lower than substantive compliance costs (reporting requirements for mining are mostly contained in the regulations, rather than the legislation). Substantive compliance costs are mostly contained in the Act and through other legislative requirements, such as native vegetation obligations and the local government planning scheme. Table 22 below shows these costs per mining tenement. Note that these costs refer to all the coal mines in Victoria, not just the Latrobe Valley declared mines.

Table 21: Annualised regulatory cost by tenement type – minerals industry (\$ thousand)

Tenement type	Costs imposed by the Mineral Resources regulatory framework		Costs imposed by other regulatory frameworks		Total
	Administrative costs	Substantive compliance costs	Administrative costs	Substantive compliance costs	
Coal	9,400	15,100	-	6,100	30,600

Source: ACIL Allen

Table 22: Annualised regulatory cost by tenement type – per minerals tenement (\$ thousand)

Tenement type	Costs imposed by the Mineral Resources regulatory framework		Costs imposed by other regulatory frameworks		Total
	Administrative costs	Substantive compliance costs	Administrative costs	Substantive compliance costs	
Coal	1,175	1,890	-	765	3,830

Source: ACIL Allen

### 2019 Regulations RIS

The RIS prepared for the 2019 Regulations assessed the cost to industry implications of the changes in the requirements for the rehabilitation component of work plans. Noting the lack of data available about rehabilitation planning costs, the department in that RIS estimated that these changes would result in a net increase in costs to industry associated with rehabilitation planning in the order of 20-30 per cent.<sup>197</sup>

For the reasons discussed in section 5.2 of the RIS, the 2019 Regulations' requirements (and their associated costs) do not form part of the base case for this analysis.

### 6.6.2 Consultation with declared mine operators

The department undertook consultation with the current declared mine operators prior to and during the preparation of this RIS. Consultation took the form of several workshops with each mine operator to discuss the proposed options, and a set of follow-up questions were provided to gather information about the impact of the

<sup>197</sup> Department of Jobs, Precincts and Regions, *Regulatory Impact Statement – Proposed Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019*, 51.

options on the declared mine licensees. Licensees were asked a series of questions to ascertain information around the key areas of reports for the base case, option 1 and option 2 including:

- Mine rehabilitation planning and reporting – processes, cost and effort that were already reported as part of regular practice and what additional information gathering requirements would be required after the proposed Regulations commence.
- Developing post-closure plans and undertaking risk assessments.
- Stakeholder consultation.

Comments provided during the workshops and written submissions provided by the declared mine operators were used to inform this RIS as follows:

- Information provided around cost, effort and alignment with internal processes has been incorporated into the RIS to inform the assessment of the cost burden to industry. The industry costs include reporting and planning activities internal to the licensee and outsourced technical expertise on rehabilitation planning and mine status determination.
- General comments regarding the definition of options have not been included in the analysis where it was not specific to the impact of the option on industry.

Information provided by declared mine operators has been supplemented with outcomes observed in other jurisdictions with similar regulatory arrangements to the proposed options that were the subject of the interjurisdictional review. Refer to Appendix A for more detail on the information collected from licensees and other stakeholders during consultation.

## 7 Preferred option

The proposed Regulations will make several changes to the current regulations, as described in Chapter 4 including:

- Introducing matters to be included in the DRMP that align with the sustainable development principles in s. 2A of the MRSD Act and encompass principles in the LVRRS and accepted best practice industry guidance to:
  - › guide decision-makers in administering the declared mine obligations over the life of the mine, through closure and during post closure;
  - › assist licensees in meeting their obligations; and
  - › provide licensees and the community with clear expectations about how sustainability would be embedded in government decisions relating to declared mines.
- Requiring additional information to be included in the DMRP, including:
  - › a proposed final landform or landforms that are safe, stable and sustainable through passive controls, to the extent practicable;
  - › rehabilitation and site-specific closure objectives consistent with Ministerial guidelines or information approved by the Department Head that set out distinct rehabilitation domains that collectively amount to the landform proposed;
  - › proposed rehabilitation and closure milestones which identify each relevant event or step necessary to rehabilitate the land to a safe, stable and sustainable condition;
  - › milestones required to meet the closure criteria and for obtaining the relevant legal approvals and permissions required for rehabilitation, closure and post-closure;
  - › risk assessment and risk management plan which identifies and provides management for rehabilitation risks and hazards, risks that may lead to early or sudden cessation of operations or mine closure, and risks that may affect the rehabilitation outcomes, objectives and milestones in the DMRP;
  - › nominating a post-mining land use; and
  - › closure criteria to be met by the declared mine licensee for the closure of the mine on the declared mine land.
- Introducing post-closure plan requirements to:
  - › as far as reasonably practicable, identify who is responsible for post-closure monitoring and maintenance activities;
  - › identify the ongoing monitoring and maintenance activities required to maintain the declared mine land in a safe and stable state;
  - › include a risk management plan for known and credible risks;
  - › as far as reasonably practicable, specify the time and manner in which the ongoing monitoring and maintenance activities will be carried out; and
  - › as far as reasonably practicable, specify any data, reports and information to be provided to the Authority once the plan is registered.
- Introducing additional annual reporting requirements on rehabilitation activities and progress against defined milestones in the DMRP, community engagement, research undertaken, site status and rehabilitation planning updates.
- Introducing annual reviews of rehabilitation and post-closure management risks identified in DMRPs.
- Specifying requirements regarding mine closure applications and decision-making:
  - › requiring evidence to be provided with closure application (tied to closure criteria and community and stakeholder engagement);
  - › specifying matters that must be considered by the decision-maker with regard to the closure application (tied to closure criteria and community and stakeholder engagement);
  - › specifying an extended list of referrals/consultations to be undertaken by decision-maker

- Introducing information requirements with respect to the declared mine land that would need to be included on the mine land register upon registration, including the location of the declared mine land, identification of the current landowner or land manager, and a description of the mine located on the declared mine land and activities that were conducted on the land.
- Prescribing the baseline evidence which the Minister would use to determine the amount to be paid into the Declared Mine Fund.

## 7.1 Expected impacts of the proposed Regulations

This section provides a summary of the analysis of the expected impacts (costs and benefits) of the proposed Regulations in Chapter 6. Overall, Option 2 is more suited to the uncertain environment in which declared mine rehabilitation is occurring and allows for and accommodates changing circumstances through the iterative approach to rehabilitation planning and the annual review cycle.

The expected benefits of the proposed Regulations include:

- More detailed rehabilitation plan and long-term risk management requirements to better address externalities and manage risks associated with declared mines, including post closure risks. Information in DMRPs would link to clear outcomes and include closure criteria, rehabilitation milestones and a post closure plan.
- Improved rehabilitation plans and clearer referral requirements, which support better integrated government decision-making and rehabilitation planning due to the additional information required to be provided by mine licensees under the DMRP and annual reporting.
- Improved rehabilitation plans resulting in reduced risks to the community and environment from mining operations.
- The flexible approach to rehabilitation planning facilitates better management of declared mine risk and more accurate assessment of liability, which is more suited to the uncertain environment in which declared mine rehabilitation is occurring and allows for and accommodates changing circumstances through the iterative approach to planning and the annual review of rehabilitation and post-closure management risks.
- Appropriate and integrated decision-making as it prescribes matters to be considered and parties to be consulted which provides a greater level of clarity for both government and industry.
- A significantly more transparent approach to the mine closure determination decision-making process.
- More effective gathering and recording of information about declared mine land by government, which assists in more accurate evaluation of liability and planning for post closure management of declared mine land.

Noting the limited data available on regulatory burden for declared mines, the department estimates that the additional rehabilitation requirements in the proposed Regulations will increase cost to industry overall. The expected costs to industry of the proposed Regulations include:

- Additional costs to prepare the additional information required for a DMRP, including assessment of the risks posed by the geotechnical, hydrogeological, water quality or hydrological factors within declared mine land and a post-closure plan. The iterative approach to developing the DMRP under the proposed Regulations suggests the costs would be incurred over a longer period of time, potentially more aligned to when information about the mine site is accumulated through usual business operations, which may mitigate some of the increased costs.
- Moderate increase in costs for mine licensees with regard to mine closure, as a result of the evidence required to show that the closure criteria have been met as part of their applications for a closure determination.
- Potential cost savings with regards to the Declared Mine Fund requirements in the proposed Regulations, as the increased clarity and lower risk associated with a prescribed calculation method reduces costs for licensees.

The Department also expects the additional information requirements in the proposed Regulations to increase costs to government in administering and enforcing the regulations. The expected costs to government of the proposed Regulations include:

- increased costs to government from ERR assessing greater volumes of information in the DMRP including more detailed risk assessments and a post-closure plan for each of the declared mines



- additional cost from the introduction of regular reviews of the DMRP by ERR and the additional information to be reviewed as part of the annual reviews
- Moderate increase in costs as a result of the assessment of additional evidence supporting the application for a closure determination and prescribed consultation.

## 7.2 Competition assessment

A RIS is required to examine whether a proposal will affect competition.

Any regulatory proposal needs to be scrutinised carefully to assess whether it is having an adverse impact on the ability of firms or individuals to enter and participate in the market. As a matter of good public policy, it is a fundamental principle in Victoria that any new legislation (both primary and subordinate) will not restrict competition unless it can be demonstrated that:

- the benefits of the restriction outweigh the costs, and
- the objectives of the legislation can only be achieved by restricting competition.

A measure is likely to have an impact on competition if any of the questions in Table 23 can be answered in the affirmative. The context of the proposed Regulations means that a competition assessment is somewhat artificial, insofar as the size of the 'market' is necessarily limited to the selection of mines that are declared by the Minister. The proposed Regulations do not have any impact on mines other than those declared by the Minister, and mines don't choose to be declared.

Table 23: Competition assessment questions

Test question	Assessment	Reason
Is the proposed measure likely to affect the market structure of the affected sector(s) – i.e. will it reduce the number of participants in the market, or increase the size of incumbent firms?	No	The relevant market – declared mines – is dictated by declarations made by the Minister exercising a power in the Act. As such, the proposed Regulations have no effect on the number of firms in the market. The measures impose additional costs on mines and will not increase their size.
Will it be more difficult for new firms or individuals to enter the industry after the imposition of the proposed measure?	Yes	It will not be more difficult for new mines to be declared (and thus, enter the 'market') under the proposed Regulations, but newly declared mines will need to comply with additional requirements compared to the base case.
Will the costs/benefits associated with the proposed measure affect some firms or individuals substantially more than others (e.g. small firms, part-time participants in occupations etc.)?	No	The proposed Regulations will apply equally to all declared mines. They may impact differently depending on the lifecycle stage of the mine, but the overall impact is expected to be similar.
Will the proposed measure restrict the ability of businesses to choose the price, quality, range or location of their products?	No	This question is not relevant to the proposed changes considered in this RIS.
Will the proposed measure lead to higher ongoing costs for new entrants that existing firms do not have to meet?	No	The proposed Regulations will apply to all declared mines equally. Newly declared mines are likely to be similarly positioned to the existing declared mines – that is, the licensee will be responsible for a large, hazardous mine site with existing rehabilitation plans that will need to be adjusted and built up to meet the proposed Regulations' requirements.

### Test question

### Assessment

### Reason

Is the ability or incentive to innovate or develop new products or services likely to be affected by the proposed measure?

No

The regulations do not impose restrictions on the ability to innovate.

The Act, and by extension, the regulations contain several proposals that may restrict competition. Licensing itself restricts the eligible number of players in an industry, and licensing under the proposed Regulations also creates an exclusive property right. The licensing arrangement also specifies the type of minerals that may be mined and the location of activities.

As part of the National Competition Policy legislative review process, the Victorian Government examined the Act for competition restrictions. The review found that the main restrictions on competition contained in the legislation relate to granting licensees exclusive rights to explore or mine a given area of land. However, the review considered that the granting of licences were the most efficient means through which to secure the objectives of the legislation, one of which is “to encourage and facilitate exploration for minerals and foster the establishment and continuation of mining operations ...” The review commented that “given the risks and large-scale capital investment associated with discovery and development of mineral deposits, restricting open competition is considered entirely justified in relation to the primary objectives of the Act, providing the cancellation provisions for failure to work are diligently enforced.”<sup>198</sup> The review concluded that small number of restrictions on competition contained in the legislation were necessary to achieve the objectives of the legislation and are justified in the public interest.

The competition assessment above also considers the effect of the legislation. The regulations of themselves only restrict at the margin—to the extent that the regulations operationalise the Act.

It is worth noting that the proposed regulation concerning declared mine rehabilitation plans do not impose new obligations on licensees; however, they will improve compliance which will add to costs. The current requirements are contained throughout legislation but are ineffective without regulations. The proposal will operationalise the obligations on declared mines in the Act, and provide additional detail, making them easier to understand and should promote compliance. The requirements will apply to all declared mines equally, so incumbents will not have an advantage over new entrants in the longer term.

## 7.3 Small business impacts

It is Victorian Government policy to specifically consider the impact of proposed amendments to regulatory proposals on small business in RISs.

Small businesses may experience disproportionate effects from regulatory requirements for a range of reasons, including limited resources to interpret compliance requirements, or to keep pace with regulatory changes and the cumulative effect of different requirements.


The proposed Regulations support a legislative framework that applies only to especially hazardous mines. There have only been three mines declared by the Minister since the introduction of the power to declare mines in 2010. All three mines are owned by very large, multi-national companies. Given the characteristics of the existing declared mines, it is considered highly unlikely that any mine declared in future would be operated by a small business. Accordingly, the proposed Regulations are not considered to have any small business impacts.

## 7.4 Interstate comparison

As part of developing the options for assessment in this RIS, research was conducted by the department into approaches to rehabilitation planning in other jurisdictions and as described in best practice guidance. The review examined rehabilitation regulation in all other Australian jurisdictions, as well as Saskatchewan and best practice

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<sup>198</sup> Department of Natural Resources and Environment, National Competition Policy, *Review of the Mineral Resources Development Act 1990*: <http://ncp.ncc.gov.au>



material published by Anglo American and the ICMM. The review focused on the planning component of rehabilitation regulation, including how plans in each jurisdiction inform decisions about mine closure and the management of mine sites post-closure. The findings from the review are set out in detail in Appendix B.

## 8 Implementation and Compliance

### 8.1 Implementation

The proposed Regulations are embedded in continuous improvement instead of prescribing specified land use after mining ends. The department will continue to engage with key stakeholders, including other Departments, to ensure the regulations will be applied in a way that is consistent with their objectives and positions.

Implementation will require a deliberate and extensive program of preparatory work, and capacity building within ERR, the Authority, and coordination with co-regulators. The immense complexity and volume of information expected to be received and assessed under these regulations, dictates the regulator will need to scale up its in-house expertise and/or engage procured specialists to undertake this significant work to meet the expectations of the community. The Authority will require similar expertise and adequate resourcing in its role in relation to declared mines, with the capacity and understanding of co-regulators also critical to effective implementation of these regulations and timely development of associated activities to guide industry on rehabilitation planning. The accompanying activities to enact the proposed Regulations are indicative and listed below in Table 24, along with approximate timeframes for delivery. Capacity building within the regulator, the Authority and strategic collaboration between the relevant co-regulators is critical to achieving the proposed activities.

Table 24: Implementation Planning

Area of Regulation	Regulatory materials to be produced	Timeframe
<b>Overarching</b>	Communications to licensees to explain the new regulatory requirements	Quarter 3, 2022
	Website changes	Quarter 2, 2023
	Review Memoranda of Understanding or other agreements with co-regulators and make any required changes	Quarter 2, 2024
	Changes to information technology systems	2025
	Revised delegations	2025
<b>Annual reporting</b>	Declared Mines Annual Report Ministerial Guideline	Quarter 2, 2024
	Annual reporting template	
	Policies and procedures for reviewing and assessing annual reports	
<b>Declared Mine Rehabilitation Plan (DMRP)</b>	Declared Mine Rehabilitation Plan Ministerial Guideline	Quarter 2, 2024
	Policies and procedures for assessing a declared mine rehabilitation plan or rehabilitation plan variation	
<b>Declared Mine Post-Closure Plan</b>	Declared Mine Post-Closure Plan Guideline	Quarter 2, 2024
	Policies and procedures for assessing a declared mine post-closure plan	
<b>Closure of Declared Mine</b>	Closure criteria guidance	Quarter 2, 2024
	Application for closure determination guidance	
	Policies and procedures for assessing application for declared mine closure	
<b>Declared Mine Fund</b>	Policies and procedures for determining the amount to be paid into the Declared Mine Fund	Quarter 4, 2024
	Guidance about the Declared Mine Fund	Quarter 4, 2024

Area of Regulation	Regulatory materials to be produced	Timeframe
	Create the Declared Mine Fund	After 2025
<b>Declared Mine Register</b>	Policies and procedures for Registration of Declared Mine Land	2025
	Creation of the Declared Mine Register	After 2025
<b>Infringements and fees</b>	Revise references to regulations and schedules in guidance and other materials	Quarter 2, 2023
<b>Minor and technical amendments</b>	Revise references to regulations and schedules in existing policies, procedures, guidance, and other materials	Quarter 2, 2023

## 8.2 ERR – Interim Compliance Strategy 2021-2022

ERR has an interim compliance strategy which will encourage, monitor and enforce regulatory compliance of Victorian earth resource businesses. ERR's Interim Compliance Strategy outlines the way that it undertakes compliance activities, the way work is prioritised using a risk based approach, and ERR's use of a graded compliance strategy, spanning from education to enforcement and prosecution, where the outcome is appropriate to the level of risk posed.<sup>199</sup>

ERR will maintain a priority focus on preventing and responding to the key risks posed by minerals, extractives and petroleum sites to protect public safety, land, infrastructure and the environment, including (but not limited to):

- Fire – coal mines, plant and equipment fires
- Stability – mines and quarries batters, integrity of tailings storage facilities and land erosion
- Rehabilitation – progressive and final rehabilitation of mines, quarries, petroleum and exploration sites
- Community impacts – including dust, noise, vibrations and public safety of sites
- Authorisations and access– including Native Title, land access and necessary authorisations


ERR will undertake compliance activities including targeted inspections and audits focusing on addressing these key risks.

ERR has a Memoranda of Understanding and agreements in place with co-regulators to enable a whole of government approach to regulation. ERR's work with co-regulators aims to effect more efficient regulation and therefore reduce the regulatory burden on authority holders. The joint regulatory landscape ERR operates within also includes other areas of government as outlined in 2.2.4.

In February 2021, ERR commenced an in-depth review of their compliance model. This review considers all aspects of its compliance activities across the state. By publishing the Interim Compliance Strategy, ERR aims to assure the community and other key stakeholders that compliance activities will continue in a consistent manner, underpinned by a shared understanding of objectives, regulatory approach and goals, while the review is completed. A new compliance strategy will be developed on conclusion of the review, to reflect its findings and recommendations.

ERR uses several regulatory tools to encourage compliance. Typically, these range from providing advice and educational material and escalate to prosecutions with penalties attached in the order of \$150,000 (see Table 25 below). ERR's hierarchy of compliance tools is shown below. It will be observed that an infringement notice may

<sup>199</sup> Earth Resources Regulation, *Interim Compliance Strategy 2021-2022* (1 March 2021).



be used for medium risks and interventions. Infringement notices also provide a rapid and certain response for lower level offences appropriate for infringements.


In the past five years there has been one prosecution under the Act and three are currently afoot. There have also been five warnings over the past year.

Table 25: ERR compliance tool hierarchy

Compliance measure	Description
<i>Lower level of risk and intervention</i>	
Engagement and advice	Inspectors respond to requests for advice from industry, members of the public and stakeholder groups. They help affected parties access guidance materials, codes of practice and public authority holder publications. They make all parties aware of their compliance obligations under legislation.
Provision of guidance material	Guidance materials are made available and easily accessible on the department's website. They advise on best practice and outline compliance obligations for authority holders and members of the public.
Inspections and audits	The department obtains information from authority holders for regulatory compliance purposes through site inspections and audits. Inspections determine whether the authority holder is meeting their compliance obligations and, if not, the department decides on appropriate action.
Field entry and audit reports	Following inspections and audits, the department prepares a report for the authority holder. The report discusses findings and actions that may be required to address any non-compliance. In addition, the department records the timeframe for closing out any non-compliances, which inspectors follow up.
Warnings	The department may issue warning letters or official warnings when the severity of the offence and the culpability of the offender are low.
Amendments, conditions and variations	The department may require authority holders to amend existing plans, including by adding or amending conditions on authority to impose greater control (for example, increased monitoring and reporting levels) on authority holders.
Infringements and notices	The department may issue an infringement or notice when an infringeable offence has allegedly occurred under the relevant legislation. The receiver may have the right of appeal, depending on the applicable legislation.
Directions	Earth resources legislation provides ERR with the power to give directions that require certain actions to occur by a certain time. Significant penalties can apply if those instructions are not followed.
Suspensions and cancellations	The department can respond to critical non-compliance by suspending or cancelling an Authority. A formal process must be followed when senior officers take this action, and oversight by department legal representatives is employed to support cases.
Prosecutions	The department may initiate prosecution proceedings when a serious offence has allegedly occurred under Victoria's earth resources legislation. Inspectors must prepare a brief of evidence to present the case to the Magistrates Court of Victoria. The legislation provides a range of penalties for a person found guilty of an offence. For example, as of 1 July 2017, this is up to a maximum of \$158,570 under the Act.
<i>Higher level of risk and intervention</i>	

### 8.3 Infringement Notices

Infringement notices are an important part of the ERR's enforcement and compliance regime. Infringement notices seek to balance fairness (lower fine levels, convenience of payment, consistency of approach) with compliance and system efficiency (reduced administration costs, no need to appear in court, no conviction). Infringement



notices also provide a rapid and certain response for lower level offences appropriate for infringements, with deterrence dependent on people being aware they are likely to be detected offending and dealt with through less severe penalties. The maximum infringement penalty for an individual should generally not exceed 12 penalty units (a penalty unit is currently \$165.22; 12 penalty units is equivalent to \$1,983), and for a corporation should not exceed 60 penalty units (\$9,913).<sup>200</sup>

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<sup>200</sup> Attorney-General's Department, Attorney-General's Guidelines to the Infringements Act 2006: Policy and Legislation, Version 1.0, 12 October 2018



## 9 Evaluation

The proposed Regulations will be subject to an ongoing evaluation strategy, which will focus on assessing the costs and benefits of the proposed Regulations. The evaluation strategy will consider baseline data and key performance indicators, such as reporting statistics, enforcement data and internal ERR statistics regarding activities taken according to the Regulations. Ongoing consultation with stakeholders will also take place, particularly in relation to information to be included in the DMRP, the post closure plan and the requirements for closure criteria.

Table 26: Evaluation of the proposed Regulations

Evaluation	Action
Objectives of the evaluation	Iteratively reviewed up until the end of public consultation on the proposed Regulations in August 2022
Framework for the evaluation	Iteratively reviewed up until the end of public consultation on the proposed Regulations in August 2022
Key information that will be collected to assess progress against delivering objectives	Clarity experienced by ERR, the Authority and field staff in relation to: <ul style="list-style-type: none"> <li>• Declared Mines Annual Reporting requirements,</li> <li>• Declared Mine Rehabilitation Plan requirements,</li> <li>• Guidance about the Declared Mine Fund,</li> <li>• Declared Mine Post-Closure Plan requirements, and</li> <li>• Application for closure criteria and closure determination guidance.</li> </ul>
Responsibility for collecting, analysing and reporting on data and information	Collection and reporting by the department and the regulator from when licensees submit their DMRP and post closure plan when applying for mine closure
Stakeholder Engagement Plan	Iteratively reviewed with industry licensees, community, the regulator, the Authority and any public sector body responsible for the oversight of a matter in the DMRP that licensees must consult with
Timing of evaluation	Iteratively after proposed Regulations due to commence in September 2022

\* Intervention logic is the rationale on which many aspects of the framework are based. It supports the choices made at a lead agency level on outcome measures and targets, and the choices made by departments on their selection of activities.

The department will continue to engage with stakeholders on a regular basis to discuss the effectiveness of the Regulations and any suggestions for change. Periodic review of the data and key performance indicators may indicate changes in the overall trends and may provide indicative information about the effectiveness of the Regulations in reducing negative impacts and enhancing positive impacts of minerals industries. Earth Resources Policy and Programs staff will liaise with ERR and field staff to monitor the effectiveness of the proposed Regulations on an ongoing basis.

# Appendix A: Stakeholder consultation activities

## Consultation schedule

To inform the development of the proposed Regulations and the preparation of this RIS, the department conducted consultation with industry operators. Consultation also included various stakeholder groups such as other areas of government and co-regulators as outlined below.

Table 27: Consultation activity schedule

Time period	Consultation details
July 2020	BRV briefings and guidance sought
August 2020	DELWP matters for Ministerial & Department Head BRV advice on draft RIS received DTF, DPC, DELWP and MLRA consultations
September 2020	ERR consultations on Work Plan monitoring & review functions DTF consultations
October 2020	DELWP and DPC consultations First-round of Licensee pre-RIS consultation workshops
November 2020	First-round of Licensee Impact Assessment submissions collected LVMRAC and City Council consultations DTF, DPC and DELWP pre-RIS consultation on Regulation options ERR and MLRA engagements
January 2021	MLRA advice on proposed Regulations and draft RIS received
April 2021	EV briefings and consultations
May 2021 – January 2022	DJPR development of final draft regulations and draft RIS
October 2021	ERR consultations on rehabilitation requirements
February 2022	Second-round of Licensee pre-RIS consultation workshops
February – August 2022	DELWP consultations on proposed Regulations and draft RIS
March 2022	Second-round of Licensee Impact Assessment submissions collected DTF, DPC and MLRA consultations
April 2022	MLRA advice on proposed Regulations and draft RIS received
May – July 2022	BRV advice on final draft RIS received LVMRAC briefings on proposed Regulations and RIS MLRA briefings and consultations on proposed Regulations and RIS

A series of workshops with each mine operator was established to discuss the options, and a set of follow-up questions.

The first round of pre-RIS consultations with licensees involved an invitation to submit formal responses to determine the impacts of the proposed options compared to the base case covering:

- Mine rehabilitation planning – to understand how licensees currently undertake this activity, how information is gathered to inform rehabilitation planning and frequency of rehabilitation plan reviews.
- Declared mine rehabilitation framework – to understand additional costs/effort to prepare plans that meet the new requirements for declared mines and how rehabilitation planning would differ between closure criteria set against principles and objectives as opposed to set land use.
- An iterative approach – to characterise how the approach to rehabilitation planning would be better or worse than what is currently required of operators and its impacts on the costs and efforts currently associated with rehabilitation planning.
- Applying for plan approval and closure determination – to recognise the impacts of different requirements at the plan approval stage on the costs and efforts of mine closure views on the EES process.
- Additional reporting activity – to understand the impact of annual reporting on the costs and efforts associated with rehabilitation reporting.

Following revisions to the proposed Regulations, licensees and other areas of government were consulted in a second round of pre-RIS consultations from February to May 2022. Licensee consultations in the second round focussed on operationalisation of the proposed Regulations and determining whether any impacts had changed since the 2020 consultation.

Prior to the announcement of public consultation, the department consulted affected parties and other areas of government to further understand potential industry impacts. Consulted parties included:

- The Department of Treasury and Finance (DTF),
- The Department of Premier and Cabinet (DPC),
- The Department of Environment, Land, Water and Planning (DELWP),
- The Earth Resources Regulation unit (ERR),
- The Environment Protection Authority Victoria (EPA),
- The Mine Land Rehabilitation Authority (MLRA),
- The Latrobe Valley Regional Rehabilitation Authority,
- The Latrobe Valley Mine Rehabilitation Advisory Committee (LVMRAC),
- Latrobe City Council, and
- LVRRS Working Group members.

The Victorian Commissioner for Better Regulation (BRV) was consulted for advice and feedback while being kept informed of key changes throughout development of the RIS from July 2020 to April 2022.

## Appendix B: Rehabilitation planning in other jurisdictions

As part of developing the options for assessment in this RIS, research was conducted into approaches to rehabilitation planning in other jurisdictions and as described in best practice guidance. This appendix summarises the key findings of that research that have contributed to the design and assessment of the options discussed in this RIS.

### Queensland

The current regulatory framework for the rehabilitation of mines in Queensland is the result of the state government's response to recent reviews of mining rehabilitation and the Queensland government's financial assurance system designed to mitigate the financial risks involved in rehabilitating land disturbed by mining. The *Review of Queensland's Financial Assurance Framework: Final Report* and the *Better Mine Rehabilitation for Queensland: Discussion Paper* released in 2017,<sup>201</sup> and led to two core changes to rehabilitation regulation in the State:<sup>202</sup>

- The financial assurance arrangements for mining and other resource activities were replaced with a new financial provisioning scheme and changes were made to the way rehabilitation costs are estimated.
- New requirements for the planning of progressive rehabilitation and closure of mine land were introduced.

This summary focuses on the rehabilitation framework implemented by the second change.

Mining rehabilitation in Queensland is governed primarily by the *Environmental Protection Act 1994*. Entities who wish to undertake an 'environmentally relevant activity' – activities with the potential to release contaminants into the environment, including mining – must apply to the Queensland government for an 'environmental authority' (EA). Following amendments made to the *Environmental Protection Act 1994* in 2018, applicants for environmental authorities for mining activities must provide a 'Progressive Rehabilitation and Closure Plan' ('PRC plan').

According to government guidance, the main purposes of the PRC plan are to:<sup>203</sup>

- 'require the holder of an EA to plan for how and where activities will be carried out on land in a way that maximises the progressive rehabilitation of the land to a stable condition
- provide for the condition to which the holder must rehabilitate the land before the EA may be surrendered.'

#### Contents of the PRC plan

The PRC must identify the landform or condition to which the land covered by the mining tenure will be rehabilitated at the point of closure: the identification of the 'post mining land use' or post mining land use is a central part of the PRC framework.<sup>204</sup> Under the primary Act, all land disturbed by mining must be rehabilitated to a 'post-mining land use' or managed as a 'non-use management area' ('NUMA'). PRCs must identify any proposed NUMAs and any NUMAs which are justified on public interest grounds (under the Act) are subject to an independent public interest evaluation.

PRC plans consist of two parts:

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<sup>201</sup> Queensland Treasury Corporation, *Review of Queensland's Financial Assurance Framework* (April 2017) available at < <https://s3.treasury.qld.gov.au/files/review-of-queenslands-financial-assurance-framework.pdf>>; Queensland Department of Premier and Cabinet, Queensland Treasury and Department of Natural Resources and Mines, *Better Mine Rehabilitation for Queensland: Discussion Paper* (2017) available at < <https://s3.treasury.qld.gov.au/files/better-mine-rehabilitation-in-qlld-discussion-paper1.pdf>>.

<sup>202</sup> Queensland Department of Environment and Science, 'Mining rehabilitation reforms' (19 November 2019) accessed 30 July 2020, available at < <https://environment.des.qld.gov.au/management/policy-regulation/mining-rehab-reforms>>.

<sup>203</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at < [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-ql-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-ql-prc-plan.pdf)> p 4.

<sup>204</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at < [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-ql-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-ql-prc-plan.pdf)> p 17.

1. rehabilitation planning
2. PRCP schedule

Only the schedule is subject to a regulatory decision; the planning component is designed 'to support and justify the development' of the schedule.<sup>205</sup> However, the planning component must still include the information set out in the Act and supporting guidance, as described below.

According to the PRC guidance, the rehabilitation plan component must include at least:<sup>206</sup>

- Baseline data about the site and mining operation, including:<sup>207</sup>
  - site topography (locally and regionally)
  - climate (general and specific (rain, evaporation, temperatures), including long term projections)
  - geological setting
  - site hydrology and fluvial networks
  - groundwater levels and properties
  - soil types, properties and productivity
  - land stability (pre-existing land degradation/erosion and predisposition to ongoing stability issues)
  - vegetation communities and ecological data (including existing regional ecosystem mapping)
  - fauna presence and populations
  - pre-mining land use
  - identification of underlying landholders.
- Design for closure – an explanation of the progressive rehabilitation activities that will be carried out and how they have been considered in the design of the mine site, including:
  - location of mine features/infrastructure, having regard to the following considerations:
    - protection of environmental values of the site and receiving environment, including matters of National Environmental Significance, matters of State Environmental Significance and matters of Local Environmental Significance
    - surrounding land uses and proximity to sensitive receptors
    - proximity to the open-pit exit or exits
    - the gradient of the footprint area, both for the direction of drainage from the landform and for the dumping costs
    - local and regional topography
    - surface and ground water features (quality, quantity and seasonal variation)
    - geotechnical conditions (i.e. soil/rock characteristics) and suitability for the structure type (i.e. presence of structural features that may transmit seepage)
    - competing water and land uses
    - visual impact.
  - size, shape and design of mine features/infrastructure (e.g. waste rock dump design)
  - mining methods (such as utilising underground methods versus extraction via an open cut pit)
- Information about community consultation
- Analysis and justification of post-mining land uses and NUMAs
- Justification of timeframes for land being available for rehabilitation, including in relation to any areas of land that will not be rehabilitated until after operations have ceased
- Details of the rehabilitation methodologies and techniques that will be used, and supporting documentation

The PRCP schedule must include:

- Maps of final rehabilitation and closure outcomes for the site
- Rehabilitation and management milestones, milestone criteria and completion dates
- Timeframes for land becoming available for rehabilitation or improvement

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<sup>205</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at < [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-ql-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-ql-prc-plan.pdf)> p 14.

<sup>206</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at < [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-ql-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-ql-prc-plan.pdf)> p 4.

<sup>207</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at < [https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-ql-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-ql-prc-plan.pdf)> p 15.

- Rehabilitation and improvement areas

### *Approval decision on the PRC plan*

Proposed PRCs are submitted alongside the operator's application for an environmental authority for its proposed works. The environmental authority and PRC schedule are considered separately, but a single decision is made: if either is refused, the EA application will be unsuccessful.<sup>208</sup> ERR then has the opportunity to request further information if necessary, and then the application must be made publicly available for comment. Time periods apply to each stage of this process.

The regulatory framework sets out extensive criteria for acceptable post mining land uses, which are considered as part of the PRC approval decision. These criteria include the viability of the post mining land use considering the surrounding land.

ERR must not approve a PRC schedule unless it provides for all the land it covers to be rehabilitated to a stable-condition or managed as a NUMA in a way that achieves best practice management and minimises risks to the environment.<sup>209</sup> For a proposed post mining land use to be accepted, the PRCP schedule must demonstrate that the land can be rehabilitated to a stable condition in accordance with the definition of 'stable condition' under the Act: the land is safe and structurally stable, there is no environmental harm being caused by anything in or on the land, and the land can sustain a post mining land use.<sup>210</sup>

The approval decision requires consideration of the justification for the rehabilitation milestones included in the schedule and the designation, if applicable, of any NUMAs. ERR must also assess the PRCP objectives, consider any environmental values as specified in supporting Regulations, and consider the management hierarchy, environmental values, quality objectives and management intent contained in the plan against relevant environmental protection policies.<sup>211</sup>

### *Review and monitoring of the PRC plan*

Under the Act, all holders of PRCs must commission a specialist auditor to carry out a rehabilitation audit of the PRCP schedule every three years.<sup>212</sup> This audit is designed to assess the steps the operator has taken towards achieving rehabilitation milestones, the accuracy of any information given to ERR about rehabilitation, and whether post mining land uses are likely to be achieved given the progress made on rehabilitation.

ERR can amend the PRCP schedule in response to an audit report, and/or take compliance action if appropriate. All audit reports are made publicly available.<sup>213</sup>

Operators can apply to ERR to amend their PRCP schedule at any time.

### *Progressive rehabilitation and mine closure*

Operators can apply to ERR for a progressive rehabilitation certificate in relation to staged restoration completed over parts of the area covered by their EA. A certification application must be accompanied by a report outlining the activities undertaken in the proposed certification area. The certificate allows the operator to reduce the amount of financial assurance held by ERR for their environmental authority.<sup>214</sup>

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<sup>208</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at <[https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-gl-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-gl-prc-plan.pdf)> p 11.

<sup>209</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at <[https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-gl-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-gl-prc-plan.pdf)> p 12.

<sup>210</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at <[https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-gl-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-gl-prc-plan.pdf)> p 18.

<sup>211</sup> *Environmental Protection Regulation*, r 41B(1).

<sup>212</sup> *Environmental Protection Act 1994* (Vic), s 285.

<sup>213</sup> Queensland of Environment and Science, 'Guideline – Progressive rehabilitation and closure plans (PRC plans)' (1 November 2019) available at <[https://environment.des.qld.gov.au/\\_data/assets/pdf\\_file/0026/95444/rs-gl-prc-plan.pdf](https://environment.des.qld.gov.au/_data/assets/pdf_file/0026/95444/rs-gl-prc-plan.pdf)> p 42.

<sup>214</sup> Queensland Government – *Business Queensland*, 'Progressive certification for an environmental authority' (27 August 2020) available at <<https://www.business.qld.gov.au/running-business/environment/licences-permits/rehabilitation/certification>>.

Operators can apply to surrender their EA (equivalent to relinquishing a mining licence in Victoria) at any time. A surrender application must be accompanied by a final rehabilitation report, a post-surrender management report and a compliance statement for the EA. Mining operators must also complete a risk assessment of the land. Together, these documents are designed to ensure and prove that land has been satisfactorily rehabilitated or managed in accordance with the PRCP schedule. The post-surrender management report must include a management plan for any risks identified in the final assessment, as well as an estimation of the costs and expenses that may be incurred in carrying out the ongoing management activities included in the plan.

ERR will then determine if the operator is required to make a residual risk payment to cover the Government's costs of potential future rehabilitation and management of the land after the EA is relinquished and the operator's financial assurance has been returned.<sup>215</sup>

## Western Australia

Environmental regulation in Western Australia has the principle objective that 'resource industry activities are designed, operated, closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed environmental outcomes and post mining land uses without unacceptable liability to the State'.<sup>216</sup>

Prospective mine operators must submit a mining proposal to ERR prior to commencing operations. The proposal needs to include a Mine Closure Plan ('MCP'), which describes from the outset the operator's proposed plan for restoring the mine site towards closure.

### *Contents of the MCP*

Under the Statutory Guidelines for MCPs (effective 3 March 2020), the MCP must include:

- A project summary, including a map of all land disturbances
- An identification of all legal obligations for rehabilitation and closure affecting the post mining land use and closure outcomes
- Information about the stakeholder engagement that has been undertaken to date, and a strategy for ongoing engagement
- Baseline and closure data and analysis –
  - Baseline data to inform rehabilitation and closure outcomes and criteria, identify the issues to be managed, and establish baseline conditions for closure monitoring programs.
  - Analysis of the baseline data to describe how the wider environment, receptors and exposure pathways have been considered, and to identify knowledge gaps and the risks of not having this information.
- Post mining land uses that have been proposed or agreed with key stakeholders, including regulators –
  - The MCP must describe how the post mining land use(s) is/are relevant to the environment of the mine, achievable, acceptable to stakeholders, and ecologically sustainable in the context of the local and regional environment.
- A closure risk assessment that identifies, evaluates and rates all closure risks; identifies appropriate risk treatments; re-evaluates risk pathways post the application of treatments to identify a residual risk rating; and demonstrates that all residual risks are as low as reasonably practicable
  - The MCP also needs to provide information on the methodologies used to identify and assess these risks.
- Closure outcomes and completion criteria –

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<sup>215</sup> Queensland Government – *Business Queensland*, 'Residual risk payments for an environmental authority' (27 August 2020) available at < <https://www.business.qld.gov.au/running-business/environment/licences-permits/rehabilitation/residual>>.

<sup>216</sup> Department of Mines, Industry Regulation and Safety – WA, *Environmental Objectives Policy for Mining* (effective 3 March 2020).

- Site-specific closure outcomes consistent with the post mining land use(s) that are realistic and achievable based on the closure risk assessment
- Completion criteria that are specific, measurable, achievable, relevant and time-bound, and will demonstrate the achievement of the closure outcomes.
- Closure implementation work program, including implementation strategies and timeframes; closure designs; and contingencies for premature or early closure or suspension of operations
- A closure monitoring and maintenance framework to monitor progress
- Details of closure costing methodology, including clearly documented assumptions and uncertainties
- A description of data management strategies, including systems for the retention of mine records and data relevant to closure

#### *Review and monitoring of the MCP*

The rehabilitation framework acknowledges that the progressive development of an MCP over the mine lifecycle, alongside progressive rehabilitation, are critical to its successful implementation, and to achieving rehabilitation outcomes.

Mine operators are required to ensure that their MCP is reviewed three years after its initial approval, and every three years thereafter. The reviewed MCP has to include an environmental closure risk assessment that: identifies all the environmental closure risk pathways; evaluates these risks to derive an inherent risk rating, prior to the application of treatments; identifies appropriate risk treatments, using the hierarchy of control; re-evaluates the risk pathways to derive a residual risk rating; and demonstrates that all residual risks are as low as reasonably practicable. The reviewed mine closure plan must provide information on the processes and methodologies undertaken to identify the closure risks and their potential environmental impacts post-mining, including a description of the risk assessment criteria and risk evaluation techniques.

#### *Mining Rehabilitation Fund*

The Mine Rehabilitation Fund is designed to meet the costs of rehabilitating abandoned mines across WA in circumstances where operators have failed to meet rehabilitation obligations and efforts to recover funds from them have been unsuccessful.<sup>217</sup> Operators of mines with a rehabilitation liability estimate (calculated per a statutory calculator) of \$50,000 or more must pay an annual contribution to the Fund.

## New South Wales

New South Wales' regulatory approach is outcomes focused whilst being flexible to allow for industry to develop and implement innovative and best practice methodologies specific to a site.

#### *Objectives*

The *Mining Act 1992* defines rehabilitation as the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment. Rehabilitation is achieved when land is safe, stable and in a self-sustaining condition.

#### *Rehabilitation and Post-Closure Plan*

A rehabilitation plan has objectives that are agreed upon by the community and government, and lays out the post-mining use of the land.

Titleholders are required to develop and implement a Mining Operations Plan (MOP) (soon to be called a Rehabilitation Management Plan (RMP)), which includes the following:

- objectives and criteria for rehabilitation that are required to be met for rehabilitation before the Division will relinquish the mining lease and any associated rehabilitation security bond;

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<sup>217</sup> Department of Mines, Industry Regulation and Safety – WA, 'About the MRF' available at <<https://www.dmp.wa.gov.au/Environment/What-is-the-MRF-19522.aspx>>.



- proposed rehabilitation plans including a progressive rehabilitation schedule for the entire life cycle of a mine;
- defined key risks and opportunities that need to be addressed to achieve successful rehabilitation;
- the range of risk-based rehabilitation controls and methodologies;
- detailed monitoring programs designed to measure performance and compliance against the criteria as well as promote adaptive management processes.

Authorisation holders are required to report on the performance of rehabilitation on an annual basis against MOP/RMP and development approval commitments.

Rehabilitation commitments and post mining land use objectives for mining development are established as part of the development approval/EIS phase of a mining project and approved by a determining authority such as Department of Planning and Environment or a local council under the *Environment Planning & Assessment Act 1979*. The Division's role under the Mining Act is to regulate rehabilitation activities to ensure that the post-mining land uses of a development approval issued under the Environment Planning & Assessment Act 1979 are met.

### *Approvals Process*

The acceptability of a final void is determined by individual merit-based assessment of the proponent's rehabilitation proposal.

Completion criteria represent milestones in the biophysical processes of rehabilitation that provide a high degree of confidence that the rehabilitated mine will eventually reach the desired sustainable state (the rehabilitation objective). Completion criteria indicate the success of rehabilitation and enable the operator to determine when its liability for the area ceases.

### *Rehabilitation and*

A revised Rehabilitation Cost Estimated Tool was implemented on 1 June 2017. Mining leases contain detailed, operational requirements for rehabilitation of the site and lodgement of a security deposit. NSW requires a security deposit covering the full cost of rehabilitation.

## South Australia

Reforms in 2011 moved South Australia to an outcomes-based regulatory system.

In South Australia mineral exploration, extraction and sales are regulated under the *Mining Act 1971* and the Mining Regulations 2011.

### *Objectives*

Mining operations in South Australia are to be planned from the outset to ultimately return the land, after mining has been completed, to a state in which no third-party impacts are likely to occur indefinitely into the future. This means for the site to be left in a safe and physically, geochemically, and ecologically stable condition with acceptable external visual amenity.

### *Rehabilitation and Post-Closure Plan*

A Program for Environment Protection and Rehabilitation (PEPR) must be completed by mining operators and approved by the South Australian Government.

The PEPR guideline details the process of developing appropriate rehabilitation strategies, mine completion environmental outcomes, and completion criteria. The PEPR must contain a description of the site as it will be at completion (after all progressive rehabilitation is completed), including:

- potential land use options, landforms and proposed vegetation cover.
- a description of progressive and final rehabilitation strategies.

The PEPR must include a description of progressive rehabilitation activities designed to achieve the mine completion strategy.

Outcome measurement criteria must be developed for each of the environmental outcomes (including mine rehabilitation outcomes). Certain but reasonable and realistically achievable outcomes must be proposed. Where appropriate, recognised industry standards, codes of practice or legislative provisions from other Acts can be used as criteria.

Mining leases contain a condition that requires the PEPR to be a public document at all times.

#### *Approvals Process*

Relinquishment of a mining lease and the associated transfer of liability must be applied for. The application must include a 'mine completion report' that includes a residual risk analysis and proposed post-surrender action, including arrangements for maintenance and funding.

#### *Rehabilitation and Post-Closure Fund*

The landholder must sign off on the mine completion plan accepting the residual risks and the post-relinquishment arrangements, including any associated funding. Additionally, the SA guidelines recommend the use of the NSW rehabilitation bond calculator, which contains a 5% provision for monitoring and maintenance. The *Mining Act 1971 (SA)* legislates the operation and governance of the fund, with details provided in the *Guidelines for Operation*.

## Northern Territory

The Northern Territory has an outcomes-based regulatory framework, informed by Commonwealth handbooks on leading practice in mining closure, completion and rehabilitation.

#### *Objectives*

Rehabilitation is considered successful when the land can be safely used for other purposes. Generally, a project area can be 'closed out' following at least one wet season in the Top End or a significant rainfall event in Central Australia, if there is significant vegetation regrowth present and the rehabilitated area is stable.

#### *Rehabilitation Plan*

The mining management plan (MMP) is the primary tool for managing compliance with the *Mining Management Act 2001*. The MMP sets out all the environmental and other legal and regulatory obligations that must be met by mining operators. The MMP includes:

- a description of proposed mining activities
- plans of current and proposed mine workings and infrastructure
- details of environmental risks and management plans
- a plan and costing of closure activities
- stakeholder engagement
- any other information or plans required by the department.

Rehabilitation should be undertaken progressively both during the mining operation and once mining has ceased. The operator of mining interests is responsible for rectifying any environmental harm arising from mining activities and for final rehabilitation of the affected area.

#### *Approvals Process*

The following criteria is used to assess if a site is successfully rehabilitated:

- compatibility with the agreed land use after mining
- safety, land stability
- low risk to livestock and other animals from contaminated water
- land stability

- rubbish clean-up
- revegetation or other improvements
- visual impact
- condition of heritage and archaeological sites.

#### *Rehabilitation and Post-Closure Fund*

As per Section 40(2)(g) of the *Mining Management Act 2001*, a costing of closure activities must be included in an MMP. The expectation is for mining operators to submit 100% of the security calculated for rehabilitation.

The Minister determines the level of security commensurate with protecting the community from closure liabilities and optimising the benefits to the community from the proposed project. Securities are regularly reviewed and adjusted taking into consideration progress in rehabilitation as well as new or expanded activities.

A security will be released once criteria specified in the approved closure plan have been met. These criteria include commitments and responsibilities pertaining to post closure monitoring and management of potential liabilities at the site.

An additional security amount to fund contingencies arising from failure of rehabilitation and to cover post closure costs including monitoring, maintenance, site visits and any necessary remediation works is automatically calculated and added to the total cost.

## Anglo-American

Anglo-American ('AA') is a very large mining company, which has published industry guidance on the responsible rehabilitation and closure of mining operations. Their *Mine Closure Toolbox*, published in 2019, includes examples and suggested methodologies for various aspects of rehabilitation and closure planning.<sup>218</sup>

#### *Rehabilitation strategy and plan*

AA's rehabilitation strategy aims to ensure that all rehabilitation areas are safe, stable, non-polluting and sustainable. The strategy is designed to set a 'standard for integrating rehabilitation in business planning process and setting targets to eliminate the rehabilitation backlog (defined as lease hold area deemed not economically viable for future mining)'.<sup>219</sup>

The strategy is supported by a more detailed five-year rehabilitation plan, which should include:

- High-level summary of the baseline environmental and legal requirements for the site.
- Summary of disturbance and rehabilitation profile (in hectares) for each domain on-site, including areas available for rehabilitation.
- Annual rehabilitation targets for the five-year period.
- Rehabilitation prescriptions (i.e. landform design, growth medium, erosion control measures, seeding/planting specifications, fertiliser rates) to be applied to each rehabilitation area.
- Estimated budget to rehabilitate according to the five-year plan.
- Review of the rehabilitation programme implemented in the previous year including expenditure.
- Rehabilitation monitoring programme to be implemented over the five-year period.
- Rehabilitation maintenance and management action plan and budget to ensure areas are being managed to relinquishment.

AA also stipulates that the plan should be updated annually.

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<sup>218</sup> See Anglo-American, *Mine Closure Toolbox – Examples Version 3.0* (2019) available at <<https://www.angloamerican.com/~media/Files/A/Anglo-American-Group/PLC/sustainability/mine-closure-toolbox-examples-version-3-2019.pdf>>.

<sup>219</sup> Ibid 68.

### Success criteria

AA defines success or completion criteria as the agreed standards to be met in facilitating lease relinquishment. Success criteria should align with the closure vision defined for the mine, along with closure objectives. The criteria should be 'SMART', and iterated to become more quantitative over the course of a mining operation as concurrent rehabilitation is undertaken and criteria are tested.

AA advises developing a monitoring programme for the development of the success criteria, if possible in collaboration with regulators, to ensure that the right data are being collected to allow for the ultimate determination of whether criteria have been met. Figure 11 illustrates the relationship between the different elements of rehabilitation planning, including closure/success criteria.

Figure 11: AA success criteria conceptualisation<sup>220</sup>

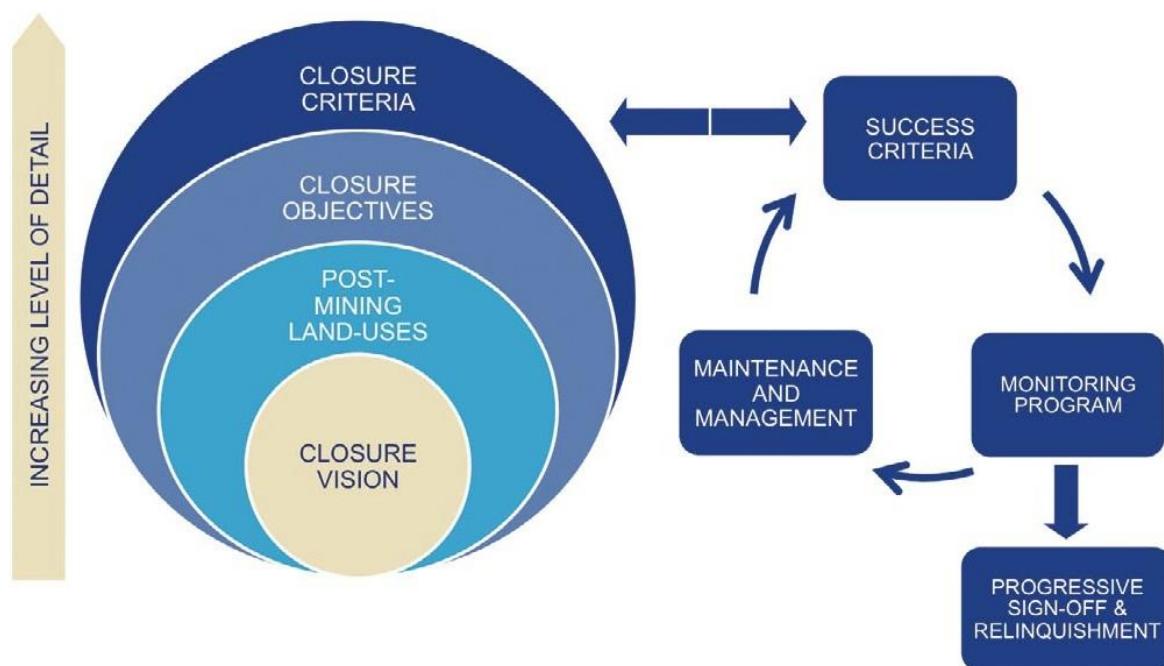


Figure 1: Relationship between closure vision, PMLs, objectives, closure criteria, success criteria and the monitoring programme to facilitate progressive sign-off and relinquishment.

## International Council on Mining and Metals (ICMM)

The ICMM has published best practice guidance on 'integrated mine closure'.<sup>221</sup> The ICMM emphasises that closure should be considered as an integral part of mine operators' core business, with closure planning undertaken from the outset of mine operations.

### Closure plan

The ICMM advises the early definition of a 'closure vision' for the mine site, around which subsequent rehabilitation strategies and activities are oriented. The closure vision should be expanded by closure objectives

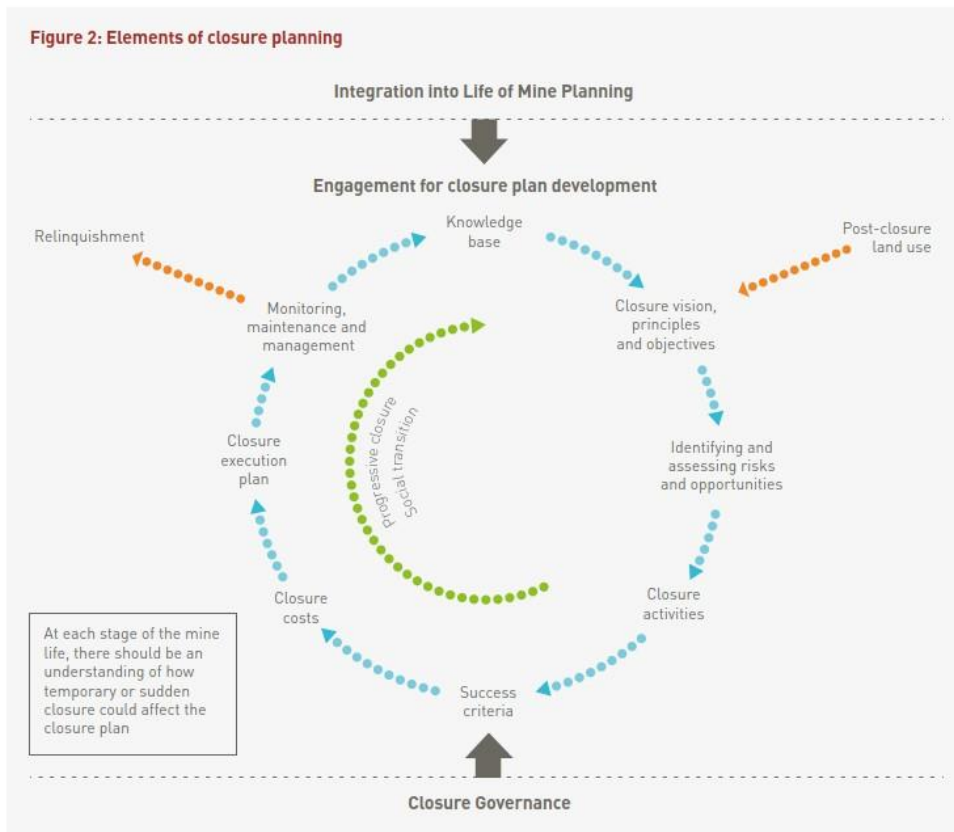
<sup>220</sup> Ibid 71.

<sup>221</sup> See ICMM, *Integrated Mine Closure: Good practice guide* (2019) available at <[https://www.icmm.com/website/publications/pdfs/closure/190107\\_good\\_practice\\_guide\\_web.pdf](https://www.icmm.com/website/publications/pdfs/closure/190107_good_practice_guide_web.pdf)>.

and principles, and all elements should be supported by early engagement with stakeholders and the development of a knowledge base of data about the mine.

The ICMM emphasises that closure planning must be an iterative process because of the 'feedback loops' interconnecting each element of the plan, from developing the knowledge base about the mine site, to understanding viable post mining land uses, to engaging with stakeholders about proposed closure outcomes, to contingency planning for the early or unexpected closure of mines. This iterative and inter-related conceptualisation of closure planning is illustrated in Figure 12 below.

Figure 12: ICMM closure planning diagram



Less emphasis is placed on setting defined post mining land use(s) at the early stages of the plan development, but potential post mining land uses should be considered throughout the development of the plan. post mining land use(s) should be identified in the context of landownership; economic feasibility; and regional plans; land capabilities (defines feasible land use); regulatory considerations/ obligations; the socioeconomic context, including the desires of the community and other external stakeholders (including how this context evolves over time). The post mining land use(s) should also be developed and refined to take into account the existing and continually updated knowledge base; preference beneficial uses; be adaptable (i.e. evolve over time, with changing views/desires of stakeholders, and development of innovative approaches); and identify and address failure mechanisms (contingency plans).

ICMM advises that stakeholder engagement should take place throughout closure planning, and insights used to develop the closure plan. Additionally, ICMM emphasises that a wide range of physical, social, economic and ecological risks and opportunities should be identified and formally assessed to inform closure planning and the selection of closure activities.

The plan should identify closure activities to be implemented to achieve site-specific closure objectives.

### *Success criteria*

According to the ICMM, success criteria should be agreed and shared with regulators and relevant external stakeholders. Success criteria are defined as the 'specifications, measurements or requirements that, if met, denote the success of the closure activities in meeting closure objectives'.<sup>222</sup>

Similarly to AA, the ICMM states that success criteria should be 'SMART'.

Criteria development may require site-specific studies and research plans, especially where the potential interactions with environmental factors are complex or long-term, and in line with the ICMM's approach to closure planning, success criteria should be continually refined over time.

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<sup>222</sup> Ibid 37.

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## Appendix D: Areas to be prescribed

AREAS TO BE PRESCRIBED	EMPOWERING PROVISION (MRSDA sec.)
<b>A. Declared Mine Rehabilitation Plan (DMRP)</b>	
<b>1. Preparation of DMRP by the DM licensee</b>	
a. Period within which the DMRP is to be prepared	84AZU(2)
b. Matters to be included in a DMRP, including closure criteria and any other prescribed matter <sup>0,1</sup>	84AZU(3)(b) and (f); 124(1)(oc)(i)
c. Persons or classes of persons who the DM licensee must consult	84AZU(4)
d. <sup>0</sup> Making regulations with respect to different cases or classes of case	124(2)(b)
<b>2. Approval of DMRP by the Department Head</b>	
a. Matters the Department Head takes into account when considering the DMRP	84AZV(1)(c) and 84AZW(2)(b)
b. Process followed by the Department Head in considering the DMRP (and any variation)	84AZV(1)(d) and 84AZW(W)(2)(c)
<b>B. Closure of Declared Mine</b>	
<b>1. Application by the DM licensee to the Minister to determine closure criteria have been met</b>	
a. Information to be included in the application	84AZY(2)(a)
<b>2. Determination by the Minister that closure criteria are met</b>	
a. Matters the Minister must take into account on receiving the application <sup>1</sup>	84AZZ(1)(c)
b. Process followed by the Minister on receiving the application <sup>2</sup>	84AZZ(1)(d)
c. <sup>1,2</sup> Matters and process for determining the closure criteria	124(1)(oc)(ii)
d. <sup>1</sup> In determining closure criteria, take into account the risks – incl risks posed by geotechnical, hydrogeological, water quality or hydrological matters – to public safety, the environment and infrastructure	124(1)(oc)(iii)
e. <sup>1,2</sup> Criteria and process for assessing the rehabilitation of declared mine land	124(1)(ob)(iv)
<b>C. Declared Mine Fund</b>	
<b>1. DM licensee contribution</b>	
a. Payment by the declared mine licensee of a specified registration amount <sup>3</sup>	94AZZB(3)(c)
b. <sup>3</sup> Process and method for determining the amount to be paid to the Minister by a DM licensee	124(1)(oc)(vi)
<b>2. Forfeited bond</b>	
a. Process and method for determining payment into the Declared Mine Fund under section 83A [Payment of bond into the DM Fund upon cancellation of licence]	124(1)(oc)(vi)
<b>D. Declared Mine Register</b>	
<b>1. Registration of the DM and Post-Closure Plan by the Authority at the direction of the Minister</b>	
a. Procedure to be followed by the Rehabilitation Authority to register the land and post-closure plan <sup>4</sup>	84AZZB(3)(a)
b. Records and information the DM licensee must give to the Rehabilitation Authority <sup>5</sup>	84AZZB(3)(c)

AREAS TO BE PRESCRIBED	EMPOWERING PROVISION (MRSDA sec.)
c. <sup>4,5</sup> Requirements and procedures for the Authority to register declared mine land in the Register	84AL(1)(kd)
d. <sup>4</sup> Process for registering DM in the Register	124(1)(oc)(v)
e. <sup>5</sup> Matters to be entered into the Register for any land or part of land directed by the Minister to be registered	84AZZC
<b>2. Documents to be registered by the Rehabilitation Authority in the Register</b>	
a. <sup>5</sup> Records or information that relate to the land	84AZZL(3)(a)(iii)
b. <sup>5</sup> Matters to be recorded in the Register	84AZZL(3)(b)(iii)

## Appendix E: LVRRS definitions for Active and Passive Controls

Extracted from the LVRRS Regional Geotechnical Study Synopsis Report

The LVRRS Geotechnical Study found that active controls (i.e. maintaining horizontally drilled bores in the batters, groundwater depressurisation, surface water diversions, ground movement monitoring, fire suppression systems) and regulation practices cannot guarantee the prevention of major ground movements or coal fires. Passive controls – i.e., the use of materials to stabilise mine floors and batters, and cover exposed coal faces – provide a more sustainable and effective way of minimising these risks. Accordingly, the LVRRS considers that as the Latrobe Valley mines close, it will be ‘highly desirable’ to transition to passive controls.

### Active Controls

Active controls such as groundwater pumping and drainage, surface water management and extensive monitoring are required to maintain safe operating conditions at the Latrobe Valley coal mines. Nonetheless, unexpected and undesirable land movements have occurred ranging from small, continuous movement of mine walls (known as batters) to major batter failures extending beyond the mine crest. Exposed coal has caught fire a number of times, causing impacts to communities and the mines, most recently during the 2014 Hazelwood Mine Fire.

It is clear that active controls and regulation practices can’t guarantee there won’t be major ground movements or coal fires, as evidenced by these past failures and movements over the life of the Latrobe Valley mines.

### Passive Controls

Passive controls avoid the need for ongoing action in managing mine stability and fire risk. In the context of mine rehabilitation, this is achieved through landform design. Passive design elements include the use of sediments and water to stabilise mine floors and batters, and covering coal (e.g. with soil) to prevent coal ignition by external sources.

As the mines close it will be necessary to transition to passive controls to manage stability and fire risk, to ensure that post-closure risks to the community and environment are minimised and that maintenance of the rehabilitated landform is environmentally and economically sustainable.

### Active vs Passive Controls

Currently, stability of open pit voids is managed by active controls such as groundwater pumping and drainage, surface water management and extensive monitoring.

Filling the mines with sediments and water (passive control) provides a counter force to those acting on the pit floor and mine batters, thereby replacing the current active stability controls.

### Extracts from the LVRRS Regional Geotechnical Study - Factsheet

Active engineering controls such as ongoing groundwater pumps, surface water diversions and extensive monitoring systems are required to maintain safe and stable operating conditions at the Latrobe Valley coal mines.

Passive controls that avoid the need for action in managing stability and ground movement risks and coal ignition can be achieved through landform design. Passive design elements include the use of sediments and water to stabilise mine floors and batters, and covering exposed coal (e.g. with soil and/or water) to prevent coal ignition by external sources.