

# Managing residual risks in Queensland

*Discussion Paper*

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Part of the Financial Assurance  
Framework Reform package

Department of the Premier and Cabinet  
Queensland Treasury  
Department of Natural Resources, Mines and Energy  
Department of Environment and Science



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# Have your say

The Queensland Government is seeking industry and community feedback on the proposed framework for the management of residual risks which is outlined in this discussion paper.

## How to make a submission

You can provide a written submission by email or post:

Email: [Financial.assurance@treasury.qld.gov.au](mailto:Financial.assurance@treasury.qld.gov.au)

Post: Financial Assurance Review  
Queensland Treasury  
PO Box 15216  
City East Qld 4002

To help identify trends from different groups, please indicate in your submission which of the following categories best describe you:

- resource company—existing resource operation
- resource company—prospective resource operation
- landholder
- Traditional Owner or group representing the interests of Traditional Owners
- peak bodies (please specify)
- federal, state, or local government (please specify)
- community group (please specify)
- environmental group (please specify)
- financial institution (please specify)
- member of the public
- other (please specify).

Please indicate whether you would prefer any elements of your feedback to remain confidential. Submissions not marked as confidential may be published in full or quoted in public documents or may be available to applicants under the *Right to Information Act 2009*.

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**Submissions close 5.00 pm Friday 1 February 2019.**



# 1 Executive summary

Residual risks are those risks remaining at a rehabilitated resource site once surrender of the environmental authority occurs. Enhancing management of these risks is an integral part of achieving the outcomes of the Queensland Government's broader Financial Assurance Framework Reforms package.

In Queensland, the resource industry operates under environmental authorities that require them to manage risks to the environment and rehabilitate disturbance. Environmental authority holders can apply to surrender their authority following the completion of resource activities provided all conditions and requirements, including rehabilitation, have been met.

Once the application to surrender the environmental authority is approved, the resource company is generally no longer responsible for the monitoring, maintenance and rectification of the site. However, following surrender, there may be ongoing requirements to monitor aspects of the site and manage engineered structures to ensure they continue to meet their design function. There may also be a need to rectify any subsequent failures of rehabilitation that occur after the surrender was approved.

The Queensland Government therefore needs to ensure that it has sufficient funds to undertake this work should it be necessary or desirable to do so. The *Environmental Protection Act 1994* provides authority to secure such funds through a residual risk payment.

A review of Queensland's Financial Assurance Framework identified that further work was desirable to provide clarity about the processes for determining and managing these 'residual risks'. The Queensland Treasury Corporation was commissioned to consider options for residual risk management and the government has sought external technical advice on some aspects of the framework.

This residual risk discussion paper outlines the current residual risk requirements and how these sit within the broader environmental regulation framework. It also clarifies the distinction between environmental authority obligations and post-surrender management requirements.

The discussion paper provides a number of proposals and clarifications including:

- principles to be used in developing a standardised risk assessment methodology
- two options to assist with the estimation of post-surrender costs:
  - a calculation tool to be used in most circumstances
  - an expert panel to be used where the tool is not appropriate
- clarification of payment requirements
- identification of the need to record post-surrender management activities including how these could be communicated to land owners
- identification of key roles in the post-surrender management of land and funds.

The proposals would apply to all resource operators that apply to surrender an environmental authority (including all mining and petroleum and gas sites).

The Queensland Government is seeking feedback on these proposals to determine the final form of the residual risk framework and its implementation.

## 2 Introduction

The Queensland Government is responsible for protecting the state's environment and natural resources on behalf of the people of Queensland. It ensures that these resources are used sustainably; are accessed for commercial purposes on fair and reasonable terms; and that the costs associated with resource activities are not borne by the broader community.

Resource activities are regulated through a 'resource authority' under relevant legislation (*Mineral Resources Act 1989*, *Petroleum and Gas (Production and Safety) Act 2004*, *Petroleum Act 1923*, *Geothermal Energy Act 2010*, *Greenhouse Gas Storage Act 2009*) and an 'environmental authority' under the *Environmental Protection Act 1994* (EP Act).

A resource authority (e.g. a mining lease) provides resource companies with the right to enter land and undertake the approved activity. An environmental authority (EA) generally requires the holder to manage environmental impacts, minimise environmental harm that occurs while undertaking authorised resource activities and return the land to a useful purpose.

The government's intention is to ensure that resource companies maximise the amount of land that is rehabilitated to a condition that can support a sequential land use once resource activities have ceased. Companies are required to undertake rehabilitation progressively over the life of the resource activity and rehabilitate disturbed land prior to applying for the surrender of the EA.

However, even with the completion of rehabilitation to satisfactory conditions there will be some circumstances where ongoing monitoring and management is needed and in most cases there will be some level of ongoing residual risk. This is because there is always a risk that a rehabilitated area or structure may fail, requiring action to address or prevent potential environmental harm (i.e. a credible risk event).

The government is committed to ensuring the residual risks of a rehabilitated resource site are appropriately identified and managed. The EP Act has existing residual risk requirements including environmental risk assessment, proposal of residual risk costs and potential to require a payment.

Industry peak bodies and the broader community acknowledge the importance of having a payment as a pre-condition to the surrender of an EA in order to allow the government to address residual risks. However, it has been identified that the existing methodologies and processes linked to the requirement in the EP Act need further development. A lack of clarity about the residual risk requirements is considered by some to be a barrier to both transitioning sites to closure and investment in rehabilitation.

This discussion paper outlines how the government intends to assist industry to implement the existing residual risk legislative provisions and provide more transparency on the process for all stakeholders. This includes proposals which will provide clear guidance on the assessment of residual risk within the surrender framework.

## 3 Background

The residual risk reforms proposed in this discussion paper are part of a broader suite of Financial Assurance Framework reforms.

During 2016–17, the Queensland Government undertook a review of the Financial Assurance Framework for the resource sector (FA Review).

The FA Review recommended a wide ranging reform package to:

- deliver a high level of environmental performance
- protect the State’s financial interest
- not present a disincentive to investment in the resources sector
- provide an outcome that satisfies community expectations.

The FA Review recommended an alternative financial assurance system and a range of complementary measures to reduce the State’s exposure to the financial and environmental costs of disturbed land (see Figure 1). The FA Review also recommended that initiatives to improve management of the State’s rehabilitation exposure included ‘clear completion criteria and sign-off requirements, including addressing the issues of residual risks’.

In response to the review, a series of Financial Assurance Framework reforms discussion papers have been released for public consultation. These papers proposed improvements to the financial assurance system as well as identifying risks and solutions for issues such as mine rehabilitation, surety, tenure and abandoned mines. All these papers and further information on the reforms can be found on the Queensland Treasury website <[www.treasury.qld.gov.au](http://www.treasury.qld.gov.au)>.

This discussion paper is the next policy proposal to be released as part of the Financial Assurance Framework reforms package.



**Figure 1: The multiple elements in the Queensland Financial Assurance Framework reforms package**

On behalf of the Queensland Government, Queensland Treasury Corporation reviewed the State's residual risk framework (QTC Review). The QTC Review included consideration of:

- existing legislation, regulations and guidelines relevant to residual risk
- the approach to residual risk in other jurisdictions
- the State's appetite for financial and environment risk.

The QTC Review confirmed that the absence of a detailed residual risk methodology and process was an issue with the existing residual risk framework and made recommendations to:

- determine underlying principles and establish a framework for residual risk
- identify the components of the residual risk cost estimation
- identify methodologies for the cost estimation of residual risks
- determine processes for collection and administration of funds
- identify roles and governance.

For more information on the QTC Review download the Framework for Queensland's Residual Risk in the Resource Sector on the Queensland Treasury website <[www.treasury.qld.gov.au](http://www.treasury.qld.gov.au)>.

The QTC Review provides detailed recommendations and proposals in regard to the residual risk framework. The government will consider the feedback from consultation before undertaking further development on the design of the reforms.



## 4 Residual risk in context

In risk assessment and management frameworks, risks are first identified and then mitigation and management measures are applied as risk treatments and controls. The risks remaining after the application of risk treatments and controls are known as ‘residual risks’ (Figure 2).

In the context of regulating resource activities, risk treatments and controls include environmental management and rehabilitation obligations on the EA. These obligations are intended to manage the risks of causing environmental harm both during and after operations. However, even after all obligations are met some risks may remain.

Under the EP Act residual risks are considered to be those risks or costs that remain associated with a site at surrender, when the EA obligations have been met and a surrender application is likely to be approved. Residual risks may include the possibility that rehabilitation works and engineered structures may fail or the ongoing costs of monitoring and maintenance after surrender.

The residual risk requirements form part of the surrender framework, which includes all requirements, obligations and governance for the surrender of a resource EA (Appendix 1).

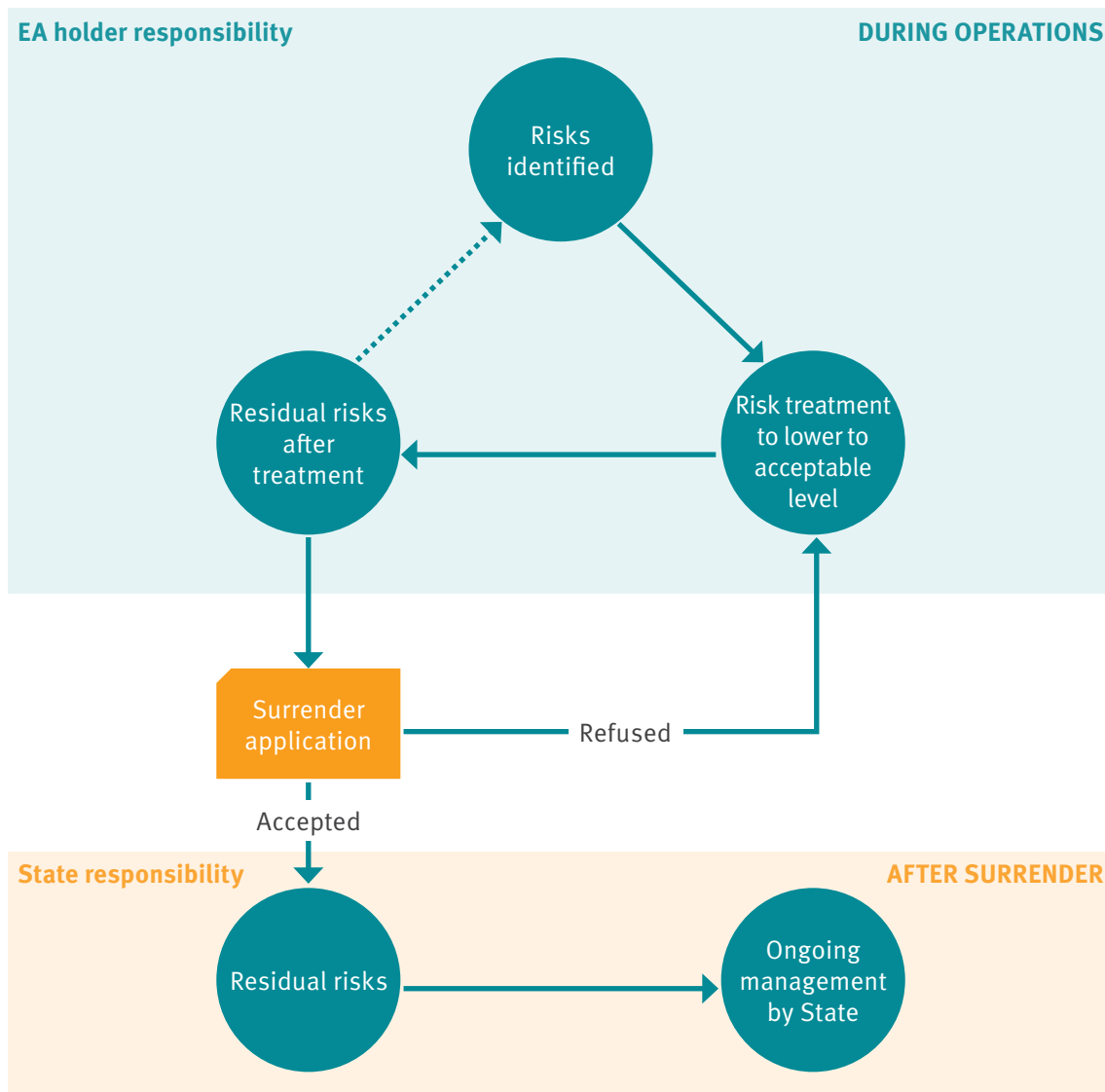


Figure 2: Risk treatments and responsibilities (before and after surrender)

The residual risk requirements become relevant once all obligations and criteria associated with the surrender framework are met. Consideration of residual risks is required for partial or full surrender applications.

The residual risk requirements do not remove or change the obligations of an EA holder to complete rehabilitation to required standards. Having the ability to surrender an EA is an important premise of the licensing framework under the EP Act. The residual risk framework enables companies to relinquish the tenure and surrender an EA whilst ensuring the State understands any remaining risks on site and is resourced to manage the risks, including possible financial consequences of future environment harm.

Environmental risks exist over the life cycle of a resource activity and beyond. Risks are required to be treated to an acceptable level at various points through a range of processes (Figure 3).

The residual risk requirements form part of a suite of tools under the EP Act that manage the risks from resource activities. These requirements aim to complement other tools and requirements under the EP Act—to support better rehabilitation and environmental outcomes, and complete the regulatory pathway from application to surrender of an EA. The residual risk requirements should not be perceived as, or act as, a barrier or disincentive to industry investment in rehabilitation.

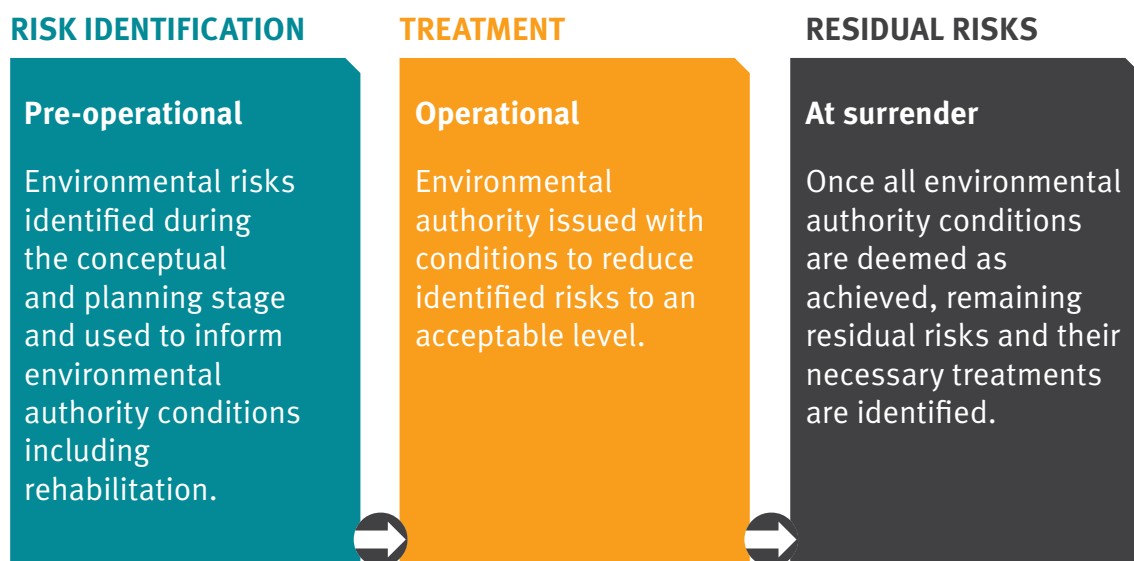
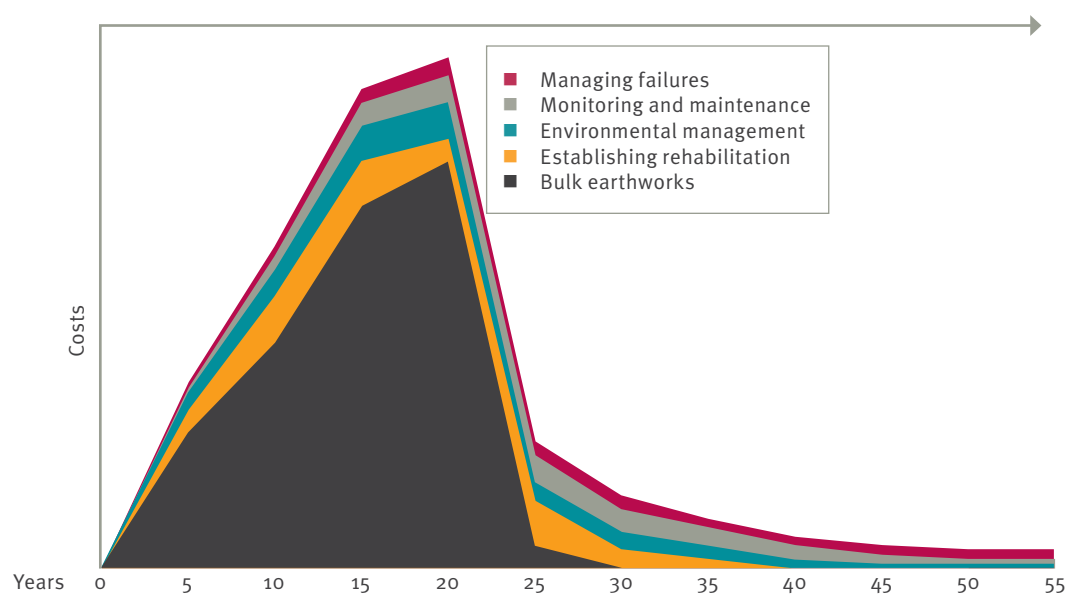


Figure 3: Environmental risk management process for resource activities



## 4.1 Residual risks as part of the risk management process

During the operational life of a resource activity, EA holders are required to meet the conditions of their EA, which generally relate to environmental management and rehabilitation. The costs associated with: achieving the approved standard of rehabilitation; monitoring it to ensure it continues to meet criteria; managing any unforeseen or unintended issues that may occur during rehabilitation; and rectifying any rehabilitation failures are all borne by the EA holder until they successfully surrender their EA.

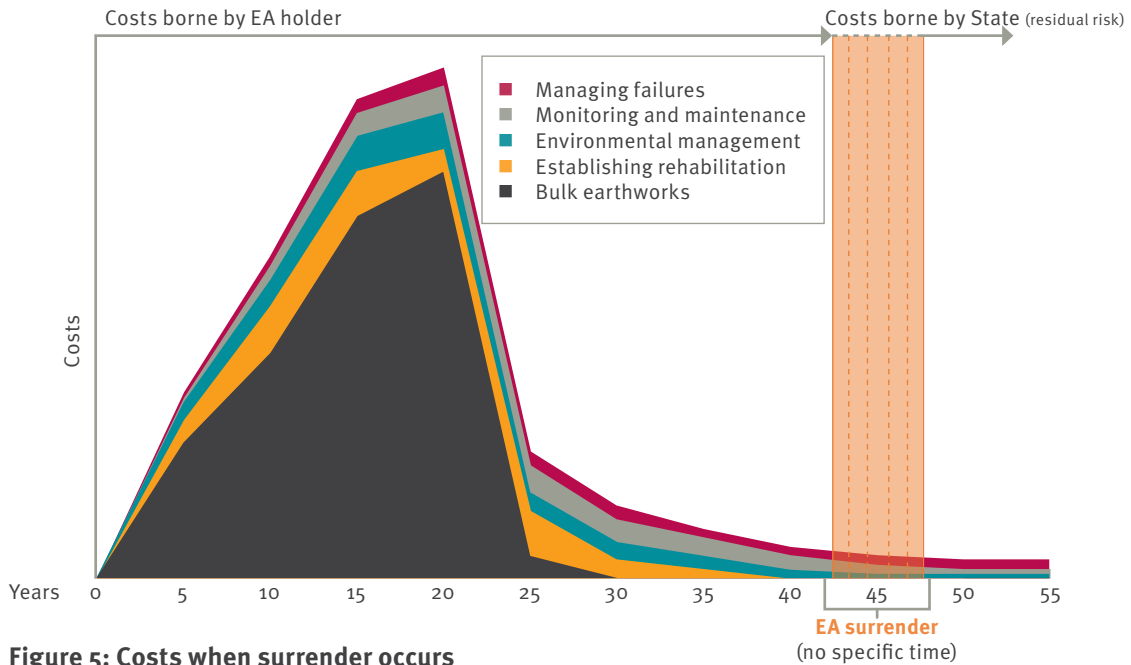


**Figure 4: Costs for risk treatment throughout the life of a resource activity project**

The types of costs that could be incurred at a resource site in order to meet EA conditions, such as rehabilitation activities, environmental management, monitoring and maintenance and rectifying rehabilitation failures are shown in a simplified graph in Figure 4. After the major rehabilitation activities have been completed (bulk earthworks and establishing rehabilitation) those costs should decrease to zero.

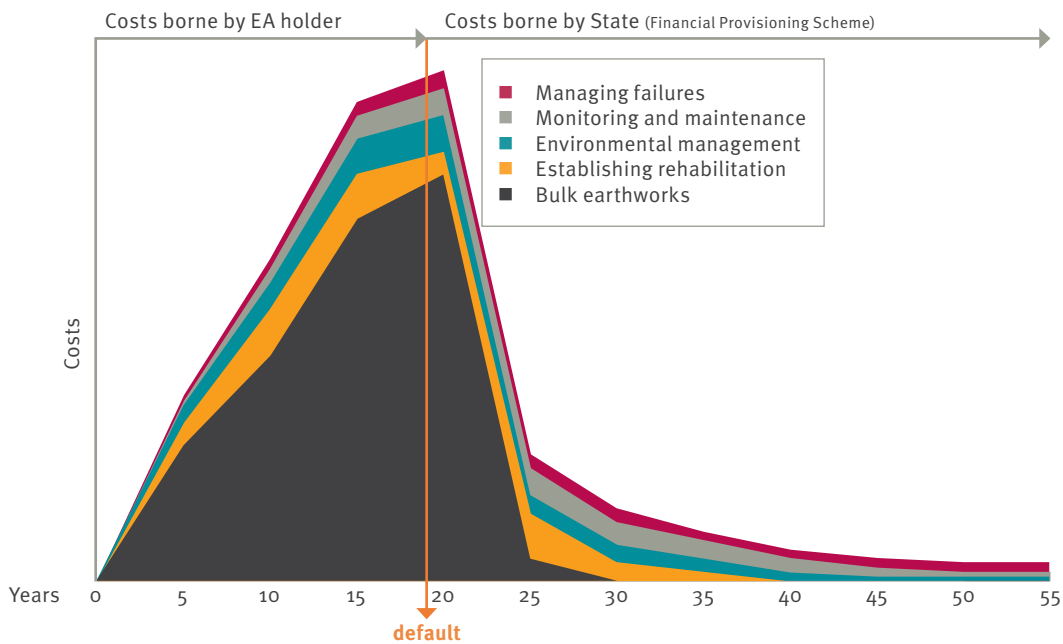
Costs relating to rehabilitation failures, monitoring and maintenance and environmental management continue, but reduce over time as rehabilitated areas are successfully maintained at the standards required. For many sites, a proportion of these costs will continue for the foreseeable future, for example due to necessary monitoring and maintenance activities. Money will also need to be available to manage potential failures as the risk of having to rectify a rehabilitation failure is difficult to eliminate entirely.

Generally it is the holder of the EA who determines the timing of a surrender application (Figure 5). Before surrender, all costs relating to rehabilitation activities, environmental management, monitoring and maintenance and rectifying rehabilitation failures are borne by the EA holder. After surrender, any costs relating to site management or rehabilitation failure that occur as a result of the resource activities undertaken at the site would be incurred by the State. The EA holder can be required to make a payment to cover these potential costs to the State at the time of surrender to ensure the community does not bear these costs.



**Figure 5: Costs when surrender occurs**

In rare circumstances, EA holders default during operations. In these cases, it is unlikely that the holder is able to pay for the activities necessary to meet the EA obligations (Figure 6). Where no surrender application is received there can be no consideration of residual risks and the State will need to cover the costs of any environmental management, monitoring and maintenance and rehabilitation needed. This highlights the importance of a robust financial assurance framework.



**Figure 6: Responsibilities for funding costs of risk treatment when default occurs**



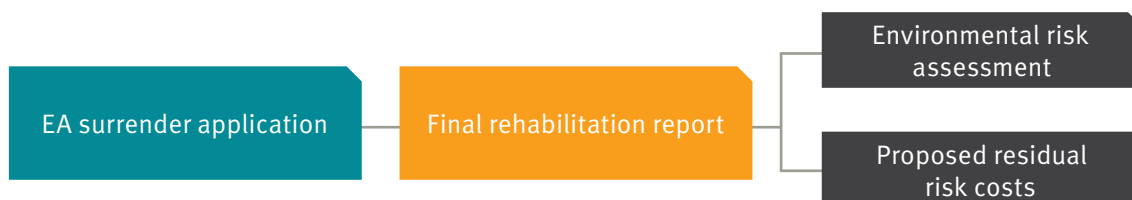
## 4.2 Residual risks and financial assurance

Under the EP Act financial assurance is required from relevant resource companies to ensure the State has the necessary funds to manage and rehabilitate the site, if the EA holder becomes insolvent and cannot meet their environmental obligations.

In February 2018, the government introduced the Mineral Resources and Energy (Financial Provisioning) Bill 2018. This Bill creates a financial provisioning scheme and amends the EP Act to replace the financial assurance framework for resource activities. The new financial provisioning scheme (the scheme) has been designed to improve the State’s ability to manage the risk of an EA holder not meeting their obligations for a site. The scheme is the appropriate tool to deal with any concerns related to default scenarios. The financial assurance framework has been discussed through other initiatives in the reform package and this paper does not discuss further scenarios of default.

## 4.3 Residual risk requirements

As part of a surrender application for an EA that has rehabilitation conditions, EA holders must submit a final rehabilitation report containing an environmental risk assessment and information on any proposed costs related to residual risks remaining at the site (Figure 7). Refer to Appendix 1 for further information on the existing residual risk requirements in the EP Act. This discussion paper does not propose changes to the intent of the surrender framework.



**Figure 7: Existing residual risk requirements**

The environmental risk assessment must be done using a methodology agreed to by the administering authority. The risk assessment is a key step before the calculation of any residual risk costs for the site. The calculation of costs could include consideration of: the present value of the future costs of likely repairs, necessary monitoring and maintenance costs and the ongoing management costs of rehabilitated land. These two processes—the risk assessment and the calculation of costs—are intended to provide an understanding of the risks of a site at surrender and enable the administering authority to determine whether a payment is required, and if so, how much.

While there is some existing guidance referring to the risk assessment and calculation methodologies in the guideline *Rehabilitation requirements for mining resource activities* (ESR/2016/1875), it is limited. It does not provide a detailed, consistent and replicable methodology and there is no similar guidance for petroleum and gas activities.

# 5 Proposed enhancements to the residual risk framework

While legislation is in place to allow the State to consider residual risks, a more detailed and structured approach would provide better clarity, transparency and certainty.

This discussion paper proposes changes to the management of residual risks by clarifying the scope and context of residual risks, proposing risk assessment and cost estimation methodologies and considering post surrender management.

This will increase transparency in residual risk related decisions, provide industry with methodologies to allow better planning and provisioning for payment requirements and protect the State from likely costs of addressing rehabilitation failure after surrender.

It is proposed that changes to processes, guidance and governance would be implemented through the existing residual risk framework. This will allow the State to have a structured approach in dealing with the management requirements and costs of a site post-surrender.

The proposals in this discussion paper will improve the residual risk framework by:

- clarifying the application of residual risk requirements
- outlining principles for the development of a standard environmental risk assessment methodology
- providing options for residual management cost estimate processes and outputs
- proposing that surrender requirements include the development of a post-surrender management plan
- outlining the functions that will be required to support post-surrender management
- suggesting how any payments received should be managed, and by who.

## 5.1 Application of residual risk requirements

This section clarifies how the residual risk requirements will apply.

### 5.1.1 Residual risk at progressive certification

Progressive certification is a process in the EP Act through which an EA holder can apply for certification of rehabilitated land during the life of the resource project (Appendix 1). The process allows for certification of a part of the area covered by the EA as having been rehabilitated to the standards required by the administering authority. This gives the EA holder certainty that the progressive rehabilitation they have undertaken has met the EA conditions and is acceptable to the administering authority. Certified rehabilitation has to be maintained at the standard certified until surrender of the EA occurs. Once an area of rehabilitation is certified, the standard to which this land is required to be rehabilitated cannot be altered.

Currently, the EP Act allows for the administering authority to require a residual risk payment to be made in relation to the progressive certification process. As outlined above, any event or cost occurring on the site before surrender, such as a failure of progressively rehabilitated structures, is the EA holder's responsibility, not the State's. Therefore the State does not need to collect any payment at progressive certification as it does not have responsibility to rectify the consequences of an event (and therefore incur any costs) until the area is surrendered.



While the legislation does not require a payment at progressive rehabilitation certification, it has been suggested that the possibility of requiring a payment is a concern to industry. Further, the removal of the consideration of residual risk at progressive certification in the legislation would provide greater certainty to industry on the requirements for this process.

*It is proposed that the residual risk requirement at progressive rehabilitation certification is removed from the legislation.*

### 5.1.2 Residual risk estimation prior to surrender

The QTC Review suggested that, while residual risk can only be quantified with a high level of certainty when the site has been fully rehabilitated, early estimation of residual management costs could allow a resource entity to take actions to manage future residual risks. QTC also recommends that the cost estimate could be undertaken from when an EA is granted, or triggered at points in time during the ongoing operation of the site, so the estimation of residual management costs could be updated throughout the life of the resource activity. The QTC Review suggested an expert panel review could be triggered in such circumstances as: there is a major amendment which changes rehabilitation outcomes, there is a change in the tenure type to site specific, or the site goes into care and maintenance.

While these events could indicate notable changes to a resource activity, concerns with potential environmental impacts, or non-compliance with obligations at an operational site can be managed through the suite of compliance and enforcement tools in the EP Act.

To help inform resource companies with assessing risk and making planning decisions throughout the life of operations it is proposed the risk assessment and calculation methodologies will be made publicly available. At various stages over the life of an activity it could be useful for companies or government to use guidance available to consider the potential residual risks of a site. These could align with the possible 'trigger points' identified in the QTC Review.

It is not proposed to introduce a compulsory requirement to estimate residual risk prior to the surrender process.

It is proposed that the residual risk requirement remains part of the surrender framework, and is only relevant in the context of an EA surrender process. This includes any estimation of costs.

#### Have your say

1. Should it only be mandatory to calculate the residual risk requirement at the point of EA surrender?

## 5.2 Environmental risk assessment and residual management cost estimate methodologies

This section outlines proposals for the environmental risk assessment (risk assessment) and residual management cost estimate methodologies (cost estimate methodology).

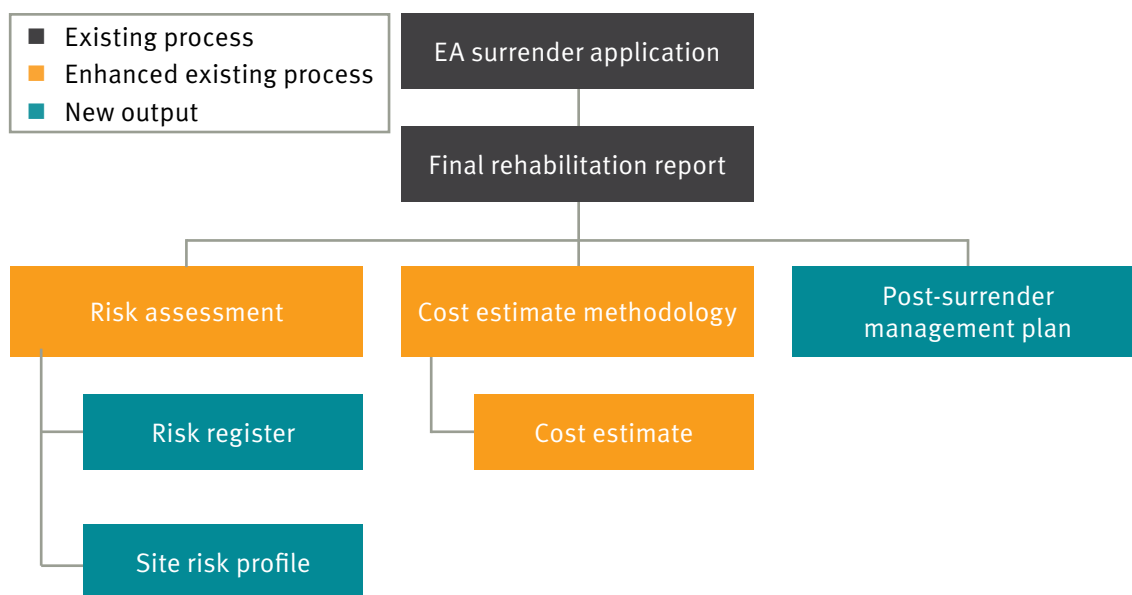
The term ‘residual risk costs’ can cause some confusion as the costs include known and certain monitoring and management costs, not just costs associated with risk events. Therefore it is proposed the costs associated with residual risks post-surrender are called ‘residual management costs’.

A risk assessment and cost estimate methodology would remain a requirement for all resource EAs with rehabilitation conditions applying for an EA surrender.

The proposed process enhancements in the following sections aim to improve guidance on:

- the risk assessment and cost estimate methodology
- how residual management costs are calculated
- the inputs and outputs of the process
- the type of information to be publicly available.

Figure 8 gives an overview of where these proposals would fit into the current processes.



**Figure 8: Proposed risk environmental assessment and cost estimation process**

The government engaged an independent consultant to provide technical advice and assist with gaining an understanding of the underlying principles of appropriate risk assessment and cost estimate methodologies. This advice is referred to as ‘technical advice’ in this document. The key findings of the consultant are represented in this document and in the QTC Review.





### 5.2.1 Proposed environmental risk assessment methodology

The purpose of the environmental risk assessment process is to understand the remaining risks and monitoring and management requirements at the site and assist in assessing if the rehabilitation obligations of the corresponding EA have been met as part of deciding a surrender application.

The risk assessment should inform the surrender decision by providing an overview of all proposed credible risk events and ongoing maintenance and monitoring needs that may occur post-surrender. The risk assessment is also an important step towards understanding the residual risks and ongoing management requirements of a site and would be used for the cost estimate of residual management costs.

Developing clear and replicable processes and requirements benefits stakeholders by giving certainty on their surrender assessment requirements. Having access to a standard suite of information for each assessment is also an efficient way to assist the administering authority to understand the residual risks on any given site.

It would be appropriate for a risk assessment process to align with the broadly applied and accepted Australian and New Zealand risk management principles (AS/NZ 31000:2009); risk identification, analysis, evaluation and treatment.

The risk identification process would begin with an inventory of post-surrender features and facilities as well as other areas disturbed during resource development activities that have been rehabilitated. The residual risks and ongoing management requirements for each of the areas would then be assessed by considering risk factors such as geotechnical risks, geochemical risks, spontaneous combustion risks and revegetation risks.

The identification of risks would use the inventory to identify credible risk events with a plausible likelihood of occurrence and reasonable magnitude of consequences. Risk events that are either extremely improbable or are unlikely to result in consequences of material significance can be noted, but should not be the main focus.

One way of quantifying ‘consequence’ is to estimate the cost of remediating the environmental harm as a result of the credible risk event. An alternative approach would be to use a qualitative or semi-qualitative approach that uses categories for the severity of consequences.

Monitoring and maintenance activities play an important role in preventing and/or pre-empting risk events. A low-cost site maintenance activity may be sufficient to prevent the occurrence of a high-cost risk event. Maintenance and monitoring activities that may be required could include:

- routine geotechnical inspections and monitoring (e.g. tailing storage embankment)
- routine water quality monitoring (e.g. groundwater monitoring around waste rock dumps)
- land management (e.g. erosion control on tailing storage facility embankment)
- vegetation maintenance and monitoring (e.g. to maintain cover system free of trees).

Table 1 describes how the Australian risk management principles are expected to align with the risk assessment for one potential feature.

**Table 1: Risk management principles and assessment**

Risk management principles	Risk assessment for residual risks of a site	Example for residual management
<i>Identify risk</i> —sources of risk, events and their causes	Identify credible risks and ongoing costs including: <ul style="list-style-type: none"> <li>• ongoing monitoring/ maintenance required</li> <li>• credible risk events that may occur.</li> </ul>	Identifying a credible risk that a tailings storage facility (TSF) may leak leading to top soil discharge of contaminated water.
<i>Analyse risk</i> —causes of risk, their consequences and likelihood	<ul style="list-style-type: none"> <li>• Determine the factors that influence likelihood and consequence of the credible risk events.</li> <li>• Establish categories to rate the likelihood of a credible risk event.</li> <li>• Develop a consequence table based on the costs related to managing the risk (i.e. clean-up and reinstating rehabilitation).</li> </ul>	Appointing the likelihood of the dam TSF cracking, leading to erosion by analysing climatic, engineering, geological and other factors that may influence the likelihood. Assigning consequences of the TSF cracking in terms of clean-up and reinstatement activities. Consequences may be quantitative costs of these activities or semi-quantitative categories.
<i>Evaluate risk</i> —assign risk treatment strategies to analyse outcomes	Propose potential risk treatments directly related to the outcomes of the risk analysis.	Periodically visit the site to monitor the condition of the TSF.
<i>Treat risk</i> —treat risks to lower to an acceptable level	In a scenario where the surrender application is approved, the risk treatment would be undertaken after surrender by the entity responsible for the post-surrender management of the site.	The State will make a decision informed by the post-surrender management plan to treat the risks once they occur.

The risk assessment will occur at the time of the EA surrender application as per the risk assessment methodology. Any risk treatment required for the identified risks (e.g. monitoring, maintenance activities, rectification activities) would be undertaken after surrender, once the application is approved. As such, risk treatments are identified but not undertaken by the EA holder. It is expected that most of the risk treatment strategy would be included in a post-surrender management plan, which is further detailed in section 5.4.1. The risk assessment could also inform a surrender refusal or the issuing of a rehabilitation notice.

It is proposed that guidance on the risk assessment methodology include the following aspects:

- identification of post-rehabilitation features and structures on a resource site that require ongoing management (i.e. non-active intervention) or may be subject to credible risk events



- identification of credible risk events and ongoing management needs of a site
- description of methodology to attribute likelihoods to credible risk events, including description of factors and/or variables that influence likelihood
- determination of scale of consequence related to actions to reinstate—and clean-up after the occurrence of the credible risk event
- assessment of magnitude of ongoing management costs and acceptable methodology for calculation of costs
- template and examples on what is expected in the risk register (see below)
- methodology for the analysis of risks, likelihoods and consequence to produce a risk profile of the site (see below)
- details of inputs necessary to conduct the risk assessment.

The risk assessment methodology should be sufficiently rigorous to be replicated by the EA holder and the administering authority. Although the risk assessment is only expected to be required at surrender, the methodology would be available to be used at any time during the life of a resource activity to inform planning decisions. The methodology will be made available to the public through guidance material. Figure 9 summarises the process, inputs and outputs.



**Figure 9: Proposed environmental assessment components**

In order to document the credible risk events, including the likelihood of the risk events occurring and the magnitude of cost consequence, it is proposed a ‘risk register’ would be required to be developed as part of the risk assessment to provide a summary of the credible risk events on site.

It is also proposed that information is needed on the overall risk status of a site. A site ‘risk profile’ could be developed as part of the risk assessment to account for any qualitative risks and to be able to assess the range of risks and consequences present at a site. The risk profile may also allow comparison with other sites, building the knowledge of residual risk and ongoing costs within the Queensland resource sector.

*It is proposed that the risk assessment be accompanied by a risk register and site risk profile as part of the surrender application.*

These two outputs would also be valuable in evaluating the effectiveness of the residual risk framework and reassessing and calibrating the variables considered in determining the cost estimate (section 5.2.2).

## Have your say

2. Should risk profiles from former resource sites be made publicly available?

### 5.2.2 Residual management cost estimate methodologies

Adopting a methodology to determine a cost estimate that is clear and robust will increase transparency and accuracy in residual risk related decisions. Like the risk assessment, it is proposed the cost estimate will be a requirement for all resource EAs with rehabilitation conditions where the holder applies for surrender of their EA. It is expected that the cost estimate would be informed by the risk assessment.

The use and management of rehabilitated land post-surrender will impact on both the probability and severity of rehabilitation failure, and therefore the costs associated with re-instating, maintaining or repairing rehabilitated areas.

Under the surrender framework, EA holders are required to provide a final rehabilitation report which includes a proposal outlining the cost of managing any residual risks. These costs will have been based on assumptions about what the land use will be and how the land could be managed to prevent or minimise failures. It is important that these assumptions are documented, justified and assessed to ensure the amount calculated is appropriate for the site's needs, and covers all the residual management activities required.

Most land uses require some level of ongoing management to achieve or maintain sustainable utilisation and stability. Management activities could involve the use of fire to reduce fuel build up and/or encourage seed germination, weed eradication or feral animal control programs, or managing the impact of grazing through appropriate stocking numbers and rotation.

Such management also applies to rehabilitated land. However rehabilitated land may require other, additional management actions that are considered beyond 'normal' management actions. Rehabilitated land may require periodic monitoring, for example to ensure that waste encapsulation systems have not degraded. The cost of activities beyond 'normal' is what will be included in determining the residual management costs.

Traditionally not all land has been managed to good practice standards. Like other land, if not appropriately managed, rehabilitated land may fail.

It is not intended that an EA holder will be required to provide funds to:

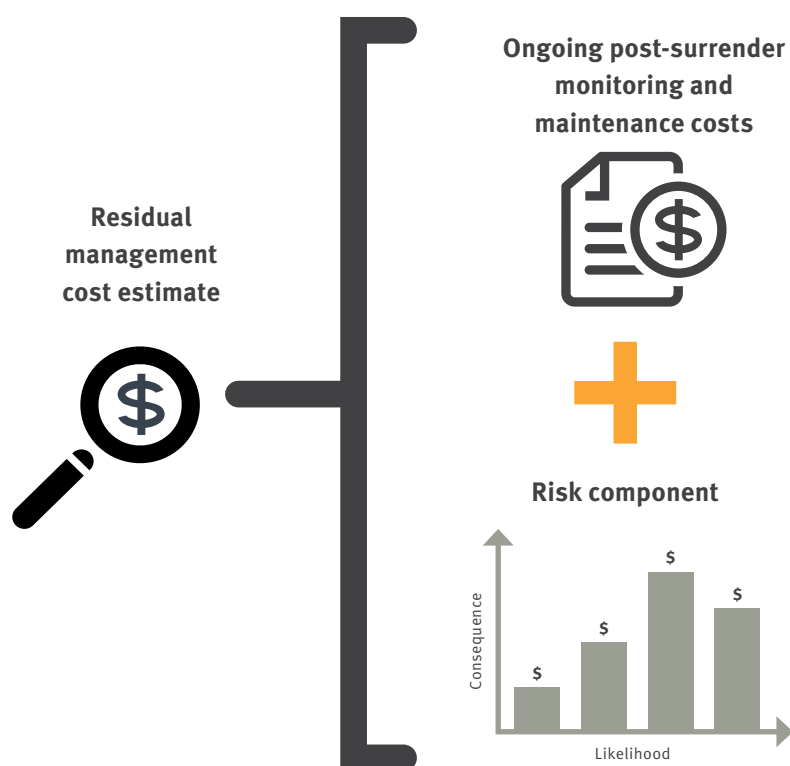
- cover 'normal' management costs that would be incurred if the resource activity disturbance had not taken place, or
- be used to address 'inappropriate' site management practices such as when another entity is utilising the post-surrender land use and they do, or fail to do, something that causes the rehabilitation to fail.



It is proposed that the cost estimate methodologies should not take into account those costs as part of the residual management costs.

The proposed cost estimation methodologies would include consideration of two components (see Figure 10):

- ongoing costs associated with site maintenance and monitoring.
- residual risk costs associated with credible risk events that may occur post-surrender.



**Figure 10: Components of the residual management cost estimate**

It has been suggested that ongoing monitoring and maintenance costs are relatively easy to predict and cost. However the risk component requires the identification of credible risk events and an estimation of their likelihood and their consequence (cost to remediate). The estimation of costs for the risk component will not simply be the sum of all amounts determined for the consequence if a credible risk event happens. It is also necessary to consider the likelihood of the event occurring and the cumulative effect of all the credible risk events occurring. Modelling or an algorithm would need to be used to estimate the amount of money necessary to deal with likely consequences of multiple credible risk events at the site, but not necessarily occurring all at once.

Development of a residual management cost calculation tool would allow an efficient and convenient calculation of residual management costs. Depending on the ability of the calculation tool to take into account the possible range of risks, some sites may be required to use a technical expert process to estimate residual management costs. This proposal aligns with the QTC Review which suggests using a 'universal approach', such as a calculator, and an expert panel process to determine potential residual management costs.

### 5.2.2.1 Calculation tool

Technical advice has been sought in collaboration with QTC to understand the underlying principles of a 'simple' way of calculating residual risk on site that satisfies the intent of the reform.

This advice suggests that some site features are considered more likely to result in residual management costs. Below is a list with examples of types of features that could be considered in determining the cost estimate:

- tailings storage facilities
- waste rock dumps
- voids (surface and underground)
- major water management and holding structures.

Other factors have been identified as contributors to the residual management costs at resource development sites. These include:

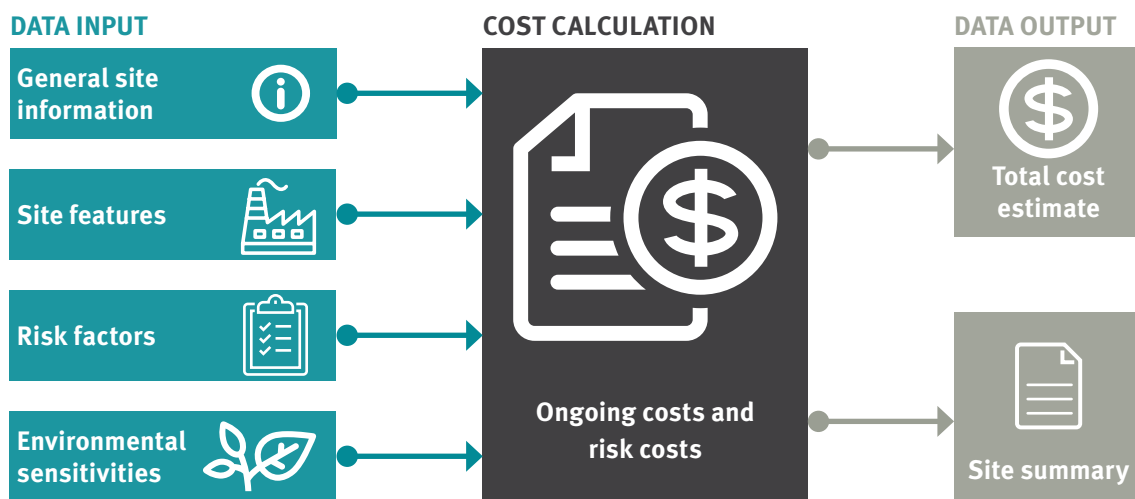
- presence of sulphites or other contaminants
- potential interaction with areas of environmental sensitivity and sensitive receptors
- location of the site.

Technical advice has indicated having a pre-determined list of credible risk events would be a reasonable approach since it would streamline the process and allow for consistency.

Credible risk events would generally be related to geotechnical, geochemical, or revegetation failures associated with post-surrender landforms. These would be those associated with rectifying failures of site features, for example, subsidence associated with an underground void, spontaneous combustion of a waste rock dump or seepage from a tailings storage facility. The technical advice also demonstrated that cost estimates could vary according to the nature of the resource development activity with broad distinctions evident between coal, minerals, and petroleum and gas projects.

It is proposed that the cost estimate methodology for the calculation tool will involve processes of data input, cost calculation and data output shown in Figure 11 and detailed below:

1. Data input by the EA holder—this may include general site information such as location, the number, type and characteristics of features such as tailing storage facilities, presence of risk factors such as sulphides and presence of areas of environmental sensitivity. Based on these inputs a number of other factors could be automatically generated such as a factor of remoteness related to proximity of nearest major population centre.
2. Cost calculation—the calculation tool would generate ongoing costs and risk costs (see Figure 10). Ongoing costs would be near certain costs associated with post-surrender site maintenance and monitoring. For risk costs, it would be a cost estimate based on credible risk events of features and structures identified on site. These credible risk events are assigned a likelihood and consequence (cost) which results in a 'risk quotient'. All events with a risk quotient above a certain level are assumed to occur which is reflected in the cost calculation.
3. Data output—the result of the calculation tool would be a summary of key site information and total residual management cost estimate (broken down into ongoing monitoring and maintenance costs and residual risk costs associated with credible risk events).



**Figure 11: Proposed calculation tool inputs and outputs**

Technical advice also suggests that a calculation tool with pre-determined values and options, rather than an open-ended tool where the user can input all variables, is preferable. The initial calculation tool is recommended to be based on a standard list of site structures and features to choose from. Based on these, the tool would automatically identify ongoing management and risk costs. A tool that has a set structure and known variables could also be used to provide a consistent set of outputs.

Therefore in considering the development of a simple calculation tool, the technical advice indicated that an Excel spreadsheet with multiple tabs for inputs could be appropriate. It has been advised that this approach to calculating costs is more appropriate than a written methodology. This is because it provides a consistent approach, does not rely on the user to generate risk, rates or costings and is more easily verifiable.

As the residual risk requirements are considered in perpetuity, the residual management costs should be calculated using accounting principles, for example considering potential costs over a 100 year timeframe and then discounting this amount to net present value. As discussed above, costs calculated are proposed to be based on those directly related to the resource activity, not those that would occur regardless of past resource activity use (i.e. 'normal' management of the land).

### Have your say

3. Do you agree with the general principles proposed for developing a calculation tool? For example, basing it on site features, potential risk factors, using credible risk events, etc.

### 5.2.2.2 Expert panels

The intent is to streamline processes and develop risk assessment and cost estimation processes that can be used for most resource sites, regardless of the level of complexity of the assessment. However a more detailed and site-specific approach may, at times, be required to assess the remaining risks of a site and the residual management costs. In these cases it is proposed that an expert panel be utilised to assist with the risk assessment and cost estimation. This is in alignment with the QTC Review that suggests an alternative approach for the assessment and calculation of residual risks would be the use of an expert panel.

Note: The government acknowledges that QTC's Review provides detailed recommendations and proposals in regard to the expert panel process. The government will consider the feedback from consultation before undertaking further development on the design of the expert panel process.

An expert panel is likely to be required when:

- a site is particularly complex
- the residual management costs are likely to be of high value
- a cost estimate decision cannot be agreed
- the risk assessment methodology or cost estimate cannot adequately consider the risks on the site
- the government considers an expert panel is valuable to support community confidence in the framework.

In line with the QTC Review recommendations, the government proposes that the expert panel members would include technical consultants with relevant experience, qualifications and knowledge on areas relevant to the site being assessed, and the resource entity. Additionally, it would be valuable to include a representative from the government unit that will accept responsibility for management after the surrender is approved. During this process relevant stakeholders would have a role in contributing to the process.

The objective of the expert panel process would be to identify credible risk events, and determine their likelihood and their consequence (cost). The QTC Review also recommended a project manager role to coordinate the expert panel and a financial risk advisor to model the information on credible risk events to develop a residual management cost.

An expert panel could be used by the administering authority or initiated by the resource company. The intent is that the expert panel process would produce similar outputs to the risk assessment and cost estimation tool methodology (i.e. a risk register, risk profile and residual management cost estimate).

An expert panel would incur costs relating to governance, secretariat and reporting costs. As these are costs are part of the holder's surrender application, it is expected that the costs will be borne by the EA holder. QTC advises that these costs would be dependent on the size and duration of the expert panel which would reflect the complexity or 'riskiness' of the site and would cost upwards of \$100,000 in most cases. The QTC Review suggested that the risk assessment process including the expert panel and risk modelling could reasonably take a number of months, subject to the site assessed and the availability of experts.





Given the financial and time burden associated with an expert panel process, it is the government's view that the derived benefits need to be considered against the costs involved. However, a resource entity may voluntarily request the use of an expert panel at any time.

To ensure the accuracy of the expert panel, it is expected it will be undertaken close to the time of applying for surrender.

Based on feedback from this paper, further guidance and refinement will be developed on:

- criteria or circumstances for the use of an expert panel
- composition of an expert panel
- terms of reference of the expert panel
- potential cost and duration of the expert panel.

### Have your say

4. Is a semi-quantitative methodology for quantifying consequence adequate?
5. Under what circumstances could an expert panel be useful?
6. What sites should be considered 'high risk'?
7. What is the most appropriate way to estimate residual risk cost at a 'high risk' site?
8. Are there alternative ways to get expert advice to determine residual risk costs other than a calculation tool or an expert panel process?
9. Who should be on the expert panel?

## 5.3 Payment requirements

Once the EA holder has undertaken the risk assessment and estimated its costs, the State evaluates the outcome, and issues a request for payment—this is proposed to be called the 'surrender payment'. It is proposed this is a once-off payment that reflects the site's total residual management costs.

The QTC Review recommended that the payment be received in cash and that it reflect the entirety of the cost estimate. This means the residual management costs calculated would equal the payment at surrender.

There may be cases where collecting a payment is not cost effective, for example where the administration cost is likely to be more than the payment. The QTC Review suggested that a minimum set threshold, below which the State would collect a notional payment, may be appropriate. Alternatively the minimum threshold could determine the minimum amount below which the State would not collect the payment. Setting a threshold, rather than considering individual sites on an ad hoc basis, would provide more certainty to industry and improve efficiency in assessment of surrenders.

## Have your say

10. Should a minimum threshold for requiring a surrender payment be implemented?
11. Are there any circumstances where the payment requirement should be a different amount than the cost estimate?
12. If a threshold is implemented, how should the State fund any activities required at sites that fall under the minimal threshold?

## 5.4 Post-surrender land management

### 5.4.1 Recording post-surrender land management requirements

Ensuring that post-surrender land management requirements are recorded and available to relevant stakeholders is critical to ensure rehabilitated land is managed appropriately to minimise risk.

Further, the post-surrender land management requirements need to be recorded in a way that gives certainty and clarity on the required actions and the roles and responsibilities for those actions. It is also important to clarify the types of activities that would be expected be undertaken as ‘normal’ management activities in order to minimise the risk of failure and to avoid future conflict over who should pay if land is improperly managed.

As the longevity of rehabilitation may depend on ongoing monitoring and management of the land, having the ability to ensure the post-surrender requirements associated with the land are undertaken is important. There could be a need to limit activities in some areas to minimise the risk of an area failing due to the land being used in a way which was not accounted for. The risk of not restricting activities is that the probability and severity of credible events is likely to increase, possibly exposing the community to greater impacts and the State to unfunded costs.

Prospective purchasers of property where a resource activity has taken place should be aware of potential restrictions on how they may undertake activities, due to management measures required to address residual risks at the site after surrender.

The government is considering the best way to achieve this without unduly limiting land holders rights and activities, and ensuring the existence of management requirements is triggered with any potential change in land ownership.

It is proposed that management requirements that need to endure beyond the EA surrender should remain associated with the land and be accessible to current and future land holders.

There are a number of ways in which this could be achieved. One option would be to have the plan available in the public register similar to other plans under the EP Act. An alternative approach is to treat the post-surrender management plan in a similar way to the conduct and compensation agreements under the *Mineral and Energy Resources (Common Provisions) Act 2014* (MERC Act).

The EP Act contains requirements that land be included on a publicly accessible environment management register or a contaminated land register if a ‘notifiable activity’ has occurred. Inclusions on this register and associated site management plans deal largely with ongoing



contamination issues and contaminant management. However while these provisions may be applicable to some former resource sites there is currently no mechanism whereby a subsequent land owner is made aware of particular management issues that are not associated directly with contamination.

The other process is under the MERC Act, and covers conduct and compensation agreements between an eligible claimant and a resource authority holder applicable during operations. These agreements are attached to the title of land for the life of the agreement and bind successive landholders. These agreements are confidential and not available for public examination. A significant number of resource sites are required to enter into these agreements so the concept and use of this type of mechanism would be familiar to many resource operators. However these arrangements end when the tenure and EA are surrendered.

Beyond any statutory requirements relating to a site management plan for contaminated land, the government currently has limited ability to apply specific ongoing management requirements in relation to a resource site after EA surrender. Therefore it is considered that, although these processes could be used to provide some guidance on how requirements and responsibilities associated with the use of the land can be documented and clarified, neither of them capture all aspects necessary for the post-management of rehabilitated sites.

*It is proposed that EA holders be required to develop a post-surrender management plan as part of their surrender application.*

The post-surrender management plan would be developed considering the final rehabilitation report and reflect the outcomes of the risk assessment and cost estimation. The plan would need to identify any management requirements that are additional to the 'normal' management requirements of that type of land. It is proposed the plan should clearly describe the post-surrender land uses and a risk mitigation strategy to enable those uses to be realised and sustainable.

The plan could include:

- information on credible risk events identified in the environmental risk assessment component of the final rehabilitation report
- information for future landholders in terms of what activities (and the intensity of those activities) may affect rehabilitation success, such as livestock carrying capacity
- assumptions made in relation to credible risk events and the limitations of the land.

These three aspects will:

- inform future users of the land of the identified credible risks remaining on the land
- provide guidance on the appropriate management practices to ensure the credible risks are not realised
- provide both the State and the future users of the land clear management guidelines, such as carrying capacity, that may help determine liability should a credible risk event occur.

The post-surrender management plan may also need to include:

- frequency, extent and type of monitoring and maintenance activities
- the agreed conduct provisions that previously applied prior to EA surrender

- relevant compensation agreements for access to do works, and for areas that no longer are able to be used (either temporarily or for longer periods).

This plan would provide additional information important for future dispersal of residual risk funds. For example, these documents should set baseline expectations for land management that could inform decisions on the amount, frequency and when funds are withdrawn.

### Land access

It is in the interest of the landholder that works necessary to minimise the risk that a failure will occur are undertaken. Post-surrender, depending on who has responsibility for the tasks, the State or other third parties may need to enter land to undertake monitoring and maintenance or works to prevent or address rehabilitation failure, environmental harm or contaminant release.

Land access could be achieved through similar arrangements to the abandoned mines land access framework under the *Mineral Resources Act 1989*. This type of access framework would ensure that landowners are notified of the proposed entry, the activities that will be undertaken, for what purpose, and the time and length of entry.

### Have your say

13. Is a post-surrender management plan an appropriate instrument to ensure appropriate land management after surrender?
14. What should the plan cover?
15. What is the best way to ensure that activity limits on rehabilitated land are maintained?
16. What is the best way to ensure that rehabilitation standards are maintained and risks mitigated post-surrender?

#### 5.4.2 Post-surrender land administration

Note: The government acknowledges that QTC's Review provides detailed recommendations and proposals in regards to post-surrender land administration. The government will consider the feedback from consultation before undertaking further development on the post-surrender land administration arrangements.

Once a payment at surrender is taken, an entity will need to take responsibility for the administration of the site and the post-surrender management activities required to be undertaken on behalf of the State.

Currently there are a few areas of government that undertake works to do with rehabilitation and management of abandoned and surrendered resource sites. However there is no single government entity that has the capacity, expertise or legislative remit to undertake repairs on failed rehabilitation as well as monitor and maintain a portfolio of sites across Queensland.



Consolidating these functions into a single mined land management entity could have a number of benefits including clear roles and responsibilities, increased efficiency of managing the portfolio of sites and associated activities such as contracting, program management and budgeting.

It is possible that due to the breadth of tasks, the decisions required and the level of program management necessary a new government role may need to be created.

It is proposed that the types of functions this role would be responsible for could include:

- implementing monitoring and maintenance requirements
- assessing and determining rehabilitation reinstatement works
- inputs to the expert panel process
- procuring, engaging and managing contractors to undertake works
- applying for and managing funds in relation to residual risks
- annual reporting on works undertaken, funds accessed, and collecting the results of monitoring and maintenance
- contributing to reviews of the cost estimation and the risk assessment methodologies
- ensuring that the risks on surrendered sites are being adequately managed on behalf of the government.

## 5.5 Post-surrender fund administration

Funds associated with managing residual risks will need to be available to the State at surrender. The post-surrender management plan should inform planning in relation to any monitoring and maintenance activities and identifying any insurable risks.

Any surrender payments made would need to be held and managed by the State with the possibility of regular withdrawal being required. The State would also need to have funds available to administer the site while monitoring and maintenance activities are undertaken.

Where risks are identified during the risk assessment but are assessed as being very low or remote, insurance options may be used to protect the State. Where an insurance option isn't available, or has not been used, the State would incur costs to manage those risks.

Should an incident occur, the State would be required to undertake the necessary actions to prevent or remedy any environmental harm to the extent that the incident was caused or influenced or related to activities or actions from the former resource activity—whether or not that event was identified during the determination of the surrender payment.

The QTC Review recommends that all surrender payments are pooled to help manage the collective risk to the State. The QTC Review also recommends that due to the similarities in function, the funds received through a surrender payment should be managed by the same entity that will administer the financial provisioning scheme under the reforms introduced by the Mineral and Energy Resources (Financial Provisioning) Scheme Bill 2018. Although this would mean an expansion of the scheme manager's functions this approach is desirable because it uses the existing scheme fund framework, and a qualified and experienced entity.

The government supports the concept of both of these recommendations as they will assist with managing the State's risk.

## Have your say

17. Should the entity that will administer the financial provisioning scheme under the reforms introduced by the Mineral and Energy Resources (Financial Provisioning) Bill 2018 also administer funds associated with residual risk?
18. Should funds be pooled?



## 6 Implementation

The residual risk reforms are expected to be implemented in 2019.

To support a successful implementation, it is expected that operational policy guidelines and forms will be available from commencement of the residual risk reforms. Guidelines are likely to include details and requirements on:

- the environmental residual risk assessment methodology
- the methodology and tool for the residual management cost estimation
- post-surrender land management, including guidance in developing a post-surrender management plan
- the surrender payment processes.

Fully implementing the residual risk framework will also require establishing several functions and further development of key processes including:

- an entity to manage post-surrender land
- a process for the administration of funds
- the design of the expert panel process
- governance to oversee the residual risk framework.

### 6.1 Development of the methodologies

#### **Risk assessment methodology and calculation tool**

As discussed, the proposed risk assessment and calculation methodologies are based on technical advice and an indicative tool. If these proposals are accepted, further engagement and consultation would be required to develop the risk assessment and calculation tool methodology and associated guidance material.

Once the general principles of the tool have been considered by stakeholders, and further work undertaken to incorporate comments, it is expected that there will be a comprehensive process of testing, validation and trials to test the calculation. Key stakeholders will be involved in this process. These stakeholders would include the State Actuary and the scheme manager of the financial provisioning scheme.

The calculation tool will also be verified using real examples when possible and findings for further improvement will be incorporated. The results of expert panel processes could also be used to refine the tool.

It is expected that the tool will be available at the commencement of the residual risk reforms.

#### **Establishing the expert panel**

The proposal of the expert panel process was based on advice from QTC. The results of the consultation process on this discussion paper will be used to determine the support for this type of process and the possible scope and design of the process. Further development of the expert panel concept will continue with stakeholder input, and mock trials will likely be needed to test the process and its outputs.

Identifying and establishing the process for calling up the individual members of an expert panel, including the roles outside of subject matter experts is necessary prior to the residual risk framework coming into effect. Identifying where the members of the panel will be drawn from

is critical to ensure that the expert panels are available, cost effective, and composed of the expertise required. The role, if any, of the administering authority as the State representative on the expert panel is also important and should be considered.

An evaluation and feedback process should also be designed to ensure a strong link between the administering authority and an expert panel project manager so that the findings of the panel can be easily incorporated into improvements into the calculation tool and to provide a level of governance over the function of the expert panel.

## 6.2 Governance over the residual risk framework

Providing a high level of governance over the residual risk framework is critical to ensure that:

- rehabilitation outcomes are maintained and the risk of environmental impacts is minimised
- funds are appropriately collected and dispersed
- all stakeholders have confidence in the framework.

It is proposed that this will be achieved by:

- utilising the same entity to manage funds that is proposed to administrate the financial provisioning scheme under the reforms introduced by the Mineral and Energy Resources (Financial Provisioning) Scheme Bill 2018
- requiring the entity that will administer post-surrender land management to provide annual reports on expenditure and works undertaken
- including information on residual risk incomings (payments) and outgoings (administrative costs, cost of planned and unplanned work undertaken etc) as part of all annual and actuarial reviews of the scheme administration
- having post-surrender management plans available for current and future landholders
- selecting appropriate expert panel compositions and ensuring transparency in their operation and outcomes
- designing an evaluation and feedback process in order to continually improve the veracity of the calculation tool and maximise the use of expert panel processes and outcomes to test, calibrate, adjust and expand all possible aspects of the tool functioning.

### Have your say

19. Do you believe the governance proposed over the residual risk framework is sufficient?
20. What other elements could be included?





### 6.3 Expected legislative changes

The current EP Act already includes provisions that are capable of accommodating most of the proposals and potential changes. If the proposals in this paper are supported, legislative amendments will be necessary for removing the residual risk requirements from progressive certifications, and for clarifying any new requirements such as risk register and site profile. Dependant on policy decisions made as a result of consultation on this paper there may be need for legislative amendments in relation to post-surrender management plans, establishing the entity tasked with managing post-surrender land, and the entity managing funds. The remaining proposals may be able to be delivered by providing further guidance. At this stage changes to the EP Act are expected to be minimal.

### 6.4 Transitional arrangements

There should not be any need for transitional arrangements for current operators. Surrenders can continue to be progressed under the current framework and existing guidance while the new requirements are being finalised. On the day of commencement all relevant resource activities that apply for a surrender of their EA will be subject to the new requirements. Resource activity EAs already surrendered would have already discharged the former EA holder from any ongoing liability and this reform does not propose any retrospectivity in relation to these former holders.

## 7 Conclusion

The Queensland Government is committed to developing a robust and practical residual risk framework that ensures the State is not exposed to financial liabilities associated with former resource activity sites, provides a clear pathway for resource EA holders to surrender their EA and does not discourage investment in the resource sector within the State.

Comments from all interested persons are invited on the proposals outlined in this paper. There are questions under each element to help guide your responses and provide targeted feedback. Submissions received will be used to guide the implementation of the proposed policy as well as the detailed design of the process and outputs.



# Appendix 1

## Residual risk in the current EP Act

To carry out a resource activity in Queensland, the operator of the activity must rehabilitate disturbed land in a way that is consistent with the rehabilitation hierarchy and four overarching rehabilitation goals (safe, stable, non-polluting and able to sustain an agreed/appropriate post-mining land use). The environmental authority (EA) holder will also need to rehabilitate in accordance with the conditions of their EA. For resource site features such as mine voids and permanent engineered structures, that have been agreed to remain in the site post-surrender, may require management in perpetuity.

Under the EP Act the residual risk requirements are included in:

- the application process for the surrender of an EA
- the application process for progressive certification.

Both processes are similar to the extent that in both situations it is considered that rehabilitation has been undertaken at the site.

There are no requirements in relation to residual risks in any other stage of a resource activity. The residual risk requirements are intended to ensure that the State is not liable for the costs of rectifying a rehabilitation failure after surrender.

### EA surrender

An EA holder may apply for an EA surrender at any point in time, however, the application has to comply with the requirements. An EA surrender will only be approved if the EA conditions have been complied with and the administering authority is satisfied with the rehabilitation.

If a resource EA contains conditions about rehabilitation, any EA surrender application must be accompanied by a final rehabilitation report, with evidence that the relevant rehabilitation conditions of the EA have been met.

A rehabilitation report also requires inclusion of an environmental risk assessment to identify any parts of the land that is likely to change or fail to the extent that monitoring, maintenance, reconstruction or other remedial actions may be necessary. A proposal for the residual risks associated with the rehabilitation of the land must be detailed in the report.

The environmental risk assessment must use a methodology agreed to by the administering authority. The guideline: *Rehabilitation requirements for mining projects (ESR/2016/1875)* states details about the risk assessment. It specifies that:

- likelihood and consequence need to be estimated quantitatively
- likelihood is the probability of rehabilitation failing to meet completion criteria within specific timeframes
- consequence is the cost of managing the hazardous event
- a consequence that does not reach the threshold of material environmental harm, i.e. an actual or potential loss to property or rehabilitation costs of at least \$5,000 within the first year period, will not be considered in calculations
- because risk is defined as the product of likelihood and consequence, the threshold for consideration will be set at a risk-cost of \$5,000 per year to provide consistency with material environmental harm

- certification or approval is unlikely to occur unless the likelihood of failure of the rehabilitation to meet the required outcomes over the medium term (e.g. at least 30 years) is expected to have a low probability (e.g. less than 0.01)
- if there is a higher probability of failure that would exceed the risk-cost threshold in the medium term, the administering authority would generally determine that the risk of failure is unacceptable.

Additional information may be requested from the EA holder to assess the surrender application, which would include any matters included in the rehabilitation report.

The EA holder must include in the final rehabilitation report a proposal outlining the cost of managing any residual risks. However, the State ultimately decides the amount and form of any residual risk payment required.

The State may decide that a residual risk payment is required if it is satisfied the requirement is justified having regard to:

- a) the degree of risk of environmental harm likely to happen if the relevant area is managed under the relevant requirements of the EP Act and instruments made under it; and
- b) the likelihood of action being needed to—
  - i. reinstate rehabilitation that fails to establish a safe, stable and self-sustaining ecosystem; or
  - ii. maintain environmental management processes needed to protect the environment; or
  - iii. restore the environment because of environmental harm resulting from relevant resource activities for the EA; and
- c) the cost of likely action in comparison with the cost of best practice environmental management of the similar use of land that has not previously been affected by the activities.

If a residual risk payment is required, it must be provided before an approved surrender takes effect.

The rehabilitation guideline states that payment would only be accepted in cash.

## Progressive certification

The progressive rehabilitation certification process provides an opportunity for EA holders to apply to the administering authority for signoff for an area of rehabilitation. The certification process ‘locks in’ the relevant EA conditions at the time certification is approved. This means that if the administering authority subsequently amended the conditions of an EA, those amendments would not apply to the certified area. This process was developed in response to industry concerns that rehabilitation requirements might change over time. Certification also provides greater confidence that a surrender application will ultimately be accepted.

The State may grant progressive certification only if it is satisfied with the environmental risk assessment included in the progressive rehabilitation report and that the relevant land has been ‘satisfactorily rehabilitated’.

EA holders are required to maintain a certified area such that EA conditions applicable at certification continue to be met.

A residual risk payment may be required before any progressive certification takes effect. The payment of residual risk can be included in the financial assurance for the EA until it is surrendered.

