

**IN THE LAND COURT OF QUEENSLAND**

REGISTRY: BRISBANE  
NUMBERS: MRA428-14 & EPA429-14 (MLA 70441)  
MRA430-14 & EPA431-14 (MLA 70505)  
MRA432-14 & EPA433-14 (MLA 70506)

Applicant: **ADANI MINING PTY LTD (ACN 145 455 205)**

AND

First Respondent: **LAND SERVICES OF COAST AND COUNTRY INC.**

AND

Second Respondent: **CONSERVATION ACTION TRUST**

AND

Statutory Party: **CHIEF EXECUTIVE, DEPARTMENT OF  
ENVIRONMENT AND HERITAGE PROTECTION**

**OPENING SUBMISSIONS ON BEHALF OF THE FIRST RESPONDENT**

**SUMMARY**

1. Mining poses a dilemma for the community. On the one hand, it has the potential to provide significant economic rewards. On the other hand, it imposes serious costs, in particular environmental costs.
2. At the heart of both the *Environmental Protection Act* and the *Mineral Resources Act* is a recognition of this reality. In order to ensure that the benefits of mining outweigh the costs, both Acts require the Court, as an independent umpire, to consider the

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OPENING SUBMISSIONS BY  
FIRST RESPONDENT  
Filed on behalf of the First Respondent

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impacts of the proposed mine, positive and negative, through a public hearing and to make a recommendation about whether the mine should be allowed to proceed.

3. The Court has said in the past that it is not a “rubber stamp” on the application.<sup>1</sup> It has an important statutory function as an independent umpire weighing the evidence for and against the project.
4. In weighing the balance for **this mine**, there are two matters of particular significance.
5. **First**, this would be the largest coal mine in Australia and among the largest coal mines in the world. The environmental harm it will cause will be correspondingly great.
6. **Second**, the economics of thermal coal have dramatically changed. The scale of economic benefits can no longer be assumed. Neither can the financial viability of the project.
7. The development and running of the mine will cause – or creates a major risk of causing – significant environmental harm. The harm includes:
  - a. The likelihood that the nationally significant wetlands of the Doongmabulla Springs Complex west of the mine will dry up with the loss of exceptional ecological values;
  - b. Removing the core habitat of the most significant global population of the endangered Black-throated Finch with little evidence and great uncertainty that this loss can be offset;
  - c. A risk of serious harm to an internationally significant population of the vulnerable waxy cabbage palm; and
  - d. Contributing damage to the already vulnerable and degraded Great Barrier Reef through a material contribution to climate change and ocean acidification when the coal is burnt.

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<sup>1</sup> *Hancock Coal Pty Ltd v Kelly & Ors* [2013] QLC 9 at [4], available at <http://www.landcourt.qld.gov.au/documents/decisions/MRA82-13-etc-9.pdf>

8. In addition, the hydrogeological conceptualisation and modeling for the mine is fundamentally flawed. The extent of the failings in this work does not permit the impact of the mine on groundwater to be understood sufficiently to permit the mine to proceed.
9. A remarkable feature of the Applicant's case worthy of mention at the outset is the wholesale change as a result of the joint expert meeting process in its claims regarding the economic benefits of the project.
10. As late as December 2014, the Applicant used Input/Output modeling as the basis of its claims of economic benefits from the mine. This was the basis upon which the project was assessed by the Coordinator-General and Commonwealth Environment Minister.
11. During the joint expert process, the Applicant's own expert, Dr Fahrer, agreed that the Applicant's Input/Output model was deficient. The Applicant then sought to rely upon a different method of economic modeling (CGE) which created entirely different predictions of economic benefits, including a reduction in the predicted net new jobs from something between 6,000 and 10,000 to only 1,464.
12. The Applicant still relies on claimed very large economic benefits from the mine being built and operated. Expert evidence will be called by the First Respondent, Land Services of Coast and Country Inc. (LSCC), that these predictions are likely to massively overstate the economic benefits of the mine using opaque modeling techniques built on unrealistic assumptions.
13. In reality, the outlook for the seaborne thermal coal market has changed profoundly since the Applicant first proposed the project, in 2010. Prices have dropped by 60%, in recent years, mining companies have seen unprecedented wealth destruction and future outlooks are consistently being revised down.
14. Even conservative estimates of future demand and price create a real risk that this mine is financially unviable and will ultimately become a stranded asset if constructed.

15. In this environment, harm from this mine would be certain with any economic benefits at risk of being unrealized.

## **THEMES**

16. There are two additional themes that emerge through the evidence to be called by the Applicant and LSCC:
- a. The extent to which the Applicant's own expert witnesses criticize or entirely distance themselves from the methodology and analysis that the Applicant relied on in the EIS and SEIS;
  - b. An over reliance on aspirational conditions and unproven offset strategies to manage significant environmental harm in a way that both invites the Court to abrogate its statutory function and which ignores the precautionary principle.

## **THE STATUTORY TESTS TO BE APPLIED BY THE COURT**

17. The Court has considered the statutory tests to be applied in an objections hearing under the *Environmental Protection Act 1994* (Qld) (**EPA**) and the *Mineral Resources Act 1989* (Qld) (**MRA**) on a number of occasions.<sup>2</sup> We note, however, that there have been amendments to the EPA in several regards since the Court's earlier decisions changing the structure, section numbering and relevant considerations for the grant of environmental authorities.<sup>3</sup> The new structure of the Act applies to the application for the environmental authority as it was lodged on 11 April 2014, after the amendments commenced.
18. Although the MRA and EPA **processes** are intimately linked, the decision under each is separate and governed by the text, objects and structure of each Act.<sup>4</sup>

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<sup>2</sup> Noting particularly, *De Lacey v Kagara Pty Ltd* (2009) 30 QLCR 57; [2009] QLC 77 (Smith M); *Donovan v Struber* (2011) 32 QLRC 226; [2011] QLC 45 (Smith M); *Xstrata Coal Queensland Pty Ltd & Ors v Friends of the Earth – Brisbane Co-Op and DERM* [2012] QLC 013; (2012) 33 QLCR 79 (MacDonald P) (“the Wandoan Case”); and *Hancock Coal Pty Ltd v Kelly & Ors & DEHP (No. 4)* [2014] QLC 12 (Smith M) (“the Alpha Mine Case”).

<sup>3</sup> The EPA was substantially amended on 31 March 2013 by the commencement of the *Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012*, including renumbering of relevant chapters and sections and amending the standard criteria.

<sup>4</sup> Applying the ordinary principles of interpretation stated in *Project Blue Sky v Australian Broadcasting Authority* (1998) 194 CLR 355 at 381-384, [69]-[70] and [78] (McHugh, Gummow, Kirby and Hayne JJ), recently reiterated in *Certain Lloyd's Underwriters Subscribing to Contract No IH00AAQS v Cross* (2012) 248 CLR 378 at [23]-[26] (French CJ and Hayne J); [68]-[69] (Crennan and Bell JJ); and [88]-[89] (Kiefel J).

## Environmental Protection Act

19. The nature of an objections decision for an environmental authority is set out in s 190 of the EPA. In short, it is a choice between the alternatives of recommending approval based on the Draft Environmental Authority, recommending approval based on conditions different to those in the Draft Environmental Authority or recommending refusal.
20. An objections decision must, as a matter of first importance, comply with the statutory command in s 5 of the EPA that decision makers under the EPA must exercise their functions and powers in the way that **best achieves** the object of the EPA in s 3:
- “To protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)”
21. The definition of “environment” in s 8 of the EPA is central to meeting the s 5 obligation:
- Environment includes—
- (a) ecosystems and their constituent parts, including people and communities; and
  - (b) all natural and physical resources; and
  - (c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; and
  - (d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).

22. The EPA does not use the term “environment” directly in its provisions but incorporates it into the terms “environmental value” and “environmental harm”. It is the latter concept that forms a common thread running through much of the EPA.
23. Section 14 of the EPA defines “environmental harm” widely as, in effect, “any adverse effect ... on an environmental value”.
24. Section 9 of the EPA defines “environmental value” in the following way:
  - a. a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
  - b. another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
25. We will return to the importance of the concept of “environmental harm” in a moment, but at this point we note s 191 of the EPA (in its current form and as relevant to the application), which sets out an express list of mandatory criteria for the objections decision under the EPA for the mine, including the “standard criteria”.
26. The “standard criteria” are defined in Schedule 3 (Dictionary) to the EPA to include the following principles of environmental policy as set out in the *Intergovernmental Agreement on the Environment* of 1992:<sup>5</sup>
  - a. The precautionary principle;
  - b. Intergenerational equity;
  - c. Conservation of biological diversity and ecological integrity
27. The “standard criteria” also include
  - a. The character, resilience and values of the receiving environment;
  - b. The public interest.

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<sup>5</sup> The definition of the IGAE in the EPA states “A copy of the Intergovernmental Agreement on the Environment is in the *National Environment Protection Council (Queensland) Act 1994*, schedule.”

28. As noted in the *Xstrata* case<sup>6</sup> the Precautionary Principle provides that “where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.”
29. The reference document by which the EPA defines the Precautionary Principle has changed since the *Xstrata* case but there is no material difference in the definition.<sup>7</sup>
30. While s 191 of the EPA and the standard criteria do not refer to “environmental harm” specifically, it is clear from the structure and objects of the EPA that the risk and extent of likely environmental harm is central to assessing any application for an environmental authority and, therefore, any objections decision.
31. The relevance of environmental harm follows as a matter of course from the object of EPA in s 3, namely to “protect the environment”. An understanding of what is required to protect the environment is only possible if the risk of harm to the environment from any particular activity is first understood.
32. “Environmental harm” is defined widely in s 14 of the EPA. Subs 14(2) states that:
- Environmental harm may be caused by an activity—
- (a) whether the harm is a direct or indirect result of the activity; or
- (b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.
33. Sections 437 and 438 of the EPA provide criminal offences for unlawfully causing serious or material environmental harm.<sup>8</sup> When causation is made relevant to the operation of a statute, notions of “cause” are to be understood by reference to the statutory subject, scope and purpose.<sup>9</sup> In the context of the ss 437 and 438, causation of environmental harm must be construed by reference to s 14.

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<sup>6</sup> *Xstrata Coal Queensland Pty Ltd & Ors v Friends of the Earth – Brisbane Co-Op and DERM* [2012] QLC 013; (2012) 33 QLCR 79 (MacDonald P) at [253], [256], & [347].

<sup>7</sup> Prior to 2013, the Precautionary Principle was defined by reference to the *National Strategy for Ecologically Sustainable Development*. Now it is defined by reference to the IGAE.

<sup>8</sup> Material and serious environmental harm are defined in ss 16 and 17 of the EPA.

<sup>9</sup> *Allianz Australia Insurance Ltd v GSF Australia Pty Ltd* (2005) 221 CLR 568 at 581-587 [41]-[55] (McHugh J) and 596-598 [95]-[101] (Gummow, Hayne and Heydon JJ).

34. Section 493A provides that serious or material environmental harm is lawful if, amongst other things, it is authorised under an environmental authority.<sup>10</sup> The EPA therefore directly links the concept of environmental harm to an environmental authority granted under it.

### **Mineral Resources Act**

35. The MRA has different objects to the EPA. While the two Acts are interrelated to an extent, it is trite they must each be applied by reference to their own terms.
36. The major considerations for the Court to have regard to under the MRA in assessing the mining lease application are the objects of the Act stated in s 2 and the considerations listed in s 269(4). These include whether:
- a. there will be an acceptable level of development and utilisation of the mineral resources within the area applied for (s 269(4)(c));
  - b. the applicant has the necessary financial and technical capabilities to carry on mining operations under the proposed mining lease (s 269(4)(f)); and
  - c. there will be any adverse environmental impact caused by those operations (s 269(4)(j));
  - d. the public right and interest will be prejudiced (s 269(4)(k));
  - e. any good reason has been shown for a refusal to grant the mining lease (s 269(4)(l)).

### **HYDROGEOLOGY**

37. As in another recent Galilee Basin Case (the *Alpha Case*) we will submit that the Applicant does not properly understand the geology and hydrogeology of the region. For that reason – as well as problems with the Applicant’s numerical modeling – the Applicant’s material on groundwater impacts is critically deficient.

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<sup>10</sup> Section 493A(2)(d) of the EPA.



### **Conceptualisation of the regional geology and hydrogeology**

38. The Applicant does not understand the geology and hydrogeology of this area.
39. As Associate Professor John Webb will explain, the Applicant's conceptualisation is based on an outdated understanding of the geology derived from very basic historical mapping, limited data outside of the mine area, and is fundamentally unreliable.
40. Associate Professor Webb has used data not previously considered by the Applicant, including airborne radiometric and satellite images, and the Applicant's own seismic and drilling data to conclude that the assumed geology and hydrogeology of the area is in error. In particular, evidence will be led that the Applicant's conceptualisation and numerical modeling ignores the critical importance of faulting.
41. Associate Professor Webb's concerns are consistent with the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, which gave advice to the Commonwealth Department of the Environment and the Coordinator General on the Draft SEIS that "the proponent's groundwater model does not take into consideration the potential of faulting within the Rewan Formation".<sup>11</sup>
42. The response of the Applicant's expert, Mr John Bradley, appears to be an objection to reconsidering the geology and hydrogeology of the area at all, notwithstanding the additional data.
43. The nature of the disagreement between Associate Professor Webb and Mr Bradley is very similar to that exposed in the *Alpha* case where the Court was concerned enough about the uncertainty of the hydrogeology to recommend – as one of two options – that the mine not go ahead.
44. Associate Professor Webb's conceptualisation of the geology calls into serious question the outputs of the Applicant's numerical model and in turn, the Applicant's assertions as to the impact of the drawdown from the mine on groundwater and its subsequent impact on the environment.

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<sup>11</sup> Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC), *Advice to decision maker on coal mining project - IESC 2013-034* (16 December 2013), page 6 <<http://www.iesc.environment.gov.au/committee-advice/proposals/carmichael-coal-mine-and-rail-project-new-development-project-advice>>.

### **The inadequacy of the Applicant’s numerical modeling**

45. The weakness of the Applicant’s understanding of the hydrogeology of this area is mirrored in the inadequacy of its numerical hydrogeological modeling.
46. LSCC will call Adrian Werner as an expert in hydrogeological modeling. Dr Werner is a Professor of Hydrogeology at Flinders University, a Chief Investigator at the National Centre for Groundwater Research and Training and a longstanding member of the Queensland Government’s Technical Advisory Panel on Coal Seam Gas Water. He is a contributor to the current guidelines on hydrogeological modeling.
47. Professor Werner is highly critical of the modeling relied on by Applicant. In particular, evidence will be led he has “major reservations as to the accuracy and reliability of the model predictions”.<sup>12</sup>
48. Professor Werner’s criticisms are consistent with those of the Independent Expert Scientific Committee which gave advice to the Coordinator General on the Draft SEIS that:
- “The Committee is not confident that the proponent’s groundwater model will be able to accurately predict responses to perturbation of the groundwater system arising from the proposed mine. The Committee does not have confidence in the model’s predictions for the potential groundwater impacts to the Doongmabulla and Mellaluka Spring Complexes and the Carmichael River”.<sup>13</sup>
49. Professor Werner’s evidence will demonstrate that the shortcomings with the numerical modeling have not improved.

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<sup>12</sup> Statement of evidence of Adrian Deane Werner [OL011] at [8].

<sup>13</sup> IESC, *Advice to decision maker on coal mining project - IESC 2013-034* (16 December 2013), at page 2 <<http://www.iesc.environment.gov.au/committee-advice/proposals/carmichael-coal-mine-and-rail-project-new-development-project-advice>>.

### Source aquifer for the Doongmabulla Springs

50. The Doongmabulla Springs are a group of permanent artesian fresh water springs listed on the Directory of Important Wetlands. There are four groups of springs, Joshua, Moses, Little Moses and Surprise over an area of just over 10 hectares.
51. The Applicant's modeling in the SEIS and elsewhere has assumed that the Doongmabulla Springs will not be adversely affected by the drawdown from the mine. This is based wholly on the assumption that the Doongmabulla Springs are fed by an aquifer above the Rewan Formation rather than below it.
52. This assumption is critical. If the Applicant were correct then its conclusion that the mine only impacts the Doongmabulla Springs to a small degree would be defensible. This is because the aquifer above the Rewan will not be dewatered to any great extent by the mining activities.
53. The problem for the Applicant is that, as a consequence of the expert witness processes in this case, there is a real likelihood that the Doongmabulla Springs are fed by an aquifer **below** the Rewan. This aquifer will be dewatered by the mining activities. If so, and the mine goes ahead, the Doongmabulla Springs will run dry.
54. In contrast to the certainty of aquifer source in the SEIS, the **four groundwater experts agree** that:
- a. The source of the Doongmabulla Springs is inconclusive;
  - b. There are two potential sources, one above and one below the Rewan Formation.<sup>14</sup>
55. Associate Professor Webb prefers the conclusion that the source aquifer is below the Rewan. Mr Bradley prefers the conclusion that the source aquifer is above the Rewan. At best for the Applicant the position is highly uncertain and – it appears – the Applicant is incapable of making it certain.
56. This conclusion – and the process leading to it – will be important for two reasons:

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<sup>14</sup> Joint Experts Report: Groundwater, Dr John Webb, Dr Adrian Werner, Mr John Bradley, Dr Noel Merrick [JR004] at [7].

- a. As is discussed in more detail below, the Doongmabulla Springs have exceptional ecological value which will be totally lost if the Applicant is wrong – which even its own expert agrees is a real likelihood; **and**
- b. It calls into question the validity of the groundwater work that has been done by the Applicant and relied upon in the processes to date.

57. This is an example of one of the themes we identified earlier, namely the extent to which the Applicant’s own experts in this case depart from that which was so confidently asserted in the SEIS.

### **SPRINGS ECOLOGY**

58. The impact of water use in the development and operation of this mine will be significant by virtue of its sheer scale. As the Independent Expert Scientific Committee put it:

“Although a number of management strategies are proposed to minimise the impacts of the proposal, due to the scale of this project, there will be both unavoidable and permanent impacts that are unlikely to be adequately mitigated.”<sup>15</sup>

59. A key area where LSCC says that this is so is the impact on the Doongmabulla Springs.

60. Experts for both LSCC (Dr Roderick Fensham) and the Applicant (Mr Bruce Wilson) agree that the Doongmabulla Springs have “exceptional ecological value”.<sup>16</sup> This assessment reflects the significant level of endemism of species within the spring complex. Its values are reflected in its classification as an “endangered Threatened Ecological Community”.<sup>17</sup>

61. LSCC will submit that the Applicant has closed its eyes to risk of the complete destruction of these springs. As a result it has no mitigation plan, nor any offsets plan.

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<sup>15</sup> IESC, *Advice to decision maker on coal mining project - IESC 2013-034* (16 December 2013), at page 7 <<http://www.iesc.environment.gov.au/committee-advice/proposals/carmichael-coal-mine-and-rail-project-new-development-project-advice>>.

<sup>16</sup> Joint Experts Report: Springs Ecology, Dr Roderick Fensham and Mr Bruce Wilson [JR005] at line 97.

<sup>17</sup> Joint Experts Report: Springs Ecology, Dr Roderick Fensham and Mr Bruce Wilson [JR005] at line 105.

The latter is not surprising given the impossibility of offsetting the environmental values of the complete loss of this ecological community.

62. LSCC will ultimately submit that this issue is an obvious place requiring the application of the precautionary principle.

### **WAXY CABBAGE PALM**

63. The Applicant's witness on this topic is Mr Bruce Wilson. LSCC's witness is Dr Mike Olsen.
64. As the Court will be aware the Applicant's witness Mr Bruce Wilson has provided a very late and lengthy supplementary affidavit. Necessarily, statements about this issue must be guarded until that new material has been properly considered.
65. Nonetheless, the experts have agreed that:
- a. The Waxy Cabbage Palm is very rare and is found only in the Burdekin River catchment from the Carmichael River to the environs of the Charters Towers;
  - b. The Carmichael River population is the largest single known population of Waxy Cabbage Palm;
  - c. The Carmichael River population is the most significant population in the world. It is an "important population" because:
    - i. The Waxy Cabbage Palm is a vulnerable species;
    - ii. The Carmichael River population is considered "necessary for the species long-term survival and recovery, necessary to maintain a genetic diversity, near the limits of the species range and habitat critical to the survival of the species".<sup>18</sup>
66. As with the issue of Springs Ecology, the impact of the mine on the Waxy Cabbage Palm depends in large measure on the hydrogeological evidence. This is because the permanence of the base flow in the Carmichael River derives from the Doongmabulla

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<sup>18</sup> Joint Experts Report: *Livistona lanuginosa*, Dr Michael Olsen and Mr Bruce Wilson [JR001] at line 182.

Springs. If the Doongmabulla Springs dry up then the flow of the Carmichael River will be (at least) heavily impacted.

67. Both witnesses agree that if the hydrogeological conditions in the Carmichael River are adversely impacted by the proposed mining activity there is a likelihood of a significant impact on at least parts of the Carmichael River population.<sup>19</sup>
68. Importantly, both witnesses agree that there is a lack of scientific knowledge about the nature of the relationship between the Waxy Cabbage Palm and hydrogeological conditions.<sup>20</sup>
69. A key difference in the expert evidence to be called is the sufficiency of the proposed “offsets”.
70. This is the first of three issues in this case that raises the issues of offsets (the others are Black-throated Finch and Springs Ecology).
71. As the Court will know, offsets are proposed when environmental harm cannot either be avoided or minimised to an acceptable level.
72. The fundamental problem for the Applicant in relying on offsets in this case is absence of information. In each area where offsets arise (Waxy Cabbage Palm, Black-throated Finch and Springs Ecology) there is a dearth of information about one or more of:
  - a. the environmental values of the impacted environment;
  - b. the level and risk of environmental harm;
  - c. the capacity of offsets to meet the predicted harm.
73. Importantly, in each of these areas, this knowledge gap has only become obvious as a result of the joint expert processes in this case. This Court will be much better informed about the weaknesses in the Applicant’s work in these areas than previous decision makers have been.

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<sup>19</sup> Joint Experts Report [JR001] Line 313.

<sup>20</sup> Joint Experts Report [JR001] Line 332.

74. In any event, a core requirement of offsets at both a State and Federal level is that offsets must result in an overall conservation outcome that improves or maintains the viability of the aspect of the environment affected by the proposed outcome.
75. As a result of the knowledge gap identified above there is insufficient evidence to permit offsets to be used with anything approaching confidence in an outcome that maintains or improves the affected environmental values.
76. Returning to the Waxy Cabbage Palm. An important issue that will be in dispute in this case is whether the particular environmental values that are at risk of being lost are able to be compensated by equivalent or improved values elsewhere.
77. The Applicant has proposed offsetting environmental harm by improving the management of areas along the Carmichael River or its tributaries that are already owned by the Applicant.
78. The improved management is said to involve improving the impacts of “weed infestation, feral pigs, cattle and bush fire”.<sup>21</sup>
79. Dr Olsen will give evidence of his opinion that the proposed offsets are incapable of replacing the environmental values lost if there is a significant impact on the Carmichael River population. This is essentially for two reasons.
80. **First**, the populations of Waxy Cabbage Palms already in the offset areas are not as large, nor do they have the same population structure, as the more significant population. There is nothing to suggest any innate capacity for population growth.
81. **Second**, there is no meaningful evidence that any current population of Waxy Cabbage Palm is negatively affected by any of the factors to which improved management will be addressed. In consequence, the proposed management activities will not improve the values of the habitat proposed to offset the loss.
82. In short, Dr Olsen will give evidence that “there is no evidence to suggest that the populations in the proposed offset area are capable of population increase in any

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<sup>21</sup> SEIS, Volume 4, Appendix J4 Report for Population Survey of Waxy Cabbage Palm (16 July 2013) p iii [MR162].

circumstance, altered management or otherwise”.<sup>22</sup> If the Court accepts that evidence then it cannot be satisfied that offsets will replace the values lost.

83. Further, and most obviously, the proposed offset areas are themselves associated with the Carmichael River. Any major change to the hydrogeology of the Carmichael River is just as likely to affect those areas as they will the current population.
84. As importantly, Dr Olsen will explain that the lack of knowledge about the unique relationship between the Waxy Cabbage Palm and the hydrogeological regime in the Carmichael River population makes it impossible to proceed with offsets without breaching the precautionary principle.

### **BLACK-THROATED FINCH**

85. If this mine goes ahead then there is a high likelihood of **species threatening harm** to the most significant population of the endangered Black-throated Finch in the world.
86. The BTF southern (**BTF**) is listed as an endangered species under both the Commonwealth’s *Environmental Protection and Biodiversity Conservation Act 1999* and the State’s *Nature Conservation Act 1992*. Its population has been reduced by 80% since at least the early 1980s. The BTF’s range once extended from northern NSW through eastern Queensland to Cairns in the north.
87. The BTF is now extinct south of the Burdekin River and is confined to very few remaining pockets of suitable habitat.
  - a. There has been a significant reduction in its known range<sup>23</sup> with its population decline on a trajectory towards extinction. There are only two populations of BTF left in the world and both are in Queensland.

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<sup>22</sup> Statement of evidence of Dr Michael Olsen [OL016] at [21].

<sup>23</sup> Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.3.1].



- b. The two populations are found at Townsville and in the landscape that encompasses the mining lease area (MLA), particularly the Moray Downs property.<sup>24</sup>
88. There is a large degree of broad and specific agreement between Mr Adrian Caneris (the Applicant's nominated expert) and Mr Lindsay Agnew (LSCC's nominated expert).
89. The **first area of agreement** relates to the inadequacy of the Applicant's survey methodology and effort in the SEIS:
- a. Mr Caneris agrees that "information provided in the EIS documents cannot be relied upon to confidently assess the significance of the potential impacts to the BTF, the suitability of proposed mitigation measures or the appropriateness of any offsets".<sup>25</sup>
- b. Both experts agree that "[t]he baseline information provided within the EIS document and subsequent reporting is not sufficient to adequately understand the existing values of the site commensurate with the potential significance of the site's BTF population".<sup>26</sup>
- c. They also agree that "[t]he design and application of the field survey program for the EIS documents was inadequate to properly understand the site usage and site values for BTF, especially in regards to breeding".<sup>27</sup>
90. The **second area of agreement** relates to the significance of the population of BTF on the particular habitat supplied on the MLA:

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<sup>24</sup> Supplementary Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR003], Attachment 3 – BTF Recovery Team letter to Lindsay Agnew pages 2 and 4.

<sup>25</sup> Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.10.25].

<sup>26</sup> Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.6.1].

<sup>27</sup> Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.8.1].

- a. As Mr Caneris puts it: “[t]here is no disputing that the MLA, Moray Downs and the wider landscape hold a significant number of Black Throated Finches and constitute habitat which is **critical for the survival of the species**”.<sup>28</sup>
  - b. Prior to the 2013 sighting, the area surrounding Townsville was thought to be the finch’s stronghold.<sup>29</sup>
  - c. In September 2013, James Cook University PhD student Stanley Tang sighted a flock of at least 400 BTF at the 10 Mile Bore site on Moray Downs.<sup>30</sup>
  - d. Building on Mr Tang’s sighting – as well as other survey work – the experts agree that the BTF population on the MLA, particularly the Moray Downs property, is the most significant and largest population of BTF remaining in the world.<sup>31</sup>
  - e. The experts agree that the MLA habitat appears to be critical for species survival.<sup>32</sup>
  - f. Further, they agree that 10 Mile Bore and its surrounds may maintain an important function in sustaining the BTF population – although the extent of this needs further investigation.<sup>33</sup>
91. The **third area of agreement** relates to the harm that will be caused to the survivability of the BTF if the mine proceeds – at least in the absence of viable offsets:
- a. Both witnesses agree that as well as direct loss of up to 16,500 hectares of habitat, the mining and associated activities will cause further fragmentation of habitat and disturbance to existence.

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<sup>28</sup> Emphasis added. Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.2.6].

<sup>29</sup> Statement of evidence of Mr Lindsay Agnew [OL024], p 44, Attachment B – BirdLife Australia Report.

<sup>30</sup> Ibid; Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.2.4].

<sup>31</sup> Joint Expert Report: Black-throated Finch (southern), Mr Lindsay Agnew, Mr Adrian Caneris, Dr Michael Olsen, Mr Bruce Wilson [JR002] at [6.2.1] and [6.2.6].

<sup>32</sup> Ibid, [6.2.6].

<sup>33</sup> Ibid, [6.2.7].

- b. However, the most direct risk of harm comes from the process of dispersal. Both experts agree that if the BTF's critical habitat is cleared or disturbed, the BTF are likely to disperse to surrounding areas where they will experience one of the following outcomes:<sup>34</sup>
- i. Not find suitable habitat and die;
  - ii. Find suitable habitat already occupied by other BTF which cannot support an increased carrying capacity, resulting in further dispersal or death;
  - iii. Find suitable habitat that is already occupied by BTF and displace the original BTF;
  - iv. Find suitable habitat not currently occupied by other BTF or occupied by a resident population in habitat which could support a further increase in the local population.
92. In summary, both experts agree that the reduction of habitat for a significant number of BTF is likely to have a significant impact on the regional population which is of international significance.
93. The **primary area of disagreement** relates to the capacity of the Applicant's offsets strategy to create – at least – ecological equivalence to the environmental values that will be lost.
94. Remarkably, the Applicant's expert Mr Caneris agrees that "information provided in the EIS documents cannot be relied upon to confidently assess the significance of the potential impacts to the BTF, the suitability of proposed mitigation measures or the appropriateness of any offsets".<sup>35</sup>
95. Nonetheless, Mr Caneris opines that the proposed offsets **may** provide a net benefit to the values lost by the destruction of the identified critical habitat. He does so on two apparent bases:
- a. Because the conditions attached to the Draft Environmental Authority require, in effect, a net benefit; and

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<sup>34</sup> Ibid, [6.14.1].

<sup>35</sup> Ibid, [6.10.25].

- b. Because the proposed offset areas have the potential to provide a better and more secure future for the BTF than one in which the mine does not proceed.
96. Mr Agnew fundamentally disagrees. He will opine that, in the absence of anything like adequate survey information, the existence of aspirational conditions without specified impact thresholds are meaningless.
97. This is an example of one of the themes noted earlier, namely the Applicant's reliance on aspirational conditions in away that would avoid proper scrutiny. If the material in the SEIS is as inadequate as the Applicant's own expert agrees then the Applicant is – in essence – inviting the Court to abrogate its own function in assessing the environmental harm likely to flow from the mine's approval.
98. As importantly, Mr Agnew will give evidence that he has no confidence in the capacity of the proposed offsets to compensate for the identifiable risk of harm to this population. In particular:
  - a. Offsets cannot be assessed without a proper understanding of the values of that which is being lost. The Applicant has not demonstrated any such understanding;
  - b. The methodology used to assess the suitability of the proposed offsets areas is fundamentally deficient both in terms of an understanding of the flora and of any existing BTF populations;
  - c. There are no examples of offsets being used to successfully mitigate the destruction of critical habitat of an important population of a bird of this kind;
  - d. Any offsetting in the Galilee Basin is highly problematic given the identifiable likelihood of cumulative impacts from multiple mines.
99. This is another area where the precautionary principle has particular application. The absence of knowledge about the BTF itself and the reasons for its reliance on this habitat coupled with the inadequacy of the Applicant's survey effort to date both on the MLA and in the proposed offset areas require extreme caution to be exercised.

**CLIMATE CHANGE AND THE GREAT BARRIER REEF**

100. There is very little dispute as to the evidence in relation to climate change and what it means. This stems from the fact that there is no dispute about “the science of climate change”, the fact that climate change is happening and that it is being caused predominantly by human activity.
101. Continued emissions of greenhouse gases will cause further warming increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Those impacts will occur in Queensland regardless of where in the world the emissions occur.
102. In particular, the emission of greenhouse gases represents the single greatest threat to the Great Barrier Reef,<sup>36</sup> which is already in a damaged and degraded state. Such emissions cause the twin problems of warming and ocean acidification.
103. When assessing the impact of greenhouse gases in the context of environmental harm, it is cumulative emissions rather than annual emissions that matter.<sup>37</sup> This is because it takes millennia for the carbon from coal burning to be removed from the atmosphere.
104. The emissions associated with the extraction, transport and combustion of coal from this mine over its proposed life span are assessed by the Applicant’s own expert at 4.64 gigatonnes CO<sub>2</sub>.<sup>38</sup> This represents one of the highest levels of emissions associated with a single project anywhere in the world.<sup>39</sup>
105. All of these emissions will have a climate impact in the cause and effect sense. That climate impact will damage Queensland’s environment generally and the Great Barrier Reef specifically.
106. The Joint Expert Report on Climate Change notes that the calculated cumulative emissions associated with the project should be seen as a “worst case” because the “fundamental question” is whether those emissions would occur even if the mine does

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<sup>36</sup> Individual Report of Ove Hoegh-Guldberg [OL014] page 3, paragraph 1 and Page 9 paragraph 22.

<sup>37</sup> Joint Report of Dr Chris Taylor and Associate Professor Malte Meinshausen [JR006] page 6, paragraph 10.

<sup>38</sup> Joint Report of Dr Chris Taylor and Associate Professor Malte Meinshausen [JR006] page 8, paragraph 17.

<sup>39</sup> Joint Report of Dr Chris Taylor and Associate Professor Malte Meinshausen [JR006] page 10, paragraph 22.

not go ahead. To put it another way, the experts note that the key question is whether the mine's approval would result in a net change in global emissions.<sup>40</sup>

107. These agreed propositions give rise to both legal and evidential questions.
108. In relation to "impacts" under the MRA the Court held in the *Alpha* case that the "the public right and interest" necessarily includes a consideration of the indirect impacts of a mine through the burning of coal produced by it contributing to climate change.<sup>41</sup> We will submit that these indirect impacts are relevant to consider under the MRA both when considering "environmental impact" and "the public right and interest".
109. Similarly, it will be submitted that environmental harm likely to be caused by the greenhouse gases produced by the mining, transport and use of the coal obtained from the mine is clearly harm which is a "direct or indirect" result of the mining activities as comprehended by s 14 of the EPA. It follows, therefore, that the fact that a decision to approve an environmental authority for the mine would authorise that "environmental harm" requires the Court to consider the contribution that the mine would make to climate change through the mining, transport and use of the coal from the mine.
110. If those submissions are accepted then the issue of whether the impact of the emissions are to be considered – as a matter of law – on a net change basis will become live. We will ultimately submit that whether someone else will supply an equivalent amount of coal if this mine is not approved is an irrelevant consideration. It will be submitted that what matters for the purposes of the MRA and the EPA is the harm caused by the relevant activity on a physical cause and effect basis.
111. In the alternative, LSCC will also be challenging the previously accepted proposition that, because the thermal coal market is "demand driven", if this mine does not go ahead then an equivalent amount of coal will be supplied from elsewhere and consumption (and therefore emissions) will remain the same.

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<sup>40</sup> Joint Report of Dr Chris Taylor and Associate Professor Malte Meinshausen [JR006] page 7, paragraph 12

<sup>41</sup> *Hancock Coal Pty Ltd v Kelly & Ors* [2013] QLC 9 at [218], available at <http://www.landcourt.qld.gov.au/documents/decisions/MRA82-13-etc-9.pdf>

112. Evidence will be led from Mr Tim Buckley (energy markets analyst) and from Dr Richard Dennis (economist) that this proposition is at odds with conventional economics. The expected impact of an increase in supply of a commodity is a price reduction resulting in a movement of the demand curve leading to increased consumption.
113. The impact of supply on the price of commodities is currently seen both in relation oil and iron ore. There is no reason for coal to be excluded from the application of conventional economics.
114. There is no reason not to expect that this effect will manifest in the case of this mine, particularly given that it is estimated to increase world seaborne thermal coal supply by between 3.7% and 6%.<sup>42</sup>

## **ECONOMICS**

### **Economic Benefits**

115. The Applicant in the SEIS relied on “Input/Output” modeling to predict economic benefits of the project. On that basis, it appears to have been asserted that across the State there would be up to approximately 10,000<sup>43</sup> new jobs created on both a direct and indirect basis.
116. The SEIS also calculated large improvements to Gross State Product, asserting that they represented economic benefits to Queensland even though much of that asserted benefit will accrue only to the Applicant’s overseas shareholders.
117. In the first Joint Expert Report, the Applicant’s nominated witness Dr Jerome Fahrer agreed that Input/Output modeling was deficient. In particular, he agreed that it tended to over-estimate the employment benefits of a project.<sup>44</sup>
118. Remarkably, the Applicant – through Dr Fahrer – then produced a brand new analysis of the economic benefits of the mine based on Computable General Equilibrium

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<sup>42</sup> Individual Report of Tim Buckley [OL015] section 3.1 at page 26.

<sup>43</sup> SEIS, Appendix E – Economic Assessment Report, p 30, Table 9 shows the total Queensland employment in 2033 to be 10,248 fte for the Mine

<sup>44</sup> Economic Assessment Joint Report [JR003], Table 1, issue 106.

Model (**CGE**). This analysis creates entirely different estimates of economic benefits from that relied on by the Applicant in the SEIS.

119. Dr Fahrner's analysis significantly revises downward the proposed economic benefit of the mine including reducing the projected number net jobs created to an annual average over the life of the mine of 1,464 jobs Australia wide.
120. In relation to job creation, Dr Fahrner's model predicts that the construction and operation of the Carmichael mine will in fact result in a **reduction** in overall employment in coal in Australia.<sup>45</sup>
121. Dr Fahrner also predicts impacts on other industries. For example, agriculture and food employment is predicted to decline by around 200 jobs. Interestingly, he predicts increases in public service of 227 jobs.<sup>46</sup>
122. LSCC will call Dr Richard Denniss, economist, to give evidence about CGE modeling. In summary, his evidence will be that the outputs of CGE models are primarily determined by the case specific assumptions chosen by the modeler.
123. Dr Denniss is critical of Dr Fahrner's failure to identify and explain the assumptions that underlie this modeling exercise. Where some of those assumptions were ultimately revealed, Dr Denniss will explain that some are indefensible.
124. In particular, Dr Denniss will explain that Dr Fahrner's key assumption that the mine will not increase net supply of thermal coal nor have any impact on consumption or price is contrary to basic economic theory and unsupportable.
125. In order to demonstrate the extent to which CGE models can produce different results, Dr Denniss gained access to a CGE model run by Professor Philip Adams at the Centre for Policy Studies at the University of Victoria. Using the same cost and price assumptions provided by the Applicant to Dr Fahrner, this model produced vastly different results, predicting that the mine will cause economic harm to the rest of Australia, while giving economic benefits to Queensland.

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<sup>45</sup> Individual Report of Dr Denniss [OL022] Page 3 Section 1.4

<sup>46</sup> Individual Report of Dr Denniss [OL022] Page 3 Section 1.4



126. In order to illustrate the impact of assumptions on the outputs of a CGE model, the Adams model was run again on the assumption that the increase in supply from this mine will reduce the market price for thermal coal.
127. This assumption was based on work by Mr Tim Buckley who predicts that the addition of between 3.7% and 6% volume from this mine to the world seaborne thermal coal market is likely to have a price impact of up to 5%.
128. This price impact will harm to Australia's thermal coal industry outside of this mine. When Professor Adam's model is run with a price impact of just minus 1% (together with Mr Buckley's revised assumptions about price and cost discussed below) it predicts that this mine will have **negative economic impacts** in Australia generally and Queensland specifically.
129. The point of this evidence will not be to ask the Court to prefer the Adams model to the Fahrer model, but rather to illustrate:
  - a. The extent to which CGE model outputs are dependent on choice of model and choices made by the modeler;
  - b. The way in which a relatively minor shift in key assumptions creates massive change in model outputs;
  - c. The critical importance of Dr Fahrer's indefensible assumption that building one of world's largest mines will not impact on world supply and therefore on price.
130. Dr Denniss' ultimate conclusion is that Dr Fahrer's CGE model cannot be relied upon to predict the economic benefits of the mine. Similarly, he will explain that Dr Fahrer's cursory attempt at a Cost Benefit Analysis is simplistic and unreliable.

### **The state of the thermal coal market and financial viability of the project**

131. LSCC will call Mr Tim Buckley who is an energy markets financial analyst. Mr Buckley will give evidence that the world thermal coal market is in structural rather than cyclical decline. A consequence of this structural decline is that this mine is, in Mr Buckley's assessment, unviable and there is a real likelihood of it becoming a stranded asset.

132. Mr Buckley will point to evidence showing that the world market for thermal coal has fundamentally changed as demonstrated by
- a. A 60% decline in prices for thermal coal over the last few years;
  - b. The futures market predicting that prices will continue to slump;
  - c. Continuing evidence of a historic reversal in demand for thermal coal from China;
  - d. A policy shift away from imported coal in India;
  - e. Increasing international adoption of measures to reduce greenhouse gas emissions;
  - f. The views of the large and credible finance and investment houses;
  - g. Unprecedented wealth destruction in mining companies internationally and in Australia;
  - h. Mothballing of major coal projects, for example, the proposed Wandoan mine;
  - i. The consistent downgrading of coal forecasts by forecasting agencies including the Australian Treasury and the International Energy Agency.
133. Assumptions about the economics of mining that may have been reasonable when the Applicant first acquired exploration rights no longer hold good. The consequence is that prices will – at least – continue to stagnate.
134. The current and likely future coal price raises the question of the financial viability of the project. Mr Buckley has analysed the cost and price data provided by the Applicant to Dr Fahrer (Attachment B) and concluded that costs are underestimated and revenue is overestimated.
135. Mr Buckley has prepared three reports that explain this analysis. The reason for multiple reports is that Mr Buckley refined his analysis each time the Applicant provided more information either directly or via further clarification via Dr Fahrer.
136. Particular issues discussed by Mr Buckley are:

- a. The fact that the coal from this mine is of a **low quality** compared to the Newcastle benchmark standard in both energy and ash content. Mr Buckley considers that it will attract a 30% discount to the Newcastle benchmark price for thermal coal.

It appears either that the Applicant has not incorporated this discount, or if it has that it has started from an indefensibly inflated price assumption;

- b. The assumptions as to the price of thermal coal are inflated without justification. Mr Buckley proposes an alternative assumption about price based on the price that coal is trading on the futures markets. The Applicant, on the other hand, assumes a coal price for the life of the mine at a 26% premium above the current Newcastle benchmark price, even before the discount for low quality is taken into account.
- c. There are particular costs that either do not appear to have been included in Attachment B or, if they are, are not made explicit. These include borrowing costs, rail costs and port loading costs.
137. Mr Buckley concludes that the mine is not financially viable and is unlikely to attract financing necessary to begin construction. If it does, Mr Buckley considers that it is at real risk of becoming a stranded asset.
138. The Applicant has not nominated an expert witness in relation to the financial viability of the project. The Applicant's expert witness, Mr John Stanford, did not examine this issue and "could not understand why the financial capability of the applicant has any particular relevance to the matters before the court".<sup>47</sup>
139. The Court of Appeal has held to the contrary that "whilst there is no specific reference in s 269(4) to the 'economic viability' of a project, it is relevant to interpreting the information about mineralisation and to at least the matters set out in s 269(4)(c)."<sup>48</sup>

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<sup>47</sup> Joint Experts Report: Energy Markets and Financial Analysis, Mr Tim Buckley and Mr Jon Stanford, [JR007] pp 2, 11, 14 and 16.

<sup>48</sup> *Armstrong v Brown* [2004] 2 Qd R 345 at 348-8 [15] (per McMurdo J with whom McPherson JA and Jerrard JA agreed).

140. Financial viability is also relevant to the objections decision under the EPA. If this mine is developed but becomes a stranded asset, then there will only be environmental harm without much – if any – economic benefit. Such an outcome would not represent Ecologically Sustainable Development because the entire point of the development from the State’s perspective (economic benefit accrued by the development and operation of the mine) would not be realized.
141. Mr Buckley’s evidence also challenges the level of corporate tax that Dr Fahrer assumes that the Applicant will pay during the life of the project. Dr Fahrer’s assumption fails to take into account the level of debt servicing required and the fact that the structure of the Applicant’s parent and related companies appear to be designed to ensure that corporate tax is paid only in low taxation jurisdictions. Taken together with the estimation that project will likely fail to turn a profit, Mr Buckley concludes that it is likely that the Applicant – a wholly foreign owned entity – will pay no corporate tax in Australia.
142. It is also notable that Dr Fahrer’s Attachment B assumes royalties payable to the Queensland Government on an assumption of unrealistically high coal prices. Even so, he assumes royalties at levels dramatically less than other statements made on behalf of the Applicant.

## **CONCLUSION**

143. The evidence to be called will demonstrate that this mine will not create a net benefit to Queensland. The environmental costs are very high and the asserted benefits are becoming less and less likely to accrue as world energy markets profoundly change.

**Saul Holt QC**  
**Dr Chris McGrath**  
**31 March 2015**