

**LAND COURT OF QUEENSLAND**

REGISTRY: BRISBANE  
NUMBER: MRA428-14, EPA429-14  
MRA430-14, EPA431-14  
MRA432-14, EPA433-14

Applicant: ADANI MINING PTY LTD  
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

**SECOND AFFIDAVIT OF JEROME GREGORY FAHRER**

I, Jerome Gregory Fahrer, Director, ACIL Allen Consulting, 6 Hector Street, Brighton in the State of Victoria, affirm as follows:

- 1 I am a Director of ACIL Allen Consulting (formerly Allen Consulting Group). I have held this position since January 1995.
- 2 I have been engaged by McCullough Robertson, on behalf of the Applicant, to appear as an expert witness in these proceedings in relation to issues raised in the objections to the Applicant's mining lease applications and environmental authority applications for the Carmichael Coal Mine project.

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Page 1



Deponent



Taken by:  
Solicitor / Justice of the Peace

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**Second Affidavit of Jerome Fahrer**  
Filed on behalf of the Applicants  
Form 46 R.431

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- 3 I previously affirmed an affidavit in these proceedings on 30 January 2015 (**First Affidavit**).  
My First affidavit attaches my curriculum vitae and lists previous instances where I have  
provided expert evidence in relation to economic matters.
- 4 I have previously prepared a joint report, with Richard Denniss engaged on behalf of the First  
Respondent, dated 27 February 2015, in relation to economic issues raised in the further  
amended preliminary list of issues within my field of expertise (**Second Joint Report**).
- 5 I have been further asked to prepare an individual report in relation to the areas of  
disagreement in the Second Joint Report relevant to economic modelling and the economic  
impacts of the applications the subject of these proceedings. Exhibited to my Affidavit and  
marked 'JGF-2' is a true copy of my report to McCullough Robertson Lawyers dated 13 March  
2015 (**Second Individual Report**).
- 6 Pursuant to rule 428(3) *Uniform Civil Procedure Rules 1999* (Qld), I confirm that:
- (a) the factual matters stated by me in the Joint Report and my Individual Report are, as  
far as I know, true;
  - (b) I have made all enquiries considered appropriate;
  - (c) I genuinely hold the opinions stated by me in the Joint Report and in my Individual  
Report;
  - (d) my Individual Report contains reference to all matters that I considered significant; and
  - (e) I understand my duty to the court and I have complied with this duty.

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Deponent

Page 2

Taken by:  
Solicitor / Justice of the Peace

7 All the facts and circumstances deposed to in this affidavit are within my own knowledge except those stated to be on information and belief. I have, as required, set out the basis and source of my knowledge or information and belief.

All the facts affirmed in this affidavit are true to my knowledge and belief except as stated otherwise.

Affirmed by Jerome Gregory Fahrer

at Melbourne

this 13<sup>th</sup> day of March 2015

Before me:

*JG Fahrer*

^

*K Elliott*

^

A Justice of the Peace/Solicitor

**CATHERINE ALEXANDRA ELLIOTT**  
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An Australian Legal Practitioner within the  
meaning of the Legal Profession Act 2004

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HERITAGE PROTECTION

**CERTIFICATE OF EXHIBIT**

Exhibit '**JGF-2**' to the second affidavit of Jerome Gregory Fahrer affirmed 13 March 2015.



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Signed:  
Deponent



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Taken by:  
~~Solicitor / Justice of the Peace /~~  
~~Commissioner for Declarations~~

REPORT TO  
LAND COURT OF QUEENSLAND

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13 MARCH 2015

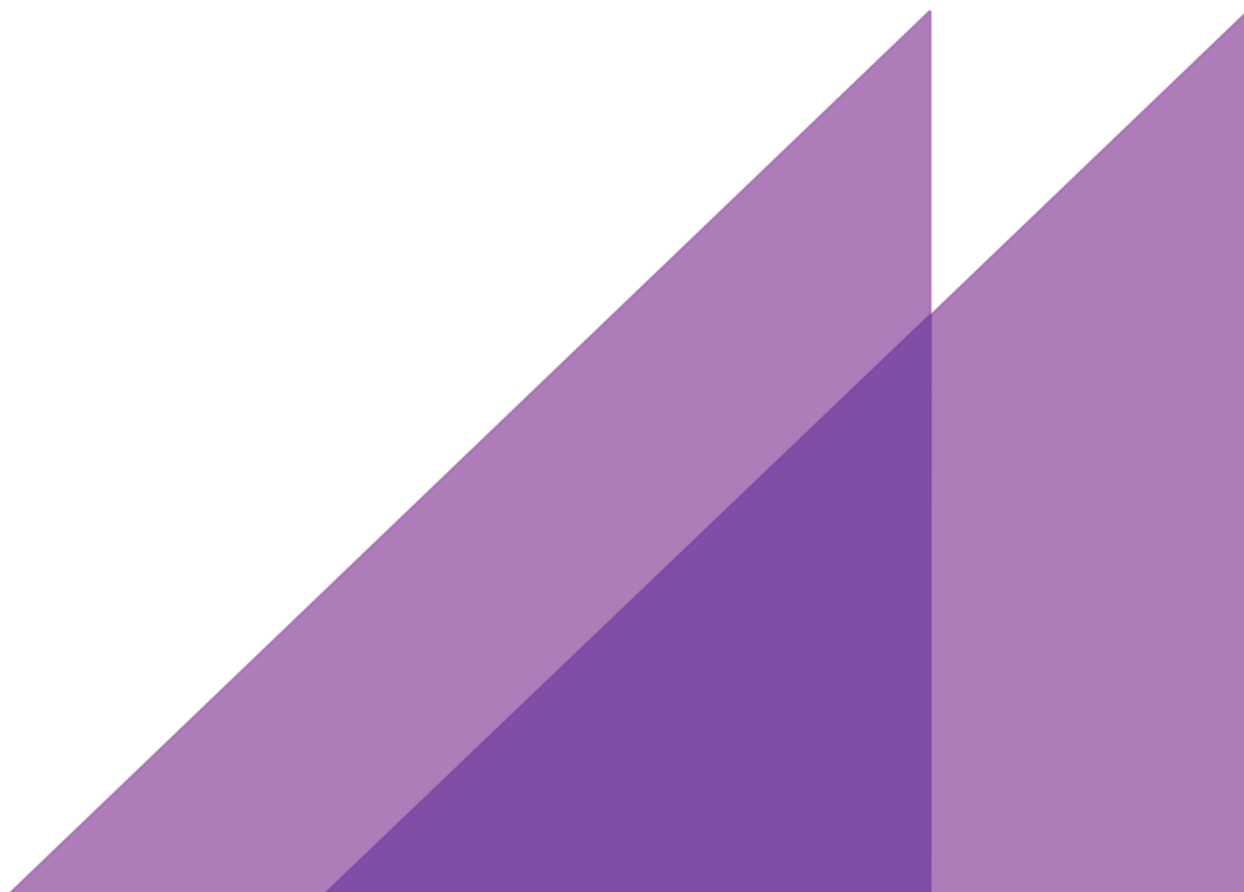
# CARMICHAEL COAL AND RAIL PROJECT

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**ECONOMIC ASSESSMENT**

FURTHER EXPERT REPORT BY  
JEROME FAHRER





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REPORT

CARMICHAEL COAL AND RAIL  
PROJECT:ECONOMIC ASSESSMENT

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# 1 Introduction

- 1 This report has been prepared by Jerome Fahrer, Director of ACIL Allen Consulting on behalf of the Applicant (Adani Mining Pty Ltd – Adani) in relation to the proceedings in the Queensland Land Court Matter no. MRA428-14, EPA429-14, MRA430-14, EPA431-14, MRA432-14 and EPA433-01.
- 2 I have been engaged by McCullough Robertson, on behalf of Adani, to provide an expert report in the Land Court proceedings.
- 3 McCullough Robertson has provided me with a letter of instruction, which I have read. It is annexed at Attachment A of this report.
- 4 The purpose of this report is to respond to issues raised by Dr Richard Denniss in our Joint Report to the Land Court of 27 February 2015, and by Mr Tim Buckley, in his reports to the Land Court of 9 February 2015, 27 February 2015 and 9 March 2015.
- 5 My CV is included as Attachment C to my statement of evidence for economic assessment, which is exhibit JGF-1 to my affidavit affirmed 30 January 2015 to these proceedings.
- 6 I have read and understood relevant extracts of the Land Court Rules 2010 (Qld) and the Uniform Civil Procedure Rules 1999 (Qld). I acknowledge that I have an overriding duty to assist the Court and state that I have discharged that duty.

I have provided within my report:

- (i) details of material that I relied on in arriving at my opinions; and
- (ii) other things as required by the Land Court Rules.

I confirm that:

- (i) the factual matters included in the statement are, to the best of my knowledge, true;
- (ii) I have made all enquiries I consider appropriate for the purpose of preparing this statement;
- (iii) the opinions included in this statement are genuinely held by me;
- (iv) this statement contains reference to all matters I consider significant for its purpose;
- (v) I have not received or accepted any instructions to adopt or reject a particular opinion in relation to an issue in dispute in the proceeding.

If I become aware of any error or any data which impact significantly upon the accuracy of my report, or the evidence that I give, prior to the legal dispute being finally resolved, I shall use my best endeavours to notify those who commissioned my report or called me to give evidence.

I shall use my best endeavours in giving evidence to ensure that my opinions and the data upon which they are based are not misunderstood or misinterpreted by the Land Court.



I have not entered into any arrangement which makes the fees to which I am entitled dependent upon the views I express or the outcome of the case in which my report is used or in which I give evidence.

- 7 In preparing this report, I have relied upon the following materials:
- Peter Downes, Kevin Hanslow and Peter Tulip (2014) *The Effect of the Mining Boom on the Australian Economy*, Reserve Bank of Australia Discussion Paper 2014-08.
  - <http://www.dsdip.qld.gov.au/resources/project/carmichael/initial-advice-statement.pdf>
  - <http://www.worldcoal.org/resources/coal-statistics/>
  - Jim Minifie, *The mining boom Impacts and prospects*, Grattan Institute July 2013
  - Peter Diamond and Jerry Hausman, "Contingent Valuation: Is Some Number Better than No Number" *Journal of Economic Perspectives* 8(4), Fall 1994, pages 45-64
  - <https://www.aeaweb.org/articles.php?doi=10.1257/jep.8.4.45>
  - <http://www.indexmundi.com/commodities/?commodity=coal-australian&months=60>
  - Expert Report of Jerome Fahrer, 30 January 2015
  - Joint Expert Report of Jerome Fahrer and Richard Denniss, 27 February 2015
  - Expert Report of Tim Buckley, 9 February 2015
  - Supplementary Expert Report of Tim Buckley, 27 February 2015
  - Second Supplementary Expert Report of Tim Buckley, 9 March 2015
  - First Respondent's Further Amended Preliminary Identification of Issues, 6 February 2015

## 2 Issues raised by Dr Denniss

### 2.1 The assumption that the Carmichael mine will be a response to existing world demand

- 8 In my report of 30 January 2015, I discuss the effect of the Carmichael Mine and Rail Project (the Project) on the Australian, Queensland and Mackay, Isaacs and Whitsunday (MIW) region economies. To estimate these effects, I use a Computable General Equilibrium (CGE) model of the Australian economy.
- 9 All modelling requires simplifying assumptions. At various points (at pages 2-3, 7-10 and 21-22) of our joint report, Dr Denniss objects to my assumption that the Project will be a response to existing<sup>1</sup> demand for coal throughout the world. As such, in the modelling, in each year the coal that is produced by the Project is counter-balanced by lower supply than would otherwise be the case from other coal mines throughout the world, including other coal mines in Australia.<sup>2</sup>
- 10 In other words, the modelling assumes that, because of underlying demand from coal customers (and in turn electricity consumers) throughout the world, the coal is going to be mined somewhere. If it is mined in the Carmichael Project and sold to people who will burn it, it won't be mined elsewhere. If it is not mined in the Carmichael Project, it will be mined elsewhere and sold to people who will burn it. Either way, the total amount of coal mined and burned throughout the world will be the same.<sup>3</sup> The modelling estimates the effect on the Australian, Queensland and MIW economies of the coal being mined in and exported from the Galilee Basin, and hence not mined and sold from elsewhere.
- 11 Dr Denniss calls this assumption "highly implausible" (at page 9).
- 12 On the contrary, this assumption is perfectly plausible.
- 13 First, this is a standard assumption in the modelling of individual mining projects or the mining industry as a whole. For example, according to a recent study published by the Reserve Bank of Australia on the effect of the mining boom on the Australian economy,<sup>4</sup>
- "a large part of the run-up in mining prices and investment can be explained as a *response* to faster economic growth among our trading partners" (p 5, emphasis added)
- 14 That is, the production and export of minerals from Australia was caused by demand for minerals from our trading partners, e.g. urbanisation in China caused an

<sup>1</sup> That is, demand that will exist during the life of the Project, from AFY2016-17 to AFY2046-47.

<sup>2</sup> The effect of the Project on the exchange rate leads to a further minor reduction in coal mined elsewhere in Australia.

<sup>3</sup> In practice, the quality of thermal coal varies from mine to mine, so if the Project does not go ahead and world demand is supplied by lower quality coal from somewhere else in the world, then more coal would need to be mined e.g. by an Indonesian coal mine, to create a given amount of electricity by the users of the coal. I abstract from such details in the modelling.

<sup>4</sup> Peter Downes, Kevin Hanslow and Peter Tulip (2014) *The Effect of the Mining Boom on the Australian Economy*, Reserve Bank of Australia Discussion Paper 2014-08.

increase in the demand for steel to make buildings in Chinese cities, which in turn caused an increase in demand for coal and iron ore which was used to make that steel.

- 15 Second, as a matter of commercial reality, no coal mining company is going to make a highly costly investment in a coal mine, and then supply the coal onto the world market, without first knowing, or at least being very confident, that the demand for its product will, or does, exist.<sup>5</sup> Furthermore, it is likely that providers of debt finance for the mine will themselves need to be confident that demand for the mine's products will exist.
- 16 According to Dr Denniss (at page 3), it would be have been "far superior" for me to have modelled the Project as an increase in world coal supply. By this he means that the Project should have been modelled as an increase in the Australian production of coal which is sold into a market which experiences no underlying increase in demand.
- 17 I disagree.
- 18 In effect, Dr Denniss's preferred approach would be to model investment in a coal mine as akin to a small-scale suburban property developer who speculatively builds a pair of town houses, and then once built puts them onto the market in the hope that he can sell them for a profit.
- 19 As discussed above, this strategy is not commercially realistic for a coal mine.
- 20 Furthermore, in the particular case of the Carmichael Project, a proportion of the mine's output will likely be sold to Adani's parent company, for use in that company's power stations. This information has been in the public domain for several years. The first document filed by Adani in the EIS process states in Chapter 1, section 1.1, first paragraph:
 

"Export coal from this project will predominantly service the Indian domestic power market."<sup>6</sup>
- 21 At paragraph 12 of my 30 January 2015 Report (the opening paragraph of the chapter "The Carmichael Project and objections to it") I state
 

Adani Pty Ltd (Adani) proposes to produce around 40 million tonnes per annum (mtpa) of coal for export to a variety of Asian countries including, inter alia, India, China, Korea and Japan.
- 22 It is self-evident that the correct causality goes from the demand for coal to the supply of that coal from the Carmichael Project.
- 23 That being the case, I believe Dr Denniss's criticism (at page 2) that my report provides no rationale for my assumption is unjustified.
- 24 I note also that under Dr Denniss's preferred assumption that the mine be modelled as an increase in supply for a given demand, the positive impact on the Queensland and Australian economies would be larger than I have estimated. Under my assumption, output from the Carmichael mine comes at the expense of other mines around the world, including in Australia. Under Dr Denniss's preferred assumption,

<sup>5</sup> According to data provided to me by Adani, it will spend over \$1.5 billion on the Project before it mines any coal. See Attachment B of my 30 January 2015 Report.

<sup>6</sup> <http://www.dsdip.qld.gov.au/resources/project/carmichael/initial-advice-statement.pdf>

- the negative effect on Australian coal mines, including in Queensland, would be absent.
- 25 Furthermore, Dr Denniss states (at page 7) that under his preferred assumption that the Project be modelled as an increase in supply, the price of coal would fall, thereby reducing the incomes of all Australian coal producers. While I have not done the modelling in this way, I think the effect on the world coal price of this hypothetical increase in Australian supply is likely to be very small.
  - 26 This is because the output of Project (around 40 mt per year) will be very small relative to the world thermal coal market. In 2013, the top ten thermal coal producing countries produced 5746 mt of coal.<sup>7</sup> Adani's output will be less than one per cent of thermal world coal production, and so would be very unlikely to affect the world price of coal, even if it were sold onto the world market in the scenario preferred by Dr Denniss.
  - 27 Dr Denniss, at page 9, writes that the terms of trade benefits that I report are best understood as an assumption rather than a conclusion. This is not correct. The size of terms of trade benefits (in terms of their contribution to increases in regional, state and national income, shown in Table 2, page 12 of my 30 January 2015 Report) are those estimated by the model. Their magnitude is driven by the size of the Project, not any assumption that I have made.
  - 28 Furthermore, significant terms of trade benefits will occur due to the capital investment in the mine (which will occur throughout its life). These benefits are separate from those occurring due to demand for and export of Australian coal *per se*. Because Adani is foreign-owned, the construction of the mine will in effect involve the export of Australian labour services. The demand for these services will appreciate the exchange rate and equivalently result in an increase in Australia's terms of trade.
  - 29 Importantly, in terms of Dr Denniss's argument, this would be true even under his preferred scenario (that the output of coal should be seen as an augmentation of supply rather than a response to demand). This is because the terms of trade benefits that result from the construction of the Project arise solely from the fact of the Project's ultimate foreign ownership.
  - 30 In summary, the gist of Dr Denniss's criticism is that the terms of trade benefits that I have estimated are an artefact of my assumption that the output of coal from the Project results from global demand for coal. I reject this criticism; first, because his premise that my assumption is unreasonable is demonstrably false; and second, because even if his premise was correct, his conclusion would not follow.
  - 31 Dr Denniss says (at page 8) that I have not explained why non-Carmichael mines will reduce their supply at unchanged coal prices. Likewise, at page 21, he characterises my assumption that the Project will be a response to existing demand for coal throughout the world as an implying "that mines operating profitably at current prices suddenly withdraw their supply from the market".
  - 32 I have not made any such implication. My assumption is that the relevant demand for coal in the world will be supplied by the Carmichael Project rather than by other mines. No non-Carmichael mines will be "withdrawing" their supply, because they will not have made that supply in the first place.

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<sup>7</sup> <http://www.worldcoal.org/resources/coal-statistics/>

- 33 Finally, Dr Denniss says (at page 22) that he does not find it logical that the modelling finds that the world supply of coal will be reduced by the (very small) amount of two million tonnes per year.
- 34 As discussed above, I have assumed that the relevant demand for coal is met by the Carmichael Project rather than other mines in the world. The reason that the modelling estimates a very small reduction in aggregate world supply, rather than zero, is that a consequence of the Project is an appreciation of the exchange rate which makes other Australian coal producers less competitive on world markets, and there is a very small amount of switching by buyers of energy, from Australian coal to other fuel sources. However, the effect is so small that it is hardly worth mentioning.

## 2.2 Employment and Wages

- 35 Dr Denniss notes that the modelling concludes that the Project will lead to increases in both employment and real wages in the MIW region. However, he incorrectly states (at page 6) that I have assumed that “increasing wages will increase employment”. He also incorrectly states (at page 10) that my modelling suggests that “higher wages will be the cause of increased employment in the retail and tourism industry”.
- 36 In fact, the model makes no assumption that increasing wages will increase employment in any industry. On the contrary, the model makes the usual assumption in economic analysis that, other things being equal, higher wages will lead to reduced employment in an occupation or industry, as employers substitute capital for labour and cheaper labour for labour that has become more expensive, to the extent that production possibilities make such substitution feasible.
- 37 The key phrase here is “other things being equal”, where the principal other thing is demand for the products being produced by the industries in question.
- 38 The reason that both real wages and employment will increase in the MIW region as a consequence of the Project is that the Project will lead to a significant increase in economic activity and incomes in the region. This will increase the demand for goods and services produced and sold in the region, e.g. in the retail sector and government services. Employers will want to take on more employees, and to attract those employees will offer them increased wages. It will be profitable for employers to employ more people despite paying higher wages because of the increased sales that employers will make in the buoyant MIW economy.
- 39 This is both elementary economics and common sense. It is exactly what happened in the Pilbara during the iron ore boom.<sup>8</sup> There is no sense in which the model suggests (or I assume) that higher wages “cause” higher employment. Both will happen at the same time; both will be caused by the boost to the region’s economy brought about by the Project.
- 40 Finally, Dr Denniss mischaracterises other modelling results. He writes (at page 5) that the Project will reduce employment in the [non-Carmichael] coal industry, other parts of the mining industry and agriculture and food industries. He also claims that “agricultural wages are estimated to decrease”.

<sup>8</sup> Jim Minifie, *The mining boom Impacts and prospects*, Grattan Institute July 2013.

- 41 None of this is true. As I explained in my Report (at paragraphs 74-76) any apparent “loss” of jobs in an industry means only that growth of jobs in that industry will be (slightly) slower with the Carmichael Project in place than in its absence. Nothing in the modelling leads to the conclusion that people in any industry will lose jobs they already hold, in the sense of being made redundant, or for any other reason.
- 42 Likewise, the apparent reduction in wages in agriculture is only relative to the wage growth that would otherwise occur. It does not mean that wages will fall in absolute terms.

### 2.3 Reliability of regional data

- 43 Dr Denniss states (at pages 4-5) that the regional data are unreliable and cites a Queensland Government report in support.
- 44 In general it is true that regional databases cannot replicate the accuracy available for states level databases due to the lower availability of official (particularly ABS) statistics. It is in the nature of economic modelling that data are not perfect, particularly at fine levels of disaggregation.
- 45 However, in my opinion, this is not a material issue in the context in which I have applied the data. In particular, the economic impact of the Project is modelled as the difference between two growth paths (with and without the Project) for the regional, state and national economies. Any shortcomings in the regional data, while possibly affecting estimates of the absolute size of regional industries, should have no material effect on the difference between the paths of the economies with and without the Project, and hence no effect on the estimated economic effect of the Project.

### 2.4 Alternative CGE modelling

- 46 At page 2, Dr Denniss states that I did not discuss the questions I asked of the model, or discuss “alternative approaches to CGE modelling”.
- 47 The question I asked of the model is stated in the first paragraph of the chapter “CGE analysis” in my report of 30 January 2015 (paragraph 34 of the report). That question was what are the economic impacts of the Carmichael road and rail project.
- 48 As for the alternative approaches, the critical alternative is to conduct the modelling under alternative labour market assumptions, which I did and discussed at length in my report. The reason this particular alternative is critical is that previous estimates of the economic impact of coal mines had been criticised, not least by Dr Denniss himself, for using an input-output methodology which led to unrealistically large employment effects being estimated.
- 49 Another possible alternative approach, presumably favoured by Dr Denniss, was to conduct the modelling using the assumption that the output of the Project would be an incremental change in the supply of coal, having no regard to demand. As discussed above, this is not commercially realistic, and is inconsistent with known facts about the Project. This alternative would therefore provide an inferior view of the likely economic effects of the Project.

## 2.5 Externalities

- 50 Dr Denniss and I are in agreement that CGE models cannot be used to evaluate the welfare effects of externalities, such as pollution.
- 51 However, he says (at page 7) that I should have used a CGE model that partially integrates these external effects.
- 52 If such a model existed, then, for example, it would be possible to estimate the full effect of an agricultural industry on the fishing industry by accounting for the effect of agricultural fertilisers that run into in waterways on fish stocks.
- 53 Unfortunately, however, as far as I am aware, no such model exists – certainly not for Australia. This is not surprising given the complexity of the relationships between physical systems, let alone between physical systems and the economy.
- 54 Dr Denniss criticises my report for not estimating a monetary value for external costs such as effects on air and water quality, and bio-diversity effects. He says it is possible to estimate the value of these effects using a combination of market-based and survey-based instruments, and he cites a recent report by Deloitte Access Economics on an evaluation of the Mount Owen coal project in NSW.
- 55 The problem with such approaches is that where markets do not exist for the goods in question (e.g. bio-diversity), values can only be ascertained by surveys i.e. by asking people what they would be willing to pay to avoid a bad environmental outcome, or how much they would need to be compensated if a bad environmental outcome occurred.
- 56 However, such surveys are notoriously unreliable. Economists Peter Diamond and Jerry Hausman, in a very influential paper<sup>9</sup>, “Contingent Valuation: Is Some Number Better than No Number”<sup>10</sup>, are scathing in their criticism of such methods:

Without market outcomes for comparison, internal consistency tests, particularly adding-up tests, are needed for credibility. When tested, contingent valuation has failed. Proponents find surveys tested poorly done. To the authors' knowledge, no survey has passed these tests. The 'embedding effect' is the similarity of willingness-to-pay responses that theory suggests (and sometimes requires) be different. This problem has long been recognized but not solved. The authors conclude that current methods are not suitable for damage assessment or benefit-cost analysis. They believe the problems come from an absence of preferences, not a flaw in survey methodology, making improvement unlikely.<sup>11</sup>

- 57 I note that the Deloitte study favourably cited by Dr Denniss is equivocal. On groundwater, it says (at page 96)

Table C.3 summarises the literature on the values that households assign to the quality of drinking water. It is noted that very little research has been undertaken in Australia, with the available evidence fairly dated. The appropriateness of these findings is contingent on relevance of the measures

<sup>9</sup> According to Google Scholar, this paper has been cited in 1879 other papers.

<sup>10</sup> Peter Diamond and Jerry Hausman, “Contingent Valuation: Is Some Number Better than No Number” *Journal of Economic Perspectives* 8(4), Fall 1994, pages 45-64.

<sup>11</sup> <https://www.aeaweb.org/articles.php?doi=10.1257/jep.8.4.45>

listed, which in turn depends on the nature of any anticipated change in water quality caused by mining activity.

58 On heritage values, it says (at page 56)

Having established the presence of items of heritage value, the next issue is whether a monetary value can be reasonably placed on those items. To quantify the values people place on heritage sites, stated preference techniques are the predominant method used to eliciting [sic] willingness to pay estimates through surveys. However, as described in Appendix C, very little research has been undertaken in the Australian context.

- 59 There is an additional, major, problem with using survey methods for externalities in the case of the Carmichael Project, and that is that there is no apparent agreement on what the damage to the environment (if any) will be.
- 60 Not even the First Applicant (Land Services of Coast and Country, LSCC) can say how likely any environmental damage will be. For example, in the LSCC's Further Amended Preliminary Identification of Issues (6 February) it says (at paragraph 27) that the outcome for the Black Throated Finch (after mitigation measures) could be anything from "not find suitable habitat and die" to "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".
- 61 LSCC does say that bad outcomes for the BTF are more likely but not how much more likely.
- 62 Similarly, LSCC expresses uncertainty about impacts on the Doongmabulla Springs Complex and the Waxy Cabbage Palm.
- 63 Given such uncertainties, it is far from obvious what questions would be asked in a survey. Respondents could not reasonably be asked to place a value on possible environmental damage unless they are told how likely that damage is, and what that damage is going to be if it occurs.
- 64 This problem is additional to the fact that survey responses are unreliable, even if respondents could be asked to place a value on well-defined environmental externalities.
- 65 I conclude that attempting to place a value on environmental externalities for the Carmichael Project via survey methods would be worse than useless, because values could be not reliably estimated, and doing so would create a sense of precision about such values where none reasonably exists.



## 3 Issues raised by Mr Buckley

### 3.1 Introduction

66 In this chapter I respond to issues raised by Mr Tim Buckley in his Expert Witness Reports to the Court of 9 February 2015 (Report 1), 27 February 2015 (Report 2), and 9 March 2015 (Report 3), particularly the latest two, as they relate to my report of 30 January 2015.

### 3.2 Commercial viability

67 Mr Buckley (mis)uses the data I used in my cost benefit analysis (CBA) to draw conclusions about the commercial viability of the Carmichael Project. He repeatedly refers to my analysis as a financial model, which it is not. My first report clearly states so.

68 As I state in my report (see section 4.1, paragraph 85), a cost benefit analysis and a financial analysis are two very different types of analyses. They are done for different purposes using different type of data. It is simply not possible to take the data from a CBA and turn it into a financial analysis. But this is what Mr Buckley has done, or attempted to do.

69 The differences between a financial analysis and a CBA are significant and are set out below.

Table 1 Financial analysis versus CBA

Item	Financial	CBA
Costs and benefits	Cash only	All items monetised (where possible)
Timing of costs and benefits	When cash is received/paid	When the activity occurs
Taxes	Included when paid (including GST not recovered)	Excluded: taxes are not relevant costs
Subsidies	Included when received	Excluded: subsidies are not relevant benefits
Financing costs	Included when paid/received	Only considered in the discount rate used
Discounting	Usually at the Weighted Average Cost of Capital	At the social discount rate (usually less than WACC)
Financial structure	Starting financing assumed, sometimes dividends and debt are adjusted to maintain financial structure (with profit as the balancing item), other times capital structure is allowed to move and cash is the balancing item	Not relevant
Profit on input costs	Inputs include at cash costs	In non-competitive or otherwise distorted markets shadow input prices are used

- 70 Mr Buckley has erred by using data from CBA in his financial analysis. His conclusion (p3, Report 2) that “The Project is commercially unviable” is unwarranted from his analysis.
- 71 Moreover, his analysis is flawed even on its own terms. If it is meant to be a financial analysis, it is flawed because it contains an item (carbon costs) that should not be included in a financial analysis.
- 72 The reason that carbon costs are an externality is that Adani won’t be paying them. Hence they do not belong in a financial analysis. But they are a social cost, so should be included in a CBA.
- 73 If Mr Buckley’s analysis is meant to be an alternative CBA, it is flawed because it contains items (coal royalties and interest costs) that should not be in a CBA.
- 74 Coal royalties are not a separate item to be counted in a CBA because they come out of project revenues. Coal royalties affect the distribution of benefits, but not total benefits.
- 75 Interest costs are not a separate item to be counted in a CBA because they represent the opportunity cost of capital, but this is already accounted for in the discount rate. Inclusion of interest costs in a CBA amounts to double counting of project costs.

### 3.3 Coal prices and yields, and costs

- 76 Mr Buckley concludes (albeit using a flawed methodology) that the Project is financially unviable by assuming lower coal prices, lower coal volumes and higher coal prices than I used in my CBA.
- 77 In his Report 2, Mr Buckley assumes that the price that Adani will receive is around \$50 per tonne throughout the life of the Project, or around US\$39 per tonne.
- 78 This price is 40 per cent lower than the most recent benchmark price for Australian thermal coal, \$US65.79, as at February 2015.<sup>12</sup>
- 79 Mr Buckley justifies this lower price by assuming that the world market for coal is in structural decline. I find his reasons for this assumption to be unconvincing. For the most part (as set out in section 1.4 of his Report 1), he relies on reports of stockmarket analysts, whose time horizon is much shorter than the life of Project. While these analysts all appear to be forecasting low coal prices in the short term, Mr Buckley appears to be on his own, or nearly so, in extrapolating those forecasts to the middle of this century.
- 80 Mr Buckley also assumes in his Report 2 that the yield (the ratio of product coal to mined coal) is significantly lower than that estimated by Adani.
- 81 In doing so, Mr Buckley appears willing to contradict Adani’s own information regarding its coal resource and the efficiency of its operations.
- 82 In his Report 3 Mr Buckley assumes that Adani’s operating costs will be significantly higher (about 25 per cent higher) than the costs that Adani has estimated and which I used in the CBA.

<sup>12</sup> <http://www.indexmundi.com/commodities/?commodity=coal-australian&months=60>

- 83 In doing so, Mr Buckley appears willing to contradict Adani's own information regarding its costs and the efficiency of its operations.
- 84 The combination of these assumptions leads Mr Buckley to conclude that the Carmichael Project is commercially unviable. Mr Buckley's analysis leads me to a different conclusion. My conclusion is that Mr Buckley has assumed the answer he was looking for, and so has derived the answer he assumed.

# Attachment A Instructions from McCullough Robertson

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Our reference CEM:PWS:159359-00022

13 March 2015

Dr J Fahrer  
Director  
ACIL Allen Consulting

**Email J.Fahrer@acilallen.com.au**

Dear Jerome

**Adani Mining Pty Ltd v Land Services of Coast & Country Inc. & Anor  
Land Court of Queensland Proceedings no. MRA428-14, EPA429-14, MRA430-14,  
EPA431-14, MRA432-14 and EPA433-01**

We refer to:

- (a) our previous instructions to you in relation to this proceeding dated 29 January 2015 (**Previous Instructions**);
- (b) your statement of evidence on economic assessment dated 30 January 2015 (**Individual Report**);
- (c) your joint report with Richard Denniss dated 27 February 2015 (**Second Joint Report**); and
- (d) the supplementary and second supplementary statements of evidence of Tim Buckley dated 27 February 2015 and 9 March 2015 respectively (**Buckley Statements**)<sup>1</sup>.

2 For convenience, defined terms in your Previous Instructions have been adopted in this note.

### **Instructions**

- 3 We require you to provide another further statement of evidence under the Rules.
- 4 In accordance with orders made by the Court, your further statement of evidence is required by **Friday, 13 March 2015**.
- 5 Your further statement is to deal with matters of disagreement between yourself and Richard Denniss as outlined in the Second Joint Report. As you know, the Second Joint Report was required where the LSCCI state their nominated experts were not able to deal with the area of economic modelling discussed in your Individual Report.

<sup>1</sup> At this time, it is not clear whether Mr Buckley's second supplementary statement of evidence will or will not be admitted into evidence in the proceeding.

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- 6 However, Mr Buckley, who was already a nominated expert, in his statements of evidence delivered other than in accordance with Court orders, has commented on your Individual Report.

## **Format of report**

- 7 Your report should largely follow the format laid out in our Previous Instructions. However, where appropriate, you may refer back to your Individual Report (e.g. when referring to your CV), rather than reattaching that document.

### **SECTION A - Qualifications and Curriculum Vitae**

- 8 Where you do so, it would be appropriate to refer to your Individual Report as set out below.

*My CV is included as Attachment C to my statement of evidence for economic assessment, which is exhibit JGF-1 to my affidavit affirmed 30 January 2015 in these proceedings.*

### **SECTION B – Summary of conclusions**

- 9 The Rules require your further statement to provide a summary of the conclusions you have reached. In our view, this may be best presented in an Executive Summary.

### **SECTION C - Material relied on in preparing the statement**

- 10 As with your Individual Report, lists are sufficient, however, it would be useful to ensure that you (and we) have a copy of all the listed material when finalising your report.

### **SECTION D – Opinion**

- 11 Again, our Previous Instructions apply to this section.

- 12 In particular, we would like your supplementary further statement of evidence to address the points below arising from the Second Joint Report.

- (a) Please respond to Dr Denniss' comments that coal from the Mine will add to the total volume in the market.
- (b) Please explain, if possible, the 'paradox' of your model wherein the total amount of coal mined in the world does in fact fall (even with the addition of Carmichael).
- (c) Please address the 'terms of trade' points made by Dr Denniss in the Second Joint Report, including whether:
  - (i) they are relevant to what the model is being used to demonstrate; and
  - (ii) altering the terms of trade would have an impact on the conclusions set out in your Individual Report.
- (d) Please address Dr Denniss' expressed opinion (in relation to issue 113) that the information used and referred to in your Individual Report is widely considered to be of low reliability.
- (e) Please also address Dr Denniss' comments (also under issue 113) about job losses and wage reduction.
- (f) In relation to Dr Denniss's comments about issues 109 and 114, please explain what alternative model options are available and their respective strengths and weaknesses.

(g) Please discuss further the 'ecological economics' types of surveys Dr Denniss suggests could be adopted for a cost benefit analysis, and whether they are reliable or needed to properly assess a proposal.

13 Please also comment on the Buckley Statements, to the extent they deal with matters within your field of expertise.

**SECTION E – Expert's confirmation**

14 As per the Previous Instructions and your Individual Report, your supplementary further statement of evidence should include an appropriate confirmation to the Court that you understand the Rules and your duties.

**Confidentiality**

15 Any report generated by you should remain in draft until such time as we are in a position to discuss the contents of the report with you. We ask that the report be kept strictly confidential as it is to be used for the purpose of obtaining legal advice or for use in legal proceedings. You are not authorised to provide these instructions or your report to any other person or party.

If you would like any further material, or have any questions, please contact us.

Yours sincerely



**Peter Stokes**  
Partner

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