

Fingerboards Mineral Sands Project

Expert report to Inquiry and Advisory Committee on economic impact assessment

The economic assessment of the Fingerboards project overstates its benefits and understates its costs. Key values are not transparently explained and some rely on unorthodox calculations. With considerable economic risk and uncertain benefits, the project should be rejected by consent authorities.

Rod Campbell

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Summary

1. The Fingerboards mineral sands project is a proposal to mine zircon and other minerals from deposits adjacent to the Mitchell River near Bairnsdale, East Gippsland, Victoria. The project site is adjacent to horticultural cropping and other agricultural businesses, some of which oppose the project due to potential impacts on their businesses and the environment.
2. The project proponent, Kalbar Resources, has commissioned an Environmental Effects Statement (EES). This report is primarily a review of the cost benefit analysis included in the EES, written by consultants BAEconomics.
3. In my view, the BAEconomics analysis is flawed. It overstates the benefits of the project and understates its costs. Key values are based on unorthodox and non-transparent calculations.
4. The BAEconomics analysis includes no detailed discussion of what minerals are to be produced, the timing and quantities of production and commodity prices and exchange rates. Given the fundamental importance of these issues to the economics of any mining project, omitting discussion and disclosure of them is extraordinary.
5. No separate estimates are provided of royalty and tax payments or surplus/profit to the proponent. Given the lack of transparency around these key figures and the context of a project being sold by a major mining company to a relative minnow and the increased risks to taxpayers and the environment that this brings, decision makers should treat the values provided with scepticism. Sensitivity analysis is restricted to changing commodity prices by just 10%, while in reality they have fluctuated by more than 50% in recent years.
6. The largest benefit of the project according to BAEconomics is not profits or royalties, but the value it would bring to Victorian suppliers to the mine. This is highly unorthodox. Almost all cost benefit analyses of mining projects, including other studies by BAEconomics, assume that inputs are priced at their opportunity cost giving little marginal benefit to suppliers. Because of this logic and the complex data required to make any estimate, BAEconomics themselves have described this value as “speculative at best”, requiring information that “typically does not exist”. However, for the Fingerboards project, BAEconomics estimate this value at \$209 million, making up more than half the claimed net benefit of the project. The estimate is based on just two paragraphs of discussion and unsourced data.
7. The BAEconomics analysis assumes that environmental impacts in relation to air quality, visual amenity, transport, water, biodiversity, and noise impacts are perfectly offset by

the mitigation techniques outlined in the EES and therefore are given zero value. This is an unrealistic assumption, given the concerns of local stakeholders and numerous examples of mitigation measures being either ineffectual or not complied with. Local examples include the Benambra/Stockman project and the Hazelwood mine fire.

8. While the BAEconomics assessment assumes zero costs, the EES Horticultural Impact Statement identifies “moderate risks” to crops, livelihoods, local employment, landscape, regional reputation, water supply and water quality based on “standard mitigation”. Valuing such risks and impacts is difficult and subjective. Some analyses respond by presenting qualitative discussion prominently alongside quantitative estimates. For example, a 2013 report for former project owners Rio Tinto states in the summary, body of report and conclusion that the viability of the project was “dependent on mitigation of risks associated with securing a suitable water supply”. No such prominent qualifications are found in the BAEconomics report.
9. Data in the EES can be used to make illustrative estimates of impacts on the environment and horticulture. For example, if horticultural output is reduced by 5% due to dust and water impacts, this would cut the annual value of production by \$3.2 million to \$6 million, reduce horticultural profits by around \$1 million and affect around 100 jobs. Including even small impacts to horticulture in the assessment demonstrates the economic basis for local opposition to the Fingerboards project and raises important distributional questions.
10. While this review focuses on the content and merits of the analysis presented by BAEconomics, economics is a social science and inherently subjective. In this context, it is useful for decision makers to understand the background of the analysts involved. BAEconomics is led by one of Australia’s most controversial economists who is closely linked to mining and fossil fuel industry advocacy.
11. The Fingerboards project presents considerable risks for the East Gippsland and wider Victorian communities. Given the potential impacts and uncertain benefits of the project, in my view it should be rejected by Victorian authorities.

Introduction

12. The Fingerboards mineral sands project is a proposal to mine zircon, rutile, ilmenite and other minerals from deposits adjacent to the Mitchell River near Bairnsdale, East Gippsland, Victoria. The project site is adjacent to horticultural cropping and other agricultural businesses, some of which oppose the project due to potential impacts on their businesses and the environment.
13. The project proponent, Kalbar Resources, has commissioned an Environmental Effects Statement (EES), including an Economic Impact Assessment written by consultants BAEconomics. I have been instructed to review the economic aspects of the EES by Environmental Justice Australia (EJA), a law firm representing Submitter No. 813, a local community group that opposes the Fingerboards project. EJA's letter of instruction is attached as an appendix to this report.
14. I have degrees in economics and geography from the University of Melbourne and have ten years' experience researching the role of economic assessment in planning systems, particularly in relation to mining projects. I have given expert evidence on these topics in the NSW Land and Environment Court and Queensland Land Court, as well in as numerous planning hearings and parliamentary inquiries. I have also had articles published in peer-reviewed journals on similar matters. My CV is attached as an appendix to this report.
15. I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Inquiry and Advisory Committee Panel.
16. The BAEconomics assessment consists of two parts, a cost benefit analysis (CBA) and a computable general equilibrium (CGE) modelling exercise. In simple terms, a CBA weighs up the costs and benefits of a project and asks whether the project makes the community better off overall. CBA is the main economic tool for decision making on projects and policies and it is the preferred methodology of the Victorian and many other governments.¹ Most of the BAEconomics assessment is spent on CBA and, as a result, so is this review.
17. CGE models estimate the impact of a policy or project on the wider economy. They do not address the question of whether a project is viable or desirable. They are relatively

¹ Victorian Department of Jobs, Precincts and Regions (2020) *What is cost benefit analysis?*, <https://djpr.vic.gov.au/about-us/overview/the-economic-assessment-information-portal/i-am-looking-for-introductory-economic-assessment-definitions-and-concepts#12>

complex mathematically, but like all economic models they also rely on simplistic assumptions.

18. The BAEconomics assessment is flawed. It does not provide transparent explanation of key costs and benefits. It overstates the benefits of the Fingerboards project while understating its costs. In my view, decision makers are likely to be misguided by the BAEconomics assessment rather than informed.

Cost benefit analysis

HEADLINE FIGURES

19. The BAEconomics CBA estimates the net present value of the Fingerboards project at \$392.4 million. The values in this calculation are:
- a. Company tax, producer surplus and royalties – \$158.9 million
 - b. Benefit to local suppliers – \$209.4 million
 - c. Benefit to local workers – \$25.0 million
 - d. External costs and benefits, such as impacts to the environment, other industries and the community:
 - i. External costs – \$50.1 million
 - ii. External benefits – \$49.3 million
 - iii. Giving net external costs of \$0.8 million.
20. Each of these values is problematic, has been derived using unorthodox and non-transparent methods and/or is based on unrealistic assumptions. In each case, benefits appear overstated and costs understated. In my view, the net present value of the project could be negative, meaning that the project would make Victoria worse off overall.

COMPANY TAX, PRODUCER SURPLUS AND ROYALTIES

21. The BAEconomics CBA does not provide separate estimates of the tax, royalty and producer surplus (profit) payments that the project would make. It does not provide any details of how this total figure was arrived at, or how its component parts were estimated. The figure comes from a financial model created by the proponents, with none of the input data or assumptions of that model provided in the BAEconomics assessment. By simply accepting the proponent's model with no discussion, BAEconomics provides no detailed discussion of:
- a. What minerals are to be produced,
 - b. The timing and quantities of production, and
 - c. The commodity prices and exchange rates assumed in the model.

22. Given the fundamental importance of these issues to the economics of any mining project, omitting discussion and disclosure of them is extraordinary. Decision makers are denied any insight into the economic prospects of the mine or of what influences these prospects. Almost all analyses of mining projects in Australia include detailed discussion of these points, including others written by BAEconomics.²
23. This is a major shortcoming of the BAEconomics assessment, particularly given the wider context of the project. Though the project was owned by Rio Tinto for many years, documents provided to me by EJA show that Rio Tinto assessed the project as “unlikely to meet the minimum criteria for a Rio Tinto mining business.”³ The project was subsequently sold to a relatively unknown company, Kalbar. This transfer increases the risk of the project to the Victorian taxpayer and environment, because smaller companies are more likely to abandon mines and cut corners on environmental and safety requirements. The nearby example of the Benambra/Stockman mine has cost Victorian taxpayers millions in remediation expenses, just one of an estimated one mine per year that is abandoned in the state.⁴
24. In such a situation, economic assessment should be providing as much detail as possible to help decision makers understand the likelihood of estimated benefits being realised. Instead, with no discussion of calculations for revenue, operating costs, producer surplus, tax and royalty payments, the BAEconomics fails to provide this detail. This has little to do with commercially sensitive information. Countless similar assessments have provided this information, with no apparent damage done to proponent’s financial interests.
25. The BAEconomics value of \$158.9 million includes no estimate of producer surplus, which is “assumed to be zero, [because] while Kalbar is a majority Australian-owned company, currently the major share holders reside outside Victoria.” According to a Kalbar annual report, the project would pay \$115 million in (undiscounted) royalties and \$650 million (undiscounted) total taxes and fees.⁵ This translates to an annual average of \$7.7 million in royalties and \$35.7 million in company tax, of which \$9.2 million would accrue to Victoria based on BAEconomics’ approach. There is no working provided in the Kalbar annual report to support these estimates.
26. The likelihood of company tax payments eventuating as estimated in the BAEconomics report is highly uncertain. Company tax calculations are complex and can easily be

² See for example, BAEconomics (2014) *Economic impact assessment for Warkworth Continuation 2014 and Mount Thorley Operations 2014*. Available on request

³ Rio Tinto (2013) *Combined Annual Report for Period 1 October 2012 to 30 September 2013*, EL4662, EL4870, EL4871, EL4872, EL4873 and EL4874, Gippsland Mineral Sands Project, Victoria. Available on request.

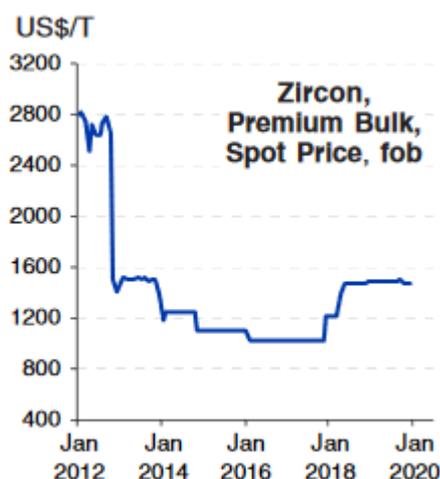
⁴ Campbell et al (2017) *Dark side of the boom: What we do and don’t know about mines, closures and rehabilitation in Victoria*, <https://australiainstitute.org.au/report/dark-side-of-the-boom-victoria/>

⁵ Kalbar (2020) *Financial report for the year ended 30 June 2020*, sourced via ASIC website.

impacted by changes to marketing arrangements, operating costs or a host of other factors. The simplistic approach adopted by BAEconomics – applying the headline company tax rate (30%) to the Kalbar economic model – does not give decision makers insight into how likely such payments are to be made in the future and is likely to overstate this benefit. Assessments commissioned by the NSW government focus on royalty payments and exclude company tax estimates when estimating minimum likely benefits to the state.⁶

27. The sensitivity analysis section does little to address the paucity of detail provided in the discussion of BAEconomics’ central estimates. The sensitivity analysis only estimates changes to the project value with an increase/decrease in commodity prices of 10% and changes to the discount rate. As shown in Figure 1 below, the price for zircon, the most important commodity for the economics of the mine according to the earlier Rio Tinto assessment, has fluctuated substantially over the last eight years:

Figure 1: Zircon price 2012–2020



Source: Consensus Economics (2020) *Energy & Metals: Consensus Forecasts*, <https://www.consensuseconomics.com/>

28. Figure 1 shows that the price for zircon has changed from between \$US2,800/t to \$US1,000/t before recovering to \$US1,500/t over an eight-year period, variations of more than 50%. This is a far greater than the 10% variation considered in the BAEconomics sensitivity analysis.

⁶ See for example CIE (2017) *Peer review of economic assessment: Wallarah 2 Coal Project*, <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-4974%2120190226T123216.892%20GMT>. Note that despite the apparent net benefits to be delivered by the Wallarah 2 project, it has still not been developed and recent Korean media reports suggest it is to be sold in April 2021 if a buyer can be found. See Kim (2021) *Minerals Corporation Australia's coal mine sale, will it be able to get the right price?*, <http://www.e2news.com/news/articleView.html?idxno=229422>

29. Worse still, the sensitivity analysis provides decision makers with no understanding of how changes in commodity prices affect its profitability and therefore the likelihood of periods spent in care and maintenance. In my view, this should be a key consideration for decision makers as all other benefits are contingent on continued, smooth operation of the mine. BAEconomics explain why their sensitivity analysis fails to give this understanding:
30. *The estimated net benefit of the project are sensitive to the mineral price assumptions underpinning the analysis, but even assuming prices are 10 per cent lower than under the central case assumptions the net benefits are estimated to be \$365.4 million in NPV terms (using a 7 per cent discount rate). This is a 6.9 per cent fall from the net benefits under the central case assumptions, because only the direct benefits are affected, while the indirect wage and supplier benefits remain unaffected.* (page 35, **bold** added)
31. In other words, BAEconomics have adjusted royalty and tax payments for slightly lower/higher commodity prices, but this makes little difference to their estimates because of other large benefits they claim are unaffected by commodity prices, particularly supplier benefits. This should be of particular concern to decision makers as inclusion of such supplier benefits is highly unusual in economic assessment of mining projects, and is largely a speculative calculation, discussed further below.

BENEFIT TO LOCAL SUPPLIERS

32. The largest benefit claimed in the BAEconomics analysis is ‘net economic benefit to local suppliers’ estimated at present value \$209.4 million. Decision makers should be aware that this figure, making up more than half of the claimed net benefit of the project to Victoria, has previously been described by BAEconomics themselves as “at best speculative”.⁷
33. The logic of this value is that suppliers to a resource project will benefit if it goes ahead. While this may be true and material for a handful of local businesses, many of the inputs supplied such as mining equipment, fuel and accounting services are supplied by major firms, for whom the presence or absence of the project is largely immaterial.
34. From a theoretical perspective, cost benefit analyses usually omit this value because they assume that the prices paid by proponent companies for inputs reflect their “opportunity cost”. In other words, suppliers have to put in resources and effort, and give up or delay other opportunities, in to supply the proponent. Suppliers are assumed to be indifferent between the opportunity provided by the proponent and the others

⁷ BAEconomics (2014) *NSW Draft Guidelines for the economic assessment of mining and coal seam gas proposals – A review*. Report for the NSW Minerals Council.

that they face. While this may not be the case for particular local businesses, across the Victorian economy very little difference is noticeable.

35. Furthermore, the information required to estimate any additional benefit to suppliers with any certainty is usually not available. BAEconomics have written in the past:

36. The difficulties in identifying the eventual beneficiaries of any surplus are multiplied where the surpluses accruing to suppliers of goods and services to the project are concerned. Estimating the magnitude and distribution of these surpluses would require:

- a. First, detailed projections of expenditures by type of product or service by the project, which, can easily encompass many hundreds of millions of dollars;*
- b. Second, an understanding of the types of businesses who would be the recipients of these expenditures, as well as estimates of the profits or margins these businesses would typically earn; and*
- c. Third, an understanding of the ownership arrangements of these businesses, including whether they are locally owned, or whether they are a subsidiary of an interstate or overseas-owned business.*

37. The information required to undertake this type of analysis typically does not exist. Large mining businesses will have a very large number of suppliers. Moreover, these suppliers may be located locally or interstate, but the proponent would have no knowledge of the margins under which these businesses operate, nor of their ownership arrangements – that is, to whom any surplus accrues. Any such analysis would therefore be, at best speculative.⁸

38. Because of the speculative nature of this benefit and the theoretical and technical difficulties in estimating it, no previous assessment of a mining project has included this value, as far as I am aware. This includes assessments by BAEconomics. At least one BAEconomics cost benefit analysis does not consider its existence at all and at least three claim it “cannot be measured with any precision” and make a basic estimate using a 10% margin for “illustrative purposes”, but do not include it in net present value calculations.⁹ BAEconomics have been commissioned to review cost benefit analysis of

⁸ BAEconomics (2014) *NSW Draft Guidelines for the economic assessment of mining and coal seam gas proposals – A review*. Report for the NSW Minerals Council.

⁹ BAEconomics (2014) *Economic impact assessment for Warkworth Continuation 2014 and Mount Thorley Operations 2014*; BAEconomics (2016) *Economic impact assessment of the Hume Coal project*; BAEconomics (2018) *Updated economic impact assessment of the Hume Coal project*; BAEconomics (2020) *Economic impact assessment of the Hume Coal project*. All available on request

resource projects that do not include this value and have not commented on its absence.¹⁰

39. By contrast, in the assessment of the Kalbar project, benefit to suppliers is the largest benefit of the project. To estimate it, BAEconomics appear to take Kalbar's estimates of spending on "administration, rehabilitation, overburden, ore mining, processing and trucking and porting, but excluding shipping costs" and apply rate of 22.9% to this expenditure. The only explanation offered for this is:

40. On average, \$1 million of inputs supplied from Victorian suppliers generates \$229,000 of GOS [gross operating surplus], or a 22.9 per cent GOS to inputs ratio.

41. It is not clear how this estimate is derived and no reference is provided.

42. Decision makers should be concerned that a \$209 million dollar value, the largest claimed benefit of the project, is based on speculative reasoning and unconventional, unsourced calculations. BAEconomics have dismissed such estimates in the past as "speculative at best" with large data requirements. That they now include this value, with just two paragraphs of discussion, is difficult to see as anything other than an attempt to advance the interests of their clients rather than conduct objective assessment.

BENEFIT TO WORKERS

43. Similarly, the cost benefit analysis includes a present value benefit to workers of \$25 million. This calculation assumes that all (non-contract) workers on the project are paid \$101,882/year and that in the absence of the project all of these workers would earn the East Gippsland regional average wage of \$49,543.¹¹ This results in each worker earning \$52,339 more with the project than they otherwise would have.

44. There are several problems with this approach. First, in reality many workers on the Kalbar project are likely to come from other positions in the mining or civil engineering industries and so would receive very similar wages in the absence of the project. For such workers, the additional benefit provided by the project is minimal.

45. Second, BAEconomics ignore that working in a mine can be dirty, dangerous, inconvenient and require considerable skill to work safely and efficiently. It is this disutility and skill that is reflected in the higher wages earned by mining. It is not that mining companies willingly pay higher wages than other industries – they need to pay

¹⁰ BAEconomics (2020) *Peer Review of the Economic Assessment (cost benefit analysis) and Economic Assessment (macroeconomic analysis) of the Santos NSW (Eastern) Narrabri Gas Project*.

¹¹ BAEconomics clarify that in reality not every worker would earn these salaries, but that this is the average across the project. The effect is the same for the results of the cost benefit analysis.

these wages to compensate workers for the extra disutility and skill that the industry involves.

46. Like benefits to suppliers, the benefit to workers of the project is unlikely to be zero, but is almost impossible to measure, as it is unclear which workers have other opportunities of similar value and the compensation they require to work in the mining industry. It is for this reason that most cost benefit analysis excludes this value and the NSW Guidelines cited by BAEconomics consider that “a zero wage premium is a useful starting assumption”.¹²

EXTERNAL COSTS AND BENEFITS

47. The BAEconomics assessment assumes that environmental impacts in relation to air quality, visual amenity, transport, water, biodiversity, and noise impacts are perfectly offset by the monitoring, management or offset techniques outlined in the EES.¹³ In line with this assumption, zero value is given to these potential impacts on the environment and the industries that rely on the local environment. This is an unrealistic assumption and an inappropriate approach that understates the costs of the project and gives decision makers no understanding of the potential economic impacts that could arise.
48. BAEconomics appear not to have been to the project site, or conducted any assessment of these economic costs independently, referring only to other parts of the EES that are also based on only brief visits to the project area. The Horticultural Impact Statement (HIS) for example is based on discussions with 11 people during “one site visit to the Lindenow Valley between the 27 – 30 August 2018”.¹⁴ Aside from these “semi-structured interviews”, the HIS is based largely on other parts of the EIS, rather than independent analysis. The “Impact and risk assessment” section even states that this part of the report is “independent from consultation feedback” (page 66). Other studies such as the Socioeconomic Impact Assessment and Agricultural Impact Assessment (AIA) refer back to the BAEconomics estimates of project value for justification, creating a circular reference with little critical or independent assessment.
49. One of the key risks of the Kalbar project is impacts on the high-value horticulture industry that operates adjacent to the project site and other agricultural industries in the area. Impacts through water quantity, quality, dust and noise are key concerns of local stakeholders.

¹² NSW Department of Planning and Environment (2015) *Guidelines for the economic assessment of mining and coal seam gas proposals*, page 4, https://www.planning.nsw.gov.au/Policy-and-Legislation/Mining-and-Resources/~/_media/C34250AF72674275836541CD48CBEC49.ashx

¹³ Small residual impact is quantified for greenhouse gas emissions.

¹⁴ RMCG (2020) *Fingerboards Mineral Sands Project Horticultural Impact Assessment*,

50. The BAEconomics take from the HIS:
51. *Based on [the HIS] assessment a reasonable conclusion is that given effective mitigation and monitoring, the impacts of the Project on horticultural production in the region will be negligible. (page 21)*
52. BAEconomics then assume that all mitigation measures operate perfectly to offset any environmental impacts through the life of the project, resulting in zero impact on the horticulture industry and other industries aside from on the project site.
53. This ignores the reality that mitigation requirements often prove to be inadequate and mining companies often fail to comply with them. Local examples include the Hazelwood mine fire and Benambra/Stockman project, while other recent examples are plentiful around Australia – the destruction of Juukan Gorge in the Pilbara, poor air quality in the Hunter Valley, water theft by coal mines around Gunnedah and the abandonment of the Northern Endeavour oil platform to name just a few.¹⁵
54. In fact, the HIS states that under “standard mitigation” the project presents “moderate” risks to crops, livelihoods, local employment, landscape, regional reputation, water supply and water quality. These risks require “additional mitigation” to be reduced to “low” risk. Additional mitigation include amorphous measures such as:
- a. *Work with landholders to develop further mitigation as required.*
 - b. *Support an annual community event e.g. a Harvest Festival to celebrate the local industry and community.*
 - c. *Implementation of a stakeholder engagement plan to manage issues of perception about markets and employment.*
 - d. *Sustained communication and engagement with adjacent horticulture landholders to develop solutions if issues are identified. (pages 70–73)*
55. Given the risks facing the horticultural industry and the reality that mitigation measures are not always sufficient or complied with, the economic assessment should not have simply assumed zero impact. One approach that could have been taken would be to

¹⁵ Wahlquist (2020) *Juukan Gorge: Rio Tinto blasting of Aboriginal site prompts calls to change antiquated laws*, <https://www.theguardian.com/australia-news/2020/may/30/juukan-gorge-rio-tinto-blasting-of-aboriginal-site-prompts-calls-to-change-antiquated-laws>; McGowan (2019) *Upper Hunter coal mining ill cause air pollution to breach safe standards, EPA says*, <https://www.newcastleherald.com.au/story/4270478/upper-hunter-air-pollution-mirrors-coal/>; Lock the Gate (2019) *Regulator finds unlawful water take at Whitehaven's Maules Creek coal mine*, https://www.lockthegate.org.au/regulator_finds_unlawful_maules_water_take; Milne (2020) *Northern Endeavour debacle hits \$209M with much more to come*, <https://www.boilingcold.com.au/northern-endeavour-debacle-hits-209m-with-much-more-to-come/>

emphasise the difficulty in valuing these impacts and to include qualitative discussion of them. While BAEconomics acknowledge that some impacts need to be considered qualitatively, there is no mention of these impacts in the summary and overall conclusion sections of the report. Their existence and potential importance is not mentioned in other parts of the EIS that refer to the Economic Impact Assessment. By contrast, the 2013 Rio Tinto report states in the summary, body of report and conclusion that the viability of the project was “dependent on mitigation of risks associated with securing a suitable water supply”. No such qualifications are found in the BAEconomics report.

- 56. Another approach could have been to provide decision makers with some basic estimates of the potential impacts and tradeoffs involved. For example:
- 57. The HIS and AIA include estimates of the gross value of the output of the local horticulture industry of between \$63 million and \$120 million per year. (AIA page 57–58)
- 58. The industry covers some 4,700 hectares with average margins of between \$4,000 and \$5,000 per hectare, suggesting a surplus of between \$18.8 million and \$23.5 million per year. (AIA page 57)
- 59. Employment in horticulture and vegetable processing varies seasonally between 2,316 and 1,446 in a local government area with just 14,000 workers. (AIA page 58)¹⁶
- 60. Based on these estimates, even relatively small impacts on the horticulture industry could have considerable local economic impacts, calculated in Table 1 below:

Table 1: Basic estimates of impacts on annual horticultural output and employment

Reduction	Value of production	Surplus/profit	Employment
1%	\$630,000–\$1.2m	\$188,000–\$235,000	14–23
5%	\$3.2m–\$6m	\$940,000–\$1.2m	72–116
10%	\$6.3m–\$12m	\$1.9m–\$2.4m	145–232

Source: Agricultural impact assessment, author calculations

- 61. Table 1 shows the impacts on horticultural value of production, surplus and employment of arbitrary reductions of 1%, 5% and 10%. While the reductions here are arbitrary and actual impacts impossible to predict with any certainty based on available information, the BAEconomics assessment makes an unlikely estimate of zero. The point of Table 1 is to demonstrate to decision makers that even seemingly small impacts on horticulture could reduce output and farm profits by millions and reduce employment by a

¹⁶ Note more recent data suggests there are closer to 19,000 workers in East Gippsland Shire. Regardless, the industry is a major employer in the shire. Department of Education, Skills and Employment (2020) *Small Area Labour Markets (SALM), June Quarter 2020*, <https://lmip.gov.au/default.aspx?LMIP/Downloads/SmallAreaLabourMarketsSALM>

substantial number of jobs in this small region. While necessarily imprecise, these estimates demonstrate the economic basis for local opposition to the project.

62. When possible impacts are estimated, as in Table 1, distributional questions are raised for decision makers. Is it right for a mine to reduce horticultural output by \$5 million if it pays \$7 million to the state government in royalties? Is 15 years of 200 mining jobs worth a longer-term reduction of 100 horticultural jobs? These are not questions that economists can answer. Economics has little to say about fairness or how costs and benefits should be distributed. Questions such as these are for decision makers and the governments and parliaments that they are responsible to. In my view, the assumptions made by BAEconomics on the potential external costs of the project works to obscure the reality that these kinds of questions exist.

Computable General Equilibrium (CGE) model

63. The CGE modelling exercise that BAEconomics appears to have outsourced to Cadence Economics provides little useful information for decision makers. The model assumes the financial viability of the project throughout its lifetime, regardless of commodity prices, and is incapable of including environmental impacts. There are many assumptions built into the model that are not disclosed in the BAEconomics assessment. This model is not based on independent quantitative assessment of the East Gippsland economy, but is a desktop exercise scaled down from national and state level published estimates.

Context - background of BAEconomics

64. While this review focuses on the content and merits of the analysis presented by BAEconomics, economics is a social science and inherently subjective. In this context, it is useful for decision makers to understand the background of the analysts involved.
65. BAEconomics is led by Brian Fisher, one of Australia's most controversial economists, who has for decades been closely linked to mining industry and fossil fuel interests:
- a. Dr Fisher was the head of the Australian Bureau of Agriculture and Resource Economics (ABARE) from 1988 to 2006. Despite being a government body, under Dr Fisher's leadership, much its climate and energy modelling work was funded and overseen by organisations such as the Australian Coal Association, BHP, Exxon and other fossil fuel-intensive interests. Dr Fisher refused a request from the Australian Conservation Foundation to take part in the steering committee.¹⁷
 - b. In 2018 Dr Fisher gave evidence for the controversial Rocky Hill coal mine in NSW. His arguments sought to downplay the climate impact of the mine, but were dismissed by the NSW Land and Environment Court as "speculative and hypothetical".¹⁸
 - c. Prior to the 2019 election Dr Fisher modelled of the costs of various climate policies. Dr Fisher's research contradicted twenty-two other similar modelling exercises,¹⁹ however, his findings were reported in *The Australian* newspaper as demonstrating "apocalyptic" costs would stem from Labor's policies.²⁰ These reports were widely cited by the Morrison Government in the election campaign, despite criticism from other government modellers.²¹

¹⁷ Hamilton (2007) *Scorcher*, Black Inc., page 62. See also Pearse (2007) *High and Dry*, Viking,

¹⁸ *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7, <https://www.caselaw.nsw.gov.au/decision/5c59012ce4b02a5a800be47f>

¹⁹ Swann and Merzian (2019) *A Model Line-up*, <https://australiainstitute.org.au/post/new-analysis-brian-fisher-modelling-climate-outlier/>

²⁰ Benson (2019) *Carbon cut apocalypse: cost of ALP energy plan*, <https://www.theaustralian.com.au/nation/climate/carbon-cut-apocalypse-cost-of-alp-energy-plan/news-story/96c9af15d670a6725146e356fd4b6414>; The Australian (2019) *Facing the high costs of climate change policies*, <https://www.theaustralian.com.au/commentary/editorials/facing-the-high-costs-of-climate-change-policies/news-story/dc9c627ea6a14c1cb15ad745d5ef4855>

²¹ Media Watch (2019) *Apocalyptic Australian*, <https://www.abc.net.au/mediawatch/episodes/solar/10846360>

66. In my view, the flaws in BAEconomics' analysis of the Fingerboards project, outlined above, represent another example of Dr Fisher and his firm's work tending towards advocacy rather than analysis.

Conclusion

67. The Fingerboards project presents considerable risks and uncertain benefits for the East Gippsland and wider Victorian communities. Having been abandoned by a major, publicly-listed company, it is now being pursued by a relative minnow of the mining world, leaving considerable risk that even if approved the project could stall indefinitely, prolonging community division, or if commenced it could be abandoned leaving the community with rehabilitation costs, as has occurred recently in the region.
68. These concerns are not assuaged or seriously addressed in the economic analysis by BAEconomics. No information is provided on the project's financial viability and its relation to commodity prices. Most benefits listed in the assessment rely on unorthodox valuation approaches and are almost certainly overstated. Costs, by contrast, are barely considered and almost certainly understated.
69. Given the potential impacts and uncertain benefits of the project, in my view it should be rejected by Victorian authorities.

Appendix A - Rod Campbell CV

Roderick E. S. Campbell

Email: roderick@ecolarge.com
Post: 82 Park Road, Middle Park, Victoria, 3206
Phone: 0438-503-249
D.O.B.: March 21st, 1978

Employment

Research Director (Nov 2014 - ongoing)	August 2013 -
Economist (Aug 2013 – Nov 2014)	Present

The Australia Institute

Australia's most influential progressive think-tank, based in Canberra

The Australia Institute researches a wide range of political and economic issues, including public finance and fiscal policy, equity and the environment. I was appointed Research Director in November 2014 and am responsible for coordinating the Institute's team of researchers in addition to my own research, which focuses on economic assessment and its role in planning systems and policy making, particularly around the mining industry.

Selected highlights:

- Co-editing book Nordic Edge: Policy lessons for Australia, to be published by Melbourne University Publishing July 2021
- Overseeing growth of research team from six to twelve.
- Australia Institute listed in AFR Power Index as one of Australia's most politically influential organisations.
- Civil Society representative on Australia's Extractive Industries Transparency Initiative multi-stakeholder group.
- Expert witness appearances:
 - Mt Thorley-Warkworth expansion – NSW Land and Environment Court
 - Ashton SE Open Cut expansion – NSW Land and Environment Court
 - Adani Carmichael Mine – Queensland Land Court
 - Kevin's Corner Mine – Queensland Land Court
 - Acland Stage 3 expansion – Queensland Land Court
- Journal articles in Australian Environment Review, Biological Conservation and Australian and New Zealand Journal of Public Health (in press).

Director and Economist **2008 – 2016**

Economists at Large (www.ecolarge.com all reports available on website)

Melbourne-based network of "economists without borders" providing consulting services to NGOs, development agencies and community-based organisations. Current projects and past achievements include

Assessment of Victorian brown coal export potential. I was the main author of an assessment of the financial and economic viability of proposals to export brown coal from the Latrobe Valley, which required

- Understanding of markets for different ranks of coal, gas and related commodities
- Understanding of carbon pricing

Economics of hunting in Africa. I have authored several influential reports on hunting tourism and the species conservation in Africa:

- *Horn of Contention* – economics of trade in rhino horns and the potential conservation implications of trade liberalisation.
- *The \$200 million question* – assessment of the value of trophy hunting to African economies and communities.
- *Mane assumptions* – critique of hunting industry sponsored research on the value of lion safaris to east African conservation and economies.

Evaluation of livestock-focussed disaster recovery packages. Ongoing project for World Society for Protection of Animals and their Livestock in Disasters project, requiring

- Experience in bioeconomic modelling
- Understanding of the economic role of livestock in developing countries
- Knowledge of economic literature relating to disaster recovery

Freelance development consultant

2007 - 2008

Including projects with WWF, European Commission, ACIAR

- Model of environmental service values in the Mekong Basin. Required a thorough understanding of environmental service valuation and benefit transfer protocols
- Financial modelling and project evaluation of EC-funded Sustainable Rattan Harvest Project in Laos, Cambodia and Vietnam. Included fieldwork in project areas and financial data analysis

Education

University of Melbourne

1996-2002

B.Commerce (Economics) & B.Arts (Honours Economic Geography)

My honours thesis addressed payment for environmental service schemes in China, specifically the "Grain for Green" soil erosion control policy. Data collected during a field trip to Shaanxi Province.

Kyoto University

Economics exchange

2001

I took three subjects for local students, environmental economics, Japanese economy and organisational behaviour, all taught in Japanese.

Other information and interests

Languages: Chinese, Japanese, Portuguese, basic French and Spanish.

Licences: Driving (car), boat (recreational), first aid level 2

Other interests: Kiteboarding, crosswords and music.

Appendix B - Letter of instruction



8 December 2020

Roderick Campbell
Research Director
The Australia Institute

By email only: rod@tai.org.au

Dear Rod

Fingerboards Mineral Sands Mine Project, Glenaladale, Victoria

We act on behalf of Mine-free Glenaladale (**MFG**), a not-for-profit community group formed in response to the proposed Fingerboards mineral sands mine project (the **project**).

We write to you as an economist. The purpose of this letter is to seek your expert opinion on the effects of the project and, in particular, for you to undertake a cost benefit analysis of the project by reviewing the analysis put forward by Kalbar Operations Pty Ltd.

We request your expert opinion be provided as an expert witness statement to be submitted to the Fingerboards Mineral Sands Project Inquiry and Advisory Committee. We request that your expert report be provided by **11 January 2021**.

References to Tab numbers in bold in this letter are to the documents in an electronic brief which we provide to you via DropBox (https://www.dropbox.com/sh/5yd39irgqfrthp8/AAAV7Ge1wJ_kkNnGFk7Qjfa?dl=0).

Background

1. Kalbar Operations Pty Ltd (**Kalbar**) propose to develop an open pit mineral sands mine covering an approximate area of 1,675 hectares within the eastern part of the Glenaladale mineral sands deposit in East Gippsland, Victoria. The site is located near the Mitchell River and approximately 2km south of Glenaladale, 4km south-west of Mitchell River National Park and 20km north-west of Bairnsdale.
2. The proposal includes the development of an open pit mineral sands mine, two mining unit plants, wet

concentrator plant, water supply infrastructure, tailings storage dam and additional site facilities (i.e. site office, warehouse, workshop, loading facilities and fuel storage). The proposed mining methods involve open pit mining to extract approximately 170 million tonnes (Mt) of ore over a projected mine life of 20 years to produce 8 Mt of mineral concentrate. Heavy mineral concentrate, separated into magnetic and non-magnetic concentrates, are proposed to be transported via road, rail or a combination of both for export overseas.

3. The project would require up to 9000 kilovolt-ampere (kVA) hours of power likely to be supplied from the electricity grid and water requirements of approximately 3 gigalitres per annum (**Tab 2.1.3/ Project Description**).
4. On 18 December 2016, the Minister for Planning issued a decision determining that an Environment Effects Statement (**EES**) was required for the project due to the potential for a range of significant environmental effects. The purpose of the EES is to provide a sufficiently detailed description of the proposed project, assess its potential effects on the environment and assess alternative project layouts, designs and approaches to avoid and mitigate effects (**Tab 1.1 / Scoping Requirements**).
5. An Inquiry and Advisory Committee (**IAC**) has been appointed to review the EES and public submissions (**Tab 1.2 / Terms of Reference**). The IAC will hold public hearings for 4 to 6 weeks, after which it will produce a report for the Minister for Planning. Following receipt of the IAC's report, the Minister for Planning will then make an assessment as to whether the likely environmental effects of the project are acceptable (**Minister's Assessment**).
6. All EES documents are available online at: <https://ees.fingerboardsproject.com.au/download>.

Instructions

7. We request that you undertake a review of the economic components of the EES and prepare an expert witness statement providing your opinion on:
 - a. The compliance of the economic components of the EES (listed below) with the relevant evaluation objective in the Scoping Requirements (**Tab 1.1, pp14-15**):

Technical Studies

- i. Technical Study: Social-economic Impact Assessment (Appendix 18), including Appendix D: Economic Impact Assessment by BAE Economics (**Tab 2.3.1**)

Chapters and Attachments

- i. Project rationale (Chapter 2) (**Tab 2.1.2**)

- ii. Environmental and Socioeconomic Context (Chapter 8) (as relevant, i.e. sections 8.11 and 8.13) (**Tab 2.1.4**)
 - iii. Environmental and Socioeconomic Impact Assessment (Chapter 9) (as relevant, i.e. sections 9.11 and 9.13) (**Tab 2.1.5**)
 - iv. Risk Report (Attachment F) (as relevant) (**Tab 2.2.1**)
- b. The project feasibility including the predicted economic costs and benefits from construction and operation of the project, including capital investment, operating expenditure, employment and business opportunities, taxes and royalties to the regional, state and national economies, and the temporary and permanent impacts on agriculture, forest resources, tourism and businesses.
 - c. Whether the potential impacts on the existing local industries, business and landholders are identified and or appropriately assessed.
 - d. Whether the impact of commodity price fluctuation on project sustainability is appropriately assessed.
 - e. Whether engineering costs and or the potential failure of rehabilitation are adequately factored into the economic components of the EES.
 - f. The adequacy of proposed measures to enhance potential benefits to local and regional businesses and minimise potential adverse effects to local land-uses and businesses.
 - g. Any other matters you identify which you consider relevant within the limits of your expertise, including any limitations of the economic components of the EES.
 - h. Any appropriate qualifications or conditions that should be attached to findings or conclusions, such as uncertainties or gravity of threats or impacts.
8. As an expert you are able to consider any such material you consider relevant to your enquiry. Please identify in your report any further materials you consult outside of the briefed materials.

Expert Witness Code of Conduct

9. We have enclosed a copy of the *Guide to Expert Evidence provided by Planning Panels Victoria*, which is the relevant guidance for hearings before the IAC (**Tab 3.1**).
10. In preparing your final expert witness statement, please ensure that you include:
 - a. your name, address, qualifications, experience and area of expertise

- b. details of any other significant contributors to the report (if there are any) and their expertise
- c. all instructions that define the scope of the statement (original and supplementary and whether in writing or verbal)
- d. details and qualifications of any person who carried out any tests or experiments upon which the expert has relied in preparing the statement
- e. the following declaration:

'I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.'

Important dates

- 11. We request your expert witness report be provided by **11 January 2021**.
- 12. The IAC will conduct public hearings over a period of 4-6 weeks, commencing on **1 February 2021**.

Confidentiality

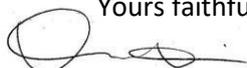
- 13. This request for an expert opinion and the subsequent expert witness statement, as well as any correspondence relating to this request, is for the purposes of the Fingerboards mineral sands mine project EES process, including the public hearings before the IAC. It is therefore confidential and is protected by legal professional privilege.

Fees

- 14. We confirm that you will invoice MFG c/. Environmental Justice Australia for fees for work undertaken in accordance with this letter of brief and the fee arrangements contained in email correspondence with Virginia Trescowthick of 5 October 2020.

Please contact Virginia Trescowthick if you have any questions or require further information.

Yours faithfully



Virginia Trescowthick, Lawyer