

## CREATING UP TO 5,000 JOBS IN CENTRAL QUEENSLAND BY ELIMINATING THE COAL MINE REHABILITATION DEFICIT

### Summary:

Proposed legislative reforms governing mine rehabilitation in Queensland have the potential to stimulate billions of dollars in additional economic activity in Central Queensland and beyond if the legislation before Parliament, the Mineral and Energy Resources (Financial Provisioning) Bill – (MERFP), is amended to deliver the following;

1. Ensuring that all land disturbed by mining activities is rehabilitated to a safe and stable landform that does not cause environmental harm and is able to sustain an approved post-mining land use, meaning the prohibition of un-rehabilitated voids and requiring that all mines are returned to the approximate original contour.
2. Ensuring progressive rehabilitation milestones in the proposed compulsory progressive rehabilitation and closure plans (PRCPs) for all mines are set to eliminate the current rehabilitation deficit in the coal industry over 5 years.

In Central Queensland, the rehabilitation deficit<sup>1</sup> for the ten largest coal mines stands at 51,000 hectares. According to an analysis undertaken by The Australia Institute, setting a target designed to eliminate this deficit over 5 years would generate an estimated 4,250 jobs.

The amount of financial assurance for these ten mines is \$1.96 billion meaning that over the 5 year target period it would be expected that the Queensland economy would benefit from an extra \$2.5 billion plus in investment, the majority being made in Central Queensland (once assurance discounts are taken into account).

### Flaws in the MERFP Bill that must be corrected

The Bill currently includes a loophole (S126D) that will allow mining companies to get an exemption from the legislation's core requirement - *that all land disturbed by mining must be rehabilitated to a safe and stable landform that does not cause environmental harm and which can support a post-mining land use* - on the grounds of cost to the company or if the environmental impacts are deemed to be only local.

Cost and localized impacts are precisely the current arguments used by the industry to justify leaving pit voids and toxic lakes, above ground waste rock dumps and inadequately rehabilitated tailings dams. The Ebenezer site (see photo below) near Ipswich is a case in point. The Department of Environment and Science has approved the final landform in this photograph on the basis of cost to the lease holder, Zedemar Holdings, and that any environmental impacts are likely (no definitive proof has been provided) to be localised.

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<sup>1</sup> Rehabilitation deficit refers to the gap between the total area on a mine site disturbed by mining and the rehabilitation of disturbance to date. In order to minimise taxpayer and environmental risk, the State should strive for a situation where for every hectare disturbed, a hectare is rehabilitated – an effective disturbed area to rehabilitation ratio of 1:1. This does not include the operational area and infrastructure required by the mine to extract the resource which is negotiated and set as the maximum area of permitted disturbance.



Photo: Ebenezer Mine adjacent to the suburb of Willowbank near Ipswich. This un-rehabilitated final landform has been signed off by the Department of Environment and Science.

To ensure that the situation at Ebenezer is never repeated again, the Bill must be amended to ensure exemptions are only granted in exceptional circumstances where there are no technically feasible means of rehabilitating the land to a condition that can sustain an agreed post-mining land use.

To justify any exemption from rehabilitating a site to a usable condition, the Bill should require the company to detail the technical circumstances, undertake a risk assessment and strategy for managing the non-use management area in perpetuity and complete an independently verified cost assessment for management of the non-use management area in perpetuity.

### Industry Performance and the Rising Rehabilitation Deficit

To date the coal industry has accrued a huge rehabilitation deficit through a combination of inadequate legislation and weak enforcement. As of January 2016, only 22.5%<sup>2</sup> of the 190,000 hectares<sup>3</sup> disturbed by coal mining in Queensland has been subject to some form of preliminary rehabilitation. According to an internal government report “progressive rehabilitation of Queensland coal mines has declined in the past decade and is on a downward trajectory.”<sup>4</sup> This is confirmed by the Queensland Treasury Corporation;

*“Information provided by mining companies with site-specific mines indicates that, by 2021, the area of disturbed land will be approximately 12 times greater than areas under rehabilitation. By comparison, in 2006, the area of disturbed land was only three times greater than areas under rehabilitation.”<sup>5</sup>*

Historically the Government has allowed mines to define what land is “available” for rehabilitation as opposed to setting progressive rehabilitation targets. More often than not companies have made

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<sup>2</sup> Report of the Targeted Compliance Program, Financial Assurance for Queensland coal mines, Department of Environment and Heritage Protection, January 2016

<sup>3</sup> *ibid*

<sup>4</sup> *ibid*

<sup>5</sup> Better Mine Rehabilitation for Queensland, Discussion Paper, Queensland Government. April 2017, page 10

very little of the disturbed area “available” in order to maximise short-term cash flow by postponing rehabilitation works. This has led to the escalating rehabilitation deficit.

### BHP – Queensland’s Worst Rehabilitation Performer

BHP is a case in point. As of March 2016 BHP’s 10 coal mines had disturbed a total of 51,000<sup>6</sup> hectares. Total area under some form of rehabilitation was 4800 hectares or 9.4%. In 2017 BHP planned to disturb an additional 2500 hectares<sup>7</sup>. However during the same period only 110 hectares<sup>8</sup> was made available for rehabilitation adding almost 2400 hectares to the company’s ballooning rehabilitation deficit.

The mining industry calculates the cost of rehabilitation outstanding disturbed areas which is reflected in the financial assurance set for each mine. The current estimated cost of rehabilitating the 220,000 hectares<sup>9</sup> of disturbed land from all mining (not just coal) in Queensland is \$8.7 billion<sup>10</sup>. The current financial assurance calculation is certainly an underestimation of the true cost due to inadequacies in the methodology and the issuing of discounts of up to 30% to many mines. A conservative estimate of the gap between the financial assurance held by Government and the cost of rehabilitation of Queensland coal mines has been estimated at \$3.24 billion<sup>11</sup>. The financial assurance for BHP’s 10 Central Queensland coal mines was calculated at \$1.65 billion and reduced to \$1.2 billion after discounts.<sup>12</sup>

### The Opportunity for Central Queensland

To put the potential economic opportunity in a Central Queensland coal mining context we have undertaken an analysis of the 10 largest coal mines in central Queensland, revealing the following;

*Table 1: Rehabilitation performance and financial assurance for the 10 largest Queensland Coal Mines*

	Disturbance (Ha)	Rehabilitation to Date (Ha)	Calculated Rehabilitation Liability	Discount	Discount (%)	Financial Assurance held by Qld Govt
<b>Goonyella Riverside (BMA)</b>	9,593	0	\$566,294,000	\$169,888,200	30	\$396,405,800
<b>Blackwater (BMA)</b>	3,719	0	\$445,656,000	\$133,696,800	30	\$311,959,200
<b>Clermont (Glencore)</b>	2,128	513	\$112,322,374	\$33,696,711	30	\$78,625,662

<sup>6</sup> Letter from Jim Reeves, Director General Environment and Heritage Protection to Drew Hutton, Lock the Gate November 10<sup>th</sup>, 2016

<sup>7</sup> ibid

<sup>8</sup> ibid

<sup>9</sup> Financial Assurance Framework Reform, Discussion Paper, Queensland Government, April 2017, page 1

<sup>10</sup> ibid

<sup>11</sup> Report of the Targeted Compliance Program, Financial Assurance for Queensland coal mines, Department of Environment and Heritage Protection, January 2016

<sup>12</sup> Letter from Jim Reeves, Director General Environment and Heritage Protection to Drew Hutton, Lock the Gate November 10<sup>th</sup>, 2016

<b>Rolleston (Glencore)</b>	3,489	711	\$73,190,230	\$21,957,069	30	\$51,233,161
<b>Curragh (Westfarmers)</b>	7,284	1,395	\$270,140,133	\$0	0	\$270,140,133
<b>Peak Downs (BMA)</b>	7,738	0	\$287,807,000	\$86,342,100	30	\$201,464,900
<b>Hail Creek (Rio Tinto)</b>	3,355	419	\$122,615,424	\$12,261,542	10	\$100,321,711
<b>Lake Vermont (Jellinbah)</b>	2,720	207	\$29,279,841	\$8,783,952	30	\$20,495,889
<b>Dawson (Anglo American)</b>	8,797	1,924	\$447,551,070	\$134,265,321	30	\$313,285,749
<b>Saraji (BMA)</b>	7,377	0	\$320,969,000	\$96,290,700	30	\$224,678,300
<b>Totals</b>	<b>56,200</b>	<b>5,169</b>	<b>\$2,675,825,072</b>	<b>\$697,182,395</b>	<b>26</b>	<b>\$1,968,610,505</b>

Based on this data, we estimate the total investment in additional economic activity resulting from eliminating the progressive rehabilitation deficit over 5 years would be in the order of \$2.6 bn.

In summary, ensuring all mines in Queensland are fully rehabilitated would deliver in excess of \$2.5 billion in additional economic stimulus in Central Queensland over the next 5 years.

### Job Creation

Most economic assessments of mine projects include rehabilitation spending and employment as part of the mine's operations, assuming rehabilitation is done progressively. The Queensland government estimates show that this does not occur in practice.

As a result, few published economic studies separately assess the mine's production phase from the rehabilitation phase, making it difficult to assess the employment impact of rehabilitation. A partial exception to this is the assessment of the Adani Carmichael mine, the controversial coal proposal in the Galilee Basin. Adani's Supplementary Environmental Impact Statement (SEIS) includes an estimate of the workforce involved in the final rehabilitation phase. Adani intends to cease coal production in 2071 but will keep a workforce of 250 people for a further 3 years to complete rehabilitation.<sup>13</sup> Given the significant disturbance Adani's Carmichael mine is expected to create, there are deep concerns held by landholders, Traditional Owners and scientists over whether this rehabilitation plan is adequate. Nonetheless, in the absence of other rehabilitation plans being available, this report draws on Adani's plans to make wider estimates.

Adani's SEIS also includes a rehabilitation strategy, with information on total areas to be rehabilitated and general timelines.<sup>14</sup> In total, Adani intends to rehabilitate an area of 26,837 hectares over a period of 45 years, or almost 600 hectares per year. Assuming that rehabilitation is progressive, with a similar full time equivalent employee allocation to rehabilitation throughout the

<sup>13</sup> GHD (2013) Report for Carmichael Coal Mine & Rail Project SEIS - Economic Assessment, see p31, Figure 22.

<sup>14</sup> EMM (2013) Carmichael coal mine Closure and rehabilitation strategy, see Table 3.1

operating life of the mine, the average per worker to rehabilitation ratio is 2.4 hectares per year. This calculation is summarised in Table 2 below:

*Table 2: Adani mine rehabilitation and workforce*

People in final rehabilitation phase	250
Area (ha)	26,837
Years	45
Area per year (ha)	596
Area per person per year (ha)	2.4

Source: Adani SEIS

Assuming Adani’s rehabilitation task is typical of Queensland’s wider situation – likely, as coal mines account for the vast bulk of the disturbance area – this figure can be used to estimate the number of jobs generated by eliminating the rehabilitation deficit across all mines in Queensland. This calculation is summarised in Table 3 below:

*Table 3: Employment and rehabilitation in Queensland and in Central Queensland*

	All Mines	10 Largest Coal Mines
Area to be rehabilitated (ha)	220,000	51,000
Number of years	5	5
Area per year (ha)	44,000	10,200
Area rehabilitated per worker per year (ha)	2.4	2.4
Workers required to complete rehabilitation in 5 years	18,445	4,250

Sources: as above and Australia Institute, Lock the Gate calculations

Table 3 shows that based on an extrapolation of Adani’s estimates of rehabilitation and workers required for the Carmichael mine, eliminating Queensland’s rehabilitation deficit, created by multiple mines, would require more than 18,000 workers for five years. Applied to the ten largest coal mines in Central Queensland, an estimated 4,250 jobs would be created.

The purpose of this estimate is not to be definitive, but to provide some order of magnitude of how many people might be employed with increased progressive mine site rehabilitation.

Many factors could affect the accuracy of this estimate. Rehabilitating some areas may be more difficult than others. The quality of rehabilitation required by government and expected by the community could affect this estimate substantially. If, as is likely, rehabilitation involves monitoring and maintaining landforms and ecosystems over extended periods, the five-year timeframe may be optimistic.

### [Backfilling Mine Pits – An Unreasonable Ask?](#)

The proposed amendments to the MERFP Bill include the prohibition of un-rehabilitated voids and requiring that all mines are returned to the approximate original contour – in short back filling mine pits. The industry is opposed to back filling on the grounds it will make coal mining uneconomic.

However one has to look no further than the US to debunk this exaggerated claim. The Surface Mining Reclamation and Control Act (SMCRA) was passed by US Congress in 1977 and establishes minimum

federal standards for the regulation of coal mining. Using the federal standards as a guide, each state where there is (or may be) surface coal mining may propose a state regulatory program to control mining.

The United States' SMCRA requires that each state program contain certain performance standards with which all operators must comply. These performance standards set levels of environmental damage that are deemed unacceptable and in some cases, they actually tell the operator how a mining operation must be conducted to protect the environment.

SMCRA covers all surface coal mining operations in the United States as well as the surface effects of underground coal mining. The legislation requires the operator to restore the affected land to a condition capable of supporting the uses it could support before mining, or to "higher or better uses". The operator must also:

1. restore the approximate original contour (AOC) of the land by backfilling, grading, and compacting;
2. minimize disturbances to the hydrologic system by avoiding acid mine drainage and preventing additional contributions of suspended solids (sediments from erosion) to nearby streams and other water bodies;
3. reclaim the land as soon as practicable after the coal has been extracted, and even as the mining operation moves forward; and
4. establish a permanent vegetative cover in the affected area.<sup>15</sup>

SMCRA was passed 40 years ago. Yet in Queensland regulators continue to approve large open pit voids, hundreds of them across various landscapes, as the preferred option.

Queenslanders deserve world's best practice mine site rehabilitation and the intent of SMCRA reflects this. The MERFP Bill currently contains loopholes that will allow the mining industry to leave areas that cannot support a post mining land use effectively sterilising large areas for any use in perpetuity and transferring the opportunity cost from shareholders to Queenslanders. These loopholes must be removed and the industry compelled to leave mine sites in a condition that can deliver on its own commitment *"that ... land is available for subsequent economic activities, conservation or community use"*<sup>16</sup>.

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<sup>15</sup> <https://sites.google.com/site/stripmininghandbook/a-brief-review-of-smcra>

<sup>16</sup> Mine Rehabilitation in the Australian Minerals Industry, Minerals Council of Australia, February 2016