IN THE LAND COURT
OF QUEENSLAND

MRA050-20

EPA051-20

BETWEEN

Waratah Coal Pty Ltd

Applicant

AND

Youth Verdict Ltd & Ors

Respondents

AND

Chief Executive, Department of Environment and Science

Statutory Party

CLOSING WRITTEN SUBMISSIONS

YOUTH VERDICT LTD & THE BIMBLEBOX ALLIANCE INC

CLOSING WRITTEN SUBMISSIONS

Filed on Behalf of objectors, The Bimblebox Alliance Inc and Youth Verdict Ltd.

Name: c/o Alison Rose

Address: 3/28 Donkin St, West End QLD 4101

Phone No: (07) 3211 4466

Email: alison.rose@edo.org.au

Table of Contents

A. INTRODUCTION AND SUMMARY

A-I Disposition

1 The Land **Court** should recommend that:

(1) the application by the Applicant under the *Environmental Protection Act 1994* (Qld) (the **EP Act**) for an environmental authority (the **EA Application**) be refused; and

(2) the application by the Applicant under the *Mineral Resources Act 1989* (Qld) (the **MR Act**) for a mining lease (the **ML Application**) be refused.

A-II Approach to First Nations evidence

2 Before going any further, we wish to start by making one matter very clear. The evidence the Court received from First Nations witnesses, in writing and on-Country, is of primary importance to YV and TBA's case.

3 However, as explained in D-II(vii)(3) below, we as counsel for YV and TBA do not consider it appropriate for us to attempt to summarise or package up the evidence given by the First Nations witnesses, as we ordinarily would, and have in this submission, in respect of the application of other legal rules to evidence.

4 The Court has, in performance of its obligation to give proper consideration to the rights in s 28, taken on-Country evidence from Kapua, Florence and Lala Gutchen and Jiritju Fourmile, and has their written evidence, together with the written evidence of Harold Ludwick. We do not summarise it, but we rely on it in full.

5 We consider that this approach we have adopted is most consistent with the right to self-determination, as it is embodied in s 28, as we have sought to explain in D-II(vii) below.

6 There was, in the on-Country evidence, a depth derived from careful observation of, and care for, a particular area of Country over thousands of generations, during which time the society and culture of that people had become inextricably shaped by Country, and the Country had become inextricably shaped by that people. From such a perspective, the changes wrought by climate change are profound and irremediable at depths we cannot pretend to comprehend.

A-III Short summary

7 The Applicant asks the Court to recommend to an officer of the Executive Government of the State of Queensland[1] (the **State**) that its proposed new coalmine, the subject of the EA Application and ML Application (the **Proposed Project**) be permitted to proceed.

8 There is no need for this coal, in Australia or elsewhere.

9 The effects of subsidence, noise and air pollution would inevitably result in the **Bimblebox** Nature Refuge being degazetted as a nature refuge under the *Nature Conservation Act 1992* (the **NC Act**), and the destruction of many of its biodiversity values, and all of its social, cultural and spiritual values — of its human community, and the work that community has done for the past 22 years, to implement the agreements the landholders made with the State and with the Executive of the Commonwealth.

10 It is impossible to overstate the significance for this matter of the Applicant's agreement to certain facts.[2]

11 First, the Applicant agrees to the following facts:[3]

> 34 If human beings continue to emit greenhouse gases, then these will accrete in the atmosphere with greenhouse gases already present there, causing increasingly adverse impacts to:
>
> 34.1 the health, life, and way of life, of human beings, individually, in communities and as a species;
>
> 34.2 the health, life and survival of other species and ecosystems; and
>
> 34.3 other components of the environment.
>
> 35. The continued emission of greenhouse gases into the atmosphere will, eventually:
>
> 35.1 destroy the health, life, and way of life, of many human beings and human communities;
>
> 35.2 cause or contribute to the widespread extinction of many non-human species and ecosystems;
>
> 35.3 destroy the ecosystems and environments on which human and other life depends.
>
> …

---

1 *Constitution of Queensland 2001* (Qld), s 51(1).

2 List of Matters not in Dispute [[**COM.0328.0001**]].

3 List of Matters not in Dispute [[**COM.0328.0002**]], [5]. In opening, Senior Counsel for the Applicant informed that Court, "[t]he document that has been filed, being the list of matters that are not in dispute, amply demonstrates that there is agreement between the parties as to those matters": T 1-17, lns 45-47.

40. Continued accretion of greenhouse gases in the atmosphere will cause, in Queensland, increasingly adverse impacts on the environment, including the following:

    40.1 increased temperature;

    40.2 worsening drought conditions, and prolonged droughts;

    40.3 longer, more frequent and more intense heatwaves;

    40.4 increases in extreme weather events and natural disasters;

    40.5 increases in the intensity and frequency of bushfire events;

    40.6 more intense rainfall events and storm surges;

    40. 7 increases in mosquito populations and vector-borne diseases;

    40.8 increased intensity of extreme rainfall;

    40.9 greater proportion of high intensity storms;

    40.10 erosion/loss of productive topsoil;

    40.11 desertification;

    40.12 mass coral bleachings;

    40.13 increased ocean acidity;

    40.14 sea level rise;

    40.15 decline in ecosystems and habitats;

    40.16 decline in terrestrial and marine species populations;

    40.17 increased rates of species extinction;

    40.18 impacts cumulative with other adverse environmental impacts, including land and habitat clearing, destruction of local ecosystems, water usage and pollution.

41. Continued accretion of greenhouse gases in the atmosphere will cause, in Queensland, increasingly adverse impacts on the health, life, way of life and property of human beings, including the following:

    41.1 the effects stated in paragraph 40 above, and the impacts of those effects on human beings;

    41.2 impacts on food availability and affordability;

    41.3 increases in vector borne diseases in areas of high humidity and rainfall;

    41.4 decline in the amount and quality of land available for productive agriculture;

    41.5 loss of property due to sea level rise;

41.6 financial costs in adaptation and increased costs of living-particularly for farmers as a result of reduced agricultural productivity and residents of rural and low socio-economic communities; and

41.7 increases in displacement of individuals and communities;

41.8 increased costs of living;

41.9 consequent deterioration of physical and social security and mental health and wellbeing.

42. As greenhouse gases continue to accrete in the atmosphere, Queensland will become decreasingly capable of supporting human or other life, and will be able to do so in a decreasing number of geographical areas and locations.

…

44. The adverse impacts in paragraphs 40 and 41 above will disproportionately affect:

44.1 children who are living now and are born in future, at an ever-increasing level into the future (in particular, present and future children will be at a disproportionately greater risk of poorer health outcomes and premature mortality);

44.2 older people, people living in poverty, other disadvantaged people, and First Nations Aboriginal and Torres Strait Islander peoples.

45. Accretion of greenhouse gases in the atmosphere will also adversely affect First Nations Aboriginal and Torres Strait Islander peoples in specific ways, including by causing:

45.1 disruption of traditional cultural practices, including those which depend on connection to place and ecological systems;

45.2 displacement from traditional lands;

45.3 impediments to the continuation, preservation and development of culture into the future and for future generations;

45.4 irreversible harm to their traditional lands and waters;

…

12 Second, the Applicant agrees the following fact about the Proposed Project:

> if the [Proposed Project] is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting greenhouse gas (mostly CO_2) into the atmosphere.[4]

13 That coal, presently stored in the mining lease area, safely away from the atmosphere, is the property of the Crown in right of Queensland — ie, the State.[5]

---

4 Issues not in dispute [[**COM.0328.0001**]]-[[**COM.0328.0002**]].

5 MR Act, s 8(2)(b).

14 If all of the thermal coal in the mining lease area is extracted, exported and burned, that will total 1.04Gt Mt saleable coal, combustion of which will produce 2,159,666,995 t CO_2-e (**2.16Gt CO_2-e**, rounded)[6] greenhouse gas (**GHG**) emissions (see A-IV(ii)(2) below).

15 Details of the thermal coal in the mining lease area that the Applicant now says will be extracted and burned (if the Proposed Project is allowed to proceed) may be found in the **Harris–King Spreadsheet**:[7] in rows 146 (B seam), 147 (DU 5500) and 148 (DL 5750) of Sheet 'Table 1 – Operations' (**Table 1**), totalled in row 145, commencing in 2025, but with operations properly commencing in 2029 and ending in 2051.

16 This totals 761,828 Mt of saleable coal, over the life of the Proposed Project, combustion of which will produce 1,582,014,218 t CO_2-e (**1.58Gt CO_2-e**, rounded) of emissions (see A-IV(ii)(2) below).

17 Whether the Court should use as input assumptions the figures in:

(1) [13] — being the original figures assessed under the Environmental Impact Statement (**EIS**), Supplementary Environmental Impact Statement (**SEIS**), and Coordinator General's (**CG**) Report, for which the Draft EA was given, and to which the objections were directed; or

(2) [16] — being the figures provided by Waratah Coal Pty Ltd (**Waratah** or the **Applicant**) for the new mine plan, on which much of the evidence in the matter has proceeded,

is dealt with further in A-IV(ii) below.

18 Either way, the effect of approval, on the agreed fact ([12]), is to unlock carbon, owned by the State and presently stored safely underground in the mining lease area, for emission into the atmosphere, where it will accumulate with other GHGs to cumulatively cause the agreed effects at ([11]).

19 In other words: to unlock from its safe storage a massive volume of carbon for emission into the atmosphere at a time when the best hope we have of maintaining 'the ecological processes on which life depends'[8] is to reduce as much as possible, as fast as possible, the amount of carbon we emit, and then (if it becomes technologically feasible) to remove carbon from the atmosphere and store it safely underground in the second half of this century.

---

6 See T 20-107, ln 20 to 20-108, ln 12 and Climate JER [[**COM.0067.0051**]], [1249]-[1250].

7 Attachment to email 3 Harris-King [[**YVL.0427.0001**]].

8 EP Act s 3, see also *Convention on Biological Diversity*, preamble: "Conscious also of the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere".

20 Approval would authorise 'environmental harm', as defined in EP Act, s 14:

> (1) ***Environmental harm*** is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.
>
> (2) ***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.

21 Approval would be to authorise the adverse effects, or potential adverse effects on environmental values caused by accretion of GHGs from the coal extracted from the Proposed Project (and other emissions from the Proposed Project) combined with emissions from all other activities or factors.

22 On the evidence, the best possible future (in terms of total temperature increase) in which the Proposed Project can exist is one equivalent to the Wood Mackenzie 'base case' scenario (the **WM ETO**),[9] in which total CO_2 emissions in 2050 remain at least 27,948Mt (8,976Mt from coal),[10] with an accumulated total of 971Mt (and well-and-truly still counting[11]), resulting in an increase in average global temperatures above pre-industrial of at least 2.5°C and up to 4.4°C degrees or higher (see [38], C-IV(iv)(10) below).

23 In a future without the Proposed Project, it is still feasible for humanity to limit warming to 1.4°C. The difference between 1.4°C and 2.5°C or higher is critical.

24 At 2.5°C and higher, the risk of triggering a tipping cascade is real, and increasing.[12] If this happens, the Earth System could experience, for hundreds of thousands of years or more, conditions equivalent to the mid-Miocene period, about 15 to 17 million years ago, when the global average surface temperature was 4°C to 5°C higher than pre-industrial.[13]

---

9 See E-IV(v)(2).

10 "Paul Manley Comparison document – SSP, IEA, Wood Mackenzie" [[**WAR.0767.0001]]**, Sheet "IEA vs WM High level", U12.

11 See the gradual rate of reduction in the "Total CO_2" chart corresponding to the WM Energy Transition Outlook chart in "Paul Manley Comparison document – SSP, IEA, Wood Mackenzie" [[**WAR.0767.0001]]**, Sheet "IEA vs WM High level", and any of the demand or supply figures for the WM ETO produced in the WM Databook [[**YVL.0410.0001**]] (see also [[**YVL.0499.0001**]], being the version produced on subpoena).

12 Climate JER [[**COM.0067.0037**]], [878]–[880]; [[**COM.0067.0042–3**]], [1020]–[1049].

13 Climate JER [[**COM.0067.0042–3**]], [1026]–[1039].

25 In scenarios >2.5°C degrees above pre-industrial, as compared to the best[14] feasible scenarios of 1.4°C:

(1) the people of the 'Torres Strait Islands' (**Zenadth Kes**) and Aboriginal peoples of Queensland will experience a profound (additional) denial of the matters in s 28(2) of the *Human Rights Act 2019* (Qld) (the **HR Act**);

(2) the rights to life and property of Queenslanders, and the best interests of children, will be limited, with significant increases in risks to life and property, visited disproportionately on Aboriginal and Torres Strait Islander peoples and individuals, as well as on the young, the old, and those with existing health conditions; and

(3) there will be extensive environmental harm throughout the whole of Queensland.

26 That this will be the effect of increasing GHG emissions is not in issue ([11]).

27 On the >2.5°C scenarios in which the Proposed Project can exist, that environmental harm, and those limits on human rights, will be caused by the total increase in accumulation of GHG emissions from now until net zero, including the emission of the carbon presently stored safely out of the atmosphere, in the mining lease area, by an ancient process of carbon capture and storage — coal.

28 To this compelling challenge, the Applicant proposes the following answers.

29 As to the destruction of Bimblebox (in terms of its legal status, its intrinsic biodiversity values and its human meanings), the Applicant proposes conditions to require that specific kinds of environmental harm (harm to certain matters of state environmental significance) will be counterbalanced by environmental offsets.

30 As to the harm caused by the increased accretion of GHGs in the atmosphere, the Applicant asserts that the total accretion of GHGs will inevitably be the same or worse in a world without the Proposed Project, compared to a world with it.

31 Whether those proposed answers should be accepted turns, in large part, on factual issues.

(1) Is a condition about environmental offsets likely to result in a counterbalancing of the environmental harm that will be caused to Bimblebox, and if so, to what extent?

(2) Will the total accretion of GHGs in the atmosphere inevitably be the same, with or without the Proposed Project?

---

[14] Measured by reference to lowest total increase in future anthropogenic GHG emissions and average global temperature increase until those curves flatten.

32 The Court must determine those factual issues, raised by the Applicant's proposed answers.

33 The Court's findings on those issues must be "based on some evidence or other supporting material, rather than no evidence or no material, unless the finding is made in accordance with the Court's personal or specialised knowledge or by reference to that which is commonly known".[15]

34 That is to state the minimum threshold for the Court to act within the scope of its authority (or 'jurisdiction') conferred by the *Land Court Act 2000* (Qld) (the **LC Act**), a threshold which applies even though the Court: (a) is not bound by the rules of evidence and may inform itself in the way it considers appropriate; and (b) must act according to equity, good conscience and the substantial merits of the case without regard to legal technicalities and the forms or the practice of other courts: LC Act, s 7.

35 However, generally speaking, the Court should "act on the best evidence before the Court".[16] As a general rule, this principle applies to all courts,[17] but more importantly, "[w]hen making a decision, administrative decision-makers are generally obliged to have regard to the best and most current information available. This rule of practice is no more than a feature of good public administration".[18]

36 There is no cogent and probative evidence before the Court to support the answers proposed by the Applicant, or at the very least, the weight of evidence is against them.

37 As to offsets, the experts agree that the comparisons conducted in 2013 and 2014, for the EIS and SEIS, were inadequate (Professor Maron had not encountered a case where there were so many issues affecting one example of a calculator[19]). Dr Cousin opined that "it is possible to devise and implement biodiversity offsets for the Project that achieve the object and purpose of a biodiversity offset".[20] But that opinion required an input as to the environmental values of Bimblebox, which he had only seen from the edge (and for which he otherwise relied on the flawed earlier impact assessment, and his more general knowledge about the region). By contrast, Professor Maron opined that it would be very challenging to devise and implement such offsets for the Project, observing that sites meeting the requisite criteria were not evident during the visit she made to the region.[21] This opinion was based on Professor Maron's own observations of Bimblebox over a three-day period in October 2020.[22] Ultimately, Dr Cousin's opinion is unsupported by any evidence, and should be treated as pure speculation,

---

15 *Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs v Viane* (2021) 96 ALJR 13, [17] (Keane, Gordon, Edelman, Steward and Gleeson JJ).
16 *Eumundi Group Hotels Pty Ltd v Valuer-General* [2021] QLAC 2, [140].
17 *Golden Eagle International Trading Pty Ltd v Zhang* (2007) 229 CLR 498, [4] (Gummow, Callinan and Crennan JJ).
18 *Shi v Migration Agents Registration Authority* (2008) 235 CLR 286, [41] (Kirby J).
19 T 19-55, lns 30–31.
20 Offsets JER [[**COM.0183.0047**]], [131].
21 Offsets JER [[**COM.0183.0047**]], [132].
22 Offsets JER [[**COM.0183.0002**]].

especially given his lack of knowledge about the condition of Bimblebox itself. The properties that have been put forward by the Applicant are inadequate. And there is, in any event, "not a skerrick of evidence"[23] of any prospect of those properties being secured for use as offsets, let alone any that could adequately offset even the limited range of environmental harms capable of being counterbalanced by an offset condition. Nor has the Applicant even attempted to provide evidence of any proposal that could counterbalance the loss of Bimblebox as a nature refuge, or the loss of its community and human meanings.

38 As to 'substitution', the **coal and energy market experts** agreed that, in order for the coal in rows 146–148 of Table 1 to be burned, the following conditions must be met:

(1) there must be an energy market in which there is demand for coal in 2051;[24]

(2) within that coal market, there must be demand for seaborne thermal coal in 2051;[25]

(3) within that seaborne thermal coal market, there must be demand for the coal from the DL, DU and B seams in rows 146–148, as summarised in row 145, out to 2051;[26]

(4) because that seaborne thermal coal market will choose coal based on desirability, including price and quality, with more desirable coal being purchased before less desirable coal,[27] there must be sufficient demand in that seaborne thermal coal market such that all the coal more desirable than the lowest quality coal in rows 146–148 of Table 1 is also bought and burned;[28]

(5) thus, demand must remain high enough in the seaborne thermal coal market out to 2051 that all the coal more desirable than that in the B-seam (Table 1, row 148) is burned out to 2051,[29] because unless such a market for seaborne thermal coal exists, then all the coal from the Proposed Project will not be burned;[30]

(6) the volume of seaborne thermal coal in that minimum market out to 2051 would be in line with WM ETO at the time the Energy Markets JER was prepared[31] — which projected 608Mt of seaborne thermal coal in 2050,[32] and involved (on Wood Mackenzie's own workings) roughly 2.5 to 2.7°C of warming;[33]

---

23 *Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs v Viane* (2021) 96 ALJR 13, [17] (Keane, Gordon, Edelman, Steward and Gleeson JJ).
24 T 10-82, lns 8-16.
25 T 10-82, lns 18-23.
26 T 10-82, lns 25-29; 10-83, ln 39 to 10-84, ln 1; 10-84, lns 18-31.
27 T 10-84, lns 3–16.
28 T 10-84, ln 33 to 10-85, ln 31.
29 T 10-85, ln 41 to 10-86, ln 1.
30 T 10-86, lns 3–8.
31 T 10-87, lns 33–42; 10-88, lns 18–29.
32 WM Databook, Sheet 'F27 28 Thermal supply', cell AD34.
33 T 10-87, lns 43–45; T 10-88, lns 31–35.

(7) it therefore follows that, if the Court were to fix as an input assumption the extraction, sale and combustion of all of the coal summarised in row 145, in a market where that coal can be burned, that will exclude scenarios under 2.5°C.[34]

39 As against that, the **climate experts**, Professor Church and Dr Warren agree that the best feasible scenario is (best estimate) 1.4°C (being the IPCC's SSP1-1.9).[35] Mr Manley did not contest their opinion about that.[36] He accepted that the IEA's Net Zero Emissions by 2050 scenario (**IEA NZES**) was a feasible scenario for limiting warming to 1.5°C,[37] in which the Proposed Project could not exist,[38] and that there were other feasible scenarios evaluated by the IPCC in which the Proposed Project could not exist.[39]

40 In summary, then, the agreed evidence before the Court is that, in a future with the Proposed Project, the best feasible future is at least 2.5°C above pre-industrial, whereas without the Proposed Project, the best feasible future is at least 1.4°C above pre-industrial. It is simply not open to the Court, on that evidence, to conclude that the amount of warming, or total future emissions underpinning it, will be inevitably the same or worse without the Proposed Project.

41 Of course, it would be possible to generate a scenario, using a model, to solve for lowest total future carbon emissions, but fixing demand out to 2051 for seaborne thermal coal (for example, by fixing demand as per row 34 in Sheet 'F27 28 Thermal supply' in the Wood Mackenzie Databook (**WM Databook**)).[40] Based on the evidence summarised in [38] above, if that were done, one would expect to produce a range of scenarios with a minimum increase in global average temperature of at least 2.5°C above pre-industrial, and 1°C above the International Energy Agency (**IEA**) net zero emissions scenario (the **IEA NZE**) scenario, which solves for 1.5°C above pre-industrial by allowing energy demand to be met by renewables. In other words, one would be adopting as a comparator scenario without the Proposed Project a Scenario 1°C worse than the best feasible scenario.

42 When asked whether she would ever fix demand for seaborne thermal coal in that way, if trying to solve for lowest total future carbon emissions, Ms Wilson answered, simply, "no".[41]

---

34 T 10-88, lns 37–44 (Ms Wilson also answered "yes", to the question in ln 43).
35 Climate JER [[**COM.0067.0034**]], [787]–[790], [795]–[799].
36 T 10-75, ln 30 to 10-76, ln 1.
37 T 10-21, lns 9–17.
38 T 10-80, lns 36–40.
39 T 10-80, lns 42–46.
40 WM Databook [[**YVL.0410.0001**]].
41 T 10-154, lns 9–14.

43 And yet, it appears that just such an approach underpins the case theory on which the Applicant opened:

> Your Honour, thermal coal is an energy source that, over time, will be phased out but, during the life of this project is still the subject of demand on the applicant's case. Waratah Coal is within the high rank of coal types with subbituminous and lignite lower ranks, lignite being brown coal. That is Waratah's coal is high energy producing, meaning one burns less high rank coal than lower ranked coal to produce the same energy. The more one burns to produce energy the more greenhouse gases are emitted. It follows as a matter of logic that the less [one] burns to produce the same amount of energy, the fewer greenhouse gases are emitted.
>
> The coal market's expert – sorry, the coal market experts agree that should the applicant's coal enter the market, it will, on Mr Manley's view and on Ms Wilson for the objector's potential, displace or has the potential to displace coal that will already exist in the market. The coal market experts also agree that if the applicant's coal is not brought to market, coal from other sources will continue to supply the market as long as that market exists. And it's that last position that the experts are apart on; how long that market will [exist]. That is in our case there will be no reduction in greenhouse gas emissions if Waratah Coal is not brought to market.
>
> The evidence as a whole will demonstrate that on a gigawatt of energy produced basis the applicant's coal produces lower emissions than competing low energy coal. In short, the applicant submits that the whole of the evidence will show that the applicant's coal will replace the coal its target customers currently use, resulting in less coal being burned for the same energy produced and therefore fewer greenhouse gas emissions.

44 Even if one did adopt the approach of fixing seaborne thermal coal demand, the position agreed by Dr Warren, the Applicant's GHG emissions expert, is that (putting aside brown coal) the effect of burning coal from the Proposed Project instead of other less calorific bituminous, sub-bituminous or anthracite coals would be negligible when considering the total emissions from the Proposed Project.[42] Mr Manley did not disagree with that conclusion.[43]

45 That leaves the Court, then, to balance against the destruction of Bimblebox and the s 14(2) cumulative harm from climate change in a world of ≥2.5°C (compared to ≥1.4°C) of average global temperature increase above pre-industrial, the economic benefits from the Proposed Project.

46 Those benefits will be realised only if the Proposed Project is financially viable. Given the connection between future scenarios and coal prices, the economics experts accepted that the Proposed Project appears to be financially viable only in a future with at least as much coal as the WM ETO — Wood Mackenzie's 2.5–2.7 degree 'base case'

---

42 Climate JER [[**COM.0067.0052**]], [1267]–[1269].

43 T 10-153, lns 40–42. Mr Manley's different calculations (T 10-153, lns 42–43) should be disregarded, given that the evidence does not disclose that he has any specialised knowledge in calculating GHG emissions, and that Dr Warren is the Applicant's nominated expert in that field.

(or "best possible view … of today going forwards"[44]) scenario. That is consonant with, and reinforces, the energy market experts' evidence summarised in [38] above.

47 If the Proposed Project is financially viable, then Mr Tessler's opinions as an economist require a comparison between a future with the coalmine and a future without it.

48 What are those futures?

49 Starting with the benefits.

(1) With the Proposed Project, Waratah's ultimate shareholder, Clive Palmer, would make (assuming the Applicant's unreasonable price predictions prove correct and the Proposed Project proceeds) approximately $1 billion in Net Present Value (**NPV**), and the State would earn approximately $2 billion (**NPV**) in royalties, and *may* see some other small corporate tax benefits.

(2) Without the Proposed Project:

(a) Bimblebox can flourish as a nature refuge, and in its human and non-human environmental values; and

(b) it will be possible to limit the adverse harms to human rights and the environment from increased accretion of GHG emissions, set out in [34], [40] and [44] of YV and TBA's EA Objection (and admitted by the Applicant), to those caused at ≥1.4°C above pre-industrial, with minimum feasible future total GHG emissions, and a minimal risk of tipping cascades;

(c) specifically, it will be possible to limit the adverse harms to the human rights of Aboriginal peoples and Torres Strait Islander peoples, and the Country of each people, from increased accretion of GHG emissions, set out in [45] of YV and TBA's EA Objection (and admitted by the Applicant), to those caused at ≥1.4°C above pre-industrial, with minimum feasible future total GHG emissions, and a minimal risk of tipping cascades.

50 And now to the detriments.

(1) With the Proposed Project:

(a) Bimblebox will be destroyed, at least as a nature refuge, and a human endeavour and community, with at least serious environmental harm to its non-human environmental values; and

(b) global average surface temperature will increase to ≥ 2.5°C above pre-industrial.

(A) If we take a scenario in which the least desirable coal from the Proposed Project is the last coal on Earth to be burned (i.e., the lowest

---

44 T 9-29, ln 34.

emissions scenario in which the coal from the Proposed Project can all feasibly be burned: see [38] above), then temperature increase is limited to 2.5 degrees, subject to the real risk of triggering a tipping cascade. But the emissions from the coal presently stored underground in the proposed mining lease area are a substantial proportion of the overall future emissions between now and the end of coal in 2051.

(B) If we take a scenario closer to Professor Church and Dr Warren's Scenario 3, then the emissions from the Proposed Project are a much smaller proportion of the overall total future emissions, but we are approaching the eventuality admitted by the Applicant in [35] and [42] of the objections: destruction of the health, life and way of life of many human beings and human communities; widespread extinction of many non-human species and ecosystems; destruction of the ecosystems and environments on which human and other life depends; Queensland becoming decreasingly capable of supporting human or other life, and being able to do so in a decreasing number of geographical areas and locations.

(C) Scope 1 and 2 emissions alone from the project would (on Mr Tessler's assumptions as to carbon cost and discount rates) have a monetised cost of between $1.8 billion (NPV) and (on reasonable assumptions) up to $28 billion.

(D) Total emissions from the Proposed Project (i.e., including combustion emissions) would (on Mr Tessler's assumptions as to carbon costs and discount rates) have a monetised cost of $69 billion (NPV) and (on reasonable assumptions) up to $3 trillion (NPV).

(2) Without the Proposed Project, Clive Palmer will lose the opportunity to make profit and the State will lose the opportunity to earn approximately $2 billion (NPV) in royalties.

A-IV The Proposed Project

(i) How is the Proposed Project to be approached as subject-matter?

51 Before describing the key features of the Proposed Project, it is important to be clear about the legal character of the Proposed Project as subject of the Court's functions under the EP Act and MR Act.

52 To state the obvious, the Proposed Project exists as subject-matter only as a proposal by the Applicant to act in a particular way in the future; it has as yet no actual existence.

53 That subject-matter is put forward to the State to seek permission, in order that the Applicant can in fact in future carry out the Proposed Project, without contravening the prohibitions that will otherwise apply under both Acts.

54 Under the EP Act, the State is asked to approve environmental harm. An environmental authority would operate as a ticket to carry out the entirety of the Proposed Project. For that reason, in determining whether to grant an environmental authority, the State must approach the subject-matter of the Proposed Project on the premise that it will be carried out in its entirety. To do otherwise would be to authorise environmental harm that has been proposed but not considered.

55 Under the MR Act, on the other hand, the State is asked to grant permission to the Applicant to exploit the Crown's minerals, in return for royalties (and other less direct economic benefits to the State). For that reason, in determining whether to grant a mining lease, the State must both:

(1) weigh the economic benefits and detriments on the assumption to the Proposed Project does go ahead; and

(2) also conduct a risk assessment: how likely is it that the Proposed Project will in fact be carried out as proposed?

56 This requires the same subject-matter to be considered in different ways under each Act. For example, the financial viability of the Proposed Project is not relevant to the question under the EP Act (which assumes it will go ahead as proposed) but is relevant to the question under the MR Act (which enquires, among other things, how likely it is to go ahead as proposed, or at all).

(ii) What is the Proposed Project?

57 Having distinguished between the approach to the Proposed Project under those two Acts, we can then consider the key features of the Proposed Project: that is, what is proposed, not whether it will occur as proposed.

(1) Scope of the Proposed Project and the changes to the mine plan

58 A question immediately arises as to the scope of what is proposed. Very late in the piece, the Applicant proposed changes to its mine plan, which (most relevantly) reduced the amount of saleable coal it proposed to take and removed its proposal to open-cut mine in Bimblebox, leaving only underground mining in that area. But have those purported changes affected the Proposed Project, as a subject-matter of the Court's assessment?

59 YV and TBA's primary answer is "no" because they maintain their objection to the Court's jurisdiction to consider the Proposed Project as having been altered to the extent of the new mine plan, for the reasons given previously in writing and orally.

60 Under cover of that answer, assuming the Court maintains the position set out in its ruling on jurisdiction, then the answer to that question depends on whether the scope of the Proposed Project is cut down by the Court, so that nothing more is permitted. If the only constraint is the Applicant's stated intentions, but this is not reflected in any way on the face of the environmental authority, mining lease, or in their respective

conditions, then the Court would in effect be authorising the Proposed Project as originally identified and assessed under the Environmental Impact Statement (the **EIS**), Supplementary Environmental Impact Statement (the **SEIS**) and the Coordinator-General's Report (the **CG Report**). Critically, this would entail assessment under the EP Act on the basis that Bimblebox will be open cut mined, and on the basis that 40Mtpa of coal will be extracted, sold, and burned, for 25 years.[45]

61 For example, more precise particulars of the Proposed Project — that is, what the Applicant is proposing for the Court's assessment — may be found in the Harris–King Spreadsheet.[46] However, the Proposed Project should be assessed on the basis only if there is a clear condition limiting:

(1) extraction to the total quantity of saleable coal in rows 146 (B seam), 147 (DU 5500) and 148 (DL 5750) of Table 1, totalled in row 145; and

(2) duration to the period 2025 to 2051.

62 Otherwise, the Proposed Project should be assessed on the basis of 40Mtpa of saleable coal for 25 years, as originally proposed, and as assessed in the EIS, SEIS, CG Report, etc.

(2) Saleable coal, economic benefits and GHG emissions

63 It is agreed that if the Proposed Project is allowed to proceed, then the thermal coal in the proposed mining lease area will be extracted, exported and burned, thereby emitting GHGs (mostly CO_2) into the atmosphere: [12].

64 Assuming the Proposed Project to be so confined, it follows that the coal in rows 146–148 of Table 1, totalled in row 145, will be sold, exported and burned, thereby emitting GHGs (mostly CO_2) into the atmosphere. While it is agreed that the coal will be exported and burned, it does not affect the profits, royalties, or GHG emissions, if some of the coal is burned in Australia, including at an associated power plant.

65 The totals are:

(1) B seam – **220,235 Mt** (Table 1, Sum (J146:AI146);

(2) DU seam – **245,118 Mt** (Table 1, D147);

(3) DL seam – **296,474 Mt** (Table 1, D148); and

(4) Total – **761,828 Mt** (Table 1, D145).

---

45 Application for Mining Lease, Waratah Coal; [[**WAR.0008.0001**]] and described in [[**WAR.0008.0003**]]and [[**WAR.0008.0025**]]; Project Description, EIS, [[**WAR.0058.0005**]] Production Schedule in Figures 17-20; Environmental Management Plan, EIS [[**WAR.0053.0005**]]; Economic Assessment, EIS [[**WAR.0125.0006**]].

46 Attachment to email 3 Harris-King [[**YVL.0427.0001**]].

66 The sale of that coal will generate:

(1) profits to the Applicant, of approximately $1 billion (NPV), all of which will ultimately flow to Clive Palmer; and

(2) royalties to the State, of approximately $2 billion (NPV).

67 The combustion of that coal would emit GHGs (which we will call '**combustion emissions**'). A conservative estimate of those emissions was given by Dr Bethany Warren, with the agreement of Professor Church, as 2,159,666,995 t CO_2-e[47] (rounded to **2.16 Gt CO_2-e**).[48]

68 That estimate was conservative because Dr Warren was instructed[49] — despite the changed mine plan — to use the original proposed 40Mtpa of saleable coal over 26 years = 1.04 Gt of coal.

69 The proposed saleable coal in D145 of Table 1 totals only 761,828 Mt: that is, 73% of the 1.04Gt assessed by Dr Warren. Thus, if the Proposed Project is constrained, as explained above, emissions from combustion would total 761,828/1,040,000[50] x 2,159,666,995 (the figure used by Dr Warren to calculate combustion emissions) = 1,582,014,218 t CO_2-e (rounded to **1.58 Gt CO_2-e**).

(3) Impacts on Bimblebox

70 We assume that the Proposed Project will now involve the scheme for underground and open cut mining set out in the changed mine plan, and will be constrained to those activities in the recommended conditions. If it is not so constrained, then the Proposed Project must be treated as including the possibility of clearing Bimblebox for the purpose of open-cut mining, and thus (for the purpose of the EP Act) an environmental authority must be taken to authorise the direct destruction of Bimblebox.

71 On our assumption, the Proposed Project involves the mining activities described in the new mine plan, including underground mining under Bimblebox, and open cut mining next to Bimblebox. Those activities will inevitably have both physical effects, considered in detail below, and effects on the continuation of Bimblebox as a nature refuge under the NC Act, all of which are considered below.

---

47 Climate JER [[**COM.0067.0051**]], [1242]–[1243].

48 See T 20-107, ln 20 to 20-108, ln 12 and Climate JER [[**COM.0067.0051**]], [1249]-[1250].

49 Table – Warren's RFI and Response [[**WAR.0504.0002**]] per Fourth Affidavit of Nui Harris [[**WAR.0511.0001**]], [2].

50 Dr Warren agreed in oral evidence that a direct proportion could be used in this manner: T 20-107, ln 20 to 20-108, ln 12.

A-V Scenarios

72 The deep uncertainty associated with scenarios makes it impossible to apply probabilistic reasoning: for example, "which scenario is most likely to occur?"[51] Rather, the Intergovernmental Panel on Climate Change's (**IPCC**) Working Group Three (**WGIII**) scenario analysis for the Sixth Assessment Report (**AR6**) relies on feasibility metrics.[52]

73 Thus, it is possible to say what the best feasible scenarios available today are, without being able to say whether they are likely to occur.

74 An aspect of that deep uncertainty is the degree to which the future will be determined by the pace at which human science, technology, institutions, values and beliefs — the anthroposphere — changes to respond to the changes already evident in the geosphere, and predicted to occur in future without rapid action.

75 This poses a unique challenge to the State, in making a decision about a new coalmine, and this Court in advising it in respect of that decision.

76 Neither the State, nor this Court, can make a probabilistic assessment, based on the existing state of science, as to what future is most likely to transpire. Which future will transpire will depend in large part on decisions by human institutions, including the decision of the State in respect of the Proposed Project.

77 But what the State, and this Court, can consider, based on the science as evaluated and presented in the IPCC's AR6 and by the climate experts and energy markets experts in this matter, is a question squarely thrown up by the decisions to be made under the EP Act and MR Act.

78 What feasible scenarios are available with the Proposed Project as a fixed input assumption and what feasible scenarios are available without the Proposed Project as a fixed input assumption?

79 This should not be misinterpreted. YV and TBA are not submitting that the Court should treat approval as a decision that will cause a ≥2.5°C world or to treat refusal as a decision that will cause a 1.4°C world.

80 Nevertheless, YV and TBA submit that is a useful question that can be posed, and answered, on the current science and (more importantly) on the expert evidence in this matter.

81 It also has relevance for determining the cumulated harm from GHG emissions in a future in which the Proposed Project can exist.

---

51 See WGIII AR6, Annex III [[**YVL.0457.0001**]], II-58, lns 14–16.
52 See WGIII AR6, Annex III, [[**YVL.0457.0001**]] II-58, [2.3].

82 Questions such as "what proportion of GHG emissions will be produced by the Proposed Project?" are impossible to answer, unless a particular scenario is posited.

83 So too is a question such as "in a scenario with the Proposed Project, will total future GHG emissions be the same as in a scenario without the Proposed Project?" That is because the answer depends on which of the infinite feasible scenarios with or without the Proposed Project one chooses.

84 It is of course possible to create two scenarios — one with the Proposed Project, and one without — in which total future emissions are the same. But that is nothing more sophisticated than a child's trick.

85 There is an old Hasidic story. A prince, who was an excellent archer, was traveling his kingdom. One evening, he came to a town to rest. On waking the next morning, he saw through his window a puzzling sight. On the wall of the barn opposite, were painted ten targets, and dead in the middle of each was a single arrow. The prince demanded to meet this gifted archer. A small boy was produced. "Show me", commanded the prince. "It's easy, your Highness", said the boy. He fired an arrow at a blank part of the wall. Then, he entered the barn, emerging with a pot of paint and a brush. Working carefully out from the arrow, he painted the ever-widening circles.

86 The Applicant's substitution argument uses the same technique. The modeler starts by fixing demand for seaborne thermal coal throughout the duration of the Proposed Project. Then, voila! Whether the coal comes from this mine or another, the same (or more) emissions will be produced from the burning of coal, because the modeler has commenced by fixing demand so that the same amount of energy will necessarily be produced by burning coal.

87 On the evidence, it is impossible to pretend any probabilistic reasoning in determining future demand for seaborne thermal coal out to 2051. There is an infinite range of scenarios that might feasibly occur with the Proposed Project. In one, total temperature increase will be 2.5°C above pre-industrial; in another, it will be 4°C; in another, 5°C. Nevertheless, for each such scenario, one can create a matching scenario, without the Proposed Project. Indeed, one can create a whole set of paired scenarios above 2.5°C, in which the only variable is whether coal for a posited power station comes from the Proposed Project (in one scenario) or a source in Indonesia (in another). One can go further, and make the Indonesian source have lower calories, such that in each pair, the scenario in which the Indonesian source is used has very slightly (albeit negligibly, in the overall context) higher emissions than the scenario in which the Proposed Project is used.

88 But how is that exercise useful? For each scenario with the Proposed Project, there is an infinite range of other scenarios with or without the Proposed Project. The one thing that is sure is that there is a vast range of scenarios (1.4°C – 2.5°C) without the Proposed Project that are not available with the Proposed Project, and these are the very scenarios

that will keep to a minimum the massive harm that will be caused throughout Queensland, and the rest of the world, by future GHG emissions.

B. THE STATUTES

B-I Overview

89 In hearing objections to, and making recommendations about, the EA Application and ML Application, the Land Court is performing administrative functions under the "recommendatory provisions", within the meaning of s 52A of the *Land Court Act 2000* (Qld) (the **LC Act**).[53]

90 In so doing, the Land Court:

(1) has the jurisdiction given to it under the LC Act, the EP Act and the MR Act;[54]

(2) has the functions conferred on it by:

(a) the provisions listed in s 52B(1) of the LC Act;

(b) ss 222 and 223 of the EP Act;

(c) ss 268 and 269 of the MR Act;

(3) in performing those functions as a public entity under the HR Act, must not:[55]

(a) act or make a decision in a way that is not compatible with human rights;

(b) in making a decision, fail to give proper consideration to a relevant human right.

91 That statutory framework identifies the Land Court's task, identifies the matters which the Land Court must consider, and provides the lens through which those matters must be viewed.

92 The EP Act and HR Act require the Land Court to evaluate the evidence through a particular lens, which requires it to weigh competing values. The EP Act is concerned with protecting the 'environment', of which human beings are one constituent part, and the HR Act is concerned with the human rights in Pt 2. Human economic development and prosperity are important to the environment (so defined), but not absolutely and at any cost. Economic evaluation is relevant, but it is not determinative of the balance required by either statute. The benefits and costs of a project are to be measured not in dollar values, but by reference to the considerations identified by Parliament. The environmental values and harms that must be weighed under the EP Act include, but are not limited to, economic values and harms. The rights and limitations that must be

---

53 *LC Act*, s 52A.
54 *LC Act*, s 5(1).
55 *HR Act,* s 58(1).

weighed under the HR Act include, but are not limited to, property rights, and economic justifications for limiting the rights in Pt 2, under s 13.

B-II The LC Act

(i) Establishment

93 The Land Court is a specialised judicial tribunal, established by s 4 of the LC Act as a court of record, which has a seal that must be judicially noticed.

(ii) Jurisdiction

94 Section 5 provides that the Land Court has the jurisdiction given to it under the LC Act or another Act.[56] Here, relevantly, jurisdiction is given to it under:

(1) Ch 5, Pt 6, div 7, subdiv 1 of the EP Act;[57] and

(2) Ch 6, Pt 1 of the MR Act.

(iii) Powers

95 In the exercise of that jurisdiction, the Land Court: (a) is not bound by the rules of evidence and may inform itself in the way it considers appropriate; and (b) must act according to equity, good conscience and the substantial merits of the case without regard to legal technicalities and forms or the practice of other courts: LC Act, s 7.

96 However, s 7(a) of the LC Act (being a general provision) may give way to a more specific provision in the Act conferring jurisdiction on the Court.

(1) That is so in the case of s 268(3) of the MR Act, which constrains the evidence to which the Land Court may have regard in hearing an application and objections thereto under Ch 6, pt 1 of that Act.[58]

(2) There is no equivalent provision in the EP Act, such that s 7(a) of the LC Act applies unconstrained in an objections decision hearing under Ch 5, pt 6, div 7, subdiv 1 of that Act.

97 The Land Court also has all powers conferred by a provision in s 52B of the LC Act (which do not directly arise in these closing submissions).

---

56 See also *Acts Interpretation Act 1954* (Qld), s 49A.

57 Remaining in force in respect of the present matter, by virtue of s 683 of the Current EP Act.

58 *ACI Operations Pty Ltd v Quandamooka Lands Council Aboriginal Corporation* (2001) 1 Qd R 347, [59] (Mullins J, with whom Davies JA and McKenzie J agreed).

B-III The EP Act

(i) Purpose(s)

98 The object of the EP Act "is 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**)".[59]

99 On its face, s 3 reflects two different purposes:

(1) the first is protection of Queensland's environment;

(2) the second is the purpose of allowing development.

100 At first, these purposes seem contradictory: human development often requires adverse impacts on the non-human environment. But the 'environment' with which the EP Act is concerned includes both:

(1) the non-human environment: ecosystems and their non-human constituent parts,[60] all natural and physical resources,[61] and the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity;[62] and

(2) human beings: people and communities as constituent parts of ecosystems,[63] the qualities and characteristics of locations, places and areas, however large or small, that contribute to their intrinsic or attributed scientific value or interest, amenity, harmony and sense of community[64] (i.e., for human beings), and the social, economic, aesthetic and cultural conditions that affect, or are affected by the other matters included in the definition.[65]

101 Once the 'environment' is understood in this more nuanced way, development is no longer necessarily at odds with its protection.

102 Similarly, the 'development' for which the EP Act allows is not unconstrained development. It allows only 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. That kind of development is consonant with the human aspects of the environment.

---

59 EP Act, s 3.
60 EP Act, s 8(a).
61 EP Act, s 8(b).
62 EP Act, s 8(c).
63 EP Act, s 8(a).
64 EP Act, s 8(c).
65 EP Act, s 8(d).

103 Thus, properly understood, the object of the EP Act is to require that development by humans is consistent with protection of the overall environment of Queensland, of which both all human beings and non-human species and ecosystems form part.

(ii) Functions and duties of the Land Court

(1) EP Act, s 5

104 A person must perform a function or exercise a power conferred under the EP Act in the way that best achieves the object of the EP Act. The Land Court is bound by s 5,[66] and is tasked with making a recommendation to inform such a person.[67]

105 It is unnecessary, for present purposes, to go beyond the proposition that s 5 is "directed to impose a duty on the decision maker which regulates the way in which the decision maker goes about making the decision. It requires the decision maker to make the decision in the way that the decision maker conceives is the way that best achieves ecologically sustainable development".[68] In other words, it provides a lens through which the evaluative task conferred by ss 222 and 223 of the EP Act must be approached.

106 In *LSCC*, the Supreme Court was concerned on judicial review with an argument as to whether s 5 required a particular outcome different from the decision by the administrative authority. At this earlier stage in the process, there is no such distinction: the Land Court must make the decision that it conceives is the way that best achieves ecologically sustainable development, which, so far as the Land Court is concerned, will be the decision that in fact best achieves that object.

107 Thus, and most importantly, ss 3 and 5 provide the lens through which the Land Court must approach its task. That lens is consonant with the ss 222 and 223 functions (discussed below).

(2) EP Act, s 4

108 The EP Act is structured as an integrated, cyclical program — itself consistent with ecologically sustainable development — enacted in the EP Act, by which protection of Queensland's environment is to be achieved.[69] Section 4:

> … provides for a logical methodology for achieving the object of [the EP Act]. It demonstrates that the process of protecting Queensland's environment, consistent with [ecologically sustainable development], is a cyclical process of establishing benchmarks and objectives, developing strategies for fulfilling the objectives, implementing the

---

66 *Adani Mining Pty Ltd v Land Services of Coast and Country Inc* [2015] QLC 48, [52], [58] (President MacDonald), cited with approval in *Land Services of Coast and Country Inc v Chief Executive, Department of Environment and Heritage Protection* [2016] QSC 272 (***LSCC***), [10(c)], and forming part of the *ratio decidendi* at [21(a) and (c)] (Bond J).

67 *LSCC* [2016] QSC 272, [17].

68 *LSCC* [2016] QSC 272, [17].

69 *EP Act,* s 4(1).

> strategies and most importantly ensuring that the strategies are accountable and evaluated.[70]

109 Section 4 "expressly recognises that specific mechanisms are set out throughout the EPA which are themselves formulated to see that the overall object in [s 3] is 'achieved'."[71]

110 In other words, the Land Court does not simply apply ss 3 and 5, without reference to the carefully articulated scheme of the Act. Rather, the content of the obligation imposed by s 5 is contained within the EP Act. More specifically, the Land Court must perform the functions in s 222, as constrained by s 223 — which comprise the substantive hearing component[72] of stage 5 of the pt 6 process.[73]

111 It is important to articulate the scheme of the Act that provides the context to the Land Court's function under ss 222 and 223 — that is, the process summarised in s 4(6)(b) as "ensuring all reasonable and practicable measures are taken to protect environmental values from all sources of environmental harm".

112 One way in which the EP Act relevantly pursues the object in s 3 is "by making it an offence for a person to carry on an environmentally relevant activity, including a mining activity, unless the person is the holder of an environmental authority for that activity":[74] s 426(1) of the *Environmental Protection Act 1994* (Qld) as presently in force (the **Current EP Act**). A 'resource activity', including a 'mining activity',[75] is an 'environmentally relevant activity'.[76] In other words, a 'mining activity' cannot be carried on without an environmental authority.

113 Sections 437 and 438 make it an offence to wilfully and unlawfully cause 'serious environmental harm' (s 437(1)) or 'material environmental harm' (s 438(1)). An act that causes serious or material environmental harm is unlawful unless it is authorised to be done under one of the matters in s 493A(2), including (relevantly) an environmental authority.[77]

114 Thus, it is possible to more precisely identify in the text and structure of the Act the evident purpose of an environmental authority: it is a permission to carry out a mining activity and to cause the environmental harm authorised under the EA. This requires the unpacking of some of the 'key concepts' in Pt 3, Div 2.

---

70 Explanatory note, Environmental Protection Bill 1994, cl 4, p 3.

71 *LSCC* [2016] QSC 272, [18] (Bond J, accepting the submission made by the second respondent).

72 See *LSCC* [2016] QSC 272, [19] and, more generally, *Oakey Coal Action Alliance Inc v New Acland Coal Pty Ltd* (2021) 386 ALR 212 (***Oakey***), [55]–[57] (Kiefel CJ, Bell, Gageler and Keane JJ).

73 EP Act, s 197.

74 *Oakey* (2021) 386 ALR 212, [60], referring to s 426 of the Current EP Act.

75 Current EP Act, s 107(c). An "an activity that is an authorised activity for a mining tenement under the [MR Act]" is a "mining activity": Current EP Act, s 110(a). Under the MR Act, "[a]n authorised activity, for a mining tenement, is an activity that its holder is, under this Act or the tenement, entitled to carry out in relation to the tenement" (MR Act, Sch 2).

76 *Current EP Act*, s 18(b).

77 *Current EP Act*, s 493A(2)(d).

(1) 'Environment' includes:[78]

(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).

(2) 'Environmental value' includes "a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety".[79]

(3) 'Environmental harm' means "any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance".[80]

(4) 'Material environmental harm' relevantly includes "environmental harm … that is not trivial or negligible in nature, extent or context".[81]

(5) 'Serious environmental harm' includes 'environmental harm': "(a) that is irreversible, of a high impact or widespread;" or "(b) caused to … (i) an area of high conservation value; or (ii) an area of special significance, such as the Great Barrier Reef World Heritage Area".[82]

115 At least, an environmental authority may be characterised as a permission to cause material or serious environmental harm.

116 In any event, Ch 5 Pt 6 is concerned with level 1 mining projects, which will almost inevitably meet the threshold of 'material', and in most cases the threshold of 'serious'. Whereas ss 437 and 438 assist to elucidate the evident purpose of an environmental authority (a permission to cause environmental harm), s 426 may be understood to represent a legislative judgment that a mining activity will always cause environmental harm to such a level that it requires an environmental authority permitting that harm to occur.

---

78 *Current EP Act*, s 8.
79 *Current EP Act*, s 9(a).
80 *Current EP Act*, s 14(1).
81 *Current EP Act,* s 17(1)(a).
82 *Current EP Act*, s 17(1)(b). Neither 'high conservation value' nor 'area of special significance' are defined in the Current EP Act.

117 In determining whether to permit such harm to occur, the Land Court has (by transitional provisions in the Current EP Act[83]) the functions imposed by ss 222 and 223 of the EP Act.

118 Section 222(1) provides that the Land Court must, following the objections decision hearing, make a recommendation to (in effect) the administering authority[84]:

> that—
>
> (a) the application be granted on the basis of the draft environmental authority for the application; or
>
> (b) the application be granted, but on stated conditions that are different to the conditions in the draft; or
>
> (c) the application be refused.

119 As the Draft EA was required to include the conditions stated in the CG Report in accordance with s 210 of the EP Act, if the objections decision is a recommendation under s 222(1)(b), the conditions must include the CG's stated conditions and must not be inconsistent with a CG's condition.[85]

120 In making the objections decision, the Land Court must consider the following matters:

> In making the objections decision for the application, the Land Court must consider the following—
>
> (a) the application documents for the application;
>
> (b) any relevant regulatory requirement;
>
> (c) the standard criteria;
>
> …
>
> (e) each current objection;
>
> (f) any suitability report obtained for the application;
>
> (g) the status of any application under the Mineral Resources Act for each relevant mining tenement.

121 These are discussed in more detail below. To wrap up on s 4, stage 5 of the Pt 6 process (comprising the functions of the Land Court under ss 222 and 223, and the subsequent decision under s 225 by the administering authority[86]) provides the mechanism by which Parliament has intended[87] to ensure that "all reasonable and practicable measures are taken to protect environmental values" from a specific source of 'environmental

---

83 *Current EP Act,* s 683(1)(a).
84 *EP Act,* ss 222(1), 225; Current EP Act, s 749(2).
85 *EP Act*, s 222(2).
86 *Current EP Act*, s 749(2).
87 Up to the present day: *Current EP Act*, s 683.

harm': level 1 mining projects for which the environmental authority (mining lease) application was non-code compliant.

122 To identify by reference to s 4(6)(b) that the Land Court's stage 5 functions are part of the mechanism by which Parliament has chosen to determine whether an application of that kind should be approved, thereby authorising the applicant to cause environmental harm — in most cases, as here, serious environmental harm — is to explain in a more detailed way the processes referred to in s 4.

123 Section 4(6)(b) is not concerned with identifying some object different from that in s 3, or some obligation different from that in s 5.

124 Section 222 confers the discretionary power (subject to the constraint in s 222(2)). Section 223 prescribes the mandatory considerations. But neither explains the object of the Land Court's function. To what end must the Land Court consider the matters in s 223? What discrimen or principle should the Land Court apply in order to determine what is the appropriate decision under s 222(1)?

125 The answer is that given above: the Land Court must have regard to those matters, and make that decision, to give effect to the object in s 3. In other words, Parliament has effectuated the procedural requirement of s 4(6)(b) by enacting stage 5 of the Pt 6 process, as its chosen means to ensure that Queensland's environment is protected 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.

126 Before turning in more detail to the mandatory considerations in s 223, it may be useful to identify some other matters bearing on the proper interpretation of the EP Act: the legislative history and international context for the EP Act, the relevance of changing environmental circumstances, and s 48 of the HR Act.

(iii) Legislative history and international context

127 In the second reading speech for the Bill that became the EP Act, the Minister for Environment and Heritage referred to the **Intergovernmental Agreement** on the Environment, made on 1 May 1992, between the Commonwealth, the States, the Territories and the Australian Local Government Association.[88] The preamble stated that they recognised,

> that the concept of ecologically sustainable development … provides potential for the integration of environmental and economic considerations in decision making and for balancing the interests of current and future generations.

128 Section 3 of the Intergovernmental Agreement gave effect to this recognition, plainly articulating the competing purposes at play:

---

88 Intergovernmental Agreement [[**COM.0348.0001**]].

3.1 The parties agree that the development and implementation of environmental policy and programs by all levels of Government should be guided by the following considerations and principles.

3.2 The parties consider that the adoption of sound environmental practices and procedures, as a basis for ecologically sustainable development, will benefit both the Australian people and environment, and the international community and environment. This requires the effective integration of economic and environmental considerations in decision-making processes, in order to improve community wellbeing and to benefit future generations.

3.3 The parties consider that strong, growing and diversified economies (committed to the principles of ecologically sustainable development) can enhance the capacity for environmental protection. In order to achieve sustainable economic development, there is a need for a country's international competitiveness to be maintained and enhanced in an environmentally sound manner.

3.4 Accordingly, the parties agree that environmental considerations will be integrated into Government decision-making processes at all levels by, among other things:

1. ensuring that environmental issues associated with a proposed project, program or policy will be taken into consideration in the decision making process;

2. ensuring that there is a proper examination of matters which significantly affect the environment; and

3. ensuring that measures adopted should be cost-effective and not be disproportionate to the significance of the environmental problems being addressed.

129 By section 3.5, the parties agreed that "in order to promote the above approach, the principles set out below should inform policy making and program implementation", and listed: 3.5.1 the precautionary principle; 3.5.2 – intergenerational equity; 3.5.3 – conservation of biological diversity and ecological integrity; and 3.5.4 improved valuation, pricing and incentive mechanisms.

130 The Intergovernmental Agreement was followed, in December 1992, by COAG endorsement of the **National Strategy** for Ecologically Sustainable Development, which relevantly described ecologically sustainable development as follows:

What is ecologically sustainable development?

Ecologically Sustainable Development (ESD) represents one of the greatest challenges facing Australia's governments, industry, business and community in the coming years. While there is no universally accepted definition of ESD, in 1990 the Commonwealth Government suggested the following definition for ESD in Australia:

- 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

> Put more simply, ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations. To do this, we need to develop ways of using those environmental resources which form the basis of our economy in a way which maintains and, where possible, improves their range, variety and quality. At the same time we need to utilise those resources to develop industry and generate employment.

131 Evidently, the drafting of s 3 was heavily influenced by the Commonwealth's suggestion.

132 The Intergovernmental Agreement was made during the negotiation period leading up to Australia signing the *Convention on Biological Diversity* (the **Biodiversity Convention**) and the *United Nations Framework Convention on Climate Change* (the **Climate Convention**) at the Earth Summit in Rio de Janeiro.

133 The objectives of the Biodiversity Convention included "the conservation of biological diversity" and "the sustainable use of its components".[89]

(1) 'Biological diversity' is defined to mean "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems".[90]

(2) 'Ecosystem' means "a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit".

(3) 'Sustainable use' means "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations".

134 Thus, broadly speaking, the objective of the Biodiversity Convention is concerned to balance the same purposes evident in s 3 of the EP Act.

135 The preamble to the Biodiversity Convention showed an awareness by the Contracting Parties signing in 1992 that human beings are a part of, and reliant on, biological diversity: for example, the preamble stated that they were conscious of "the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere". As Beach J observed in *Minister for the Environment v* ***Sharma***,[91] "biodiversity is not just some intellectual fancy or aesthetic pleasure. It is important to the sustainability of humans".[92]

---

89 Biodiversity Convention, art 1.
90 Biodiversity Convention, art 2.
91 [2022] FCAFC 35.
92 [2022] FCAFC 35, [579] (Beach J).

136 The Intergovernmental Agreement and National Strategy reflect a "shared governmental responsibility for the environment",[93] between Commonwealth, State, Territory and local governments to pursue their objectives, in order (among other things) to give effect to Australia's obligations under the Biodiversity Convention.[94]

137 As discussed further below, the National Strategy had a more direct role in the EP Act: its "principles of ecologically sustainable development" were made mandatory considerations for various decision-making functions, including that of the Land Court under s 223(c).

(iv) Ecologically sustainable development and environmental change

138 The EP Act was enacted shortly after Australia signed the Biodiversity Convention, whose objective included avoiding "the long-term decline of biological diversity".[95]

139 Its object was to protect the 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.

140 Almost 30 years later, the question must be asked: if, since the EP Act was enacted, developments have degraded both the total quality of life for future generations of the human and many non-human species (including those species that face extinction) and the very ecological processes on which life depends, does that have relevance for the proper interpretation and application of the EP Act?

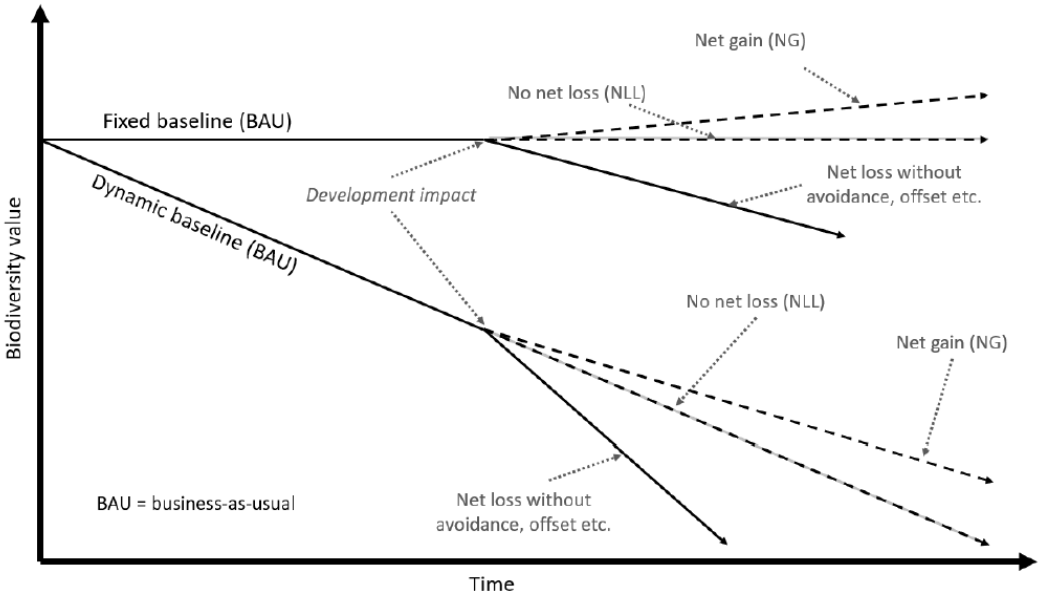
---

93 *Sharma* [2022] FCAFC 35, [272] (Allsop CJ); see also [48] (bolded), [93]–[98], [222]–[226].

94 The reach of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the **EPBC Act**) is constrained by the limits of Commonwealth legislative power under s 51 of the Constitution: *Sharma* [2022] FCAFC 35, [44].

95 See [133133] above. And shortly after the Climate Convention, whose ultimate objective was "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system": art 2.

141 In this regard, YV and TBA wish to make reference, by way of analogy, to a diagram in the expert evidence: Figure 1 in the Offsets JER.



142 Consider the object in s 3 of the EP Act, and the approval of environmental harm, for the purpose of development, over the 22 years since the EP Act was made to apply to mining activities.[96]

143 The language of s 3 is inconsistent with a dynamic baseline — where each development is approved, gradually degrading the environment for economic benefit. Rather, the requirement to maintain the ecological processes on which life depends, and to improve the total quality of life, not only now but also in the future, suggests something more akin to a fixed baseline.

144 Otherwise, the EP Act in general, and s 3 in particular, is no more than doublethink. It is simply not possible for the EP Act to achieve its object while permitting the long-term decline of Queensland's environment.

145 Putting the question in the context of this case, the application would cause the local degradation of Bimblebox — a protected nature refuge — and the combustion of more carbon from Queensland's coal deposits, for the purpose of emission into the atmosphere, where it will combine with other carbon unlocked by approvals under the EP Act, and cause harm to almost every aspect of the environment.

146 If, after 22 years of approving extraction of coal for combustion into the atmosphere, it is an appropriate performance of the obligation under ss 3 and 5 for the Land Court to recommend approval of, and the State to approve, the coal in this mining lease area for

96 *Environmental Protection Act 1994* as in force on 1 January 2001, as amended by *Environmental Protection and Other Legislation Amendment Act 2000* (Qld).

combustion as 2.16Gt or 1.58Gt CO_2-e of emissions, then why would the same thing not be appropriate for the next, and the one after that?

(v) Section 48 of the HR Act and the EP Act

(1) Section 48

147 Section 48(1) of the HR Act provides that "[a]ll statutory provisions must, to the extent possible that is consistent with their purpose, be interpreted in a way that is compatible with human rights". This applies to the provisions[97] of the EP Act, despite it having been enacted before the commencement of the HR Act.[98]

148 By defining 'compatible with human rights' in s 8, Parliament has affirmed that s 48 involves the process in s 13, in the way that Gummow J construed s 32(1) of the Victorian Act as involving s 7(2), in *Momcilovic*.[99]

149 Nevertheless, s 48(1) must be approached in clear recognition of the constitutional framework within which it operates,[100] and according to its text.[101] Although the Land Court is not a Ch III court, that s 5(2)(a) applies s 48(1) equally to State courts charged with federal judicial responsibilities affects the scope of what it can require, within Australia's constitutional system.[102]

150 It follows that the reference to 'purpose' in s 48(1) "is to the legislative 'intention' revealed by consideration of the subject and scope of the legislation [here, the EP Act] in accordance with principles of statutory construction and interpretation. There falls within the constitutional limits of that curial process the activity which was identified in the joint reasons in *Project Blue Sky*[103]".[104]

151 The purposes underpinning the principles of ecologically sustainable development, properly construed, are themselves entirely consistent with the rights in pt 2 of the HR Act.

(1) The ecological processes on which life depends[105] (EP Act, s 3) are fundamental to the right to life (HR Act, s 16).

---

97 "Statutory provision" means, relevantly, "an Act … or a provision of an Act …". *HR Act,* Schedule 1.
98 *HR Act,* s 108(1).
99 ***Momcilovic*** *v R* (2011) 245 CLR 1, [166]-[168] (Gummow J, with whom Hayne J agreed at [280]).
100 *Momcilovic*, [155] (Gummow J, with whom Hayne J agreed at [280]).
101 *Momcilovic*, [159] (Gummow J, with whom Hayne J agreed at [280]).
102 *Momcilovic* , [169] (Gummow J, with whom Hayne J agreed at [280]).
103 (1998) 194 CLR 355.
104 *Momcilovic*, [170] (Gummow J, with whom Hayne J agreed at [280]). See also [171].
105 See also National Strategy, Core Objectives, Part 1 Introduction, "Core Objectives": "a path of economic development that safeguards the welfare of future generations" and "to protect biological diversity and maintain essential ecological processes and life-support systems". [[**YVL.0528.0001**]]

(2) Intergenerational equity[106] is consistent with the rights of children to equality and protection (HR Act, ss 15 and 26)

(3) The core objective of providing equity "within … generations" and the core principle that "decision making processes should effectively integrate both long and short-term … equity considerations" are consistent with the rights of other persons to equality (HR Act, s 15).

(4) As discussed further below, the distinct cultural rights of Aboriginal peoples and Torres Strait Islander peoples under s 28 have a special relevance to the construction of the EP Act, in terms of both protection and development.

(5) The rights to education and health services (HR Act, ss 36 and 37) may be promoted by ecologically sustainable development if it generates economic benefits, including royalties paid into consolidated revenue.

(2) Sections 15, 16 and 26

152 All individuals in Queensland, and only individuals, have the rights stated in Pt 2, divs 2 and 3 of the HR Act.[107]

153 The 'environment' includes "people and communities", "the qualities and characteristics of locations, places and areas, however large or small, that contribute to their "integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community", and "the social, economic, aesthetic and cultural conditions that affect, or are affected by" those things.[108] This is apt to include the rights of humans stated in Pt 2, divs 2 and 3, especially where those rights are affected by changes in other (non-human) aspects of the environment.

154 Further, the purposes of the EP Act are consistent with the protection of those rights.

(1) Those rights, especially the right to life, are consistent with the object as stated in s 3: "the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends".

(2) The principles of ecologically sustainable development are consistent with the protection of those rights.

(3) This reflects the concern of the Biodiversity Convention to protect 'the environment' as something of value to human beings, including (ultimately) to their sustainability, not just as "some intellectual fancy or aesthetic pleasure".[109]

---

106 See also National Strategy, Core Objectives, Part 1 Introduction, "Core Objectives": "to provide for equity … between generations".

107 *HR Act*, ss 7 and 11.

108 *EP Act*, s 8.

109 *Sharma* [2022] FCAFC 35, [579] (Beach J).

(4) Unlike the EPBC Act — which contains a similar definition of 'environment',[110] but then prohibits impacts on subject-matters (matters of national environmental significance) more narrowly as identified species and communities of fauna and water resources[111] — the EP Act prohibits impacts on any adverse effect or potential adverse effect on a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety, which accommodates harm to human beings and things they value.

(3) Section 28

155 Section 28 of the HR Act provides:

> **28 Cultural rights—Aboriginal peoples and Torres Strait Islander peoples**
>
> (1) Aboriginal peoples and Torres Strait Islander peoples hold distinct cultural rights.
>
> (2) Aboriginal peoples and Torres Strait Islander peoples must not be denied the right, with other members of their community—
>
> (a) to enjoy, maintain, control, protect and develop their identity and cultural heritage, including their traditional knowledge, distinctive spiritual practices, observances, beliefs and teachings; and
>
> (b) to enjoy, maintain, control, protect, develop and use their language, including traditional cultural expressions; and
>
> (c) to enjoy, maintain, control, protect and develop their kinship ties; and
>
> (d) to maintain and strengthen their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition or Island custom; and
>
> (e) to conserve and protect the environment and productive capacity of their land, territories, waters, coastal seas and other resources.
>
> (3) Aboriginal peoples and Torres Strait Islander peoples have the right not to be subjected to forced assimilation or destruction of their culture.
>
> (Underlining added.)

156 Relevantly, the preamble states that, in enacting the HR Act, Parliament recognised that:

> … human rights have a special importance for the Aboriginal peoples and Torres Strait Islander peoples of Queensland, as Australia's first people, with their distinctive and diverse spiritual, material and economic relationship with the lands, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal

110 *EPBC Act*, s 528; *Sharma* [2022] FCAFC 35, [46].
111 *Sharma* [2022] FCAFC 35, [15], [24], [44], [88], [89], [184], [272] (Allsop CJ).

> tradition and Ailan Kastom. Of particular significance to Aboriginal peoples and Torres Strait Islander peoples of Queensland is the right to self-determination.

157 As explained further below, s 28 should be construed by reference to the preamble and also to the legislative history and context that s 28 and the preamble necessarily entail.

158 It is important also to construe s 28 by reference to s 107(1) and (2), which provide:

> (1) Nothing in this Act affects native title rights and interests otherwise than in accordance with the *Native Title Act 1993* (Cwlth).
>
> (2) A provision of this Act must be interpreted and applied in a way that does not prejudice native title rights and interests to the extent the rights and interests are recognised and protected under the *Native Title Act 1993* (Cwlth).

159 The purposes of the EP Act are also, on a proper analysis, consonant with the rights recognised in s 28.

160 In paragraphs 4 and 5 of a statement of claim filed in the High Court in 1982, Eddie Mabo and James Rice alleged, relevantly, that since time immemorial the laws, customs, traditions and practices of the Meriam people had included certain rights to areas of land, reefs and sea that they had continuously inhabited and exclusively possessed, which they continued to own, use and have rights in, in accordance with those laws, customs, traditions and practices, and that they continued to have questions about those matters decided in accordance with the laws, customs, traditions and practices of the Meriam people.

161 In 1985, Parliament enacted the *Queensland Coast Islands Declaratory Act 1985* (Qld), s 3(a) of which relevantly provided that "the islands were vested in the Crown in right of Queensland freed from all other rights, interests and claims of any kind whatsoever", following which the State of Queensland amended its defence to rely on the statutory extinguishment of the rights pleaded in paragraphs 4 and 5. This Act may properly be described as the first statutory recognition by Parliament of rights deriving from a pre-existing form of law, customs, traditions and practices, referred to in the preamble to the HR Act as Ailan Kastom. The plaintiffs demurred. In *Mabo v Queensland (No 1)*,[112] a majority of the High Court held that the Act was invalid as being inconsistent with s 10 of the *Racial Discrimination Act 1975* (Cth).

162 In 1975, the International Court of Justice had determined that the State practice of the period of European colonisation "indicates that territories inhabited by tribes or peoples having a social and political organization were not regarded as terrae nullius" and "in the case of such territories the acquisition of sovereignty was not generally considered as effected unilaterally through 'occupation' of terra nullius by original title but through agreements concluded with local rulers".[113]

---

112 (1988) 166 CLR 186.

113 *Advisory Opinion on Western Sahara* [1975] 1 ICJR 12, quoted by Brennan J in *Mabo No 2* [1992] 175 CLR 1 at 22 (***Mabo No 2***).

163 Judge Ammoun delivered a separate opinion, endorsing the views expressed by Mr Bayona-Ba-Meya on behalf of the Republic of Zaire:

> Mr. Bayona-Ba-Meya goes on to dismiss the materialistic concept of terra nullius, which led to this dismemberment of Africa following the Berlin Conference of 1885. Mr. Bayona-Ba-Meya substitutes for this a spiritual notion: the ancestral tie between the land, or 'mother nature', and the man who was born therefrom, remains attached thereto, and must one day return thither to be united with his ancestors. This link is the basis of the ownership of the soil, or better, of sovereignty. This amounts to a denial of the very concept of terra nullius in the sense of a land which is capable of being appropriated by someone who is not born therefrom.[114]

164 In *Mabo No 2*, the High Court held that the common law could recognise the traditional laws and customs of an Indigenous people, in order to identify and protect native rights and interests to which they give rise.[115] That case necessarily focused on rights and interests that could be cognisable by the common law concerning property. For present purposes, the relevant point is that the High Court recognised the customs of the Meriam people as a source of substantive rights.

165 Justices Deane and Gaudron observed that, as a broad generalisation, it was clear that significant areas of the territory that became New South Wales (including what is now Queensland) the number of Aboriginal (and Torres Strait Islander) inhabitants far exceeded the expectations of the colonisers, and:

> …[u]nder the laws or customs of the relevant locality, particular tribes or clans were, either on their own or with others, custodians of the areas of land from which they derived their sustenance and from which they often took their tribal names. Their laws or customs were elaborate and obligatory. The boundaries of their traditional lands were likely to be long-standing and defined. The special relationship between a particular tribe or clan and its land was recognized by other tribes or groups within the relevant local native system and was reflected in differences in dialect over relatively short distances. In different ways and to varying degrees of intensity, they used their homelands for all the purposes of their lives: social, ritual, economic. They identified with them in a way which transcended common law notions of property or possession.[116]

166 The recognition by the common law of rights and interests arising from those laws or customs was then given statutory effect by the *Native Title Act 1993* (Cth).

167 It was therefore plainly apparent to Queensland's Parliament, by the time it enacted the EP Act, that Queensland was occupied by Aboriginal peoples and Torres Strait Islander peoples, with elaborate and obligatory pre-existing laws and customs, which were the source of rights of the kind now spelled out in s 28 of the HR Act.

---

114 *Advisory Opinion on Western Sahara* [1975] 1 ICJR 12 at 85.
115 *Mabo No 2* at 60 (Brennan J).
116 *Mabo No 2* at 99-100 (Deane and Gaudron JJ).

168 Returning to the EP Act, when the definition of 'environment' in s 8 was enacted, the references to 'people and communities', "the qualities and characteristics of locations, places and areas, however large or small, that contribute to their "integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community", and "the social, economic, aesthetic and cultural conditions that affect, or are affected by" those things, must be taken to have included the kinds of matters now spelled out in s 28(2).

169 Similarly, the 'environment' to which the EP Act applies must be understood as something already the subject and product of societies, and their obligation to Country, referred to in s 28(2), over thousands of generations, in every corner of Queensland. Thus, where we refer in this matter to the 'non-human environment', this should not be confused with any notion of 'wilderness' or 'nature' of a kind that denies that the Queensland environment has already been tended, and changed, for over 60,000 years, by the peoples whose rights have so recently been recognised by s 28(2) of the HR Act.

170 It follows that construing the EP Act in accordance with the statutory mandate[117] in s 48, by reference to s 28, is consistent with its purpose.

171 Section 28 is considered in more detail below in D-II(vii)(1) Nature and scope of the right — overview.

(vi) Section 222

172 Section 222(1) of the EP Act provides that the objections decision for the application must be a recommendation to the EP Act Minister (now, in effect, the administering authority[118]) that:

(a) the application be granted on the basis of the draft environmental authority for the application; or

(b) the application be granted, but on stated conditions that are different to the conditions in the draft; or

(c) the application be refused.

173 Several features of this function should be noticed.

174 **First**, the power is a power to make a recommendation, for the purpose of informing the final decision by the administering authority made under s 225(1) of the EP Act, which itself provides the same range of decision-making options.

175 **Second**, in making its decision, the Land Court is bound to make the recommendation that it considers to be the way that best achieves the object in s 3.[119]

---

117 *Momcilovic* at [170] (Gummow J, with whom Hayne J agreed at [280]).
118 *Current EP Act,* s 190(1).
119 *EP Act,* s 5.

176 **Third**, while s 222(1)(a) contemplates that the Land Court will have regard to the draft environmental authority issued by the administering authority under s 208 (see also ss 223(a) and 150(b)), and may — following the objections decision hearing — decide to recommend its adoption, there is no statutory presumption as to the correctness of the administering authority's draft environmental authority. Rather, the chief function of the draft environmental authority is to provide the context for understanding the objections, which have enlivened the Land Court's duty to make an objections decision.

177 **Fourth**, s 222(1)(a), (b) and (c) represent a full discretionary spectrum, from refusal through to unconditional approval (subject only, of course, to the CG's conditions). The power is converted from a binary to a spectrum (from complete prohibition to complete permission) by the availability of the condition-making power.

178 **Fifth**, the power (and duty) to make an objections decision arises only if an application for an environmental authority has been made, and has reached the stage in the statutory process of the administering authority having to make a decision under s 207. For a non-code compliant application for an environmental authority (mining lease) for a level 1 mining project that is a 'co-ordinated project', such as the present, that process relevantly includes:

(1) an EIS has been prepared under pt 4 of the *State Development and Public Works Organisation Act 1971* (Qld) (the **SD Act**);

(2) a CG report has been prepared under s 35 of the SD Act, which meets the conditions in s 205(1) of the EP Act; and

(3) an EM plan (complying with s 203) has been submitted as required by Pt 6, div 3, including any amendment made before the refusal period (s 204(1)).

179 **Sixth**, the power (and duty) to make an objections decision arises only if the administering authority has decided not to refuse the application (under s 207) and has therefore issued a draft environmental authority, as required by s 208. That draft environmental authority must have included proposed conditions (s 208((3)(b)) proposed by the administering authority, which (for a coordinated project, such as this):

(1) includes the CG's conditions (s 210(2)(a)); and

(2) could include other conditions the administering authority considered necessary or desirable (s 210(1)), provided they were not inconsistent with a CG's condition (s 210(2)(b)).

180 In making its decision, the administering authority was required to comply with the overarching obligation in ss 3 and 5, and to consider matters similar to those that the Land Court must consider under s 223.

181 **Seventh**, the power (and duty) to make an objections decision arises only if one or more objections were made under s 216, and remained current when the objection period for the application ended (s 219(1)).

182 **Eighth**, in making the objections decision, the Land Court must consider the following matters in s 223, that are the product of the anterior steps in the statutory process:

(1) the application;[120]

(2) the EIS prepared under SD Act, pt 4;[121]

(3) the Coordinator-General's report;[122]

(4) the EM plan;[123]

(5) the draft environmental authority;[124] and

(6) each current objection.[125]

183 **Ninth**, in making its decision, the Land Court must also consider the standard criteria,[126] which include (among other things) the principles of ecologically sustainable development, government policy and the public interest (see further [B-III(vii) The s 223 mandatory considerations] below).

184 And **finally**, in performing its functions under the EP Act, the Land Court is a public entity. As it has a discretion, it must comply with s 58(1) of the HR Act.

185 *First*, it must give proper consideration to relevant human rights.

186 *Second*, it must not act or make a decision in a way that is incompatible with human rights. That is, if it acts or makes a decision in a way that limits a human right, it must limit the human right only to the extent that is reasonable and demonstrably justifiable in accordance with s 13 of the HR Act.

187 Section 13 provides that a human right may be subject under law only to reasonable limits that can be demonstrably justified in a free and democratic society based on human dignity, equality and freedom.

188 Here, the putative limit is imposed under law, because it is imposed in the exercise of the discretion under ss 222 and 223 of the EP Act. Whether, in an exercise of power under that law, a limit on human rights is demonstrably justified in the free and democratic society of Queensland, is not a free-standing inquiry, but should be

---

120 *EP Act*, s 223(a) and s 150(a).
121 *EP Act*, s 223(a) and s 150(g)(i).
122 *EP Act*, s 223(a) and s 150(g)(ii).
123 *EP Act*, s 223(a) and s 150(c).
124 *EP Act*, s 223(a) and s 150(b).
125 Bauman EA Objection [[**COM.0034.0001**]]; Barcaldine EA Objection [[**COM.0036.0001**]]; Coyne EA Objection [[**COM.0039.0001**]]; Lonergan EA Objection [[**COM.0040.0001**]]; Atkinson EA Objection [[**COM.0041.0001**]]; Bimblebox EA Objection [[**COM.0042.0001**]]; Sharov EA Objection [[**COM.0045.0001**]]; Anderson EA Objection [[**COM.0046.0001**]]; Fairfax EA Objection [[**COM.0047.0001**]]; Kelly EA Objection [[**COM.0049.0001**]]; Cousins EA Objection [[**COM.0051.0001**]]; Youth Verdict EA Objection [[**COM.0053.0001**]]; Any Person EA Objection [[**COM.0054.0001**
126 *EP Act*, s 223(c).

measured primarily by reference to the subject-matter, scope and purpose of the law under which the limit is imposed: here, the EP Act.

189 More specifically, whereas the nature of the human right[127] and the importance of preserving it (taking into account the nature and extent of the limitation)[128] derives from Part 2 of the HR Act, the nature of the purpose of the limitation[129] on that right should be assessed primarily by reference to the purpose of the EP Act, under which the putative limitation is to be imposed. That assessment will inform the importance of the purpose of the limitation,[130] whether there are any less restrictive and reasonably available ways to achieve the purpose,[131] and the assessment of the relationship between the limitation and its purpose, including whether the limitation helps to achieve the purpose.[132]

190 Thus, the balancing exercise most evident in s 13(2)(g) of the HR Act is not a balancing exercise at large, unmoored from the statutory scheme. To the contrary, it requires careful evaluation of the evidence:

(1) first, through the lens provided by ss 3 and 5 of the EP Act, and the subject-matter, scope and purpose of the EP Act, as set out in paragraph [insert] above; and

(2) second, through the lens provided by the requirement to give proper consideration to, and act compatibly with, the rights in Part 2 of the HR Act.

191 Once s 3 of the EP Act is understood in the manner set out in B-III(i) Purpose(s) above, the rights in Pt 2 of the HR Act may themselves be understood to be an aspect of the 'environment', as defined in s 8 of the EP Act.

(vii) The s 223 mandatory considerations

192 Section 223(1) relevantly provides:

> In making the objections decision for the application, the Land Court must consider the following—
>
> (a) the application documents for the application;
>
> (b) any relevant regulatory requirement;
>
> (c) the standard criteria;
>
> …
>
> (e) each current objection;

---

127 *HR Act*, s 13(2)(a).
128 *HR Act,* s 13(2)(f).
129 *HR Act*, s 13(2)(b).
130 *HR Act*, s 13(2)(e).
131 *HR Act*, s 13(2)(d).
132 *HR Act*, s 13(2)(c).

(f) any suitability report obtained for the application;

(g) the status of any application under the Mineral Resources Act for each relevant mining tenement.

193 The 'application documents' are set out in s 150: see, relevantly, paragraph 182(1)-(5) above.

194 The 'standard criteria' are:

(a) the principles of ecologically sustainable development as set out in the 'National Strategy for Ecologically Sustainable Development'; and

(b) any applicable environmental protection policy; and

(c) any applicable Commonwealth, State or local government plans, standards, agreements or requirements; and

(d) any applicable environmental impact study, assessment or report; and

(e) the character, resilience and values of the receiving environment; and

(f) all submissions made by the applicant and submitters; and

(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—

(i) an environmental authority;

(ii) a transitional environmental program;

(iii) an environmental protection order;

(iv) a disposal permit;

(v) a development approval; and

(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument; and

(i) the public interest; and

(j) any applicable site management plan; and

(k) any relevant integrated environmental management system or proposed integrated environmental management system; and

(l) any other matter prescribed under a regulation.

(1) The principles of ecologically sustainable development

195 The National Strategy relevantly provides:

> The Goal is:
>
> 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.
>
> The Core Objectives are:
>
> - to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations
> - to provide for equity within and between generations
> - to protect biological diversity and maintain essential ecological processes and life-support systems
>
> The Guiding Principles are:
>
> - decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations
> - 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
> - the global dimension of environmental impacts of actions and policies should be recognised and considered

196 While the 'principles of ecologically sustainable development' are a mandatory consideration, the goal that the Core Objectives and Guiding Principles serve is picked up as the object of the EP Act, by s 3, and made the mandatory goal of the performance of the Land Court's function (and that of the administrative authority to which the Land Court makes its recommendation), by s 5.

197 The principles should be understood to be in service of the core objectives, which are in service of the goals, which is the object of the Land Court's function.

(viii) Jurisdiction to consider environmental harm from the burning of coal

198 Here, YV and TBA explain why they say this Court has jurisdiction, on this objection, to consider environmental harm from cumulated GHG emissions including the CO_2 the Applicant admits will result from the burning of the coal in the mining lease area, if the Proposed Project is approved ([12]).

199 Before starting this analysis, two points should be made.

200 First, it is unhelpful, and conducive to error, in considering this question, to use the terms 'scope 1', 'scope 2' and 'scope 3'. Those terms come from GHG accounting and reporting methodologies. 'Scope 3', in particular, is not a term used in Commonwealth or Queensland legislation. At least in considering the jurisdiction of the Land Court

under s 222 of the EP Act, an accounting term that is alien to the statutory text is apt to mislead. If what is meant is the emissions resulting from burning the coal in the mine, it is better to say that. We use the term 'combustion emissions' to describe the GHG emissions from the burning of the subject coal. As was made clear by Dr Warren,[133] scope 1, 2 and 3 are also not a proxy for territorial jurisdiction, or obligations under the UN Framework Convention on Climate Change.

201 Second, 'jurisdiction' is best defined — for the present analysis — as "authority to decide".[134] It is the authority conferred on this Court by the LC Act, together with Ch 5, Pt 6, div 7, subdiv 1 of the EP Act to decide what recommendation to make under s 222. While a question may arise as to whether the scope of that authority precludes consideration of a certain matter, including when taking into account the mandatory considerations in s 223, that provision is not itself the source of any authority.

202 The starting point must be a careful recounting of President MacDonald's reasoning in ***Xstrata*** *Coal Queensland Pty Ltd v Friends of the Earth – Brisbane Co-Op Ltd*,[135] which commenced by addressing s 269(4)(j) of the MR Act, and then moved to s 222 of the EP Act.

(1) Section 269(4)(i)-(l) of the MR Act provided that, when making a recommendation to the Minister that an application be granted in whole or part, the Land Court had to take into account and consider whether (i) the operations to be carried on under the authority of the proposed mining lease would conform with sound land use management; and (j) there would be any adverse environmental impact caused by those operations and, if so, the extent thereof; and (k) the public right and interest would be prejudiced; and (l) any good reason had been shown for a refusal to grant the mining lease.

(2) As to s 269(4)(j):

(a) its meaning was informed by (4)(i) (to which it refers), and required consideration of whether there would be any adverse environmental impact caused by the operations to be carried on under the authority of the proposed mining lease;[136]

(b) it was apparent from ss 6A and 234 of the MR Act that those operations were "confined to the physical activities associated with winning and extracting the coal from the place where it occurs or from its natural state", did not "extend to the transportation of the coal to ports and to the burning of the coal in power stations overseas", and did not include the "activity of burning the coal at a power station (and the emissions therefrom)";[137]

---

133 T 20-81 to 20-84.
134 Mark Leeming, *Authority to Decide: The Law of Jurisdiction in Australia* (2nd ed, 2020), [1.1].
135 [2012] QLC 13.
136 *Xstrata*, [524].
137 *Xstrata,* [528].

(c) the Court's task in relation to s 269(4)(j) was therefore limited to considering the adverse environmental impact caused by the physical activities associated with winning and extracting the coal, which did not extend to a consideration of GHG emissions from coal being burned "by end-users". It would "be beyond the Court's jurisdiction" to consider the impact of the activities of transporting and burning coal, which would not be carried on under the authority of the proposed mining leases and would not be the subject of the recommendation under s 269. The Land Court was "therefore required only to consider the impact of the scope 1 and scope 2 emissions generated by the physical activities associated with winning and extracting the coal";[138]

(d) because the word 'operations' was limited to the activities of mining and extracting coal, the impacts caused by those operations (s 269(4)(j)) did not extend to impacts caused by third parties in burning coal;[139]

(e) Further, the phrase 'caused by' in s 269(4)(j) required the Land Court to consider specific environmental consequences caused by the relevant 'operations'.[140]

(3) As to s 222 of the EP Act:

(a) the Land Court's function was to make recommendations about the grant of environmental authorities, issued for 'mining activities' (defined in s 147 as an activity authorised under the MR Act to take place on land to which the mining tenement related);[141]

(b) in applying the criteria in s 223 of the EP Act, it was her Honour's opinion, consistent with her conclusion in relation to the MR Act, that the Court's jurisdiction did not extend to a consideration of activities which did not fall within the scope of an 'environmental authority': in applying the statutory criteria under the EP Act, the Land Court was limited to considering the activities which could be authorised by the environmental authority;[142]

(c) there was no scope for consideration of GHGs emitted from, or potential environmental impacts arising from, the activities of transporting and burning the coal;[143] and

(d) the Land Court could only be concerned with impacts of the 'mining activities' which were the subject of the environmental authority application before the Land Court — that is, the physical activities of

138 *Xstrata*, [530].
139 *Xstrata*, [546]-[548].
140 *Xstrata,* [548].
141 *Xstrata*, [596].
142 *Xstrata*, [597].
143 *Xstrata*, [598]-[599].

winning and extracting the coal that could be authorised under the MR Act.[144]

203 The next relevant decision is ***Hancock*** *Coal v Kelly (No 4)* [2014] QLC 12.

(1) Member Smith followed the reasoning of President MacDonald in *Xstrata*, to conclude that the Land Court did not have jurisdiction, in performing its function under s 222 of the EP Act, to consider the effects of emissions from the burning of the coal to be extracted from the mine the subject of the application.[145]

(2) Relevantly, Member Smith then made a finding, on the evidence in that case, that global emissions would not fall if Alpha did not proceed, as the coal would simply be sourced from somewhere else.[146]

204 Justice Douglas, in ***CCAQ*** *v Smith*,[147] rejected an application for statutory orders on review.

(1) As to s 269(4)(j) of the MR Act, President MacDonald's interpretation in *Xstrata* (summarised in paragraph 202(2)), applied by Member Smith at [210]-[220] was correct.[148]

(2) As to the applicant's ground asserting error in Member Smith's approach to s 222 of the EP Act, it was open to the Land Court to find, on the facts, that where global emissions were not increased, there was "no impact that constitutes or causes environmental harm".[149] (This might now be characterised as a conclusion that any error in respect of the scope of s 222 of the EP Act was not 'material', because there was no realistic possibility of a different outcome.[150])

205 An appeal was rejected, in *CCAQ v Smith*[151] (***CCAQ appeal***) for the following reasons.

(1) As to s 269(4)(j) of the MR Act, Fraser JA held that President MacDonald's interpretation in *Xstrata* (summarised in paragraph 202(2)), applied by Member Smith at [210]-[220], and affirmed by Douglas J, was correct.[152]

(2) As to s 222 of the EP Act:

(a) The relevant ground of appeal was: "in construing the [EP Act] as allowing the Land Court, when considering whether or not to recommend the grant of an environmental authority for the Alpha Coal Mine, to give zero weight

144 *Xstrata*, [601].
145 *Hancock*, [216].
146 *Hancock*, [229].
147 [2015] QSC 260.
148 *CCAQ*, [39].
149 *CCAQ*, [45], [46]
150 *MZAPC v Minister for Immigration and Border Protection* (2021) 95 ALJR 441; *Hossain v Minister for Immigration and Border Protection* (2018) 264 CLR 123; *Minister for Immigration and Border Protection v SZMTA* (2019) 264 CLR 421.
151 [2016] QCA 242.
152 *CCAQ Appeal*, [33]. Margaret McMurdo P agreed at [1], and Morrison JA agreed at [51].

to the environmental harm caused by the … greenhouse gas emissions produced in transporting and burning the coal obtained as a result of that coal mine, on the basis of the Land Court's finding of harm caused by other mining activities not being those of the Alpha Coal Mine."[153]

(b) Fraser JA dismissed ground 1 on the basis that nothing in s 3, s 5 or s 223 required the Land Court to give any particular weight to emissions, and it was open to Member Smith, on the basis of the finding of fact he made on the evidence (see paragraphs 203(2) and 204(2) above) to not give any weight to the effects of global emissions that would not be increased by the mine proceeding.[154]

206 However, and critically, Margaret McMurdo P gave strong reasons, in obiter dicta, why the reasoning of President MacDonald in *Xstrata*, constraining the jurisdiction of the Land Court under s 222 of the EP Act by extension from her construction of s 269(4)(j) of the MR Act should not be followed.[155]

(1) First, her Honour referred to s 3. Her Honour observed "Queensland's environment is part of and affected by the global environment. Harmful global greenhouse gas emissions from the transportation and burning of coal after its removal clearly has the potential to harm Queensland's environment".[156]

(2) Her Honour set out: (a) the definitions of 'environment', 'environmental value', and 'environmental harm' and 'standard criteria'; (b) s 223; and (c) the Core Objectives and the Guiding Principles from the National Strategy.[157]

207 Her Honour then said:

> [11] MacDonald P's reasons in *Xstrata Coal Queensland Pty Ltd & Ors v Friends of the Earth - Brisbane Co-op Ltd & Ors* express a construction of s 223(c) that is certainly open. But I am persuaded the better view is that, the Land Court, in considering objections for an environmental authority for mining activities under the Environmental Protection Act, must consider scope 3 emissions. The Environmental Protection Act provides a significantly different legislative scheme to that under the Mineral Resources Act. Unlike in the latter act, the very broadly defined object of the Environmental Protection Act and its equally broad definitions of environment, environmental value and environmental harm are consistent with a desire to protect Queensland's environment from development, including mining development, which would cause harmful global greenhouse gas emissions. The Land Court in determining the objections was obliged to consider "standard criteria" which incorporate the National Strategy's Core Objectives and Guiding Principles. The terms of these Objectives and Principles are consistent with a concern about harmful global greenhouse gas emissions which would not "enhance individual and community well-being and welfare by following a path of economic

153 *CCAQ Appeal*, [22].
154 *CCAQ Appeal*, [45]-[47]. Margaret McMurdo P agreed at [13], and Morrison JA agreed at [51].
155 *CCAQ Appeal*, [2]-[12].
156 *CCAQ Appeal,* [3].
157 *CCAQ Appeal*, [4]-[10].

> development that safeguards the welfare of future generations"; would not "provide for equity within and between generations"; could damage "biological diversity" and "essential ecological processes and life support systems"; or could raise "threats of serious or irreversible environmental damage."
>
> [12] Section 223(a) and (f) are specifically limited by the words "for the application" and the terms of s 223(d) and (g) are also limiting. In the absence of any such limiting words in s 223(c), and in light of the broadly expressed object and definitions to which I have referred, I can see no warrant to construe s 223(c) narrowly so as to limit it to a consideration of the standard criteria directly relevant to an activity authorised under the Mineral Resources Act to take place on land to which the relevant mining tenement relates.

208 Seeking special leave, CCAQ invited the High Court to uphold that reasoning of Margaret McMurdo P on the EP Act. Chief Justice Kiefel and Keane J refused special leave, holding that the matter was not a suitable vehicle to resolve the issues the applicant sought to agitate.[158] Importantly, they did not cast doubt on the strength of the argument, succinctly and cogently set out by Margaret McMurdo P (for example, a common ground on which special leave is refused — not given by their Honours in this case — is that the matter has insufficient prospects of success).

209 Finally, in *New Acland Coal Pty Ltd v Smith*,[159] Bowskill J expressed the opinion that President MacDonald's reasoning in *Xstrata* at [588]–[597] was correct, "subject to one possible qualification".[160] However, that opinion does not alter the legal position, for three reasons.

(1) **First**, Bowskill J was there concerned with groundwater, not combustion emissions, and the legislative scheme concerning groundwater at the relevant time gave rise to quite different considerations.

(2) **Second**, the passage her Honour referred to was the passage concerned with the general construction of the provisions and not with their application to combustion emissions (understandably, given that Bowskill J was concerned with the application of those provisions to groundwater, not combustion emissions).

(3) **Third**, the 'possible qualification' was that Margaret McMurdo P had expressed the above observations obiter dicta in the *CCAQ Appeal*, and Bowskill J expressly held that it was not necessary to decide their correctness, which should rather be a question left open for an appropriate case[161] (presumably, one like the present, concerning the application of s 222 of the EP Act to combustion emissions).

---

158 *CCAQ v Smith* [2017] HCATrans 074, lns 620-621.
159 [2018] QSC 88.
160 [2018] QSC 88, [68].
161 [2018] QSC 88, [74].

210 The argument identified by Margaret McMurdo P, obiter dicta in the *CCAQ Appeal*, is directly applicable to the present case; it is persuasive, correct and should be followed. As her Honour observed, the object of the EP Act is very different from that of the MR Act.

211 The simplicity and economy of expression in *CCAQ Appeal*, [11] should not be misinterpreted; to simply express the nature of the environmental harm under consideration, together with the considerations required by s 223 in the exercise of jurisdiction under Ch 5, Pt 6, div 7, subdiv 1 of the EP Act, eloquently establishes the correctness of her Honour's view.

212 We make several further points in support of her Honour's construction.

213 The first is made by way of premises framed by reference to the facts of this case, followed by a rhetorical question.

(1) The Land Court must perform its function in a way that allows 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.

(2) In this regard, the Applicant relies on the economic benefits of the Proposed Project (presumably on the basis that they will improve the total quality of life for Queenslanders), whereas YV and TBA rely on the environmental harm that will occur as a result.

(3) Both the benefits and the harm must be considered by the Land Court in performance of the function conferred by s 222, in exercise of its jurisdiction under the LC Act, together with Ch 5, Pt 6, div 7, subdiv 1 of the EP Act ([94]). There is no basis in the text, context or purpose of the statute for drawing a line between benefits and harm in terms of the scope of the Court's function or jurisdiction.

(4) It is agreed that if the Proposed Project is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting GHGs (mostly CO_2) into the atmosphere. This will occur from 2029 to 2051.

(5) The economic benefits relied on by the Applicant can occur only if the coal is extracted and combusted. The coal will not be extracted if it is not going to be combusted. No-one will pay for the coal unless they are going to burn it.

(6) YV and TBA rely on the consequences of burning the coal, which is the only reason for its extraction, and the only reason why extracting it produces any economic benefits.

(7) How can Ch 5, Pt 6, div 7, subdiv 1 of the EP Act of the EP Act be construed as thought Parliament intended that the Land Court, in performance of its function

under s 222, should consider the economic benefits of burning 761,828 Mt, but not the resulting environmental harm?

214 This point strongly supports President Margaret McMurdo's obiter dicta, and (with respect) should be preferred to the reasoning of President MacDonald in *Xstrata* ([202(3)(c)–(d)] above)

215 The second is that there is an irremediable discordance between:

(1) the proposition that the constraint on the Court's jurisdiction under Ch 5, Pt 6, div 7, subdiv 1 of the EP Act of the EP Act derives from the scope of 'mining activities' under the MR Act (*Xstrata* ([202(3)(d)] above); and

(2) the proposition that the Court has jurisdiction under s 269(4)(k) of the MR Act, when considering whether to give approval to a mining activity, to consider the consequences of all GHG emissions resulting from the mining activity (see [237]).

216 The third — inherent in Margaret McMurdo P's reasoning — is that the asserted limit on jurisdiction is contradicted by the requirement to consider "the global dimension of environmental impacts of actions and policies should be recognised and considered". Parliament made that a mandatory consideration by s 223. Why would it require consideration of something, with the one hand, and then remove the jurisdiction to consider that thing, with the other? Further, that matter is one of the Guiding Principles, in service of the Goal set out in the National Strategy, enacted by Parliament as s 3 (which, by s 5, applies to the Court's function under s 222). That also tells powerfully against a constraint in the jurisdiction of the Court precluding consideration of that matter.

(ix) Approving with conditions

217 The statutory scheme of the EP Act premises the exercise of the Land Court's function on the existence of an antecedent assessment process of the environmental harm caused by the activity that is proposed.[162]

218 Based on that antecedent assessment, the Land Court's function is to then assess and consider for itself the potential environmental harm from the activity, raised by the objections, and whether it is appropriate for the activity to be approved (and on what, if any, conditions), in accordance with ss 3 and 5 of the EP Act.

219 However, what the statutory scheme does not permit, and what Parliament cannot have intended, is that the function of the Land Court — established as an independent Court of record under the LC Act — be delegated to an unspecified person to perform instead, after the approval has been granted. To exercise the power to approve on conditions in

[162] See further, submissions of YV and TBA on Jurisdiction dated 10 September 2021.

that way would be to abdicate the core function of the Land Court conferred by Parliament — an abdication that Parliament has not permitted.

220 Of course, there is no bright line dividing the two. But just as the existence of twilight does not invalidate the distinction between night and day,[163] the existence of a grey area does not deny the line beyond which the Court cannot approve on conditions without impermissibly abdicating its function.

221 In some cases, the invitation to cross that line will be as clear as day.

B-IV The MR Act

222 The object and statutory framework of the MR Act are very different from the EP Act. The object of the MR Act, stated in s 2, is to encourage mining and financial returns to the State through royalties, while also encouraging environmental responsibility.

223 Section 268 of the MR Act makes clear that the hearing is a hearing of both the ML Application and also of the objections. There would be no hearing but for the objections, but it is nonetheless also a hearing of the application.

224 When making a recommendation to the Minister, the Land Court shall take into account and consider the matters identified in s 269(4).

225 Subject to the overriding obligation to exercise the power reasonably, the weight to be given to the various considerations is a matter for the Court on the hearing.[164]

226 The exercise to be undertaken by the Court is a balancing exercise. It is helpfully summarised by Bowskill J in *New Acland Coal Pty Ltd v Smith & Ors* [2018] QSC 88 as follows (footnotes removed):

> The authorities support the conclusion that in exercising its function under the MRA and the EPA the Land Court is necessarily obliged to weigh up (that is, balance) the various considerations that each statute requires be taken into account in order to arrive at its recommendations. The Land Court has a discretionary power in terms of what recommendation it makes, following a hearing. That is a power exercisable by reference to considerations the scope of which is defined by the legislation, but in respect of which the decision-maker is allowed some latitude as to the choice of the decision to be made. Within that decision-making process no one consideration and no combination of considerations is necessarily determinative of the result.[165]

227 The relevant authorities cited in the above passage include the High Court decision in *Sinclair v Mining Warden at Maryborough* (1975) 132 CLR 473. The relevant question for the decision maker in that case (the Mining Warden) involved a consideration of

---

163 *Hobart International Airport Pty Ltd v Clarence City Council* (2022) 96 ALJR 234 at [99] (Edelman and Steward JJ).

164 *New Acland Coal Pty Ltd v Smith & Ors* [2018] QSC 88 per Bowskill J at [35] and the authorities referred to therein.

165 At [192].

whether the public interest or right would be prejudicially affected by the grant of an application for a mining lease. That involved:

(1) 'a matter for the warden to determine what weight should be attached to the various considerations in favour of and against the granting of an application';[166]

(2) 'the weighing of benefits and detriments';[167] and

(3) various matters being 'weighed against' each other.[168]

228 While a finding that the applications fall short on one criterion does not necessarily determine that the mine should be refused,[169] in an appropriate case the Court may refuse an application based principally or solely on one criterion.

229 Most of the criteria in s 269(4) speak for themselves. YV and TBA make submissions in respect of each later in these submissions. A small number warrant brief submissions as their construction and scope.

(i) s 269(4)(c) and (f) 'acceptable level of development' and 'necessary financial and technical capabilities'

230 In relation to s 269(c) and (f) the Court of Appeal has held that economic viability is relevant. That makes sense given that one of the objectives of the MR Act is to encourage the appropriate exploitation of mineral resource:

> 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).[170]

231 President MacDonald referred to this reasoning in the *Adani Case* and continued:[171]

> It follows therefore that evidence of the economic impacts of the mine will be relevant to a consideration of s 269(4)(c) (and, I consider, s 269(4)(f)) at least to the extent that that analysis may throw light on the likely profitability of the mine and the financial capability of the applicant to carry out the mining operations under the lease.

---

166 Per Gibbs J at 282.
167 Per Stephen J at 485.
168 Per Jacobs J at 487.
169 *Skilton v Longegran* [2019] QLC 28 at [2] (Stilgoe M).
170 *Armstrong v Brown* [2004] 2 Qd R 345 at 348-8 [15] (per McMurdo J with whom McPherson JA and Jerrard JA agreed).
171 *Adani Mining Pty Ltd v LSCC* [2015] QLC 48 at [502]-[503].

(ii) Whether the past performance of the Applicant has been satisfactory – section 269(4)(g)

232 The past performance of the Applicant in this context plainly goes beyond the commission of environmental offences (although the Applicant has committed those) or other regulatory enforcement action (although the Applicant has also been the subject of those). To create such a limitation would be to read words into the section that are not there. There is no basis to do so.

233 Past performance is relevant, as Member MacNamara held in *Cement Australia (Exploration Pty Ltd & Anor v East End Mine Action Group Inc & Anor (No 4)* [2021] QLC 22 at [254], to the risk of non-compliance with future mining lease (and EA) conditions. But past performance is not limited to that question. Past-performance also helps to understand whether the Applicant will meet its 'commitments', that is whether it will keep its promises even where they are not enforceable.

234 It also goes to a more fundamental question: whether the Applicant can be trusted with the privilege of mining the Crown's mineral resources.

(iii) Public right and interest – section 269(4)(k)

235 As noted earlier, the requirement to consider whether the public right and interest[172] will be prejudiced involves a discretionary balancing exercise of the widest import confined only so far as the subject matter and the scope and purpose of the statute may enable.[173]

(iv) Good reason – section 269(4)(l)

236 Section 269(4)(l) of the MRA is extremely wide and limited only by the subject matter, scope and purposes of the Act. Clearly, there must be a <u>good</u> reason, as opposed to a reason that is extraneous to the purposes of the Act.[174] The question of whether good reason has been shown must depend on all the circumstances of the particular case.

---

172 There is no material distinction between a public right or the public interest for the purposes of this hearing but these submissions will focus on the public interest as the more relevant term. There are public rights to a healthy and pleasant environment, protected through the tort of public nuisance, as well as a public interest in a healthy and pleasant environment.

173 *Adani Mining Pty Ltd v LSCC & Ors* [2015] QLC 48 at [43] citing *O'Sullivan v Farrer* (1989) 168 CLR 210 at 216; *Water Conservation & Irrigation Commission (NSW) v Browning* (1947) 74 CLR 492 at 504-5 (Dixon J); *McKinnon v Secretary, Department of Treasury* (2006) 228 CLR 423 at [55]. Cf. S*inclair v Mining Warden at Maryborough* (1975) 132 CLR 473 at 487 (Taylor J) and *McKinnon v Secretary, Department of Treasury* (2005) 145 FCR 70 at [8]-[12] (Tamberlin J).

174 *Water Conservation and Irrigation Commission (NSW) v Browning* (1947) 74 CLR 492 at 505 (Dixon J).

(v) The breadth of the last two criteria

237 The inclusion of two very broad criteria, namely, those in paragraphs 269(4)(k) and (l) involves a mutual reinforcement of the breadth of each criterion. It would be easier to conclude that, if only one "catch all" criterion had been included, it should be read down by reference to parts of the statutory context. The inclusion of two such criteria is a very strong indication that each criterion should be construed according to its generous terms.

238 The breadth of these criteria has been held to be broad enough to include the environmental impacts from combustion emissions.[175] That is, the harm caused by emissions of carbon dioxide into the atmosphere from the burning of the coal mined could be "a good reason" to refuse an application for a mining lease. Equally, such harm can be considered as part of the inquiry as to whether the public right and interest is prejudiced.

239 This conclusion necessarily entails that consideration of harmful impacts of the combustion emissions is within the scope of the jurisdiction conferred on the Court by the LC Act and ss 265–269 of the MR Act. While it may not fall within the scope of certain mandatory considerations (such as, on present authority, s 269(4)(j)), that it can be considered in respect of some mandatory considerations necessarily means that it is within the scope of the Court's authority to consider in the performance of the function conferred by s 269.

B-V The HR Act

240 Submissions about construction of the HR Act are dealt with in the course of argument at D-II and D-IV below.

C. WHAT THE LAND COURT SHOULD FIND

C-I The correct approach to the evidence

241 The statutes inform the correct approach to the evidence because they frame its relevance, and the weight to be given to the Land Court's findings.

242 Some of the evidence involves only a straight factual contest, including evidence about past facts (for example, what is the land use to date? how has sea level rise affected traditional practices? what species are present in the area?), or expert evidence about future facts (how much subsidence will be caused by underground mining?).

243 This category presents no difficulty; the Land Court will make findings of fact in the usual way, and evaluate the facts by reference to the mandatory considerations, through the relevant statutory lens.

---

175 *Xstrata*, [576] and [582]–[584]; *Hancock,* [218]; *CCAQ*, [36], [39].

244 However, some of the expert evidence involves underpinning methodologies and assumptions that import their own values and frameworks: for example, predictions about climate change impacts, and economic evidence about costs and benefits.

245 This evidence can be very useful, but it also presents a risk. The EP Act, HR Act and ML Act provide the methodologies and values that Parliament has required the Land Court to adopt in considering the applications and objections. Where an opinion based on specialised knowledge in a particular field carries with it intrinsic methodologies and assumptions as to how things should be measured, valued and weighed, these must be closely examined in assessing the weight and value to be given to the opinion, when performing functions under these statutes.

246 For example, the climate change evidence imports certain assumptions about the importance of protecting the environment, and the shared responsibility for global aggregation of emissions, which require careful consideration before they are acted on through the lens of the MR Act, which foregrounds the value of local economic exploitation of mineral resources.

247 Similarly, the economic evidence imports certain assumptions about what detriments should or should not count as costs, how to give a dollar value to those costs, and counterfactuals about what will occur in the market, which require careful consideration before they are acted on through the lens of the EP Act, which foregrounds the value of protecting the environment, comprising both human and non-human constituent parts.

C-II <u>The Applicant</u>

248 YV and TBA submit that the Court will be assisted by taking into account the Applicant's past behaviour, when considering for various purposes required by this case how the Applicant is likely to conduct itself in the future. For example, when assessing how the Applicant is likely to treat Bimblebox if the Proposed Project is approved, or whether it is likely to hold to its so-called 'commitments'.

249 On 27 May 2021, Mr Harris claimed that the Project would not be run by the Applicant at all, but rather by a tier 1 mining operator.[176] If true, then many of its commitments would become irrelevant. But it now claims that this was not true. Mr Harris confirmed when pressed during cross-examination that the plan that Waratah is presently "going ahead with", is to be the owner/operator of the mine site.[177] Quite how the Applicant's CEO could misunderstand its plans so fundamentally has not been explained.

250 The Applicant will require surface rights over Bimblebox to carry out progressive rehabilitation, access and maintain water infrastructure facilities, establish 30-metre-wide drainage channels across the landscape and repair subsidence damage (including compacting, ripping, tyning and blade clearing on Bimblebox).[178] The Applicant

176 T 2-11, lns 40-4.
177 T 2-12, lns 28-33.
178 T 2-41, lns 39-47; T 2-42, lns 1-46; T 2-43, lns 1-13.

apparently intends that the current owners including Ian Hoch, Paola Cassoni, Carl Rudd and Kerri Rudd continue to try to manage and protect Bimblebox as a Nature Refuge while it carries out these destructive activities.[179]

251 Ian Hoch has responded to the feasibility of this idea:

> Give me back the open-cut. Leave me with level ground and a stockpile of topsoil, so we can start again from scratch, in peace at last, one wheel barrow, one seed and one day at a time. I see this arrangement as far preferable to trying and failing to maintain a nature refuge amid the upheaval of an active coal mine, in whatever guise.[180]

252 And:

> Maybe with near fatal lessons they will learn to stay away but I for one am not prepared to risk the prospect of having to watch on helplessly as blood stock of many generations of selective breeding flounder and perish in the bottom of a network of inaccessible "subsidence trenches".[181]

253 The Applicant has not considered how it will practically manage Bimblebox as a nature refuge if it is successful with its acquisition plans for Glen Innes.[182] It plans to "approach that once [they] get to the progressive rehabilitation plan."[183] The Applicant simply wants to kick the can down the road, instead of being upfront about the impacts of its proposal with the Court and impacted landholders.

254 The Applicant is a new entry to the field. Neither Waratah, nor any related entity within its corporate structure, has ever operated a working coal mine.[184] Only three people working for Waratah have some experience in coal mining.[185] The only probative evidence that the Court has to go on, in determining Waratah's capacity to carry out the complex management obligations required of it to:[186]

(1) assess the impacts of the project, given its deficiency in this respect so far;

(2) avoid, mitigate and manage environmental harm;

(3) develop and implement its management plans to comply with any EA;

(4) comply with management plans and notify non-compliance with any EA;

(5) establish and maintain a good working relationship with landholders, including the landholders of Bimblebox;

is its past conduct.

---

179 T 2-43, lns 15-28.
180 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0002**]].
181 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0004**]].
182 T 2-44, lns 32-36
183 T 2-44.
184 T 2-7, lns 1-9.
185 T 2-7, lns 24-25.
186 T 2-7, lns 14-25.

255 The Bimblebox landowners' have given unchallenged evidence about the Applicant's past conduct.

256 In every category of the tasks listed above, the Applicant has demonstrated complete or partial failure. Some of the tasks (for example complying with statutory notice requirements for entry to land) should have been straightforward.

257 In understanding the past conduct of the Applicant, it is relevant that the people responsible for the Applicant's conduct from 2011 to now are Nui Harris (current CEO, Managing Director and Company Secretary), Clive Palmer (current ultimate shareholder) and Clive Palmer's wife, Anna Palmer.[187]

(i) The Applicant has already caused environmental harm to Bimblebox

258 The Applicant has failed to avoid, minimise or mitigate environmental damage to Bimblebox in the past. Under the terms of its exploration licence, the Applicant was required to minimise blade clearing when drilling 20 bore holes.[188] It was also required to:[189]

(1) minimise disturbance to mature trees;

(2) as far as possible only drill in existing cleared areas of the nature refuge;

(3) limit topsoil stripping to $10m^2$ in the sump area;

(4) rehabilitate the bore holes.

259 The landholders of Bimblebox wrote to the Environmental Protection Agency (**EPA**) proposing conditions additional to those in the Code for Environmental Compliance for Exploration and Mineral Development Projects to address their concerns about the proposed drilling in compliance with their contractual obligations under the Conservation Agreement. [190] Condition 2 of the Code for Environmental Compliance for Exploration and Mineral Development Projects required the Applicant to 'minimise disturbance.'[191] Bimblebox owners requested the following conditions to minimise disturbance:[192]

> Use of existing tracks wherever possible to minimise disturbance from vehicles going "cross-country" this includes planning/modifying drill site locations to coincide with existing tracks/disturbed areas
>
> All vehicles to use only existing graded tracks when soil is wet/damp i.e. no vehicles to go off existing graded tracks when soil is wet/damp

187 T 1-63 lns 31-47; T 1-64 lns 1-46; T1-65 lns 35-47.
188 EA Permit Number: MIN200614607 [[**WAR.0213.0003**]].
189 Exploration Compensation Agreement [[**WAR.0214.0001**]].
190 Affidavit of Carl Rudd [[**YVL.0067.0096**]].
191 Exploration Compensation Agreement [[**WAR.0214.0001**]].
192 Affidavit of Carl Rudd [[**YVL.0067.0099**]].

> Plan any vehicle access routes to both minimise any clearing of vegetation and which disturbs the soil. Avoid areas of buffel to the greatest extent possible
>
> No new grading or similar to be conducted unless a) with the express permission of the landholder or b) where absolutely necessary as in an emergency
>
> No clearing of mature trees
>
> There are also a number of research and monitoring sites throughout the property. Drilling near, and or traversing through, these sites must be avoided.
>
> Finally, we request notification at the earliest time possible of the results/implications of the drilling program in terms of the likelihood of any more further exploration or mining activities being undertaken across the property - so that we can ensure that our efforts are appropriately directed i.e. somewhere with a secure future.

260 Landowner, Dr Carl Rudd, also spoke to Waratah's representative to try to "negotiate as good an outcome as possible". [193] An Environmental Management Plan was agreed between Bimblebox and Waratah which included "systems to minimise disturbance of ground cover for access to drill sites, including no blade clearing of such routes."[194] Dr Rudd personally supervised 8 to 10 exploration drill holes before returning to work.[195]

261 The care that had been taken by Waratah while Dr Rudd was present supervising was not continued in his absence. Dr Rudd states that on his return:

> …it was like I had never been there supervising at all. What they had done was unbelievable. Instead of access "tracks" showing very little disturbance to the exploration drill sites as was the case when I supervised them, the subsequent access tracks almost looked like were intentionally done to maximise the amount of disturbance. They looked like BMX tracks – it was appalling.
>
> Instead of just skimming the top of the ground with the dozer to get access to their sites, doing minimal disturbance and leaving the native grasses intact, they had put the blade in, shovelled up as much dirt as you could imagine, pushed the dirt to one side, and progressed in this manner until they finally reached the exploration drill hole site.[196]

262 The landowners' "grave concerns about the environmental effects of the exploration drilling on Bimblebox"[197] had been realised, causing them to complain to various Government departments about the environmental harm caused by the Applicant to Bimblebox.[198]

---

193 Affidavit of Carl Rudd [[**YVL.0067.0006**]], [56].
194 Affidavit of Paola Cassoni [[**YVL.0057.0081**]].
195 Affidavit of Carl Rudd [[**YVL.0067.0007**]], [57].
196 Affidavit of Carl Rudd [[**YVL.0067.0007**]], [58].
197 Affidavit of Paola Cassoni [[**YVL.0057.0006**]].
198 Affidavit of Carl Rudd [[**YVL.0067.0007**]], [60].

(ii) The environmental harm was unauthorised

263 On 9 December 2008 David Akers from the Nature Refuge Program at Longreach conducted a property visit because of the complaints received and delivered a report.[199] He observed the following harm to have occurred as a result of drilling activities:[200]

(1) the ground layer was highly disturbed;

(2) there was evidence of oil deposits (such as might occur from leaking hydraulic systems) at each site;

(3) each site visited (5 in total) had between 200m and 1.7km of newly constructed track and the tracks had been flat bladed on both new and existing tracks, removing grasses, forbs, leaf litter and surface soil;

(4) flat blading of property tracks and access roads for exploratory drilling activities had exposed the surface, which may increase the potential for buffel grass to invade and increase its distribution throughout the property. There was evidence of soil surface compaction and erosion beginning to occur in some places.

264 Dr Rudd prepared his own compliance assessment of Waratah's exploration on Glen Innes on 3 March 2009 against the conditions for EPC1040 (Permit Number MIC200415706).[201] In summary, Dr Rudd reports the following damage in breach of conditions B1-6, B2-3 and B3-2:

(1) Excessive groundcover disturbance at drill sites:[202]

199 Affidavit of Paola Cassoni [[**YVL.0057.0076**]].
200 Affidavit of Paola Cassoni [[**YVL.0057.0076**]].
201 His full report commences at [[**YVL.0057.0080**]].
202 Affidavit of Paola Cassoni [[**YVL.0057.0080**]].

265 "bush tracks were completely blade cleared"[203]

266 "The attached photo entitled WAR 38-05 drill site machinery shows machinery parked up within a buffel infestation at drill site WAR 38-05, a very poorly selected site given the significant extent of buffel at this location. There is no doubt that these activities will lead to further spread of buffel grass and other environmental weeds."[204]

"rubbish was left at nearly all of the drill sites after drilling ceased and we have so far collected nearly a garbage bag full of rubbish. This includes, but is not limited to

203 Affidavit of Paola Cassoni [[**YVL.0057.0081**]].
204 Affidavit of Paola Cassoni [[**YVL.0057.0082**]].

plastic hoses and fittings, rags, drink containers, grease gun cartridges, tin food cans, confectionary packets, cigarette butts and packets."[205]

267 Under the conditions of its exploration permit for EPC1040 (Permit Number MIC200415706), Waratah was only required to do four things:

(1) the environmental holder must minimise disturbance and no clearing mature trees is allowed;

(2) track construction involving blade clearing of established ground cover vegetation and/or clearing of mature trees is to be minimised; and

(3) all equipment such as earthmoving and drilling equipment must be used in a manner which prevents the spread of weeds, minimises unnecessary disturbance of topsoil and groundcover vegetation;

(4) all waste must be removed and disposed offsite.

268 It did not do any of them.

269 Dr Rudd's second report on the Applicant's drilling activities provides the Court with evidence of non-compliance by the Applicant with the Code of Environmental Compliance for Exploration and Mineral Development Projects when carrying out its drilling activities.[206] The evidence was not challenged by the Applicant. The report details contraventions such as:[207]

(1) the construction of new dozed tracks without the consent of the landholder;

---

205 Affidavit of Paola Cassoni [[**YVL.0057.0082**]].
206 Affidavit of Carl Rudd [[**YVL.0067.0100**]].
207 Affidavit of Carl Rudd [[**YVL.0067.0101**]].

(2) rubbish left at every drill site;

(3) failure to rehabilitate any drill hole and leaving them in a condition that presented an entrapment hazard to small native wildlife and cattle;

(4) failure to cap and case any drill holes;

(5) failure to complete other rehabilitation activities as required by the EA; and

(6) failing to case or plug non-artesian aquifers where a drill hole intersects more than one water bearing strata.

270 On 29 November 2009, after surveying the damage, Mr Hoch wrote in his diary:

> … someone has wrecked the roads at Glen Innes. The one thing we treated so carefully and agonised over most has been damaged beyond what we are capable of repairing.
>
> It's very distressing to see in a place where erosion of any sort can only be caused through a total disregard for decent bush practise. The land gradient being slight and soil so porous that all anyone needs to do is stay off in the wet. A matter of hours after storms, and days or a week following prolonged rainfall.
>
> […]
>
> The mess they have made at each drill site is trivial in comparison and rehabilitation can be undertaken in due course….. however to rebuild these roads, to haul in sufficient material to raise them back to ground level is a huge task and quite beyond our capacity. [208]

(iii) Waratah failed to comply with its rehabilitation requirements.

271 In 2010 the Applicant attempted to pass to the Bimblebox landholders its EPC Permit compliance obligations with respect to rehabilitation activities for the drilling sites on for a compensation sum of $16,900.[209]

272 Dr Rudd asked Waratah to pay him for some of the rehabilitation work spraying buffel grass along the disturbance areas that he undertook.[210]

273 An amount of $17,354.37 was later paid by Waratah to Bush Carbon Pty Ltd to undertake the rehabilitation program (that the Applicant was required to do to comply with its EA).[211] Two additional invoices, sent by Carl Rudd to the Applicant for water use during exploration and continuing rehabilitation works were returned to Carl Rudd "for cancellation" because they "exceeded the agreed contract value".[212]

---

208 Affidavit of Paola Cassoni [[**YVL.0057.0084**]].
209 Exploration Compensation Agreement [[**WAR.0214.0001**]].
210 Affidavit of Carl Rudd [[**YVL.0067.0008**]].
211 Exploration Compensation Agreement [[**WAR.0214.0003**]].
212 Exploration Compensation Agreement [[**WAR.0214.0003**]].

274 As at 29 May 2015, 27 exploration holes on Bimblebox had not been rehabilitated and the Applicant was under compliance investigation.[213]

275 On 9 December 2015, the Applicant was issued with a Penalty Infringement Notice (**PIN**) for the offence of contravening a condition of its EA following its compliance inspection of the un-remediated drill sites.[214] This PIN was later withdrawn because the Applicant elected to have the matter referred to Court.[215] The Applicant was convicted of two offences under s 403(3) EP Act.[216]

276 On 24 August 2016, the Safety and Health, Mines Inspectorate issued two Directives under s 166 *Coal Mining Safety and Health Act 1999* (Qld) (the **CMSH Act**) to the Applicant for failing to submit a record of its drilling activities and failing to rehabilitate bore holes so that they were safe on its EPCs as required by the CMSH Act.[217] Mr Harris refers to this non-compliance in his first affidavit.[218]

(iv) The Applicant lacks the competency required to work with the landholders and comply with environmental conditions if the Proposed Project is approved

277 Mr Harris revealed during cross examination that he does not understand the critical (and legal) difference between project "commitments" and draft EA conditions.[219]

278 That is not surprising given the Applicant's failure to comply with its EA conditions in the past. On 5 November 2013, on Mr Harris' watch, the (then) Department of Environment and Heritage Protection issued an Environmental Protection Order (**EPO**) to the Applicant for activities that it was undertaking on Kia Ora Station for EPC 1040 (STAT 813).[220] On 17 December 2013, DEHP issued a varied EPO (STAT 813-varied) on review.[221] The EPO was issued to secure compliance with:

(1) the general environmental duty under s 319 EP Act; and

(2) conditions of its EA.

279 Progress on activities relating to the Proposed Project was then delayed for almost a four-year period from 2016-2019.[222] The Bimblebox landholders were not told that there would be delays of almost four years, apparently due to Clive Palmer allocating resources to associated companies.[223]

---

213 Letter fr Waratah re rehab [[**WAR.0217.0004**]].
214 Email fr Department [[**WAR.0221.0002**]]-[[**WAR.0221.0003**]].
215 Letter fr DEHP [[**WAR.0223.0001**]].
216 Verdict and Judgment record [[**WAR.0224.0001**]].
217 Directive [[**WAR.0226.0001**]]; Letter fr Waratah re Directive [[**WAR.0227.0001**]].
218 Affidavit of Nui Harris [[**WAR.0291.0001**]] [184] – [189].
219 T 2-35, lns 2-5.
220 Letter fr DEHP [[**WAR.0211.0003**]].
221 Letter fr DEHP [[**WAR.0211.0003**]].
222 Affidavit of N Harris [[**WAR.0291.0009**]], [55].
223 T 1-70, lns 34-6.

> I thought we'd seen the last of Waratah back in 2015, after they came begrudgingly and belatedly to rehabilitate drilling sites abandoned during the initial exploration that we had so much resented.[224]

280 During cross-examination, Mr Harris indicated that from December 2015 to December 2019, the Applicant was rehabilitating "approximately about 365, plus" bore holes and "taking water samples" on its tenements.[225] This vagueness of expression by Mr Harris is consistent with the Applicant's previous obfuscation about its compliance activities. According to the Statutory Party, "at a meeting on 21 February 2012, Waratah Representatives indicated to the Department that they had no knowledge of the number of aquifers intercepted during the drilling of the exploration bore holes, nor even whether they had been sealed."[226]

281 Paola Cassoni requested a landholders' meeting with the Applicant in 2019 and was told by in house counsel for the Applicant that she would be advised "at a later date."[227] She was never advised at any 'later date'.[228]

282 In the recommenced period of activity from 2019-2020, the Applicant only had to successfully complete three main tasks:

(1) repeg the boundary due to the removal of a portion of the mining lease application area;

(2) carry out effective public notification of the mining lease application area;

(3) carry out effective public notification of the EA application and draft EA.

283 It failed to comply with the basic statutory requirements for all three tasks.

284 **First**, the Applicant failed to comply with the entry notice requirements in the *Mineral and Energy Resource (Common Provisions) Act 2014* (Q) and accessed Glenn Innes unlawfully to repeg the boundary.[229] The notice of entry was not served on the owners of Bimblebox.[230] Mr Harris deposed that the Applicant would ensure that all future notices of entry are "served either personally or by registered post".[231]

285 **Second**, the Applicant failed to complete the statutory requirements for public notification of the mining lease application area.[232] Critically, the Applicant failed to provide notice to the affected landholders using the registered address for service.

---

224 Affidavit of Ian Hoch [[**YVL.0077.0016**]].
225 T 1-67, lns 20-7, 36-44.
226 Letter fr DEHP [[**WAR.0211.0004**]].
227 T 7-40, lns 5-26.
228 T 7-40, lns 25-8.
229 T 1-72 lns 30-9; [[**WAR.0234.0001**]].
230 Letter re Warning Notice [[**WAR.0234.0001**]].
231 Affidavit of N Harris [[**WAR.0291.0035**]], [200].
232 T 1-72, lns 42-5.

286 **Third**, the Applicant failed to use the correct form to publicly notify the Draft EA.[233]

287 It is not surprising that when asked in cross-examination whether she had confidence that Waratah would be able to implement a strategy of collaboration and communication with the community, Ms Cassoni responded simply: "no."

C-III <u>The values of and impacts to the Bimblebox Nature Refuge</u>

(i) Executive Summary

288 The distinct values of the Bimblebox must be understood through the lens of ss 8 and 9 of the EP Act as being a physical place, a community and a declared nature refuge.

289 Bimblebox was declared a nature refuge in recognition of its significant natural values. Consequently, it forms part of the National Reserve System, which strives to be comprehensive, adequate and representative. Its status as a nature refuge has state, national and international significance, and forms an important component of its value both now and for the next 980 years.

290 The ecological values of Bimblebox should be given weight precisely because they are representative of the region. The Applicant's 'museum' approach to conservation is inconsistent with the object of the EP Act to <u>maintain</u> ecological processes on which life depends, and an approach that favours keeping the common species common should be preferred.

291 The community of people that support and are supported by Bimblebox are important environmental values in this context. It is through their consistent efforts that Bimblebox continues to be in very good ecological health and provide critical public amenity. For no personal financial gain, they have toiled with heart and hand to:

(1) maintain its very good ecological condition;

(2) provide a model for the use of cattle grazing in achieving conservation outcomes;

(3) contribute to scientific knowledge and education;

(4) provide recreational and cultural opportunities to visitors; and

(5) contribute to the arts in Queensland.

292 The abovementioned environmental values have been ascribed value by the State and Commonwealth, and by the broader public of Queensland.

293 Absent approval of the applications, Bimblebox will continue to provide those values to the State of Queensland.

---

233 T 1-73, lns 1-5.

294 It is uncontroversial that the Proposed Project would cause environmental harm (at least material, and most probably serious) to the environmental values of Bimblebox by way of subsidence damage, impacts to surface water and soils, adverse noise and air quality impacts, and consequential ecological and social impacts, as well as the displacement and alienation of the current custodians and the community of people that form part of and maintain the natural and physical resources.

295 The extent of those impacts is highly uncertain because the Applicant has not done the work necessary to properly predict or understand them. That lack of predictive work means that the Court does not know, in any meaningful sense, the nature and extent of environmental harm that it is being asked to recommend authorising through an environmental authority. That uncertainty means that the proposed draft EA conditions are being asked to do more work than they can lawfully or properly do.

296 What is clear is that the physical damage caused by subsidence can only be remediated through major earthworks ("ripping, tyning and seeding"). Those earthworks risk causing more harm than the subsidence itself. That is not because the subsidence harm is minor. Rather, it reflects just how much work would be needed to remediate that harm. The Applicant might suggest that the solution to this dilemma (the cure being worse than the disease) is not to offer a cure at all. But, as will be shown, that would put it in breach of the proposed Draft EA conditions.

297 In any event, it is highly likely that the impacts would cause the degazettal of Bimblebox as a nature refuge, amounting to the destruction of Bimblebox, the nature refuge. The destruction of the protected place, Bimblebox, cannot be offset.

298 The Applicant seeks to conduct what is, in effect, an experiment on the impacts of underground longwall mining on a declared nature refuge. It is inconsistent with the objective of the EP Act to permit it to do so. The failure of the Applicant to properly assess the level of harm that the Proposed Project would cause to Bimblebox is, in itself, a 'good reason' (one of many) to recommend refusal.

299 The Applicant relies on biodiversity offsets as a panacea. It does so in circumstances where its identified offset properties are entirely deficient and it cannot demonstrate that a suitable area of land even exists, let alone that there are landholders willing to be involved. Remarkably, the inadequacy of the Applicant's offsets proposal is a matter of expert agreement in this case.

300 Even if the Applicant could find a suitable area of land, biodiversity offsets are limited in the types of impacts they are able to counterbalance. Biodiversity offsets tend to focus on individual species. They are unable to offset the loss of irreplaceable components of the environment, including values that are intrinsically place based, non-ecological values and elements like large old trees. Bimblebox, the nature refuge, was protected for the specific values of that land. In that respect, it is irreplaceable.

(ii) Projected local impacts of the Proposed Project

301 The following are the local impacts of the Applicant's Proposed Project dealt with in this part of the submissions for YV and TBA.

(1) subsidence impacts;

(2) consequential impacts on surface water;

(3) impacts arising from the mitigation and rehabilitation measures proposed to manage or remediate subsidence and surface water impacts;

(4) impacts arising from changes in groundwater quality;

(5) impacts from noise, vibration and light pollution, and impacts to air quality;[234]

(6) the cumulative impacts of the above on the ecology and biodiversity of Bimblebox;

(7) the cumulative impacts of the above on the non-ecological aspects of the environment of Bimblebox; and

(8) the cumulative impacts of the above on the nature refuge status of Bimblebox.

302 Each of the above issues arises in respect of the Applicant's Proposed Project. However, there is a dearth of information about the nature and scale of those impacts, leaving the Court in a substantial state of uncertainty:

(1) the subsidence experts agree that "there will be permanent physical changes"[235] but that no predictions (at all) have been made for Bimblebox.[236]

(2) Dr Vitale confirmed there has been no geomorphological assessment of the impacts of the Proposed Project on downstream hydrology,[237] and no updated modelling or predictions done for the mine plan without open cut mining on Bimblebox[238] (or indeed since 2012)[239] or to account for the revised (but uncertain) subsidence predictions.[240]

(3) predicted exceedances of noise and air quality limits have not been modelled for the entirety of Bimblebox (which is a sensitive place) but there is enough to infer that exceedances would be substantial and management difficult, if not

234 Issues raised by Coyne (EPA, 1 Dec 2019, Non-Active Objector); Bauman (EPA, 1 Dec 2019, Non-Active Objector).
235 Subsidence JER [[**COM.0065.0065**]].
236 T4-66, lns 16-17.
237 T 8-11, lns 28-30.
238 T 8-12, lns 43-47.
239 T 8-13, lns 11-29.
240 T 8-18, lns 1-4.

impossible.[241] Impacts of noise and dust on the ecology of Bimblebox are unknown.

(4) cumulative impacts to the ecology and biodiversity of Bimblebox are uncertain because the prediction of impacts is uncertain, but the experts do agree that it would result in the loss of nature refuge status,[242] a reduction in ecological condition[243] and fauna habitat,[244] and major root disruption and tree death associated with cracking.[245]

(5) the Applicant's nominated social impact expert has assessed the available material, including the Applicant's Social Impact Assessment, and makes several substantial criticisms. Nevertheless, he relies on that assessment and the baseline data therein because there have been no other assessments of social impacts.

303 The Applicant and the Statutory Party have repeatedly stated that the impacts of the Proposed Project without open cut mining on Bimblebox (the revised mine plan) are less[246] than the impacts of the previously proposed open cut mining. However, it is critical that the 'lesser' impacts of underground mining are not seen as somehow more acceptable by comparison to the (now apparently abandoned) radical proposal to open cut mine a nature refuge.

(iii) Bimblebox as a place, a community and a nature refuge

304 The EP Act adopts a broad and nuanced interpretation of environment, taking account of the many interacting, constituent parts that make up a place. Just as legislators have tried to define and understand the environment, so too do ecologists, agronomists, climate scientists, economists, nature lovers and artists. Ms Sampson writes about her own experience of Bimblebox, reflecting from a lay person's perspective, the complexity of interacting components specifically recognised under ss 8 and 9 of the EP Act:

> Bimblebox Nature Refuge is something we could never recreate or rebuild. It is much bigger than we understand, even though it is constrained by an 8000-ha fence line. We could study it for a very long time and never understand how it works, how it comes together, how elements of the ecosystems move beyond its boundary and yet stay constrained by the clearing of land around it. Of all the birds that are there, some are migratory, and others live their full lives within Bimblebox. The nature refuge lives and breathes and pulsates well beyond its boundary as well as within its boundary.

---

241 T 6-50, lns 32-35; Air Quality Assessment [[**WAR.0438.0027**]]-[[**WAR.0438.0030**]].
242 Ecology JER [[**COM.0068.0008**]], [48].
243 Ecology JER [[**COM.0068.0009**]], [55].
244 Ecology JER [[**COM.0068.0009**]], [56].
245 T 11-120, lns 45-47.
246 DES Assessment Report [[**DES.0018.0021**]], [[**DES.0018.0024**]], [[**DES.0018.0028**]], [[**DES.0018.0034**]], [[**DES.0018.0046**]], [[**DES.0018.0055**]], [[**DES.0018.0060**]]; Affidavit of N Harris [[**WAR.0291.0001**]], [368]; Affidavit of N McIntosh [[**WAR.0290.0001**]], [16], [25(d)-(e)], [72], [79], [169], [172].

> Bimblebox 153 Birds resonates in a similar way, in that the exhibition is a huge collection of cultural material that packs up compact into its little boxes and then, when installed, it unfurls out into a much larger area. If you were to draw a thread through every work to where the artist is in the world, this will take this exhibition further out beyond its tiny crate space, well beyond its gallery space, out to the many people and places around the world. All these places, people, words, music, artwork and birds connect to the Bimblebox Nature Refuge.

305 The environment that is Bimblebox includes its ecosystems and their non-human and human constituent parts, including people (individuals) and communities, and all its natural and physical resources, and its qualities and characteristics that contribute to its biological diversity and integrity, intrinsic and attributed scientific value or interest, amenity, harmony and sense of community, and the social, economic, aesthetic and cultural conditions that affect or are affected by any of the prior mentioned things.

306 Relevantly then, an environmental value of Bimblebox is a quality or physical characteristic of its environment that is conducive to ecological health or public amenity or safety, or another quality identified and declared to be an environmental value under an environmental protection policy or regulation.

307 The Applicant's environmental impact assessments contained in the EIS and SEIS have consistently failed to establish a baseline understanding of the environment and the environmental values it proposes to harm. Subsequently, during the non-statutory shadow assessment of the revised mine plan, the Applicant made minimal effort to rectify this deficiency in information, leaving the Court in a state of uncertainty.

308 The minimal additional information provided by the Applicant in response to the Statutory Party's numerous information requests during the shadow impact assessment did not remedy its failure to adequately identify the environmental harm it sought permission to cause. However, the uncontested statements of evidence of Mr Ian Hoch, Ms Paola Cassoni, Dr Carl Rudd, Ms Jill Sampson, Mr Eric Anderson and Ms Patricia Julien, read together with the expert evidence, provide quantitative and qualitative evidence about the environment that is supported by Bimblebox, and its historical and legal context.

309 Understanding the existing environment is essential for the accurate prediction of impacts, as well as the balancing exercise this Court is asked to undertake.

(1) <u>Bimblebox as a declared nature refuge</u>

01. Legislative context

310 All the experts in flora and fauna agree that there is a national crisis of biodiversity in Australia.[247]

247 T 11-60, lns 14, 28.

311 In 1993, Australia ratified the Biodiversity Convention. Relevantly, its objectives are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources".

312 Article 8 deals with in-situ conservation. Article 8(a) requires each Contracting Party to establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity. It also requires Contracting Parties to:[248]

> (b) develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;
>
> …
>
> (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
>
> …
>
> (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;
>
> …
>
> (k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations.

313 Article 9 of the Biodiversity Convention deals with ex-situ conservation measures.

314 The Intergovernmental Agreement, which preceded Australia's ratification of the Biodiversity Convention, specifically acknowledges that "the management of parks and protected areas is largely a function of the States," and "that a representative system of protected areas encompassing terrestrial, freshwater, estuarine and marine environments is a significant component in maintaining ecological processes and systems".

315 Clause 10 states that "the parties agree to cooperate in fulfilling Australia's commitments under international nature conservation treaties".

316 Objective 10.1 of the National Strategy, which followed on from the Intergovernmental Agreement, is:

> To establish across the nation a comprehensive system of protected areas which includes representative samples of all major ecosystems, both terrestrial and aquatic; manage the overall impacts of human use on protected areas; and restore habitats and ameliorate existing impacts such that nature conservation values are maintained and enhanced. [249]

---

248 Biodiversity Convention [[**YVL.0529.0008**]].

249 National Strategy for ESD [[**YVL.0528.0029**]].

317 The NC Act, which came into force in Queensland in 1992, has as its object, "the conservation of nature while allowing for the involvement of [I]ndigenous people in the management of protected areas",[250] where "conservation is the protection and maintenance of nature while allowing for its *ecologically sustainable* use"[251] and 'nature' includes:[252]

> (a) ecosystems and their constituent parts; and
>
> (b) all natural and physical resources; and
>
> (c) natural dynamic processes; and
>
> (d) the characteristics of places, however large or small, that contribute to—
>
> (i) their biological diversity and integrity; or
>
> (ii) their intrinsic or scientific value.

318 The EP Act and the NC Act share similar objects, although the NC Act might fairly be characterised as being directed to the protection of non-human aspects of the environment. The Acts work in tandem.

319 Part 4 of the NC Act deals with the dedication, revocation and management of protected areas in Queensland, including nature refuges,[253] which reflects article 8(a) and (b) of the Biodiversity Convention.

320 Part 5 of the NC Act deals with wildlife and habitat conservation through in-situ and ex-situ conservation strategies, including by the classification of threatened species, providing for wildlife management principles and captive breeding agreements — matters which are reflected in articles 8 and 9 of the Biodiversity Convention.

321 Clearly, the establishment and management of protected areas under the NC Act in Queensland is an important part of a broader national and international strategy for the protection of nature.

322 Queensland's Protected Area Strategy 2020-2030[254] states that:

> We are aiming to create a <u>comprehensive, adequate and representative</u> (CAR) protected area system that protects samples of the biodiversity of all biogeographical regions of the state. This approach aims to maximise biodiversity conservation and, through effective management, enhance ecosystem resilience to climate change and other threats.

---

250 *NC Act* s 4.
251 *NC Act* s 9. Emphasis added.
252 *NC Act* s 8(2).
253 See Part 4 of the NC Act.
254 Qld's Protected Area Strategy [[**YVL.0501.0001**]].

323 This approach reflects objective 10.1 of the National Strategy for a 'comprehensive' and 'representative' system,[255] and is consistent also with *Australia's Strategy for the National Reserve System 2009-2030*.[256]

324 Protected areas are recognised by the State as having distinct value:

(1) protected areas are a distinct matter of State environmental significance.[257]

(2) protected areas are prescribed environmental matters for the purposes of the *Environmental Offsets Act 2014* (Q), separate from any prescribed environmental matters within a protected area.[258]

(3) distinct criteria are provided for protected areas within the EPP Air and EPP Noise.

(4) use of protected areas is to be ecologically sustainable and must be within their capacity to sustain natural processes while —

(a) maintaining the life support systems of nature; and

(b) ensuring that the benefit of the use to present generations does not diminish the potential to meet the needs and aspirations of future generations.[259]

325 Nature refuges are a class of Protected area which requires the cooperation of landholders, but also "provide for the interests of landholders to be taken into account."[260]

326 The general process for declaration of a nature refuge requires a proposal for declaration, after which the Minister and the relevant landholders agree on "a proposal that an area should be a nature refuge" as well as the management intent for the area and terms of a proposed conservation agreement, which is entered into between the State and the landholder/s.[261]

327 A nature refuge is then to be managed in accordance with the declared management intent, which includes "to conserve the area's significant cultural and natural resources",[262] and the conservation agreement or covenant, for the area.[263]

---

255 See 316 above.
256 Australia's Strategy for the NRS [[**YVL.0412.0015**]].
257 *NC Act* s 14(i).
258 *Environmental Offsets Act 2014* (Qld), s 10; *Environmental Offsets Regulation 2014* (Qld), Sch 2, cl 7.
259 *NC Act* ss 5(e), 11.
260 *NC Act* s 22(b).
261 *NC Act* s 45.
262 *NC Act* s 22.
263 *NC Act* s15(1)(b)(iv).

328 In accordance with s 51 of the NC Act:

> (1) A conservation agreement in relation to the land in a nature refuge is binding on—
>
> (a) the landholder of the land; and
>
> (b) the landholder's successors in title; and
>
> (c) any other person with an interest in land in the nature refuge to the extent the agreement contains terms to that effect.

329 In that way, a nature refuge dedication together with its conservation agreement (should) ensure protection in perpetuity.

330 So, the protection afforded to an area that is a declared nature refuge is twofold:

(1) firstly, it is an offence for a person who is not an authorised person to take, use, keep or interfere with a cultural or natural resource of a Nature Refuge (with exceptions, which include if such interference occurs under the MR Act); and

(2) secondly, the landholders are obliged to manage the area to conserve its value, and to do so in accordance with any terms in the conservation agreement.

331 Within the broader protected area system, nature refuges are "disproportionately important instruments for achieving conservation benefits", noting that they are generally established within areas subject to competing land uses.[264] The Jericho subregion of the Desert Uplands Bioregion is one such area which is subject to mining proposals[265] and, until very recently, broadscale clearing for agriculture.

332 Across Queensland, there are 554 nature refuges representing 28.97% of Queensland's Protected areas and 2.52% of the State area,[266] being an important component of the National Reserve System.

02. The Court should not favour the museum approach to conservation when weighing the values of Bimblebox

333 The Applicant's nominated experts in flora and vegetation ecology, and fauna and fauna habitats emphasised that the flora and fauna present on Bimblebox are not rare or unique.[267]

334 The focus on uniqueness and rarity reveals underlying methodologies and assumptions, driven by specific values and frameworks, of the sort warned about at paragraphs [244] to [247].

---

264 Offsets JER [[**COM.0183.0008**]], [2].
265 Offset properties [[**YVL.0523.0012**]].
266 CAPAD spreadsheet [[**YVL.0394.0001**]].
267 T 11-73, lns 24-26; T 11-115, lns 6-9; T 11-165, lns 39-40; T 11-64, lns 11-14.

335 The values underpinning that focus are well captured by an exchange between Counsel for YV and TBA and Dr Daniel about the mitigation hierarchy, during which Dr Daniel stated:[268]

> If this mine was proposed over an area of vegetation that was considered to be endangered, we would probably recommend – if we were involved in – <u>if it was large enough and rare enough and contained values at the state level</u>, we would recommend <u>some forms</u> of avoidance.

336 The implication is that impacts should only be avoided (the first priority step on the mitigation hierarchy)[269] where an area is rare enough, large enough and sufficiently endangered. This sort of approach is analogous to the way in which Ian Hoch conceived of captive breeding – 'a living museum'.[270]

337 The museum approach to conservation is inconsistent with the intent of the EP Act and the NC Act and the Court should not afford less weight to an environmental value on the basis that it is not 'rare' or 'endangered'.

338 **First**, the object of the EP Act is to <u>maintain</u> the ecological processes on which life depends, outlined at paragraphs [141] to [144] above. To that end, the Court cannot be concerned only with endangered or rare species. The object is best achieved by 'keeping the common species common'.[271]

339 **Second**, the NC Act, read together with Objective 10.1 of the National Strategy, and Queensland and Australia's Protected area strategies, support the establishment of comprehensive and representative Protected areas as a key component of the protection of biodiversity.

340 In accordance with *Australia's Strategy for the National Reserve System*, 'comprehensiveness' is achieved by "including samples of the full range of regional ecosystems" within and across bioregions, and 'representativeness' recognises regional variability and suggests representing each regional ecosystem within each subregion.[272]

341 This necessarily requires the inclusion of common regional ecosystems in the protected area estate and acknowledges the importance of 'keeping the common species common'.

342 In the second reading speech to the NC Act, then Minister for Environment and Heritage made this precise point:

> This Bill … has as its purpose conserving nature in the broadest sense over the whole of Queensland, not just in national parks, and not just for certain species of animals and

---

268 T 11-115, lns 6-9. Emphasis added.
269 Qld Environmental Offsets Policy v1.9 [[**YVL.0099.0001**]], 5.
270 Affidavit of Ian Hoch [[**YVL.0077.0001**]], [34].
271 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0412**]].
272 Australia's Strategy for the NRS [[**YVL.0412.0015**]].

> plants. It stresses for the first time the need to protect habitats and recognises the essential role that private individuals can make to the conservation of nature.[273]
>
> Nature conservation must no longer concentrate solely on the welfare of individual species.[274]

343 **Third**, the museum approach to conservation is inconsistent with the conservation of biological diversity and ecological integrity, as a principle of environmental policy set out in the Intergovernmental Agreement, for the same reasons.

344 **Fourth**, drawing from the context in which the exchange at paragraph 335 above took place, the mitigation hierarchy as referred to in the *Queensland Environmental Offsets Policy* states that "in designing or planning the prescribed activity, impacts on prescribed environmental matters should, in the first instance, be avoided wherever possible".[275] A Protected area is a prescribed environmental matter in its own right.[276] Whether the Protected area has within it other 'rare' or 'endangered' prescribed environmental matters is irrelevant to the question of the worth or value to be attributed to the Protected area as whole. This is important: it is the whole of Bimblebox, and the protection it provides by being protected that ensures it has capacity to sustain natural processes on which life depends.[277]

345 As noted in the 2011 Department of Environment and Resource Management report on the values of Bimblebox, citing the *Biodiversity Strategy for Queensland*, the "level of species diversity [on Bimblebox] indicates good ecosystem health as well as having value in its own right in 'keeping the common species common'."[278] That the flora, fauna and regional ecosystems present on Bimblebox are not necessarily 'rare or endangered' is not to the point.

03. The history of Bimblebox as a nature refuge

346 It is worth briefly summarising the historical context of Bimblebox and the surrounding region, as it appears in the unchallenged evidence of Dr Rudd, Mr Hoch, Ms Cassoni and the ecology evidence.

347 Glen Innes is on Jagalingou Country, in the Desert Uplands Bioregion and the Jericho subregion.[279]

---

273 Queensland, *Parliamentary Debates,* Legislative Assembly, 28 April 1992, 4576 (Hon. P Comben).
274 Queensland, *Parliamentary Debates,* Legislative Assembly, 28 April 1992, 4577 (Hon. P Comben).
275 Qld Environmental Offsets Policy v1.9 [[**YVL.0099.0005**]].
276 Qld Environmental Offsets Policy v1.9 [[**YVL.0099.0008**]].
277 *NC Act* s 11.
278 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0412**]].
279 EIS – Indigenous Cultural Heritage [[**WAR.0071.0006**]].

348 The region avoided the effects of clearing during early settlement as it functioned as drought proofing for the more fertile regions to the east and west.[280] The consequence being that the region retained its old growth.[281]

349 However, the potential for productivity within the region increased with the introduction of supplements in around the 1960s, together with broadscale clearing and buffel grass.[282] Consequently, Mr Hoch, who was living and working around central Queensland at the time, describes the "widespread tree clearing and subsequent sowing to exotic pasture in a previously undeveloped region, within a time span of just 40 years" as an "uncontrolled experiment in landscape transformation."[283]

350 On the properties surrounding Glen Innes, per satellite imagery:

(1) between 1980 and 2002, portions of Kia Ora to the north had been cleared and by 2018, substantially more of Kia Ora had been cleared;[284] and

(2) between 1980 and 2002, entire areas to the south-east had been cleared, and by 2018, any linkages diminished.[285]

351 In the late 1990s, observing the devastating effects of land clearing in the region, a collective of local families pooled their resources to avert the loss of a vegetated property which was slated for clearing. From the outset, Dr Rudd "wanted to try and demonstrate the compatibility or integration between grazing and biodiversity."[286]

352 Juliana McCosker, of the environment department at the time, identified Glen Innes as a suitable property and the local families collectively put forward $230,000 to the purchase.[287]

353 To make up the remaining price, the families made an application for funding under the National Reserve System Program of the Natural Heritage Trust. The Commonwealth Government granted that application and so invested in the protection of Glen Innes.

354 The letter of offer for funding made note of 'the significant commitment' the group was willing to make "to the acquisition and management of this area."[288] Conditions of the offer included that:[289]

(1) "the primary purpose of all management actions including the use of grazing be the maintenance and where possible the enhancement of biodiversity values";

---

280 T 11-45, lns 20-22 per Dr Daniel agreeing with Dr Fensham.
281 T 11-45, lns 14-19.
282 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0073**]].
283 Affidavit of Ian Hoch [[**YVL.0077.0003**]], [14].
284 Affidavit of Ian Hoch – Satellite imagery [[**YVL.0077.0033**]]-[[**YVL.0077.0038**]].
285 Affidavit of Ian Hoch – Satellite imagery [[**YVL.0077.0039**]]-[[**YVL.0077.0041**]].
286 Affidavit of Carl Rudd [[**YVL.0067.0002**]], [15].
287 Affidavit of Paola Cassoni [[**YVL.0057.0002**]], [11].
288 Affidavit of Paola Cassoni – Letter of offer [[**YVL.0057.0052**]].
289 Affidavit of Paola Cassoni – Letter of offer [[**YVL.0057.0053**]].

(2) the property be declared a nature refuge;

(3) the property be available for public access; and

(4) monitoring be conducted "to ensure and demonstrate the protection of biodiversity values as part of ecologically sustainable management and for the outcomes to be made available to encourage sustainable land management throughout the region."

355 The parties then entered into a **Funding Agreement** with the Commonwealth, which was specifically "for the purchase of land to establish a Private Protected Area which will be part of the National Reserve System." [290]

356 The Funding Agreement imposed substantial obligations on the families, who agreed to "preserve and protect the land in its natural condition as part of the National Reserve System" and manage the land as a Protected area in accordance with IUCN Guidelines, for a category IV Protected area,[291] for the duration of 999 years.[292]

357 In providing the funding, the Commonwealth acknowledged the 'significant values' of the site including "its excellent condition and high biodiversity values", and notably, that "sites within the property contain the greatest understorey floristic biodiversity for these vegetation types within the region."[293]

358 The objectives of management under the Funding Agreement include "to eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation" and refer specifically to mining as an example of a deleterious activity.[294]

359 Pursuant to clause 7.5.1 of the Funding Agreement, the landholders can be required to repay the funds:[295]

> If the Organisation ceases to continue managing the Land to the standard specified in this Agreement prior to the end of 999 years from the date of signing this Agreement the Organisation shall be liable to repay to the Commonwealth the Funds.

360 In October 2002, the families entered into a **Conservation Agreement** with the State of Queensland in accordance with s 45 of the NC Act. The Conservation Agreement imposed further obligations on the landholders and asserts that it "will ensure that management and use of the Land sustains these flora and fauna values in perpetuity".[296]

---

290 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0015**]].
291 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0037**]] per item L which designates objectives of management.
292 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0026**]].
293 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0037**]].
294 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0038**]], schedule item L.
295 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0026**]].
296 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0052**]].

361 Bimblebox was gazetted in 2003, listing the significant cultural and natural resources and values as being that it supports,[297]

(a) 6 regional ecosystems, including poplar box and silver-leaved ironbark woodland; and

(b) a large area of intact habitat in a landscape that has been subjected to widespread clearing; and

(c) a diverse range of herbaceous species.

362 At the time of the gazettal:

(1) the landholders did not know that a nature refuge could be mined;[298]

(2) the State was aware of the underlying coal resource;[299] and

(3) no coal exploration tenements had been issued over the property.[300]

363 The **Management Plan**, produced in accordance with the terms of the Funding Agreement, the Conservation Agreement and s 45(5)(l) of the NC Act, reflects the history of Bimblebox and distils the landholders' obligations and intentions under the various agreements to four key objectives:[301]

(1) "Maintain and, where possible, enhance biodiversity values."

(2) "Fund the ongoing management of the property by grazing at an ecologically sustainable level, which may include innovative grazing techniques."

(3) "Demonstrate to the broader community that grazing in the eucalypt woodlands of the Desert Uplands is both ecologically sustainable and economically viable by extrapolating information from "Glen Innes" to larger properties."

(4) "Eliminate and/or control weeds and feral animals."

364 It also refers to a Queensland Parks and Wildlife Services (**QPWS**) assessment of the ecology of Bimblebox around the time of purchase in 2000 which notes that it has "the highest biodiversity in grass species relative to all poplar box sites surveyed throughout the southern Desert Uplands and Central Highlands."[302]

365 The name Bimblebox was chosen in reference to the Poplar Box tree, which, for more than 100 years prior had been called Bimblebox.[303]

---

297 Affidavit of Carl Rudd – Gazettal [[**YVL.0067.0062**]].
298 Affidavit of Paola Cassoni [[**YVL.0057.0003**]] at [19].
299 CG Report [[**WAR.0040.0010**]].
300 CG Report [[**WAR.0040.0010**]]; Affidavit of N Harris [[**WAR.0291.0004**]] at [21].
301 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0075**]].
302 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0074**]].
303 Affidavit of Ian Hoch [[**YVL.0077.0009**]], [54].

366 The history of Glen Innes and its dedication as a nature refuge provides important context for understanding its present and potential future values.

367 As at 2011, approximately 18% of the Desert Uplands Bioregion and 40% of the Jericho subregion had been cleared of remnant vegetation.[304] For those areas, any opportunity to connect with the land and resources pre-colonisation has been substantially limited, if not entirely denied.

04. Bimblebox contributes to the comprehensiveness, adequacy and representativeness of the National Reserve System

368 To achieve comprehensiveness, each regional ecosystem across each region should be represented within the Protected area estate.[305] Just 1.5% of the Desert Uplands Bioregion is within Protected areas with the vast majority being within national parks.[306] Bimblebox is one of nine nature refuges either wholly or partially within the region.[307]

369 Adequacy "refers to how much of each ecosystem should be sampled to provide ecological viability and integrity of populations, species and ecological communities at a bioregional scale."[308] This should take account of "ecological viability and resiliency for ecosystems for individual protected areas and for the protected area system as a whole."[309]

370 Dr Daniel noted that Bimblebox "is very hardy because of its very high [tract] size".[310] It is consistently referred to as being in good condition and has connectivity with other remnant areas. These characteristics improve its self-sufficiency, viability and resilience.[311] Importantly, the active human intervention presently carried out under the Management Plan is an important component of its resilience and viability.

371 To achieve representativeness within the National Reserve System, each regional ecosystem across each subregion should be represented. Just 2.37% of the Jericho subregion is protected, of which nearly a quarter is represented by Bimblebox.[312]

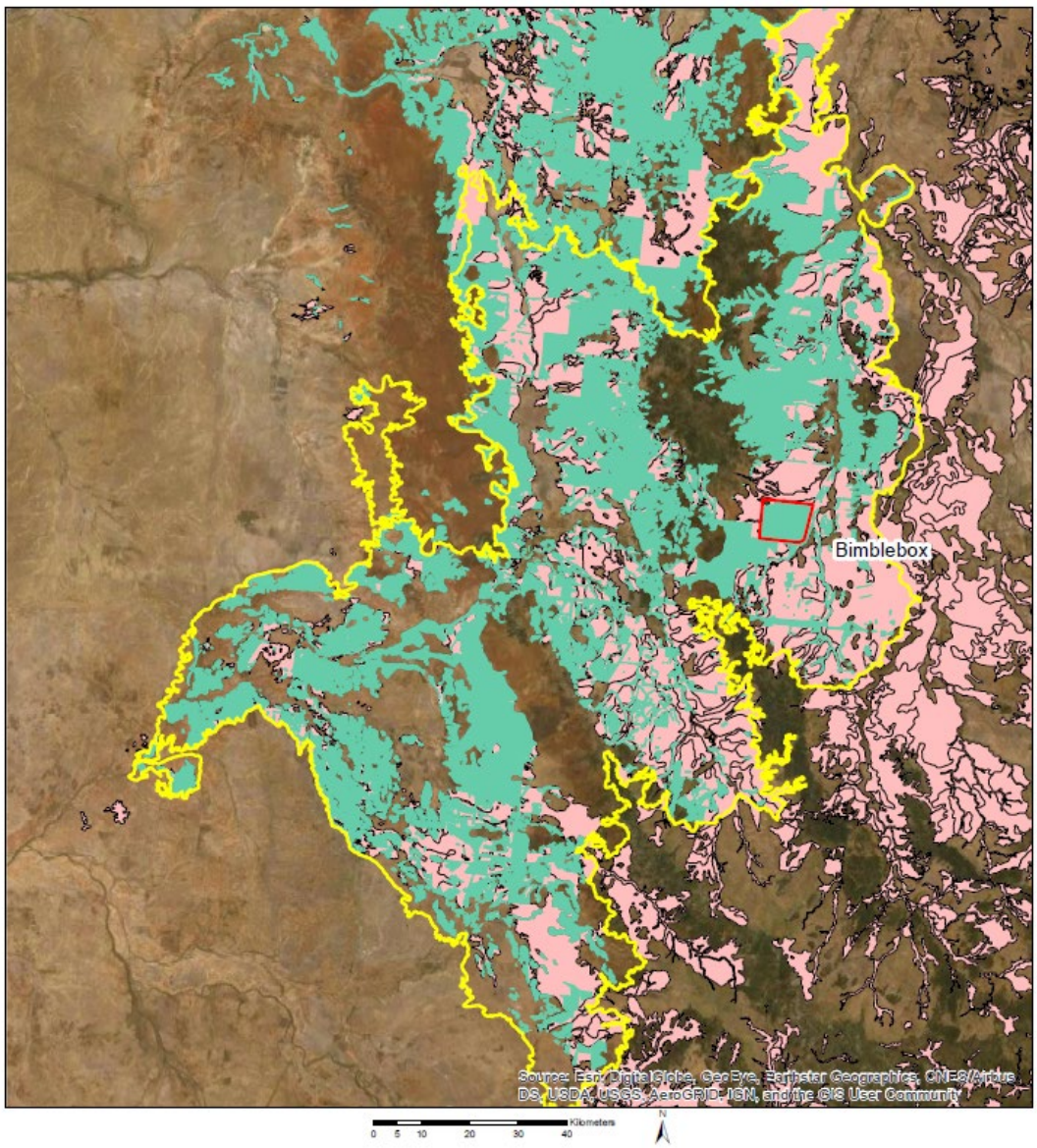
372 Importantly, each bioregion is so defined because the area has "some cohesion in terms of its climate, geology and vegetation"[313] with a subregion being a subcategory of a bioregion. A bioregion would be expected to feature similar types of regional

---

304 Affidavit of Paola Cassoni – 2011 DERM [[**YVL.0057.0410**]].
305 Australia's Strategy for the NRS [[**YVL.0412.0015**]].
306 CAPAD spreadsheet [[**YVL.0394.0001**]].
307 Offsets JER [[**COM.0183.0009**]] at [6].
308 Australia's Strategy for the NRS [[**YVL.0412.0015**]].
309 Australia's Strategy for the NRS [[**YVL.0412.0015**]].
310 T 11-74, lns 39-40.
311 Affidavit of Paola Cassoni – 2011 DERM [[**YVL.0057.0413**]].
312 CAPAD spreadsheet [[**YVL.0394.0001**]].
313 T 11-16, lns 6-9.

ecosystems and a shared climate and geology, and by way of inference, each subregion would be an area within the bioregion with greater similarity.

373 Figure 1 in the Ecology JER provides a useful indication (provided the pink shading is ignored and the limitations of desktop mapping are noted) of the prevalence of the regional ecosystems on Bimblebox within the surrounding subregion. Evidently, the inclusion of Bimblebox in the Protected area estate, as a high-quality example of an iconic vegetation system for the region, contributes directly to 'representativeness' objectives.



374 The reason why the pink area should be ignored is because, while described for shorthand purposes as 'non-remnant vegetation', it includes (as the key to the map notes) areas entirely cleared for cattle grazing, including the area to the north of Bimblebox which the Court saw when standing on the boundary during the site visit.

375 Dr Fensham and Dr Daniel agree that the vegetation types on Bimblebox "are poorly represented within the reserve system."[314] This increases the need for those portions which are protected, to maintain the comprehensiveness, adequacy and representativeness of the reserve system as a whole.

376 Indeed, the Funding Agreement was entered into by the Commonwealth for the express purpose of furthering the objective of establishing and maintaining "a comprehensive, adequate and representative system of reserves."[315]

377 By virtue of it being representative, Bimblebox contributes to the ecological health of the entire region. The research and monitoring about management and conservation outcomes, as required under the Management Plan,[316] is transferrable to the subregion and bioregion.

378 The legal protection of Bimblebox, afforded by its dedication as a Nature Refuge and the associated management obligations contained in the Funding Agreement, the Conservation Agreement and the Management Plan, is a quality of the environment it intends to conserve that is conducive to ecological health and public amenity.[317] This is true both on-site and in its inclusion as part of a state, national and international strategy for nature conservation.

379 That legal protection, which prevents interference with the values of Bimblebox and imposes management obligations on the landholders, is intended to survive any future competing land use. Clause 17 of the Conservation Agreement, in accordance with s 51 of the NC Act, states:[318]

> This agreement shall not expire and shall be binding on the Landholder's successors in title and those with an interest in The Land.

380 The biodiversity and ecological values of Bimblebox were deemed worthy of protection and inclusion in the National Reserve System by the Commonwealth and State governments at a time when the Regional Ecosystems supported by Bimblebox were threatened by significant land clearing.[319] The end of that particular era of broadscale land clearing came about with the introduction of amendments to the *Vegetation Management Act 1999* (Qld) (**VM Act**), phasing out "broadscale clearing of remnant vegetation by 31 December 2006".[320]

---

314 Ecology JER [[**COM.0068.0008**]], [48].
315 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0018**]] at B-C.
316 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0075**]] at 2.2(3); [[**YVL.0067.0082**]] at 4.7.
317 See requirement for public access per the letter of offer for funding as picked up in the Funding Agreement [[**YVL.0067.0039**]].
318 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0048**]].
319 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0037**]]; Conservation Agreement [[**YVL.0067.0052**]].
320 T 11-20, lns 1-3; *Vegetation Management and Other Legislation Amendment Act 2004* (Qld).

381 There is a suggestion by Dr Daniel that the VM Act affords the same level of protection (as a Nature Refuge) to other remnant areas in the subregion, and implicitly diminishes the value of the legal protection afforded to Bimblebox.[321] There are three key problems with that approach.

382 **First,** the approach ignores the protective value gained by way of the various management obligations. Bimblebox is largely surrounded by cleared country[322] and requires active, ongoing management to retain its natural values.[323]

383 **Second,** it fails to appreciate that the VM Act features a process for obtaining permits to clear remnant vegetation and so does not offer blanket protection.[324]

384 **Third**, it fails to recognise the real potential for a change in policy on land clearing in Queensland if there is a change in State Government. In that respect, Dr Daniel agreed that, when considering the principle of intergenerational equity, the very recent changes in those policies as governments changed are a relevant factor.[325]

(2) <u>The ecological values of Bimblebox</u>

01. Key sources of information regarding ecological values are deficient

385 Some information about the existing ecological values of Bimblebox is available in the application documents, in materials produced as part of the shadow assessment of the revised mine plan, by way of expert evidence adduced during the matter and in the unchallenged lay witness statements of Mr Hoch, Ms Cassoni, Ms Julien and Mr Anderson.

386 The Applicant's assessment of the existing ecological and biodiversity values of the receiving environment in the application documents, including the EIS and SEIS, has been properly criticised in the following ways:

(1) Dr Daniel commented on the lack of mapping of regional ecosystems at a detailed level. The Applicant relied on mapping at a scale of 1 as to 100,000, which Dr Daniel notes should be at the very least, 1 as to 20,000.

> A project of this size, I'd say, ordinarily 1 as to 20,000 would probably be the coarsest mapping that you would entertain. So it needs far more on-ground work to delineate the boundaries of all the vegetation communities across the MLA and attribute those polygons – those maps with the correct vegetation communities.[326]

(2) this suggestion is also supported by Dr Cousin.[327]

---

321 T 11-64, ln 32.
322 Ecology JER [[**COM.0068.0021**]]; Affidavit of Ian Hoch - Photographs [[**YVL.0077.0024**]]; Affidavit of Carl Rudd – satellite imagery [[**YVL.0067.0094**]]-[[**YVL.0067.0095**]].
323 Affidavit of Paola Cassoni [[**YVL.0057.0014**]] at [138].
324 VM Act s22A.
325 T 11-65, lns 24-45.
326 T 11-156, lns 31-34.
327 Offsets JER [[**COM.0183.0018**]], [58].

(3) Dr Daniel and Dr Fensham agree that the groundcover analysis undertaken in 2014 "is inadequate to draw any reasonable conclusions about the condition of [Bimblebox] relative to surrounding properties".[328]

(4) Mr Thompson is 'very determined' that detailed soil mapping should have been undertaken as part of the EIS and SEIS.[329] In respect of subsidence impacts, he states that "the existing soils information is in my view not fit for the purposes of identifying the impact and rehabilitation of those impacts."[330]

(5) in May 2011, Ms Cassoni wrote to the Minister for the Environment and Resource Management and requested that "there be an independent and thorough biodiversity monitoring effort at Bimblebox, taken across all seasons and allowing for prevailing conditions, as part of the assessment process."[331] This was not done. Consequently, in her uncontested submission on the SEIS, Ms Cassoni raised the inadequacy of the ecological survey sites. Her submission on the SEIS notes only six fauna survey sites were selected, mostly in areas likely subject to edge effects and lacking any site within the proposed subsidence area.[332]

387 These deficiencies are foundational. The Applicant has provided grossly inadequate information on the flora of Bimblebox, the soils of Bimblebox and the fauna of Bimblebox. In other words, it has provided grossly inadequate information of almost everything required to understand the receiving environment. And it cannot be said that the Applicant has not had time to conduct this assessment properly. The EIS and SEIS are now 10 and 12 years old respectively.

388 The reports of the expert witnesses in this case are no substitute for proper assessment work having been done earlier. In fairness, no expert witness suggested that they were. In particular, the field inspections[333] are no substitute for proper survey effort.

389 Dr Daniel and Mr Caneris conducted "broad rapid assessments across the proposed disturbance footprint and surrounding landscape" in late July (over four days) and late August 2021 (over four days), with only one day spent on Bimblebox.[334] During concurrent evidence, Dr Daniel clarified that the rapid assessments involved driving around the landscape, getting out and having a walk and a look around for characteristic species, and generally trying to "get a feel for the impacts on these vegetation communities and the results of those impacts" on the floristic assemblages and structure.[335]

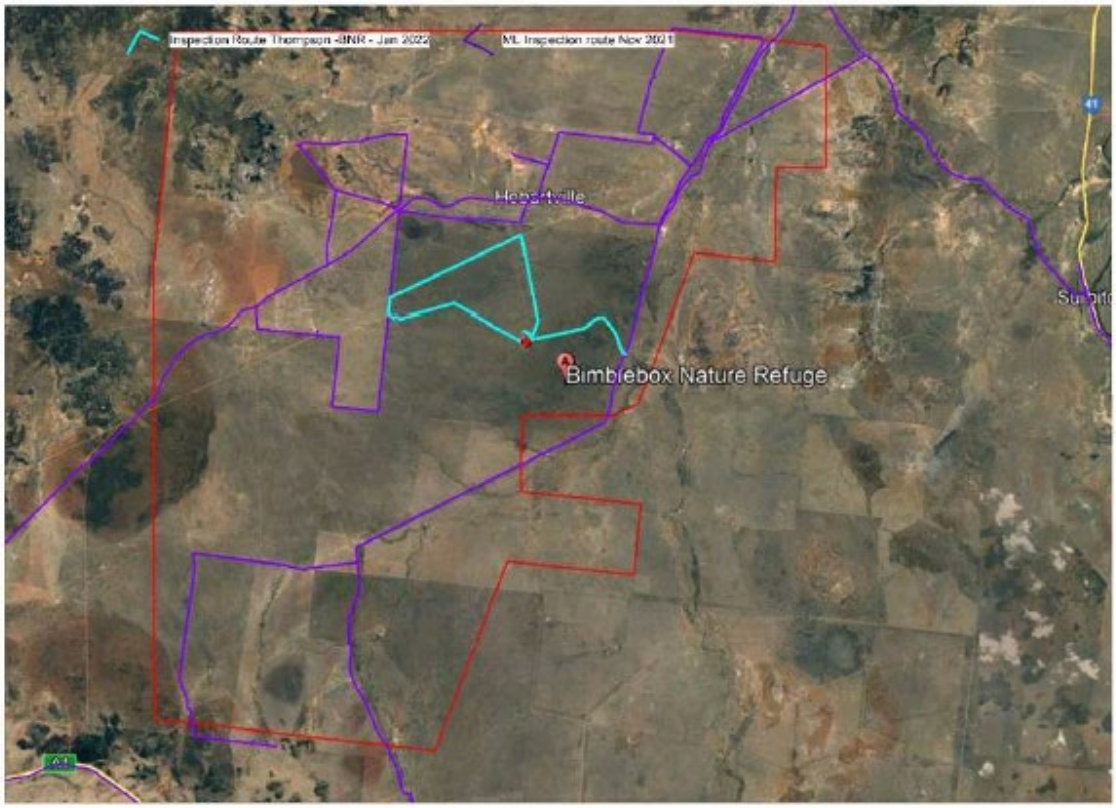
---

328 Ecology JER [[**COM.0068.0022**]], [31].
329 T 11-164, ln 37.
330 Statement of Evidence – Soils [[**WAR.0499.0011**]], lns 320-321.
331 Affidavit of Paola Cassoni [[**YVL.0057.0010**]], [93].
332 Affidavit of Paola Cassoni – SEIS Submission [[**YVL.0057.0106**]].
333 Ecology JER [[**COM.0068.0002**]]; T 11-39, lns 41-43; T 19-22, lns 21-24.
334 T 11-77, lns 38-40.
335 T 11-46, lns 6-11.

390 Mr Caneris agreed with Dr Daniel's description of their rapid assessment but noted that, in respect of fauna values, this assessment included rolling some logs, listening for birds and looking at the values that are present.[336] The inadequacy of the fauna information may be what caused the Applicant's Senior Counsel's mistaken suggestion that nesting hollows are found in dead hollow logs.[337] This misapprehension was corrected by Dr Maron when explaining the principles of irreplaceability and additionality to the Court.[338]

391 It is not known precisely how much time the experts spent on Bimblebox and the extent of areas considered in their rapid assessment.

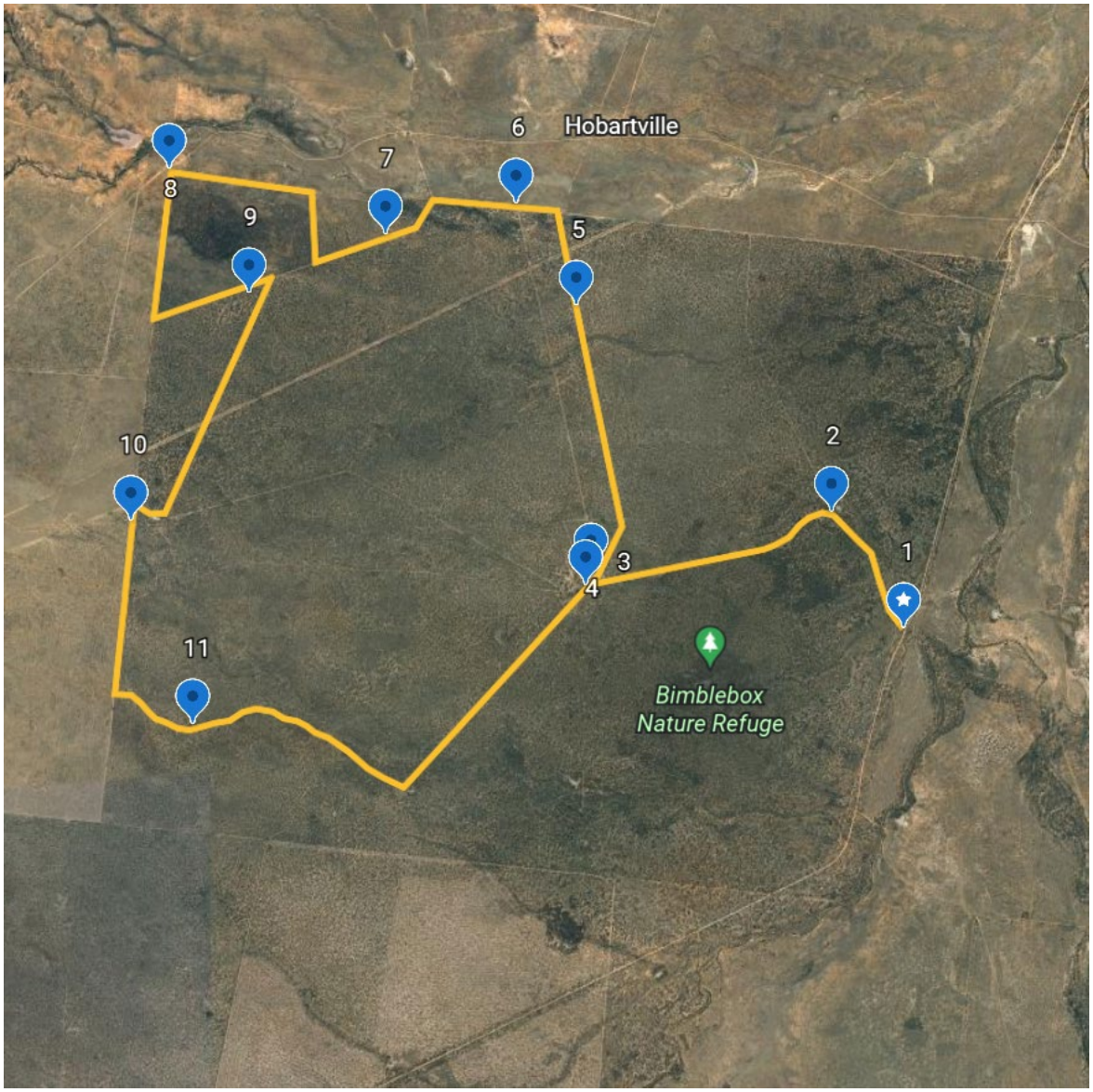
392 Mr Thompson observed Bimblebox over the fence from the northern, eastern and western boundaries on 17 November 2021 and conducted a 'full on ground inspection' of Bimblebox on 12 January 2022 after rainfall.[339] Mr Thompson traversed the following tracks, per figure 1 of his individual statement:[340]



393 Dr Cousin observed Bimblebox along the northern, eastern and western boundaries and undertook 'broad assessments'.[341]

336 T 11-46, lns 17-20.
337 T 19-60, lns 16-46; T 19-61, lns 1-4.
338 T 19-60, lns 16-46; T 19-61, lns 1-25.
339 Ecology JER [[**COM.0068.0002**]].
340 Statement of Evidence – Soils [[**WAR.0499.0006**]].
341 Offsets JER [[**COM.0183.0002**]].

394 Mr Thompson's 'full on ground inspection' and Dr Cousin's 'broad assessments' were less comprehensive and extensive than the site inspection that the Court and Parties conducted on Bimblebox in May 2022 led by Ian Hoch, undertaken per the route below.[342]



395 To the extent that the above experts express opinions as to the environmental values on Bimblebox, within their respective areas of expertise, and the condition of those values, those opinions should be considered within the context of the very limited field assessments conducted during one particular season, over as little as one day, and traversing either a small portion, an unknown extent, or none, of the internal tracks on Bimblebox.

396 Conversely, Dr Maron inspected Bimblebox over three days in October 2020 and travelled most vehicle tracks. She describes, "observing and assessing its floristics and

342 Bimblebox Site Inspection Brief [[**YVL.0341.0013**]].

its habitat structure, including the condition of the ground layer and other relevant habitat values for fauna such as large hollow trees".[343]

397 Finally, Dr Fensham worked extensively on Bimblebox between 2002 and 2012 conducting scientific monitoring and research, establishing a regular monitoring framework and related infrastructure.[344] Dr Fensham also conducted a field inspection on 11 September 2021 to inspect the current condition of Bimblebox to update his knowledge.[345]

398 Where there is a difference of opinion between the experts as to the nature and quality of the ecological and biodiversity values on Bimblebox, the opinions of Dr Maron and Dr Fensham should be preferred.

02. The lay witnesses give reliable evidence about the biodiversity and ecological values of Bimblebox

399 While it may not be in the Applicant's interests to understand and catalogue the unique values of Bimblebox, to YV and TBA's lay witnesses, the cataloguing and dissemination of Bimblebox's values is an integral activity that forms part of the Nature Refuge itself. The lay witnesses have carefully collated these records for the Court.

400 Mr Hoch has managed Bimblebox for about 22 years. Through his statements, he provides qualitative assessments of the ecological and biodiversity values of Bimblebox arising from his direct, longitudinal observations. Mr Hoch describes his satisfaction from "getting the daily feedback in paying attention".[346]

401 Mr Hoch provides reliable data about soil types, surface water flows, groundwater and ecology. He calculates that "only half of the full catalogue of plants on Bimblebox are visible at any one time".[347]

402 Mr Anderson conducted 7 bird surveys on Bimblebox, using Birds Australia survey methods, between 2003 and 2019 in different seasons and across different times of the day.[348] On each occasion, he added anywhere from 3 (in 2019)[349] to 8 (between 2003 and 2005)[350] to 26 (in 2011)[351] new bird species to the total list of bird species recorded on Bimblebox.

403 Mr Anderson's photographs of bird species and survey results, including squatter pigeons, which he affirms were sighted on Bimblebox, are uncontested.

---

343 Offsets JER [[**COM.0183.0002**]].
344 Ecology JER [[**COM.0068.0036**]], [111].
345 Ecology JER [[**COM.0068.0002**]].
346 Affidavit of Ian Hoch [[**YVL.0077.0016**]], [98].
347 Affidavit of Ian Hoch [[**YVL.0077.0016**]], [97].
348 Affidavit of Eric Anderson [[**YVL.0063.0015**]]-[[**YVL.0063.0031**]].
349 Affidavit of Eric Anderson [[**YVL.0063.0033**]]-[[**YVL.0063.0036**]], identifying species marked only with ^ symbol.
350 Affidavit of Eric Anderson [[**YVL.0063.0018**]].
351 Affidavit of Eric Anderson [[**YVL.0063.0021**]].

404 These direct and reliable observations lend force to the criticism of the rapid assessments undertaken by the Applicant and experts nominated in this matter, which can provide only limited snap shots of a small component of the ecosystem at a particular moment in time.

> …what the Waratah Environmental Impact Statement terrestrial ecology surveys don't capture, are the odd bods, the elusive, ephemeral, vulnerable, and the transient, who are none the less, or perhaps all the more worthy of inclusion...[352]

405 Ms Cassoni's affidavit demonstrates relentless gathering and dissemination of information about Bimblebox, and she is involved intimately with the off-site management demands for the Nature Refuge. This includes requesting and maintaining records for research and monitoring carried out on site, survey locations and relevant reports.[353]

406 Of note is the 2011 report by the Department of Environment and Resource Management (**DERM 2011**) which was provided as part of the Department's submission to the CG on the EIS, which was not released publicly nor provided to Ms Cassoni until 2013 (on Ms Cassoni's insistence).[354] That report is an impressive and accurate assessment of the values of Bimblebox at that point in time. Nothing in the evidence suggests that the values have reduced since that time — quite the opposite.

407 Ms Julien has also compiled the results of extensive flora and fauna surveys (on ground and desktop) carried out on Bimblebox, within the proposed mining lease area and the wider region, spanning at least 5 different flora surveys and 8 different fauna surveys, carried out over different years and across different seasons.[355] The spreadsheets,[356] provide detail about the classification of each species and the relevant survey for each record. These collations are unchallenged and are the best available evidence about the biodiversity of Bimblebox and the surrounding region.

03. Bimblebox has high biodiversity value and is in very good condition.

408 Bimblebox is made up of both natural and nurtured biodiversity.

409 It is 96% remnant vegetation, which since the time of settlement has never been cleared. The remaining 4% was cleared in the early 1990s[357] and if left to continue regenerating would reach the point of being considered remnant from a regulatory perspective.[358]

---

352 Affidavit of Ian Hoch [[**YVL.0077.0019**]], [120].
353 See, for example, Affidavit of Paola Cassoni [[**YVL.0057.0001**]] at [2]-[3], [30], [33], [36], [37], [42], [45], [53], [59], [93], [100]-[101], [105], [146].
354 Affidavit of Paola Cassoni [[**YVL.0057.0405**]]; [[**YVL.0057.0011**]], [100].
355 Affidavit of Patricia Julien [[**YVL.0064.0004**]], (iv)-(viii).
356 **[[YVL.0066.0001]]** and **[[YVL.0294.0001]]**.
357 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0074**]].
358 T 11-18, lns 38-47.

410 It supports (at least) five regional ecosystems, four of which are listed in Table 1 of the Ecology JER reproduced below with additional information included.[359]

Regional Ecosystem	Short Description	Proportion remaining within Bioregion	VM Act listing	Biodiversity status
RE 10.5.5	*Eucalyptus melanophloia* (silver leaved ironbark) woodland on sand plains	77% of 1,274,000 ha	Least Concern	-
RE 10.5.12	*Eucalyptus populnea* (poplar box) open woodland on sand plains	59% of 237,000 ha	Least Concern	-
RE 10.3.27	*Eucalyptus populnea* (poplar box) woodland to open woodland on alluvial plains	40% of 159,000 ha	Least Concern	Of concern[360]
RE 10.3.28	*Eucalyptus melanophloia* or E. crebra (narrow leaved ironbark) woodland to open woodland on sandy alluvial fans	77% of 314,000 ha	Least Concern	-
RE 10.5.1[361]	open woodland of *Eucalyptus similis* with a ground layer dominated by spinifex *Triodia pungens*; open woodland of *Corymbia brachycarpa* and	-	-	-

359 Ecology JER [[**COM.0068.0019**]].
360 RE 10.3.27 [[**YVL.0503.0001**]].
361 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0409**]].

	C. *setosa* with a sparse tall shrub layer of Acacia sp. and a spinifex dominated ground layer[362]			

411 The fifth additional Regional Ecosystem was excluded from Dr Daniel's list although he confirms that he saw it on the property during his site inspection.[363]

412 The 'of concern' status of RE 10.3.27 is reflective of its historical rates of clearing as well as ongoing threats from grazing pressure and invasion by exotic pastures, in particular, buffel grass.[364] The size of its mapped area on Bimblebox is "among the largest of its kind in both the subregion and bioregion".[365]

413 Importantly, Bimblebox has connectivity with remnant vegetation to the south-west and with riparian corridors to the north-east and south-east.[366]

414 Over 365 plant species have been recorded as occurring on Bimblebox by way of on ground surveys by John Thompson and Paul Donatiu, Ann Moran and DNRM staff undertaking grass check surveys, and as per Wetlands Info.[367]

415 Mr Hoch describes from his observations the "veritable smorgasbord of plants with a great range of seasonality and variety of growth forms and rates".[368]

416 There has been particular emphasis on the diversity and condition of the groundcover, with reference made in the Funding Agreement, Conservation Agreement and gazettal. The Department of Environment and Resource Management's field inspection in November 2011 "showed very good levels of ground cover, almost entirely dominated by native grasses." In the intervening time period, Dr Fensham confirmed "that the ecological condition of [Bimblebox] was remarkably consistent with the condition in 2012,"[369] when on-site research he was carrying out concluded. Dr Daniel and Dr Fensham agree that it remains botanically diverse despite threatening processes — notably weed invasion, with buffel grass only dominating the ground stratum on less than 5% of the site.[370]

---

362 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0409**]].
363 T 11-73, lns 12-13.
364 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0409**]].
365 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0410**]]; Bimblebox Site Inspection Brief [[**YVL.0341.0025**]].
366 Bimblebox Site Inspection Brief [[**YVL.0341.0025**]].
367 Affidavit of Patricia Julien – Flora list [[**YVL.0066.0001**]]; Affidavit of Patricia Julien [[**YVL.0064.0001**]], [15(j)].
368 Affidavit of Ian Hoch [[**YVL.0077.0012**]], [72].
369 Ecology JER [[**COM.0068.0022**]], [29].
370 Ecology JER [[**COM.0068.0024**]], [33].

417 Dr Daniel and Dr Fensham also remark on the very good condition of the lower shrub layers, which supports habitat for ground-dwelling fauna.[371] Dr Daniel considers that this diversity and condition contributes to the resilience of the property to invasion by weeds:

> …its resilience very much lies in the biodiversity that's there, the number of species in the ground layer, the – all of these things and – and the amount of – of these species in the ground layer. They – they cover the ground. They – they prevent invasion of buffel grass in disturbed areas. There – there's a myriad of things that happen as far as leaf fall causing, you know, high humus in – in the surface, which makes them more resilient to water runoff, mycorrhizal associations, binding soils.
>
> The resilience as far as – as – as far as I interpreted it in the BNR comes from that complexity…[372]

418 Mr Anderson observed an increase in bird species between October 2003 and November 2011, and attributes this to "the vastly improving condition of the Nature Refuge" and most noticeably, "the good ground cover present", which provides the necessary habitat and fodder.[373]

419 As well as the ground layer, particular mention is made of the presence of old-growth trees, many of which are over 200 years old, for the fauna habitat value they provide. Notably, due to the slow growth rates of trees in the region (about 2mm per year for the dominant eucalypt trees), "the woodlands and forests of the region are not resilient to the removal of big old trees".[374]

420 Dr Maron confirms that the old (living) hollow bearing trees on Bimblebox are inherently irreplaceable within "timeframes relevant to the threats faced by threatened species".[375] This is because you cannot offset them by simply finding a property with double the number because, they are already there, and you need to generate something to create a gain.[376] It is also not ecologically possible to move the 200-400 year old hollow bearing (living) trees to the offset property, because they would die on the way.[377]

421 "If you get the habitat right, the birds will come, the insects will come, the species will come. If you get the habitat right, then everything else looks after itself."[378]

---

371 Ecology JER [[**COM.0068.0003**]], [7].
372 T 11-25, ln 43 – T 11-26, ln 5.
373 Affidavit of Eric Anderson [[**YVL.0063.0022**]].
374 Ecology JER [[**COM.0068.0025**]], [38].
375 Offsets JER [[**COM.0183.0005**]] at [ES1]; T 19-60, lns 13-4.
376 T 19-60, lns 26-7.
377 T 19-60, lns 29-36.
378 Affidavit of Carl Rudd [[**YVL.0067.0005**]], [44].

422 There are 181 species of bird recorded on Bimblebox,[379] 16 native species of amphibian[380] and 67 species of reptile recorded[381] (despite indications that reptiles have been inadequately surveyed).[382]

423 Mr Caneris considers that Bimblebox supports "fauna habitats of high value for conservation significant species"[383] that are "representative of the regional ecosystems present".[384]

424 While the experts consider that no particular species is reliant on Bimblebox for its survival, "[t]here are individual animals that are absolutely dependent on BNR, because that's within their home ranges."[385] The DERM 2011 report suggests that clearing of about 50% of Bimblebox would "kill about 35,880 birds, 13,570 mammals and 780,000 reptiles."[386]

425 Mr Caneris considered these figures to be 'extremely high';[387] however, no alternative has been provided by the Applicant, and DERM 2011 cites scientific literature in support of the calculation.

426 In addition, Bimblebox is "vitally important as a habitat, refuge and food source for the many migratory birds that seasonally pass through the area".[388]

(3) Bimblebox and its community of people

427 Bimblebox is supported by and supportive of a community of people including:

(1) the current managers, who maintain the ecological health of Bimblebox, and facilitate scientific, agricultural, educational and recreational activities onsite;

(2) visiting scientists and citizen scientists, conducting research and monitoring;

(3) local landholders, making use of materials produced as part of the scientific studies conducted;

---

379 Supplementary Affidavit of Patricia Julien – Fauna list [[**YVL.0294.0001**]] including data for surveys "Bimblebox NR Wetland Info", "Y", "PP", "DERM 2011 BNR survey" and "X" as defined at [[**YVL.0064.0004**]].

380 Supplementary Affidavit of Patricia Julien – Fauna list [[**YVL.0294.0001**]] including data for surveys "Bimblebox NR Wetland Info" and "GA" as defined at [[**YVL.0064.0004**]].

381 Supplementary Affidavit of Patricia Julien – Fauna list [[**YVL.0294.0001**]] including data for surveys "Bimblebox NR Wetland Info", "Y", "GA", "DERM ecologists" as defined at [[**YVL.0064.0004**]].

382 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0411**]].

383 Ecology JER [[**COM.0068.0004**]], [10]; where conservation significant is species that are on either the Federal Government or State Government schedules as endangered, vulnerable, rare or threatened per Mr Caneris at T 11-27, lns 35-40.

384 Ecology JER [[**COM.0068.0003**]], [6].

385 T 11-44, lns 33-34 per Mr Caneris.

386 Affidavit of Paola Cassoni – DERM 2011 [[**YVL.0057.0412**]].

387 T 11-76, lns 1-5.

388 Affidavit of Eric Anderson – survey reports [[**YVL.0063.0030**]].

(4) artists and nature lovers, who gain inspiration from the ecological values of Bimblebox and in turn contribute to protection of the environment through their works; and

(5) the broader public, who engage with Bimblebox-related exhibitions and published materials.

01. Bimblebox as a model for the use of cattle grazing in achieving conservation outcomes.

428 Ms Cassoni notes,

> The long-term plan for management of Bimblebox is to maintain and enhance the biodiversity of the Nature Refuge. This has always been the priority aim for Bimblebox, by ensuring that the cattle grazing thereon is used to support our conservation efforts, both economically and ecologically.[389]

429 In that respect, the ecological evidence as to the very good condition[390] of Bimblebox is testament to the management efforts.

430 Dr Maron remarked on the unusually intense management practices that have maintained and improved the condition of Bimblebox over time:[391]

> that Bimblebox Nature Refuge is a very unusual place in the intensity and the very sort of manual way in which the threatening processes have been managed over time. And – and clearly that work that has gone into it reflects, sort of, intangible and unmeasurable values…
>
> The particular management regime of BNR is what has allowed the property to maintain its condition, and it is difficult to see how in the absence of that particularly intensive and sympathetic management the values of the ground layer (particularly with regard to intensive buffel grass control) would be retained.[392]

431 Mr Hoch attests that the management efforts "have completely eradicated" four exotic species, three of which had been identified in the Management Plan.[393]

432 A component of the management objectives, per the initial agreements relating to its purchase and gazettal, included to demonstrate the capacity for cattle grazing to be used as a tool for conservation,[394] as well as to share this knowledge with the broader

---

389 Affidavit of Paola Cassoni [[**YVL.0057.0014**]], [134].
390 T 11-74, ln 6.
391 T 19-29, lns 23-26.
392 Offsets JER [[**COM.0183.0022**]], [75].
393 Affidavit of Ian Hoch [[**YVL.0077.0016**]], [100]; Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0080**]] at 4.4.
394 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0038**]], 2; Conservation Agreement [[**YVL.0067.0053**]] at Item 4B(a); Management Plan [[**YVL.0067.0074**]], 2.0.

community.[395] The integration of cattle grazing with the conservation objectives was two-fold:

(1) to demonstrate the potential for compatibility between agriculture and conservation as an example for the region; and

(2) to provide income for the upkeep of the nature refuge.

433 The Applicant, through its CEO Mr Harris, was unaware of this particular role of cattle on the property[396] and mistakenly designated the 'dominant purpose' of the land as cattle grazing.[397]

434 Mr Thompson, who is not an ecologist, made some comments about the use of livestock to achieve conservation outcomes.[398] His commentary, relied on by other experts, is outside his area of expertise. More importantly, it fails to appreciate that a core component of the agreements underpinning the nature refuge declaration was precisely to practice conservation grazing to learn more about it as a management technique. Consequently, there has been detailed and important scientific research carried out by Dr Fensham about the impacts of the grazing on the specific biodiversity values of Bimblebox.[399]

435 Mr Thompson also raises 'concerns' that the low intensity grazing will not "be able to sustain on going management and maintenance of capital works which are currently in need of substantial maintenance and repair."[400] The evidence of Mr Hoch as to his agricultural methodology[401] went unchallenged. Further, there is no evidence to suggest that the current practices have not been financially sustainable, and indeed the Court may draw an inference that the practices have sustained the property for the past 22 years. Mr Thompson's evidence on this issue should be disregarded.

436 Mr Hoch and Ms Cassoni, along with their family and others, have actively facilitated on-site research and monitoring as well as recreational activities and public access.[402]

437 Mr Anderson, who led a team of bird surveyors in April 2012 for the purposes of identifying the Black-throated Finch and Squatter Pigeon noted, "the work could not have been done without the access and hospitality provided by the local land owners."[403]

---

395 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0038**]]-[[**YVL.0067.0039**]]; Management Plan [[**YVL.0067.0075**]], 2.2(3).
396 T 2-37, lns 5-28.
397 Affidavit of N McIntosh [[**WAR.0290.0051**]], [302].
398 Ecology JER [[**COM.0068.0008**]], [47].
399 Ecology JER [[**COM.0068.0033**]], [94].
400 Ecology JER [[**COM.0068.0005**]], [29].
401 See for example the Supplementary Affidavit of Ian Hoch [[**YVL.0324.0005**]], [36].
402 Affidavit of Paola Cassoni [[**YVL.0057.0001**]] at [151], [168], [174], [191].
403 Affidavit of Eric Anderson – survey report [[**YVL.0063.0027**]].

438 Since the exploration activities in around 2007, Ms Cassoni has undertaken enormous amounts of work in preparing written submissions and letters, and arranging meetings with government stakeholders and decision-makers to ensure that the values of Bimblebox are considered in the assessment and decision-making processes. These actions were required under the obligations and objectives of the various plans and agreements agreed to by the landholders.[404] The deep irony of this case is that both the State and Federal Governments compelled the landholders by contract to protect Bimblebox from harm. The landholders' efforts in seeking to prevent mining on and under Bimblebox are consistent with those contractual obligations.

439 Mr Hoch, Ms Cassoni and Dr Rudd, through their respective management and involvement, have been conducive to the ecological health and public amenity of Bimblebox, and consequently, the ecological health and public amenity of the broader region.

02. Research and monitoring on-site has informed conservation practices on Bimblebox and acquired knowledge for the region

440 Research and monitoring activities on Bimblebox since the time of its gazettal include:

(1) long-term bird monitoring by citizen scientists;[405]

(2) fire and grazing studies, led by Dr Fensham with the Queensland Herbarium;[406]

(3) studies relating to the relationship between grazing, clearing and biodiversity; for the improvement of land condition; analysing woody vegetation change over centennial and decadal time-scales;[407] and

(4) monitoring of grasses.[408]

441 The studies have produced outputs[409] that are publicly available and contribute to Queensland's body of knowledge about land management and biodiversity.

442 Notably, Dr Fensham's fire and grazing studies resulted in four scientific studies[410] as well as a booklet called 'Talking Fire', which records "landholders experience with fire combined with a layman's interpretation of existing scientific understanding of fire in the Desert Uplands landscape."[411]

---

404 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0045**]], cl 3.2; Funding Agreement [[**YVL.0067.0038**]].

405 Affidavit of Eric Anderson [[**YVL.0063.0001**]]; Supplementary Affidavit of Patricia Julien – Fauna list [[**YVL.0294.0001**]]; Affidavit of Paola Cassoni [[**YVL.0057.0071**]].

406 Affidavit of Paola Cassoni [[**YVL.0057.0071**]]; Ecology JER [[**COM.0068.0036**]] at [111]-[116].

407 Affidavit of Paola Cassoni [[**YVL.0057.0071**]].

408 Affidavit of Paola Cassoni [[**YVL.0057.0071**]].

409 Affidavit of Paola Cassoni [[**YVL.0057.0071**]].

410 Ecology JER [[**COM.0068.0001**]], [113(b)-(d)].

411 Ecology JER [[**COM.0068.0036**]], [113(a)].

443 To carry out the studies, Dr Fensham's team, with the assistance of Mr Hoch and his family,[412] established fenced exclosure sites and tagged and mapped every woody plant within a one-hectare plot.[413]

444 Dr Daniel and Mr Caneris agree that while "it is possible to repeat these experiments in a different location", "it would take 20 years before this work could repeat the long-term nature of the research conducted within Bimblebox."[414] While the physical infrastructure might be replaceable, the long-term nature of the background data will only become more significant with time.[415]

445 Each of the studies and findings arising from work on Bimblebox are transferrable to the broader region, due to the representative characteristics of Bimblebox. As the Applicant's nominated ecologists remark, "[w]e view any scientific research towards understanding ecological processes as valuable."[416]

446 In addition, species data arising from the monitoring efforts is used by the TBA management committee for 'Frogs Friday' – infographics published weekly to social media "to raise public awareness of the biodiversity values of Bimblebox."[417]

03. Bimblebox has contributed to the cultural landscape of Queensland

447 Jill Sampson conceived of the Bimblebox Art Project in about April 2012.[418] The project is a blanket term for the following specific projects; however, other projects have arisen from each of these, independently of Ms Sampson's involvement:[419]

(1) art – science - nature camps at Bimblebox, held in September every year from 2012 to 2017,[420] with a further camp scheduled for this year and in 2023;[421]

(2) a preliminary exhibition in Tasmania and two subsequent touring exhibitions, *Bimblebox art – science – nature*, and *Bimblebox 153 Birds*; and

(3) related websites and social media platforms.

412 Affidavit of Paola Cassoni [[**YVL.0057.0017**]], [151].
413 Ecology JER [[**COM.0068.0038**]].
414 Ecology JER [[**COM.0068.0039**]], [120].
415 Ecology JER [[**COM.0068.0039**]], [118].
416 Ecology JER [[**COM.0068.0037**]], [115].
417 Affidavit of Patricia Julien [[**YVL.0064.0002**]], [10].
418 Affidavit of Jill Sampson [[**YVL.0001.0003**]], [18].
419 Affidavit of Jill Sampson [[**YVL.0001.0017**]], [133].
420 Affidavit of Jill Sampson [[**YVL.0001.0004**]], [28].
421 T 8-4, lns 40-43.

448 The camps provide an opportunity for visitors to immerse in the environment.[422] Ms Sampson describes the various qualities and characteristics of the environment at Bimblebox that are conducive to creative endeavours, including:

(1) onsite catering and support provided by volunteers;[423]

(2) the quiet;[424]

(3) the 'wild environment' and being removed from many human-made aspects of the environment;[425]

(4) 'the vivid night sky';[426] and

(5) the ability to make use of the natural resources, for example using grasses for sculpture,[427] and flowers and plants for dyeing.[428]

449 Approximately 67,500 visitors have attended the exhibitions listed at paragraph 447(3) above, and further showings are planned for 2023, 2024 and 2025.[429]

450 Ms Sampson describes the educative value of art:[430]

> In my experience, art interprets and distils information in ways that people without a scientific background may access or relate to. It can cause an emotional reaction and create or invite connection. It can also create shock; it can educate without people necessarily realising that they are being educated by something. It also becomes a part of our human culture. Art might take something that is not necessarily physically accessible to many people, for example with Bimblebox being so remote, and create something with which people around Australia can physically interact and gain some sense of place and understanding.

451 This attitude is validated by the funding and resources that went into developing education kits for *Bimblebox art – science – nature* and for *Bimblebox 153 Birds*,[431] and by the addition of the Bimblebox Art Project website and various related materials into the State Library of Queensland archives.[432]

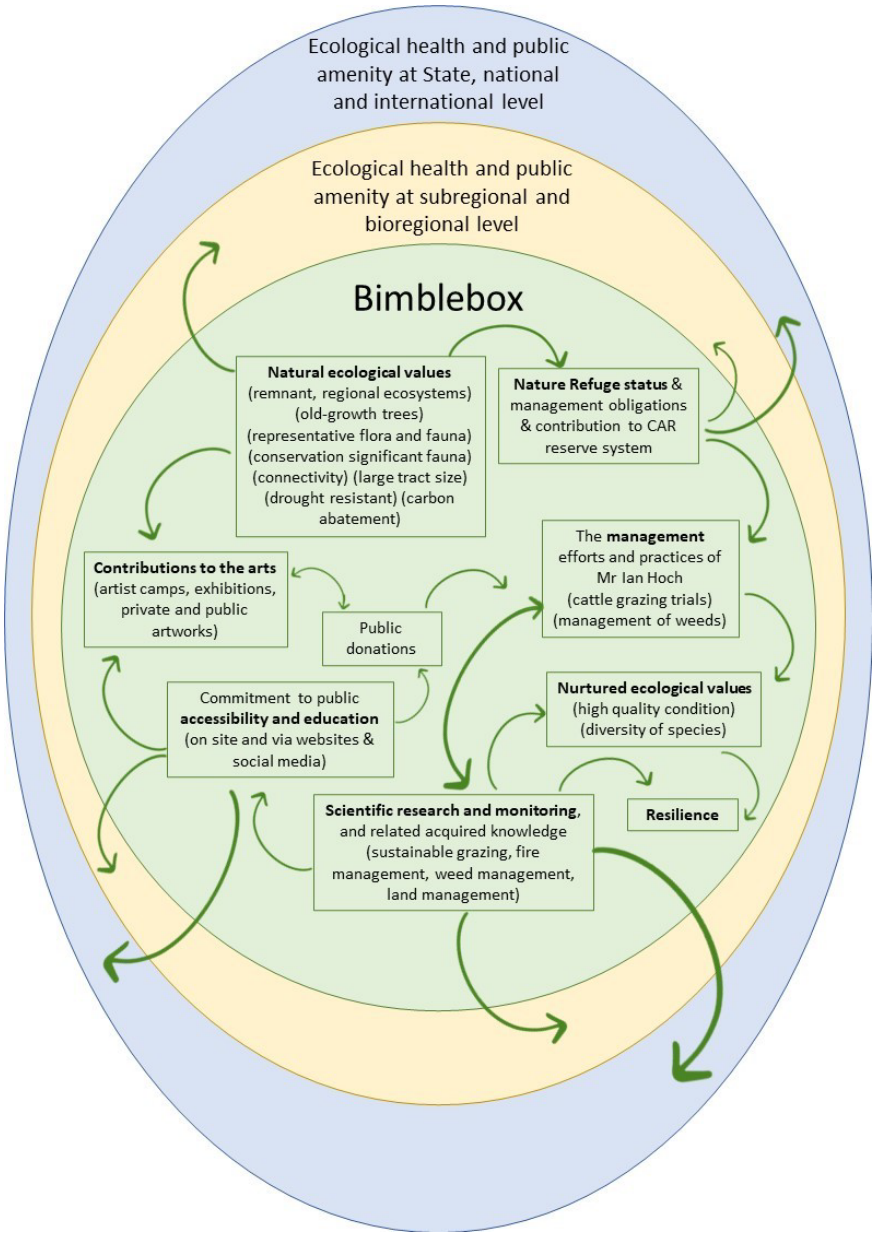
---

422 Affidavit of Jill Sampson [[**YVL.0001.0004**]], [23].
423 Affidavit of Jill Sampson [[**YVL.0001.0004**]], [23].
424 Affidavit of Jill Sampson [[**YVL.0001.0005**]], [33].
425 Affidavit of Jill Sampson [[**YVL.0001.0005**]], [33], [38]-[39].
426 Affidavit of Jill Sampson [[**YVL.0001.0005**]], [33].
427 Grass sculptures, J Sampson [[**YVL.0002.0012**]].
428 Affidavit of Jill Sampson [[**YVL.0001.0001**]], [42], [46].
429 T 8-5, lns 5-20.
430 Affidavit of Jill Sampson [[**YVL.0001.0001**]], [17].
431 *Bimblebox art – science – nature* Education resource [[**YVL.0007.0001**]]; *Bimblebox 153 Birds* Education kit [[**YVL.0025.0001**]].
432 Archival catalogue [[**YVL.0004.0001**]]; Affidavit of Jill Sampson [[**YVL.0001.0015**]], [126], [131]; Archival catalogue [[**YVL.0031.0001**]].

452 It is suggested that the artists who gain inspiration from the environment at Bimblebox, then go on "to influence supportive environmental behaviour and sustainability adoption in the audiences for exhibited environmental art."[433]

(4) <u>The environmental values of Bimblebox are conducive to the ecological health and public amenity of the place as well as its community, and also to Queensland</u>

453 Bimblebox must be understood as a whole environment, with each of its constituent parts affecting and affected by its other components, with its human aspects continually influencing the health of its ecological aspects, and its ecological aspects continually influencing its human aspects and improving public amenity.



433 Summary research thesis [[**YVL.0013.0001**]].

454 A recurring theme throughout the evidence is the many ways in which Bimblebox is made accessible to the people of Queensland.

455 The Bimblebox community offers access to the property and use of the accommodation free of charge. The *art – science – nature* camps, including catering and support, are offered for a minimal fee of $20/day to cover some food.

456 Ms Sampson plans to donate the entirety of the *Bimblebox 153 Birds* exhibition to a public institution, "to be kept together, never to be split up and never sold".[434] Most of the artists, writers and musicians who have contributed to related exhibitions and projects have donated their "time, talent and skills".[435]

457 The landholders facilitate the scientific monitoring and research efforts which in turn contribute to Queensland's knowledge base. More locally, educational resources about fire management in the region were developed out of research on Bimblebox and are available free of charge.

458 Eric Anderson has donated his time and expertise in ongoing monitoring of bird species, contributing to the State's collective knowledge.

459 And for over 22 years, the landholders of Bimblebox have donated their time and labour to the people of Queensland through their fastidious upkeep of the significant natural values of Bimblebox, at a not-insignificant personal cost.[436]

460 It follows from all the above that Bimblebox should be considered an exemplar of a Protected area[437] — one that actively supports the gathering, researching, analysing, monitoring and dissemination of information on nature, encourages the conservation of nature by the education and cooperative involvement of the community and the landholders, and has been diligently managed to maintain its significant natural resources.

(5) <u>Bimblebox has the capacity to maintain and improve its environmental values into the future.</u>

461 If the applications for the ML and EA are not granted, the environmental values of Bimblebox will be available to future generations for continued research, education, recreation and ecosystem functions. But for the approval of the applications, Bimblebox is to be legally protected for the next 980 years.

---

434 Affidavit of Jill Sampson [[**YVL.0001.0015**]], [120].
435 Affidavit of Jill Sampson [[**YVL.0001.0018**]], [138].
436 Affidavit of Paola Cassoni [[**YVL.0057.0001**]], [199]-[201].
437 See *NC Act* s 5, regarding the way in which the objects of the NC Act are to be achieved.

462 The value of the baseline and monitoring data that has been collected will increase with time and help in understanding the ecological impacts of climate change. In that way, Bimblebox will continue to "connect indelibly with the past, and serve as a datum or control plot to reference and gauge both historical and future changes."[438]

463 "Bimblebox has so much to bestow on future generations in the face of increasing adversity. That is, if we are afforded the opportunity to get on with it."[439]

(iv) Subsidence impacts[440]

464 The primary physical impact to Bimblebox is deformation of the landform from subsidence caused by removing the coal seam underground leading to reflected changes on the surface.

465 There is a significant degree of agreement between the subsidence experts, Dr Pells and Dr Seedsman. Both agree that the subsidence damage set out in the EIS and SEIS is understated.[441] They agree that the total subsidence would be greater than that predicted in the EIS and SEIS, somewhere in the vicinity of 2 – 4m,[442] though they cannot say for certain.[443]

466 They agree that the ridge and swale effect would unavoidably cause channelization. They agree that cracking would be 'ubiquitous',[444] with open tension cracks some 150mm – 300mm wide[445] and potentially extending down "many tens of metres".[446] They agree that the tilt of the land would increase between 0.7 – 7°,[447] against the current slope. They agree, "[t]here will be permanent physical changes. It is not possible to return the topography to its pre-mining level".[448]

467 However, they also agree that neither the figures in the EIS and SEIS, nor those included in the Subsidence JER, provide the Court or Parties with any reliable prediction as to the true extent of subsidence damage which would be caused to Bimblebox. They stated, emphatically, unequivocally, and repeatedly, that they have not, and were not asked to, make any predictions as to the extent of subsidence impacts on Bimblebox.[449]

---

438 Affidavit of Ian Hoch [[**YVL.0077.0008**]], [47].
439 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0006**]], [37].
440 Issues raised by objections lodged by YV and TBA (EPA, 2 April 2020, Active Objectors Browns (EPA & MRA, 1 December 2019, Active Objectors); Sharov and Sosnina (EPA, 2 April 2020, Active Objectors).
441 Subsidence JER [[**COM.0065.0010**]], lns 182 – 183.
442 Subsidence JER [[**COM.0065.0012**]], ln 267.
443 See discussion on uncertainty below at from 469.
444 Subsidence JER [[**COM.0065.0010**]], ln 199, [[**COM.0065.0010**]] Ln 214.
445 Subsidence JER [[**COM.0065.0033**]], lns 900 – 908.
446 Subsidence JER [[**COM.0065.0010**]], ln 201.
447 Subsidence JER [[**COM.0065.0031**]], ln 850 Table 1.
448 Subsidence JER [[**COM.0065.0065**]].
449 T 4-27, lns 4-6; T 4-67, lns 21-36; T 4-68, lns 5-24.

468 That there is no modelling, and that the Subsidence JER makes no predictive calculations as to what the damage to Bimblebox would be with respect to subsidence, came to light during cross examination of the subsidence experts. If not for this clarification, the true dearth of predictive information would most likely not have been brought to the Court's attention.

(1) Lack of certainty of subsidence extent and damage

469 Dr Seedsman emphatically stated during his evidence, "I have made no predictions at all for the BNR."[450] Whilst this does not appear to be the complete picture, as the Subsidence JER contains some figures for total subsidence on Bimblebox, there remains no figures or calculations for subsidence on the chain pillars, leaving the extent of differential subsidence more or less a mystery. The Applicant seems to accept[451] that this mine is an experiment with respect to subsidence, and nonetheless seeks approval to run that experiment in a nature refuge.

470 Emblematic of the Applicant's approach to this case was the suggestion during the subsidence concurrent evidence session that 'Bord and Pillar' mining might be considered as a way of reducing subsidence impacts.[452] As Dr Seedsman explained, such an approach to mining represents a complete change to the Proposed Project, likely to have substantial financial, operational and other effects. It would be yet another (even more profoundly) new mine plan.

471 The extent to which it would even be possible to predict the nature and extent of subsidence impacts depends on the availability of data as to the geology and geometry of the proposed site, and the quality of that data.[453] The subsidence experts agreed that while the mining geometry was sufficiently set out in the EIS and SEIS, the geological information provided to them (and, by extension, to the Court) is incorrect in parts[454] and contains inconsistencies as between the EIS and the SEIS which "makes it very difficult to obtain a coherent presentation of the geological setting."[455] The flaws in the existing data provided in the EIS and SEIS are troubling.

472 It also became clear during the concurrent evidence session that the lack of any available dataset for the Galilee Basin[456] poses a not insignificant difficulty for creating accurate predictions. The absence of a dataset reflects the fact that there are no underground coal mines operating in the Galilee Basin and so no field data on the effects of subsidence in that geological setting.

---

450 T 4-66, lns 16-17.

451 T 1-99, ln 48 – T 1-100, ln 7; This position is also reflected in Amended Draft EA Condition F27A [[**DES.0029.0044**]].

452 T 4-52, lns 16-18.

453 Geometry, which encompasses the depth of cover, the width of the seam, and the geological data is relevant here to the issue of depressurisation, which the parties agreed is outside of the jurisdiction of the Land Court on an MOH.

454 Subsidence JER [[**COM.0065.0020**]], ln 616.

455 Subsidence JER [[**COM.0065.0020**]], ln 620.

456 T 4-47, lns 36-41.

473 That lack of a dataset from previous longwall mining is, of course, not the Applicant's fault. The absence of such a dataset could not of itself preclude mining in an area. If that approach was taken, no mine could ever be approved in a new basin.

474 However, the absence of such a dataset gives rise to two related conclusions:

(1) in such circumstances, it is incumbent on a proponent to ensure that a proper predictive model is obtained to at least give an indication of the likely damage. No such predictive model has been done, notwithstanding that 12 years have passed since the EIS was published; and

(2) a declared Nature Refuge is an entirely inappropriate place on which to place the first underground coal mine in a new basin. In short, a declared Nature Refuge is not the site for an experiment.

475 That this is an experiment at the expense of Bimblebox was made plain by Dr Andrew when he accepted that this project could provide an opportunity for research into the "the impacts of … subsidence on ecological values and sustainable grazing practices".[457] He accepted that Bimblebox would then become "the experiment for next time". The 'next time' being the next time that someone builds an underground mine.[458]

476 While the experts were quite clear that the damage would be significant and, for reasons expanded upon below, likely fatal to Bimblebox as a nature refuge, there remains significant scientific uncertainty as to the magnitude and configuration of damage likely to be caused.

477 Dr Seedsman said that he could provide predictions if asked, but he was not asked to do so by the Applicant.[459] As a consequence, the Applicant is asking the Court to consider, and permit, environmental harm to be caused by the Applicant's mine without that harm being identified in any sufficient way.

478 Those matters aside, the subsidence experts agreed position was that environmental harm would manifest in at least the following ways:

(1) total subsidence of approximately 2–4m of drop[460] from the current surface, worse than predicted in the EIS and SEIS;[461]

(2) a difference in subsidence between that above the longwall and that above the chain pillar, resulting in 'differential subsidence';

(a) causing a 'ridge' above the chain pillar, and a 'swale' above the longwall panel;

---

457 T 11-99, lns 15-17.
458 T 11-100, lns 3-7.
459 T 4-26, ln 45 – T 4-27, ln 8.
460 Subsidence JER [[**COM.0065.0012**]], ln 267, though it appears at [[**COM.0065.0032**]] Fig 4.6.1 as being something like 1.25 – 3.3m.
461 T 3-24, lns 1-6.

(b) which would (at least as at the time of publication of the Subsidence JER) be less pronounced than that set out in the EIS;[462] and

(c) which would be more marked than that set out in Figure 4.6.1. due to the longwall under Bimblebox operating at a much shallower depth.[463]

(3) subsidence would extend beyond the edge of the longwall panel for a distance of approximately half the depth of the extraction panel (e.g., a panel 400m deep would cause vertical movement up to approximately 200m past the edge of the panel);[464]

(4) cracking, both with respect to scale and distribution, would be worse than was predicted in the EIS and SEIS,[465] with cracking in the 100 – 200m between the coal seam and the surface,[466] and cracking of the ground along the long edge of each longwall panel up to 300mm wide at the surface;[467]

(5) a tilt of:

(a) approximately 0.7 – 2.8 degrees in the single seam mining area (Area 1), against the natural gradient; and

(b) approximately 7 degrees in the double seam mining area (Area 2), against the natural gradient; and

(6) the vast majority of the subsidence damage to an affected area (i.e., the 'drop') occurring progressively within 24 hours of the coal being removed.[468] This will occur twice where two seams are removed from the same vertical, with the resulting subsidence then being the total of the two individual subsidence events.[469]

479 In the absence of any modelling of the subsidence impacts of the Proposed Project on Bimblebox, the subsidence experts nonetheless agreed in the concurrent evidence session that the harm caused to Bimblebox by subsidence would be significant. The ecologists[470] certainly presume that the environmental harm would be sufficient to cause Bimblebox to no longer be able to perform the function required of it under the NC Act.

462 T 3-24, lns 27-37.
463 Subsidence JER [[**COM.0065.0032**]].
464 T 3-38, lns 4-23.
465 T 3-24, lns 39-47.
466 T 3-24, lns 9-14.
467 Subsidence JER [[**COM.0065.0033**]], lns 900 – 908.
468 T 3-36, lns 25-37.
469 T 3-37, lns 44-38, 11.
470 Ecology JER [[**COM.0068.0050**]], [156].

(2) Categorisation of impacts and damage

480 Subject to the limitations the subsidence evidence, the impacts and damage to Bimblebox that would be caused by subsidence can the categorised as follows:

(1) 'steps' between areas experiencing different impacts;

(2) differential and total subsidence;

(3) changes to tilt of the landscape;

(4) cracking along the long edge of each longwall panel; and

(5) channelization and ponding.

481 The impacts outlined above, in any configuration, would radically and unavoidably change the subtle and very gentle topography of Bimblebox, which Mr Hoch describes as its greatest natural virtue.[471]

(3) Absolute settlement and differential subsidence

482 The matters which will inform the extent and severity of subsidence damage to Bimblebox are, again as a matter of agreement:

(1) the depth of the seams;

(2) the thickness of the seams;

(3) whether the Applicant's proposed mine is supercritical or subcritical; and

(4) the extent and configuration of single-seam and double-seam mining.

471 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0001**]], [6].

483 These matters vary as between Areas 1 and 2.[472]

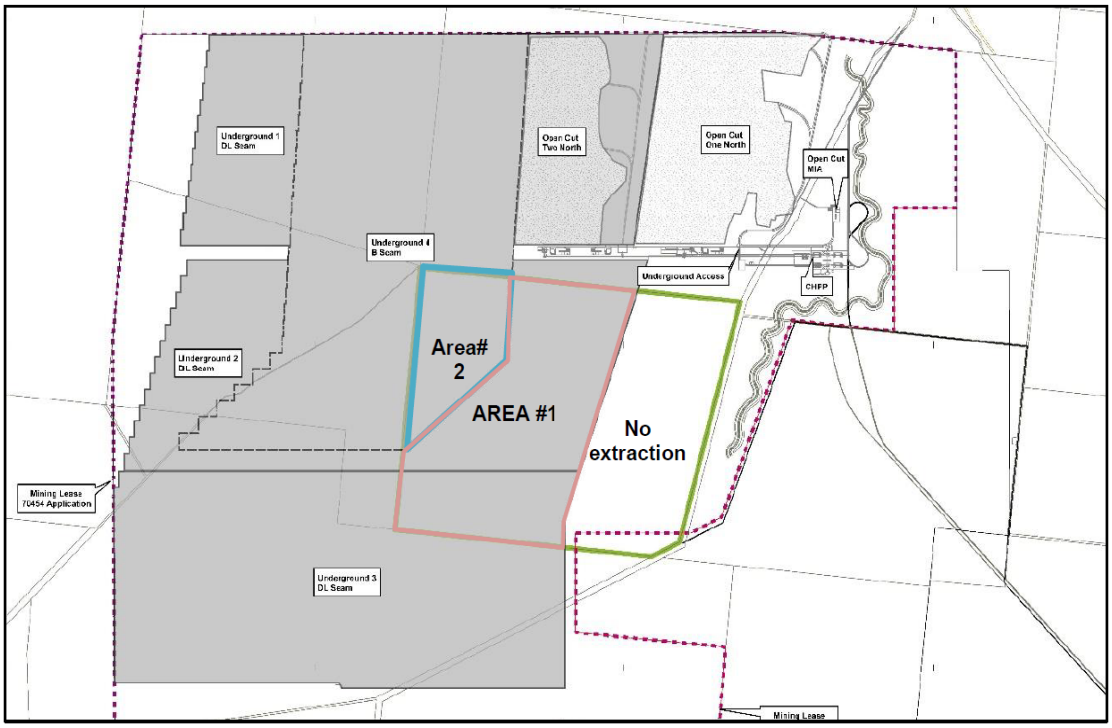


Figure 4.7.1 The proposed mining in relation to the Brimblebox Nature Refuge.

484 Depth of cover is material to differential subsidence as the chain pillars experience less compression when they appear at shallower depths. Less compression on the chain pillar means that the area above the chain pillar subsides less, and the difference between the unmined pillar and the subsided long wall increases.

485 The depth of cover on Bimblebox varies, but broadly speaking becomes progressively shallower moving towards the east. The B seam (Area 2) seems to have approximately 80m or 90m–160m[473] of cover on Bimblebox, the Underground 3 DL seam (lower portion of Area 1) approximately 120m–250m[474] and the Underground 2 DL seam (Area 2 and upper portion of Area 1) approximately 120m–240m.[475]

472 Subsidence JER [[**COM.0065.0039**]], ln 1120.

473 SEIS – Longwall Mining Subsidence Report [[**WAR.0194.0030**]], Figure 16, Underground mine 4 depth of cover (Seam B8).

474 SEIS – Longwall Mining Subsidence Report [[**WAR.0194.0029**]] – Figure 15, Underground mine 3 depths of cover (DL1 DLX ply D2).

475 SEIS – Longwall Mining Subsidence Report [[**WAR.0194.0028**]] – Figure 14, Underground mine 2 depth of cover (Seam DL2).

486 The Applicant's EIS and SEIS provide the following subsidence figures:[476]

Table 7: Summary of mine subsidence calculations

ITEM								
Mine	1		2		3		4	
Seam	DU		DL2		DL1, DLX ply, DL2		B8	
Average Seam Thickness (m)	2.50		2.00		2.00		2.66	
Depth of Cover, Minimum, Maximum (m)	100	380	120	390	100	390	90	250
Maximum Subsidence (m)	1.50	1.40	1.20	1.10	1.20	1.10	1.60	1.55
Pillar Subsidence (m)*	0.04	0.15	0.05	0.15	0.04	0.15	0.04	0.10

* 40m chain pillar, rib-to-rib

Table 8: Summary of subsidence calculations for multiple seams mining

ITEM								
Mining Sequence	Mine 4 above Mine 1				Mine 4 above Mine 2			
Seam	B8		DU		B8		DL2	
Average Seam Thickness (m)	2.66		2.50		2.66		2.00	
Depth of Cover, Minimum, Maximum (m)	90	250	195	355	90	250	195	355
Maximum Subsidence (m)	1.60	1.55	1.60	1.50	1.60	1.60	1.20	1.10
Pillar Subsidence (m)*	0.04	0.10	0.08	0.14	0.04	0.10	0.08	0.14
Cumulative Maximum Subsidence (m), Minimum Depth of Cover (m)	3.20				2.80			
Cumulative Maximum Subsidence (m), Maximum Depth of Cover (m)	3.05				2.70			
Cumulative Pillar Subsidence (m), Minimum Depth of Cover (m)	0.12				0.12			
Cumulative Pillar Subsidence (m), Maximum Depth of Cover (m)	0.24				0.24			

* 40m chain pillar, rib-to-rib

487 The subsidence experts agreed that these figures overstated differential subsidence, but significantly understated the absolute settlement. The subsidence experts provided their own figures: [477]

Minimum Depth of Cover (m)		
Cumulative Pillar Subsidence (m), Maximum Depth of Cover (m)	0.24	0.24

476 SEIS – Longwall Mining Subsidence Report [[**WAR.194.0046**]] Tables 7 and 8.

477 Subsidence JER [[**COM.0065.0040**]], ln 1125.

Table 4.7.1 Estimates of subsidence deformations by Seedsman and Pells imposed on BNR (does not consider the subsidence associated with the pillars)

	Area #1	**Area#2**		
Seam	**D seam**	**D seam only**	**B seam only**	**Combined**
Minimum depth (m)	140	180	80	
Maximum depth (m)	180	260	150	
Smax (m)	1.43	1.43	1.8	3.23
Maximum tensile strain (mm/m)	4	3	9	16
Maximum compressive strain (mm/m)	9	7	20	36
Maximum tilt (mm/m)	31	24	66	121

488 The subsidence experts were firm in stating that the figures were not an estimation, model or prediction of subsidence impacts on Bimblebox, and were quite clear in stating that they did not attempt to estimate or calculate subsidence above the chain pillars. This 'rule of thumb' estimation was then graphed for a depth of 380m:[478]

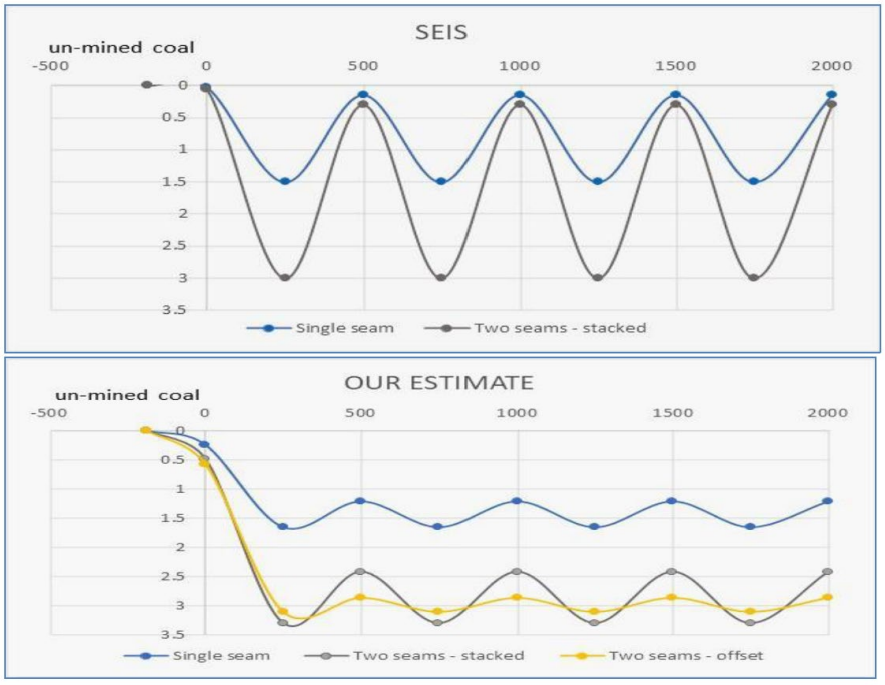


Figure 4.6.1 Highly exaggerated diagram showing the extent of differences in the swale and ridge deformations depending on the magnitude of the pillar subsidence and the relationship between the two seams. This diagram presents the geometric principal only, applies only to a mining depth of 380 m, and cannot be used for design.

478 Subsidence JER [[**COM.0065.0032**]].

489 However, the depth of cover on Bimblebox is not 380m. It does not approach that depth even at its deepest part.

490 Dr Seedsman, when alerted to the issue of depth, agreed to recalculate the figures for the actual depths of mining under Bimblebox. He produced a document that showed those calculations.[479] That document confirmed that in respect of Area 2 the differential subsidence calculation would be between 1.6 metres and 2.2 metres. This compares to a 'prediction' at 380 metres of depth of 80cm.

491 However, Dr Seedsman was at pains to be clear about the limitations of both the 380m 'prediction' and the lower depth 'predictions'. He pointed to the caveat on the diagram: "A geometric principle only; cannot be used for design".[480] He made clear that all he was trying to do was to give the Court a 'rule of thumb' but that he was "not interested in trying to extend that in detail to Bimblebox."[481]

492 Consequently, the highest that the evidence before the Court could be put with respect to total and differential subsidence is that:

(1) various other experts relied on the 80cm differential subsidence 'prediction' of Dr Seedsman.[482] However, that was not a 'prediction' and, in any event, related to a depth of mining much deeper than on Bimblebox;

(2) the total subsidence in both Area 1 and Area 2 would be greater than in the EIS and SEIS and is estimated at between 3.3m and 2.5m;

(3) the mining depths under Bimblebox are generally shallower than the balance of the proposed mine area, being a maximum of 250m and a minimum of 80m or 90m; and

(4) the differential subsidence and the consequential ridge and swale effect on Bimblebox in Area 1 and Area 2 is unknown but will necessarily be greater than that 'predicted' at 380m depth.

493 This is a remarkable position for the Court to be left in. It literally has a 'rule of thumb' for a single depth of mining right out to the east of the proposed mining footprint. Dr Seedsman's lack of interest in seeking to extend that rule at short notice to allow for some sense of the differential subsidence on Bimblebox is understandable. The Applicant's failure to provide any evidence in the EIS, SEIS or via its expert to allow differential subsidence to be predicted is unsupportable.

---

479 Seedsman multi seam prediction under BNR [[**YVL.0419.0001**]].
480 T 4-24, 46-47.
481 T 4-25, 2-4.
482 T 8-14, lns 34-45 re Dr Vitale; T 11-7, lns 34-37 re Mr Thompson; Ecology JER [[**COM.0068.0048**]], [146] per Dr Fensham and Dr Daniel.

494 The net result is that the Court is left without the critical foundation to assess an important aspect of the harm (in this context the deformation of the land) that the Proposed Project would cause. The response seems to be to propose that this be ascertained by conditions.

495 There is no doubt that conditions can legitimately operate on an adaptative basis. But that can only happen where there is sufficient knowledge of the nature of the harm that is to be authorised. If such knowledge is absent, then no amount of conditioning can fill in the gap. Dr Seedsman understood this problem when he said that "you can't claim you can do adaptive management unless you have the ability to predict what you're about to do and then compare …what has happened to your prediction".[483]

496 The point is made plain in this case by the draft amended conditions[484] that the Statutory Party provided after the subsidence evidence in order (presumably) to test whether the data gap could be dealt with appropriately by conditions.

497 They would — if approved — defer the prediction of harm to post approval and then authorise whatever level of harm is predicted:

(1) F26 requires a Subsidence Management Plan;

(2) F27(c) requires the plan to include a predictive model to predict both total and differential subsidence;

(3) F27(f) requires the plan to then describe the 'proposed impacts of subsidence';

(4) F27(g) requires the plan to propose remediation measures for the impacts;

(5) F31 requires an annual inspection of each longwall panel;

(6) F31A says that if the annual inspection reveals that subsidence damage or impacts are 'greater than predicted' then the remediation measures must be implemented to "ensure there is no increase in damage or impacts".

498 This regime only needs to be described to be rejected as inadequate. The effect of it is that the damage or impacts (i.e., environmental harm) which cannot be exceeded is that which is predicted to occur by the predictive model to be developed post-approval. To approve a mine on that basis would be to abdicate statutory responsibility.

499 What this attempt at conditioning demonstrates is the absence of work done by the Applicant to understand the harm that it is seeking approval to cause.

---

483 T 4-47, lns 21-25.

484 Amended Draft Subsidence Conditions [[**DES.0024.0001**]].

(4) Areas of impact and 'Steps'

500 The extent and configuration of mining under Bimblebox varies, thus causing 'steps' between areas. The north-western corner (Area 2) would be subject to double seam mining, the centre (Area 1) single seam, and the eastern side would not be undermined. Each of the three sectors would experience differing damage from subsidence.

501 With no mining, a single-seam, and a double seam extraction all occurring on or under Bimblebox, the impacts would clearly not be consistently felt across it. Instead, the impacts and damage would be different as across these three Areas, having regard to the depth of the seam, and the configuration of the mining to occur. But the bare fact that the impacts and damage would be different is not the end of the matter. Rather, the fact of that difference compounds the total harm experienced.

502 The subsidence experts explained in the concurrent evidence session that the transitions between the Areas would introduce new impacts of their own. For example, that total subsidence experienced in Area 2 would be so much greater than that in Area 1 means that there would be a 'step' up from Area 2 to Area 1. The same issue repeats for Area 2 and the unmined area.

503 These 'steps' would, in effect, reverse the natural gradient of the earth. Where now it slopes gently towards the east, the steps would have the ground stepping down in the opposite direction, towards the west. This reversal is incapable of remedy.[485]

504 These steps compound the damage that would be caused by the total and differential subsidence in the different Areas, and exacerbate the harm caused by ponding and channelization, discussed below.

(5) Tilt and cracking

505 The evidence of tilt that was produced during the concurrent evidence session did not materially alter[486] the opinions put in the Subsidence JER. The tilt to the gentle topography of Bimblebox will be radically changed by the Proposed Project.

506 Regarding Area 1, Table 1 to the Subsidence JER estimates tilts for an isolated panel in a single seam from 0.7° at 390m, 1.4° at 195m, and 2.8° at 100m.[487] For Area 2 the effect is even more pronounced, with Table 4.7.1 estimating that the tilt in Area 2 (double seamed) would be a maximum of 7°. [488]

507 The Draft EA at Table F1 provides that all subsided areas are to have less than 1° increase in pre-mining slope.[489] From the outset this limit is expected to be vastly exceeded in Area 2, and significantly exceeded in Area 1. This is itself a reason for

485 T 3-124, ln 45 to T 3-125, ln 6.
486 Save for a correction to the calculation set out in line 1125 of the JER and discussed at T 4-35, ln 17 – T 4-36, ln 25, which is not material here.
487 Subsidence JER [[**COM.0065.0031**]].
488 Subsidence JER [[**COM.0065.0040**]]; See also T 4-36, lns 1-31.
489 Amended Draft EA [[**DES.0029.0038**]].

refusal. The Applicant's own assessment (deficient as it is) shows that it cannot comply with a proposed condition designed to limit harm. Further, as discussed below, any failure to comply with the tilt condition could only be remedied by massive and destructive earthworks. In truth, such a 'cure' would be 'worse than the disease'.

508 Cracking is a similarly significant impact, but the likely or possible extent is even less clear. While there are two different types of cracking,[490] the lack of technical information required to do the complex calculations necessary to estimate one or the other, and the fact that the result of the crack is more or less the same irrespective of type, mean that both types are generally dealt with together in the oral expert evidence.[491]

509 The Subsidence JER explains that cracking is expected along the long edge of each longwall panel — the 'ridge' of the ridge and swale topography. The experts agree that they are likely to be much greater than that predicted in the SEIS and would likely be approximately 150mm at 100m depth[492], with some closing with the progression of the longwall. This estimate increases to 300mm wide cracks for Area 2, where it would be double seam extraction.[493] It was uncontroversial that cracks of this magnitude would pose a safety risk to both humans and animals alike.[494]

510 The sheer scale of the cracking risk is relevant. It is expected to occur along the long edges of each and every longwall panel on Bimblebox. Given that there are planned to be at least 15 'ridges' across Bimblebox and each will be between 5km and 7km long, there will be at the very least 90km of cracking across 15 lines. Equally, that cracking will not all occur at once and will not be able to be dealt with at once. Rather, new cracking will emerge (and require inspection and management) each time the long wall miner moves forward day after day over more than 2 decades.

511 It was asserted by various experts for the Applicant that the soil profile was such that the cracks would 'self-heal'.[495] Mr Thompson, the Applicant's soils expert, remarked on the absence of any soil investigation or data, and was emphatic in his criticism of the absence,[496] making it difficult to see what these opinions could possibly be reasonably based upon besides assumptions and crude rules of thumb. Where there are serious safety implications of cracking — and ecological impacts associated with correcting the cracks, which are discussed below — opinions premised on data-lite assumptions can be given very little weight. In any event, in YV and TBA's submission, it would be imprudent to disregard the agreed position and concerns of the subsidence

490 Tension or tensile cracking, and shear cracking.
491 See discussion at T 3-72 to T 3-76.
492 Subsidence JER [[**COM.0065.0033**]], ln 900 – 905.
493 Subsidence JER [[**COM.0065.0033**]], ln 905 – 908.
494 Subsidence JER [[**COM.0065.0039**]], ln 1100; T 3-114, ln 45 – T 3-116, ln 1.
495 T 11-140, lns 9-16; T 11-142, lns 7-18.
496 Statement of Evidence – Soils [[**WAR.0499.0004**]] lns 89 – 95.

experts regarding cracking, in favour of generalised, unsubstantiated speculation by others.

512 Dr Vitale asserts that "tension cracking will tend to self-heal as sediment is washed into the cracks".[497] However, he also says:

> Remediation of areas of significant tension cracking will be a requirement of the Subsidence Management Plan required under Condition F27 of the Draft EA (WAR.0043.037) to mitigate the risk to safety of mine workers, native fauna and ultimately cattle in areas where grazing will be the post-mine land use.[498]

513 For those cracks which may fill in, "What's happening three metres, five metres, 20 metres down is another question."[499]

514 The fact remains that the likely extent of cracking is unknown. The subsidence experts did not have enough information, and there has been no soil investigation. We only know that once cracking occurs — and the subsidence experts appeared quite confident that it would — it will require remediation. That remediation is discussed below.

515 Yet again, the proposal seems to be to condition about the gathering of information about cracking predictions post approval when the Court and the Statutory Party were entitled to expect that would have already been done. Indeed, as Dr Seedsman explained, predicting the width of tensile cracking is a direct result of developing a model to predict subsidence more generally.[500]

(v) Impacts to surface water[501]

(1) Existing modelling is inadequate resulting in uncertainty of impact

516 Unsurprisingly, one of the primary effects of the mass deformation of the land surface described above (total subsidence, differential subsidence, steps and cracking) will be to the flow (or not) of surface water. Unsurprisingly, the Applicant's data in relation to this issue is lacking.

517 The topographical data used to form the baseline for Dr Vitale's assessment was quite coarse, publicly available data, which Dr Vitale himself stated was a flaw in the process. He stated that due to the quality of the data, the baseline assessment in the SEIS captures generally the slope of the land and location of drainage features but does not capture the shape of those drainage features or provide a good sense of the likely impacts. Dr

497 Emphasis added.
498 Surface Water Report [[**WAR.0486.0023**]].
499 T 3-75, lns 13-15.
500 T 4-46, lns 14-33.
501 Issues raised by objections lodged by Sharov and Sosnina (EPA & MRA, 2 April 2020, Non-Active Objectors); Kelly (EPA & MRA, 2 April 2020, Non-Active Objectors); Cousins (EPA & MRA, 2 April 2020, Non-Active Objector); McEwen (MRA, 2 April 2020, Non-Active Objector); Van der Duys (EPA, 2 April 2020, Non-Active Objector).

Vitale expected that the Applicant would now have access to better topographical data but said that it had not been provided to him.[502]

518 The Applicant's information on surface water is out of date. Save for mine site water balance, an operational concern, it has not been updated for the change to the mine plan. It has not been updated for current meteorological data in the time since 2012.[503] This leaves the Applicant's information on surface water flows, hydrology, and flooding and drainage as being of limited assistance.

519 Dr Vitale, the Applicant's surface water expert, was personally involved in the Surface Water Impact Assessment of Subsidence[504] report produced for the SEIS. That report was produced in 2012 and provides the surface water predictions relied upon by the Applicant.

520 His expertise relates to management and diversion of surface water for large infrastructure projects, with a focus on designing flood mitigation measures.[505] He does not address, and does not purport to address, any ecological impacts of the matters or recommendations considered in his report.[506]

521 The SEIS 50-year flood overlays do not model any impacts at all for the eastern boundary of Bimblebox, demonstrated by the sharp vertical line through the channelization. Again, despite some 10 years lapsing since the production of that report, the Applicant has not rectified the issue.[507]

522 There has not been <u>any</u> geomorphological assessment of the downstream effects of the Applicant's Proposed Project. Nor has there been <u>any</u> ecological assessment of the surface water impacts raised in Dr Vitale's report.[508]

523 There is literally no hydrological modelling for the Revised Mine Plan. This means that the Applicant has not modelled, or even attempted to model, what the impacts to stream flows of its project would be if it were to proceed.[509]

(2) <u>The subsidence associated with underground mining will cause ponding and channelisation of surface water.</u>

524 Dr Vitale's evidence with respect to surface water relies upon the subsidence impacts, meaning that the limitations identified with respect to the subsidence evidence flow[510] into the surface water assessment. As discussed above, the subsidence impacts will be

---

502 T 8-18, ln 19 – T 8-20, ln 24
503 T 8-13, lns 19-26.
504 [[**WAR.0178.0002**]]; T8 9:39 – 46.
505 T8 11, lns 4 – 20.
506 T8 11, lns 11 – 12.
507 T8 21, lns 11 – 35.
508 T8 11, lns 38 – 45.
509 T8 12, lns 36 – 47.
510 No pun intended.

worse than suggested in the reports, but the Court and Parties cannot know by how much, as the necessary modelling or predictions are absent.

525 There are several creeks and water courses on the proposed ML area, with Pebbly Creek appearing on Bimblebox. Pebbly Creek is a natural, original, and easily disturbed water course through which rainwater makes its way gently across the nature refuge. Pebbly Creek is ephemeral, but ephemeral should not be taken to mean unimportant or insignificant. Many watercourses in Central Queensland are ephemeral, with ecosystems evolving to depend upon the creek's natural wetting and drying cycles.[511]

526 Dr Vitale agreed that subsidence would see a significant change in the way that water moves across and through Bimblebox. From the gentle meandering paths that are readily observable — even on the 'coarse' data used to create the current overland flow figure — to regular, deep, striated panels, which terminate in areas of ponding at the edge of each 'step', discussed above. Pebbly Creek loses its ancient course entirely, becoming part of the channelized subsided longwall panel,[512] and no longer passing to the eastern third of Bimblebox at all.

(Image on following page due to size)

511 For example, as discussed briefly in EIS – Surface Water Resources [[**WAR.0066.0016**]] Section 9.5.4.
512 T 8-25, lns 13-15.

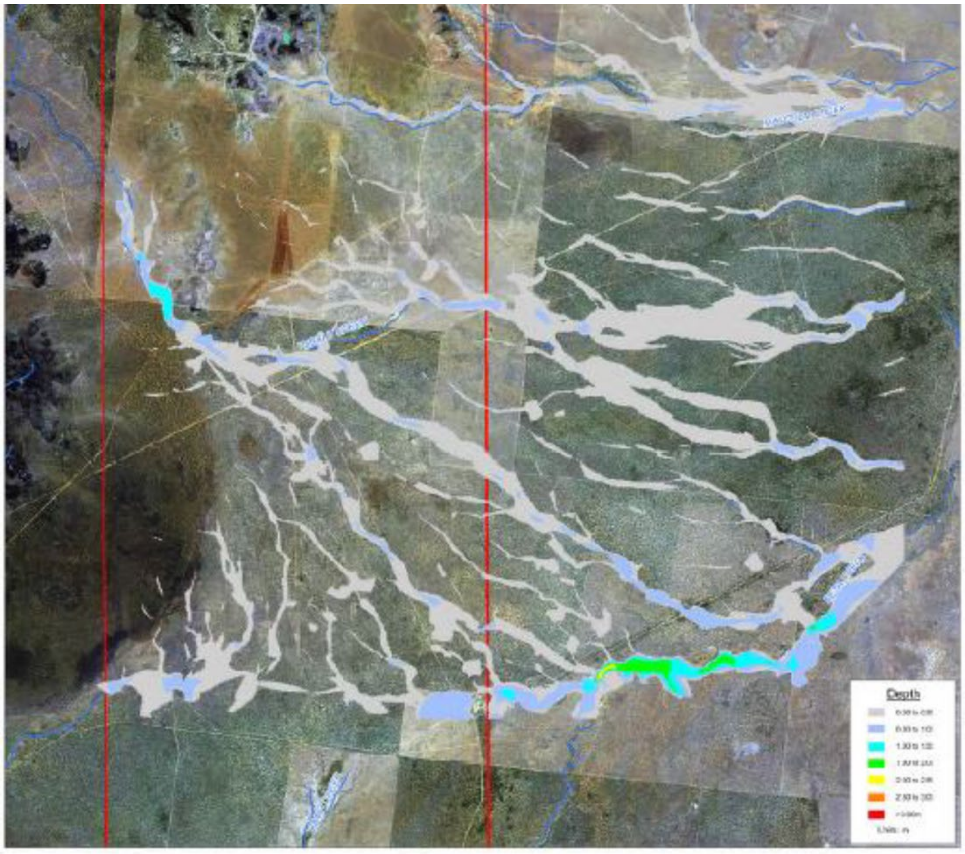


Figure 3 Existing Flood Depths Above Underground Mining Areas – 50 Year ARI Flood Event (WAR.0178.0046) 513

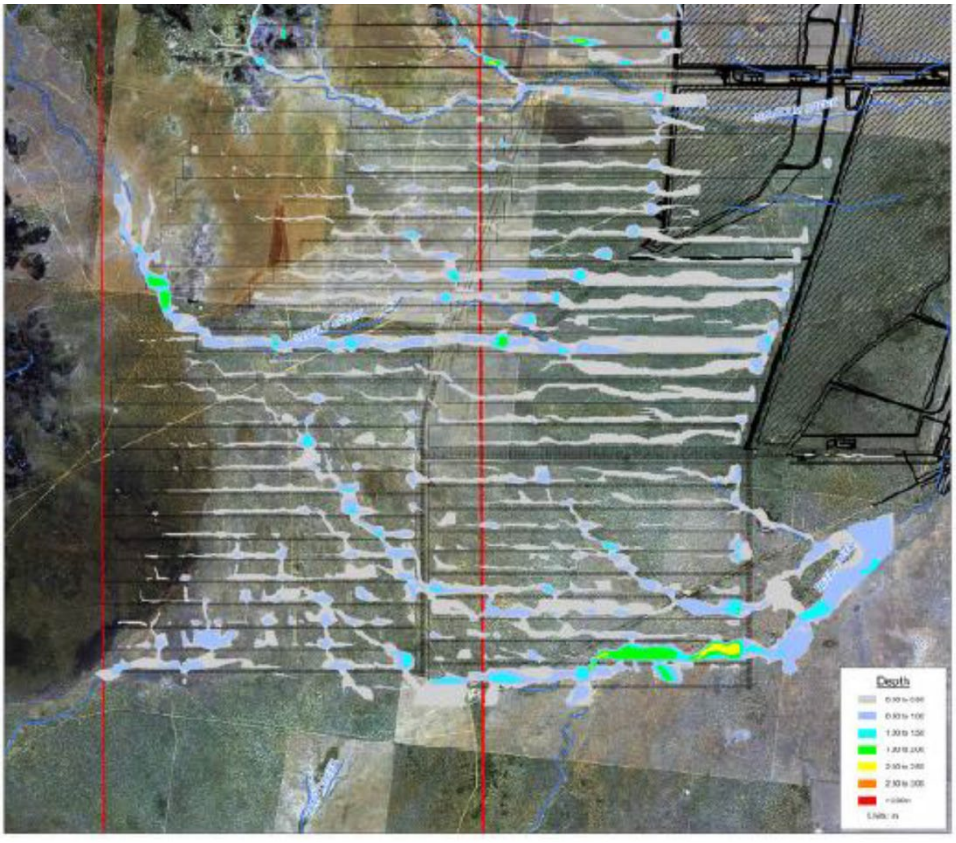


Figure 4 Post-Subsidence Flood Depths Above Underground Mining Areas – 50 Year ARI Flood Event (WAR.0178.0047) 514

527 These changes alone risk fundamentally, and irreversibly, damaging the delicate and largely untouched ecology of Bimblebox.

528 Dr Vitale also provided a useful summary of the other impacts which could follow from the changes to surface water flows in his oral evidence:

> …And you've listed a series of those there which I've taken – thank you – verbatim from that SEIS report?---Yes.
>
> But again, the SEIS report was you and your company, albeit in 2012?---Yes.
>
> Thank you. And so just to be clear, the potential impacts of subsidence on waterway stability, geomorphology and sediment transport processes include lowering of stream bed and banks?---Yes.
>
> Stream bank slumping?---Yes.
>
> Creation of in-stream waterholes within subsidence troughs?---Yes.
>
> Riparian vegetation dieback within in-stream waterholes?---Yes.
>
> Root sheer and loss of riparian vegetation?---Yes.
>
> Yes. Erosion of surface soils where channelisation of overland occurs above longwall panels?---Yes.
>
> Stream incisions processes?---Yes.
>
> Stream widening?---Yes.
>
> And head-cutting erosion of streambanks caused by increased overbank flows due to lowering of the high banks and channelisation of overland flow above longwall panels?---Yes.
>
> Those are all potential impact – likely potential impacts of longwall mining?---I wouldn't say likely. Yeah, my experience - - -
>
> Potential?--- - - - with other – observing impacts specifically on watercourses above subsided longwall mining areas is – generally, it's hard to find impacts on – on watercourses.
>
> It wasn't hard to find one on Pebbly Creek. It just changed its course completely and diverted it along a longwall panel so how does that marry?---That was one of those – that was one of those things. I'm talking about that big list of things you read out. It's – my experience is it is hard to actually find those impacts occurring but in specific circumstances, I would agree that those impacts are possible.[515]

529 If any or all of these changes were to compound those already presumed to follow from the subsidence (such as those estimations are) the ecological result for Bimblebox would be catastrophic.

---

513 Statement of Evidence – Surface water [[**WAR.0486.0017**]].
514 Statement of Evidence – Surface water [[**WAR.0486.0018**]].
515 T 8-34, ln 12 – T 8-35, ln 5.

530 As Dr Fensham explained in the Ecology JER "surface drainage is a critical feature that determines the ecosystems that occur at BNR".[516] He continued:

> The surface topography at BNR is extremely flat and is represented by poorly defined drainage channels flowing from the west to the east. The maximum elevation across these channels is 4 m. Clearly the predicted subsidence impacts at BNR [COM.0065.0001] will cause a major disruption to the surface drainage of BNR.[517]

(vi) The proposed rehabilitation of the subsidence impacts and impacts to surface water cannot return Bimblebox's values and would cause further harm

531 The Revised Mine Plan, and current Draft EA[518] would permit the following direct physical impacts to the land making up Bimblebox and set requirements for remediation:

(1) underground mining of the DU and B seams under Bimblebox;

(2) double seam mining of Area 2, in the north-western corner of Bimblebox;

(3) single seam mining of Area 1, in the centre of Bimblebox;

(4) the eastern side of Bimblebox not being undermined;

(5) less than 1° increase in the pre-mining slope of subsided areas (i.e. Areas 1 and 2)[519];

(6) rehabilitation of tension cracks;[520] and

(7) the subsidence of the longwall panels must not capture overland flow and must allow water to drain from the panel.[521]

532 It is plain from the evidence regarding what this work would have to entail, as against the sensitive ecosystems of Bimblebox, that, in the words of Dr Fensham "the cure would be worse than the disease".[522]

(1) <u>Subsidence rehabilitation</u>

533 The evidence before the Court regarding rehabilitation is usefully consistent.

534 The Applicant has said repeatedly that it intends to rehabilitate the damage caused by subsidence by ripping, tyning, compacting and reseeding. Mr Harris could not have been clearer as to what the Applicant intends to do:

---

516 Ecology JER [[**COM.0068.0060**]], [214].
517 Ecology JER [[**COM.0068.0060**]], [213].
518 Amended Draft EA [[**DES.0029.0001**]].
519 Amended Draft EA [[**DES.0029.0038**]] Table F1.
520 Amended Draft EA [[**DES.0029.0090**]] Table X1: Rehabilitation Completion Criteria.
521 Amended Draft EA [[**DES.0029.0045**]] Condition F35.
522 T 11-147, lns 15-27, with Dr Daniel seeming to agree.

> Is that a reasonable statement of the applicant's intention as to where it will get the values of Bimblebox Nature Refuge to?---If you – if we need to do further rehabilitation to maintain the integrity of the ecosystem, we'll do so.
>
> And what will that involve?---What will that involve?
>
> Yes, what will that involve?---That'll be ripping and tying or compacting the subsidence tracks.
>
> Right. Ripping. Have been involved in that sort of a processing before; ripping and tying?---Yes.[523]
>
> …
>
> Excellent. And the ridge and swale topography created by differential subsidence, you agree that that will occur?---Yes, that's correct.
>
> How will that be remediated?---Well, again, by tineing and compacting and ripping.
>
> And ripping. Thank you. And you plan to remediate the ridge and swale effect by those techniques - - -?---Yes.
>
> - - - across all places where the ridge and swale occurs?---Yes, that's correct.[524]
>
> …
>
> … But quite apart from the basis upon which you go onto the land, which if push comes to shove, could be by the exercise of surface rights, you are committed to progressively rehabilitating by ripping, tineing and seeding the ridge and swale topography?---Yes, that's correct.[525]

535 The subsidence experts, the Applicant's soils and rehabilitation expert Mr Thompson, and Dr Vitale consistently spoke of the sort of heavy earthworks that this would necessarily entail. The subsidence experts stated in their report:

> The earthwork equipment should include:
>
> • bulldozers equipped with rippers providing a penetration depth of no less than 1.8 m
>
> • large grader
>
> • sheepsfoot rollers with long feet
>
> • medium sized tracked or rubber tyred excavators
>
> The machinery would be used to:
>
> • till the upper approximately 1.8m of the soil surface to break up the crack structures,
>
> • gently re-compact the tilled soil, and

523 T 2-40, lns 22 – 32.
524 T 2-41, lns 39 – 47.
525 T 2-42, lns 23 – 26.

> • regrade the subsidence-induced ridge-swale topography to ensure no interference with surface flows.[526]

536 What is involved in 'ripping' was described by Dr Pells:

> I mean, essentially, what it involves in is deep ripping of the ground, which is a – a lack of a better word, a very long tooth, steel tooth about three metres long which is dragged through the ground to break up the soil and break up the crack pattern. And then normally after that there's what farmers would call harrowing and ploughing, ploughing and harrowing to break up the smaller clogs, at which stage you've effectively got, for lack of a better word, a paddock that you can use for reseeding. So it's akin to preparing a paddock for planting oats, except you're starting off having to do this ripping process to break up the big crack pattern and make sure that the cracks are not just covered with a superficial band-aid but are closed up to depths of the order of three metres.[527]

537 Dr Vitale described ripping in a consistent way in his oral evidence. Dr Vitale indicated that, in his experience, the remediation of cracks smaller than those predicted on Bimblebox required the use of a 'big tooth' ripper, and bulldozer (or similar), and therefore the removal of trees and vegetation. In his view, there was no way of doing the necessary work which could leave the trees in place.[528]

538 Mr Thompson for the Applicant also confirmed that the sort of rehabilitation required by the Draft EA could not be done "without major earthworks."[529]

(2) <u>Surface water impacts cannot be rehabilitated without causing even worse environmental harm</u>

539 Dr Vitale stated that the surface water impacts of the Applicant's project would be 'acceptable' if (and only if) mitigation works were done, which would include reinstating the natural course of Pebbly Creek.[530]

540 As to what work would be necessary to reinstate Pebbly Creek, Dr Vitale said the following:

> …if the differential settlement was, say, one and a-half metres that you had to – to excavate through, that – that earthworks might – it might have a five-metre base, again, depending on – if it's just overland flow versus – as you said, Pebbly Creek's got a reasonable size catchment. It – it conveys more water than a minor drainage gully, so that – that would be a factor as well, but a typical earthworks to reinstate a natural drainage path might be a – a five-metre base and then you would have to excavate up at a sloping side so it's stable. If we're talking about one and a-half metres, a typical side slope on that channel would – might be one vertical to four horizontal. So you would be talking about six metres either side for the sloping sides of that channel and a five-metre base width which would be in the order of 20 – 15 to 20 metres wide.

---

526 Subsidence JER [[**COM0065.0034**]], ln 952 – 962.
527 T 2-116, lns 25 – 34.
528 T 8-31, lns 5 – 36.
529 T 11-168, lns 18 – 31.
530 T 8 27, lns 6 – 23.

…

It would have to extend from the low – the subsequent or adjoining low points – the troughs – in – or swa – or bottom of the swales in each panel, yes.

I understand. And obviously we'd also need to take account of what you and I described previously as being those two step ups, which go against the gradient, right?---Yes.

And that would be a more significant - - -?---It would be.

- - - set of earthworks, right?---It would be, yes. [531]

541 As to how that work would be done, Dr Vitale said:

…Probably on that – on that scale, it – it would be probably dozers, scrapers and – and depends on how far you'd – I think it's pretty obviously you'd have to take the – the earth – the earth that's excavated somewhere, unless it's somehow spread, and rehabilitated within the panels, which wouldn't – wouldn't sound likely. You'd have to disturb more land to do that. So I – I guess we're talking about dozers for clearing, probably scrapers, or – or excavators. A scraper excavates and can take the – the earth elsewhere.

Yes?---They're not generally done on long distances. If you've got to haul it long distances, it would generally be an excavator into a – a dump truck. And the dump truck would – would take the earth out.

And, obviously, I know it's a dumb question, but obviously enough that's got to involve roadways sufficient to be able to bring that equipment in and then out again?---Yes.

Yeah?---Correct.

Have you been onto Bimblebox?---I haven't, no.

Okay. So it's not just like you couldn't drive one of those things along the [indistinct] bush track [indistinct] you'd need to clear land to be able to bring the equipment in and out, as well?---Yes. It wouldn't be like a small light vehicle, farm road. It would need to be bigger than that, yes.

And the – talked about clearing before. Obviously, that's clearing of vegetation?---Yes.

How does that clearing happen? Does it – how's that happen?---Yes. Normally, a dozer would push down – push down vegetation. It'd be generally mulched, root balls would be removed. Generally by a – a dozer.

542 The Draft EA demands that the subsided longwall panels must not result in the capture of overland flow,[532] or cause subsidence ponds.[533] Dr Vitale states that the work necessary to make good this requirement would be similar (though possibly smaller) to that described to reinstate Pebbly Creek — again, earthworks requiring heavy equipment, and major removal of vegetation.[534]

---

531 T 8-28, ln 41 to T 8-29, ln 28.

532 Amended Draft EA [[**DES.0029.0045**]] Condition F35.

533 Amended Draft EA [[**DES.0029.0091**]] Table 1, Section 4 Subsidence Areas, Stable Landform, No significant changes to hydrological conditions, Ponding.

534 T 8-33, lns 5 – 46.

543 Dr Pells said about drainage:

> …If the criterion is to return something to – essentially similar to the present environment, then we're talking about a major earthworks operation. We're talking about channels that are kilometres long, metres or several metres deep, carefully designed so they don't erode, carefully directed to places where the run-off can be taken. It's a very big exercise in planning and then a very big exercise to implement.[535]

544 The Applicant's proposed rehabilitation obligations are progressive,[536] meaning that these significant earthworks would occur subsided section by subsided section, year on year, for the life of the Proposed Project. Significant earthworks, compaction, removal and displacement of soil, removal of vegetation in swathes meters wide, are all anathema to the delicate ecology of Bimblebox. Considering the ecologists' views on buffel-grass, this alone would be enough to destroy the qualities of Bimblebox that warranted its protection some 20 years ago.

545 The Applicant has a significant problem but no answer to it. The problem is that the physical effects that it predicts will not comply with the proposed conditions without remediation. But the remediation would cause more harm than the mining damage, and the scale of such damage is unknown.

546 This problem reflects the fact that the conditions proposed would be unexceptional in a cleared pastoral area but are devastating to Bimblebox. Yet again, this compels the conclusion that mining under this nature refuge is highly problematic and inconsistent with the purpose of the EP Act.

(vii) Groundwater impacts

547 Early in the matter, the Applicant filed an application contending that:[537]

> to the extent any objection raises groundwater, the objections raise matters that are beyond the jurisdiction of the Land Court when hearing Applications for and objections to the grant of a mining lease and associated environmental authority.

548 That component of the application was resolved by consent and on 7 August 2020, the Court made orders that:

> 2. Pursuant to section 7A(2)(a) of the *Land Court Act 2000*, a declaration that, to the extent any objections lodged under the *Environmental Protection Act 1994* (as at March 2013) are made about the effects of taking or interfering with groundwater on natural ecosystems or the physical integrity of watercourses, lakes, springs or aquifers, those objections raise matters that are beyond the jurisdiction of the Land Court when hearing Applications for and objections to the grant of a mining lease.[538]

---

535 T 2-117, lns 36 – 41.
536 Amended Draft EA [[**DES.0029.0039**]] Condition F2.
537 General Application [[**WAR.0392.0002**]].
538 Emphasis added.

549 In accordance with the list of matters not in dispute,[539] the active parties and the Statutory Party agree at paragraph 6:

> That no impact to groundwater levels within groundwater aquifers is to be permitted to occur other than if authorised under an approval under the *Water Act 2000*.

550 The Applicant's change to the mine plan triggered a process of 'assessment of environmental impacts of the proposed change' such that DES could "assess the impacts on environmental values and the adequacy of the draft EA conditions in light of the proposed change."[540] The Draft EA, as issued on 4 December 2015,[541] included conditions about groundwater impacts, however, the parties agree that consideration of the effects of taking or interfering with groundwater on natural ecosystems or the physical integrity of watercourses, lakes, springs or aquifers is beyond the jurisdiction of the Land Court. DES sought further information from the Applicant to consider "the adequacy of the draft EA conditions".[542]

551 On 14 October 2021, the Court made orders by consent that the Applicant file a statement of evidence sworn or affirmed by Dr Noel Merrick, firstly, with respect to groundwater modelling, hydrogeology and geophysics, as to the impact of the Applicant's proposed change to the mine plan; secondly, with respect to groundwater modelling, hydrogeology, and geophysics, as to any assumptions, within his expertise, relied upon by Iain Hair and Ross Seedsman, being the Applicant's nominated experts on groundwater quality and hydrogeology, and subsidence and geotechnical, respectively.[543]

552 Those orders sought to confine the evidence to be given by Dr Merrick, however, the resultant evidence still goes well beyond the jurisdiction of this court. Firstly, because the Statutory Party's shadow assessment process had no statutory limitation and therefore invited evidence on matters that cannot be considered, and secondly, because Dr Merrick sought to address issues of dispute between Dr Merrick and Dr Seedsman that concerned geological and groundwater characteristics.

553 The Applicant ultimately filed four (4) statements from Dr Merrick:

(1) Statement of evidence;[544]

(2) Supplementary statement of evidence in response to the Statutory Party's request for information;[545]

---

539 List of Matters not in Dispute [[**COM.0328.0001**]], [6].
540 Request for Information [[**DES.0008.0001**]].
541 Affidavit of Gillian Naylor [[**DES.0002.0001**]], [11].
542 RFI [[**DES.0008.0001**]].
543 This order acknowledges the interrelationship between groundwater impacts and other environmental impacts.
544 Groundwater Report [[**WAR.0436.0001**]].
545 Response to DES – Merrick [[**WAR.0489.0001**]].

(3) Second supplementary statement of evidence in response to the Statutory Party's request for information;[546] and

(4) Further statement of evidence in reply to the joint expert report on subsidence impacts.[547]

554 Dr Merrick's evidence also covers 'subsidence' which breaches the single expert rule. The Applicant did not nominate Dr Merrick as a subsidence expert.

555 Also, the Applicant filed a statement of evidence by Mr Iain Hair about groundwater quality impacts. His statement includes substantial commentary on drawdown which goes beyond the jurisdiction of the Court.

556 The process revealed the substantial procedural difficulty in excising impacts to groundwater quantity from the jurisdiction of the Land Court, however, the Parties agreed to strike out the evidence of Dr Seedsman and Dr Pells where it relates to depressurisation.

557 YV and TBA invite the Court to disregard the balance of Dr Merrick's evidence and the impugned parts of Mr Hair's evidence.

(1) <u>There is uncertainty as to groundwater quality impacts</u>[548]

558 Mr Hair's conclusion that the Proposed Project will not impact groundwater quality is based on the specific altered flow regime and drawdown predicted by Mr Merrick.[549] In that respect, the evidence cannot be tested, and any conclusions drawn from it should not be considered.

559 Further, "baseline monitoring of groundwater levels and groundwater quality is in progress", and trigger levels and limits are not proposed to be developed until after the approval is granted, as part of the proposed condition for a Groundwater Management and Monitoring Program. Mr Hair asserts that this approach is 'appropriate',[550] however, the lack of baseline studies does not lend certainty to any conclusions as to the possible impacts.

560 Also, Mr Hair relies on the EIS and SEIS studies which identify no groundwater dependent ecosystems within the mining lease area to contend that there will be no impacts to flora and fauna arising from groundwater quality impacts.[551] This is in circumstances where the Applicant's flora expert gave evidence that the State

---

546 Supplementary response to DES – Merrick [[**WAR.0502.0001**]].
547 Further Groundwater Report [[**WAR.0534.0001**]].
548 Issues raised by objections lodged by Sharov and Sosnina (EPA & MRA, 2 April 2020, Non-Active Objectors); Coyne (EPA, 1 Dec 2019, Non-Active Objector); Bauman (EPA, 1 Dec 2019, Non-Active Objector); Cousins (EPA & MRA, 2 April 2020, Non-Active Objector); McEwen (MRA, 2 April 2020, Non-Active Objector).
549 See for example, Groundwater Quality Report [[**WAR.0474.0001**]], [4.13]-[4.17], [6.1(a)(i)].
550 Groundwater Quality Report [[**WAR.0474.0011**]] at [6.1(b)(iii)].
551 Groundwater Quality Report [[**WAR.0474.0010**]] at [6.1(a)(ii)].

vegetation mapping that was used "is too broad in scale for accurate measurement",[552] and Ms Julien's collated flora list includes 31 wetland indicator species.[553]

561 While not decisive, these deficiencies are emblematic of the Applicant's approach to providing the Court with inadequate information on impacts.

(viii) Impacts from noise and vibration

562 The acoustic environment of Bimblebox is described by several lay witnesses as contributing to public amenity, and health and wellbeing, and represents an important aspect of the experience of Bimblebox.

563 In his supplementary affidavit, Ian Hoch describes,

> Many people come here from coastal areas to squizz at birds and are overjoyed to find birds everywhere, watching them from every tree. However, if they stay and camp out a day or two, nearly all are ecstatic about other surprising experiences: how peaceful and quiet it is here; how clean is this air; how blue the sky, and at night jam packed with stars scattered asunder like shattered glass, not a pin prick between them.
>
> […]
>
> It's the pristine atmosphere here that is rare and unusual, and with this mining proposal, this is what is endangered. I believe this is as worthy of protection as the wildlife.[554]

564 Ms Cassoni says that when visitors arrive, "usually their first comment is 'Oh it's very quiet here.'"[555]

565 The sorts of sounds that people might experience on Bimblebox are the cacophony of the birds (and the insects and frogs during rain events) that Dr Rudd and Ms Cassoni describe,[556] 'light wind in trees'[557] and intermittent contributions from cattle.

566 As an example, the acoustic environment provided unique opportunities for a sound artist to undertake recording and produce works, as Ms Sampson described:

> The sound artist, Boyd, who came out to the 2012 camp commented on how wonderful it was for audio recording because there were no planes flying over or cars driving past. There wasn't any human, mechanical sound disrupting the recording. He mentioned it because it's incredibly unusual in our human world today, to be in a location where you're not interrupted by human endeavour, human sounds, human activity.[558]

567 Boyd developed a work entitled *Coalface*, which includes video and sound recording of birds visiting a water trough on Bimblebox.[559]

---

552 Ecology JER [[**COM.0068.0057**]] at [203].
553 Affidavit of Patricia Julien – Flora list [[**YVL.0066.0001**]].
554 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0001**]], [24], [26].
555 Affidavit of Paola Cassoni [[**YVL.0057.0019**]], [169].
556 Affidavit of Carl Rudd [[**YVL.0067.0005**]], [45]; Affidavit of Paola Cassoni [[**YVL.0057.0019**]], [169].
557 Noise and Vibration Impact Assessment [[**WAR.0478.0004**]].
558 Affidavit of Jill Sampson [[**YVL.0001.0001**]], [39].
559 Exhibit to Affidavit of Jill Sampson [[**YVL.0003.0001**]].

568 The artist camp is in the north-west of the property, to the north of the high voltage powerline easement,[560] although art activities are not restrained to this area.[561]

569 If the Proposed Project is approved, the sorts of activities described by the Applicant's nominated noise expert that would be contributing to the acoustic environment of Bimblebox include:

(1) construction noise, including the use of:[562]

(a) excavators, vibratory rollers, rollers, scrapers, front end loaders, backhoe;

(b) loaders, mobile cranes, generators, powered hand tools, concrete trucks and pumps, welding equipment; and

(c) transportation for raw materials from quarries;

(2) "stripping and stockpiling of cover material from all disturbance areas";[563]

(3) operational noise, including for example the use of:[564]

(a) draglines, haul trucks, excavators, dozers draglines, front end loaders and drills;

(b) primary, secondary and tertiary crushing stations;

(c) two Coal Handling and Processing Plants, including vibrating screens and coal washing plant and conveyors;

(d) a rail line;

(e) road traffic on access roads; and

(4) drilling and blasting of overburden, interburden and coal.

570 Assuming that any one of these activities can be heard on Bimblebox, this is a marked change from the current acoustic environment, which is described as free from the interruption of "human endeavour, human sounds, human activity".[565]

560 Affidavit of Paola Cassoni – Bimblebox Visitor Map [[**YVL.0057.0488**]].
561 Affidavit of Jill Sampson [[**YVL.0001.0001**]], [44].
562 Noise and Vibration Impact Assessment [[**WAR.0478.0014**]].
563 Noise and Vibration Impact Assessment [[**WAR.0478.0017**]].
564 Noise and Vibration Impact Assessment [[**WAR.0478.0015**]].
565 Affidavit of Jill Sampson [[**YVL.0001.0001**]], [39].

571 The Applicant's nominated noise expert, Mr Elkin undertook background monitoring for noise levels, with the following results on Bimblebox:

(1) Rating Background Level dBA (widely adopted as the method for defining background noise levels for noise assessment in Queensland):[566]

(a) Day: 26

(b) Evening: 19

(c) Night: 18

(1) The relevant air quality objectives are those set out in the Draft EA

572 In recognition of the potential for activities that create noise to cause certain impacts, the EPP (Noise) intends to enhance or protect the following identified environment values:

(a) the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and

(b) the qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following—

(i) sleep;

(ii) study or learn;

(iii) be involved in recreation, including relaxation and conversation; and

(c) the qualities of the acoustic environment that are conducive to protecting the amenity of the community.[567]

573 The EPP (Noise) then states acoustic quality objectives, which are "the maximum level of noise that should be experienced in the acoustic environment of the sensitive receptor",[568] by way of reference to the relevant environmental value that is to be protected or enhanced. It is not directed to the maximum level of noise that any

566 Noise and Vibration Impact Assessment [[**WAR.0478.0028**]]; T 6-40, lns 9-19.
567 *EPP (Noise)* s 6.
568 *EPP (Noise)* sch 2.

particular activity may make for the purposes of protecting the relevant value.[569] Relevantly, it includes the following, extracted from Schedule 1 of the EPP (Noise):

Column 1	Column 2	Column 3			Column 4
Sensitive receptor	Time of day	Acoustic quality objectives (measured at the receptor) *dB(A)*			Environmental value
		$LA_{eq,adj,1hr}$	$LA_{10,adj,1hr}$	$LA_{1,adj,1hr}$	
residence (for outdoors)	daytime and evening	50	55	65	Health and wellbeing
residence (for indoors)	daytime and evening	35	40	45	health and wellbeing
	night-time	30	35	40	health and wellbeing, in relation to the ability to sleep
Protected area or critical area	anytime	the level of noise that preserves the amenity of the existing area or place			health and biodiversity of ecosystems

574 The Draft EA requires that "noise from mining activities must not exceed" the following levels when measured at a sensitive place (outdoors[570]):[571]

Table D1: Noise Limits – Mine Noise

Noise Level	Monday to Sunday		
	7am – 6pm	6pm – 10pm	10pm – 7am
LAeq, adj, 15 mins	45	35	33
LA1, adj, 15 mins	55	50	40

569 T 6-44, lns 10-15.
570 Noise and Vibration Impact Assessment [[**WAR.0478.0030**]].
571 Draft Environmental Authority [[**WAR.0043.0030**]], condition D1.

575 Mr Elkin also nominated his own assessment criteria, based on a 7 dB adjustment of the EPP (Noise) indoor air quality objectives, accounting for façade reduction.[572]

Table 10 Nominated Assessment Criteria – Operational Mining Noise

Reference Assessment Criteria	Noise Criteria dBA, Assessable at a Residential Noise Sensitive Receptor[1]		
	Daytime	Evening	Night-time
EPP(Noise) – $L_{Aeq,1hr}$	42	42	35[2]
EPP(Noise) – $L_{A1,1hr}$	52	52	47

576 Mr Elkin's 'nominated' limits essentially take the maximum limit that a sensitive receptor should experience indoors for the sake of human health and wellbeing and adds 7dB for façade reduction (with a minor reduction for LAeq night-time limit on the basis of previous Land Court cases). Many people sleep outside when at Bimblebox without the protection of a notional 'façade'.

577 The air quality objective stipulated in the EPP (Noise) accounts for all man-made noise experienced at the sensitive receptor, and not just mine noise.[573] Mr Elkin's 'nominated' limits are higher than both those proposed in the Draft EA and also the Model Mining Conditions.[574]

578 If on a particularly noisy night the cacophony of insects and frogs happened to reach the acoustic quality objective, the experience of this on a Nature Refuge may be markedly different from the experience of farm equipment plus draglines, crushers and excavators causing noises that reach the maximum limit.

579 The Statutory Party did not recommend adoption of Mr Elkin's nominated assessment criteria, although it did adopt many of the other recommendations put forward by the Applicant's experts in its assessment report.[575]

580 Under either case, when compared with the relevant background noise levels, the imposed limits would still allow for a dramatic increase in noise levels compared to the existing environment — and a dramatic change in the sorts of noises that dominate the acoustic environment.

572 Noise and Vibration Impact Assessment [[**WAR.0478.0034**]].
573 T 6-46, lns 18-24.
574 T 6-45, lns 5-9.
575 DES Assessment Report [[**DES.0018.0039**]]-[[**DES.0018.0040**]].

(2) The Proposed Project would result in exceedances of noise limits at the Bimblebox residence.

581 The dongas on Bimblebox are a sensitive receptor in accordance with Schedule 1 of the EPP (Noise), being a residence, and have been included in the Applicant's map of sensitive receptors,[576] and the list of noise sensitive receptors in Mr Elkin's 'Noise and Vibration Impact Assessment'.[577]

582 Mr Elkin's view is that the EIS and SEIS modelling underestimated the noise impacts.[578] So the impacts of the mine plan with open cut pits on Bimblebox is uncertain but can be assumed to be worse than as modelled by the Applicant.

583 In updating that modelling for the revised plan, Mr Elkin has predicted exceedances of the night-time limit under the Draft EA for LAeq at the dongas of 1 to 2 dBA during adverse conditions (noting uncertainty of plus or minus 1 to 2 dB, assuming reasonable inputs).[579] The Draft EA limit is already at a noise level that is experienced as more than twice as loud as the rating background level for Bimblebox at night.[580] That 1 or 2 dB is 'imperceptible to the human ear'[581] is irrelevant. A limit is a limit, and to treat it otherwise is contrary to the management intent of the EPP (Noise) in preventing background creep.[582]

584 Under Mr Elkin's 'nominated' criteria, the same modelled levels would not be considered exceedances. Any suggestion (though we do not suggest there has been one) that a limit should be increased because exceedances have been modelled makes a nonsense of the process — much like permitting the Applicant to model its subsidence impacts post-approval and impose conditions that it comply with whatever it has modelled.

585 Mr Elkin has recommended that Bimblebox (Glen Innes) be resumed or relocated to address the modelled exceedances. This suggests that standard mitigation measures will not adequately remedy the potential for impacts to human health and wellbeing, and the health and biodiversity of ecosystems.

(3) The whole of Bimblebox is a sensitive receptor / place.

586 The EPP (Noise) identifies a 'Protected area' as a sensitive receptor for the purposes of protecting and enhancing the acoustic environment. It imposes an air quality objective of "the level of noise that preserves the amenity of the existing area or place" to protect and enhance the health and biodiversity of ecosystems.[583]

---

576 Figure 7 – Restricted Land and Sensitive Receptors [[**WAR.0325.0001**]].
577 Noise and Vibration Impact Assessment [[**WAR.0478.0019**]].
578 T 6-38, ln 44-47.
579 Noise and Vibration Impact Assessment [[**WAR.0478.0054**]].
580 T 6-49, lns 7-11.
581 Noise and Vibration Impact Assessment [[**WAR.0478.0061**]].
582 *EPP (Noise)* s 9.
583 *EPP (Noise)* sch 1.

587 A Protected area is defined by the NC Act schedule, which states that a "protected area means a protected area of a class mentioned in section 14." Section 14 in turn states, "The classes of protected areas to which this Act applies are" — and includes Nature Refuges.

588 The inclusion of nature refuges (and other Protected areas under the NC Act) is consistent with the EPP (Noise) declaring "the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems" as an environmental value for the purposes of s 9 of the EP Act.

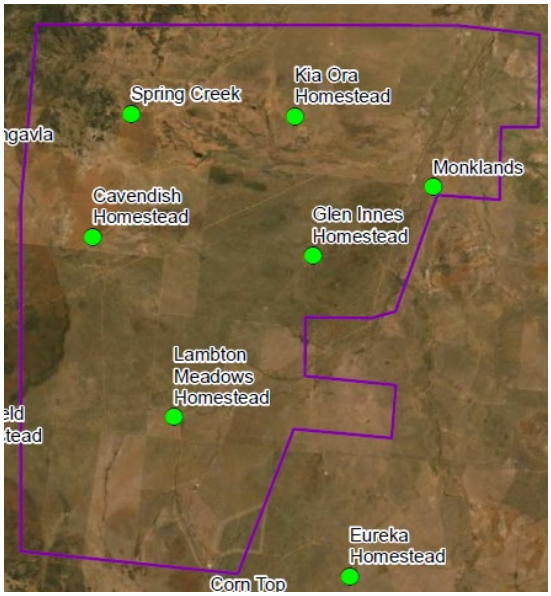
589 This is picked up in the Statutory Party's Draft EA (and in its subsequent amended draft EA to which it has not proposed any relevant change) which defines a 'sensitive place' for the purposes of conditions relating to air quality, noise and vibration to include:

> a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area.[584]

590 On that basis (and also as a reasonable means of protecting and enhancing the values of an area which has been deemed worthy of protection by the State), the entirety of Bimblebox is a sensitive place, meaning the Applicant is required to comply with noise limits across the entire nature refuge, and most notably in the northern portion.

(4) <u>The Proposed Project would result in substantial exceedances of noise limits over the northern portion of Bimblebox.</u>

591 Although Mr Elkin has not provided specific values for modelled exceedances in the northern portion of Bimblebox, the Monklands homestead offers a useful comparison, being located close to the north-eastern corner of Bimblebox.[585]



584 Draft Environmental Authority [[**WAR.0043.0062**]].
585 Noise and Vibration Impact Assessment [[**WAR.0478.0020**]].

592 At the Monklands homestead, Mr Elkin has predicted significant exceedances of noise limits during neutral and adverse weather.[586]

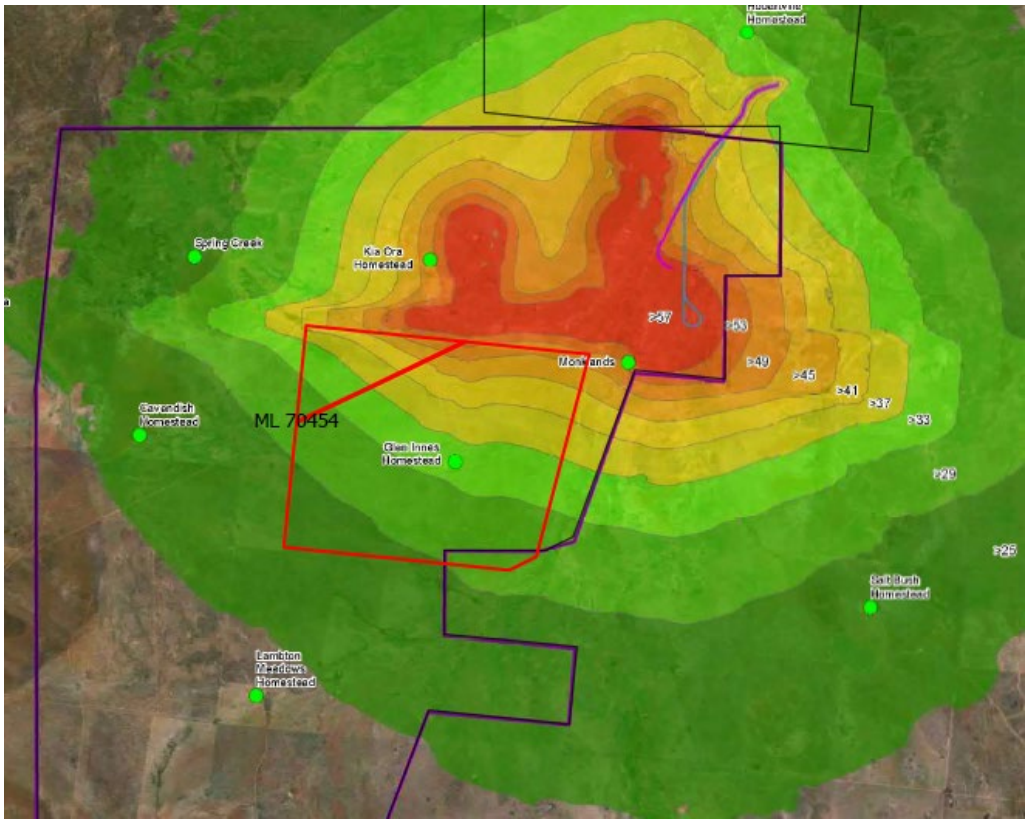
593 The assessment in respect of Monklands homestead concludes that,

> compliance with the […] draft DES Condition of 33 dBA Leq will prove difficult to be achieved using reasonable and feasible mitigation measures because noise mitigation measures typically used at mine sites, such as silencing equipment, noise walls/bunds and reasonably limiting the amount of equipment operating, are unlikely to give the (approximately) 20 dB noise reduction required.[587]

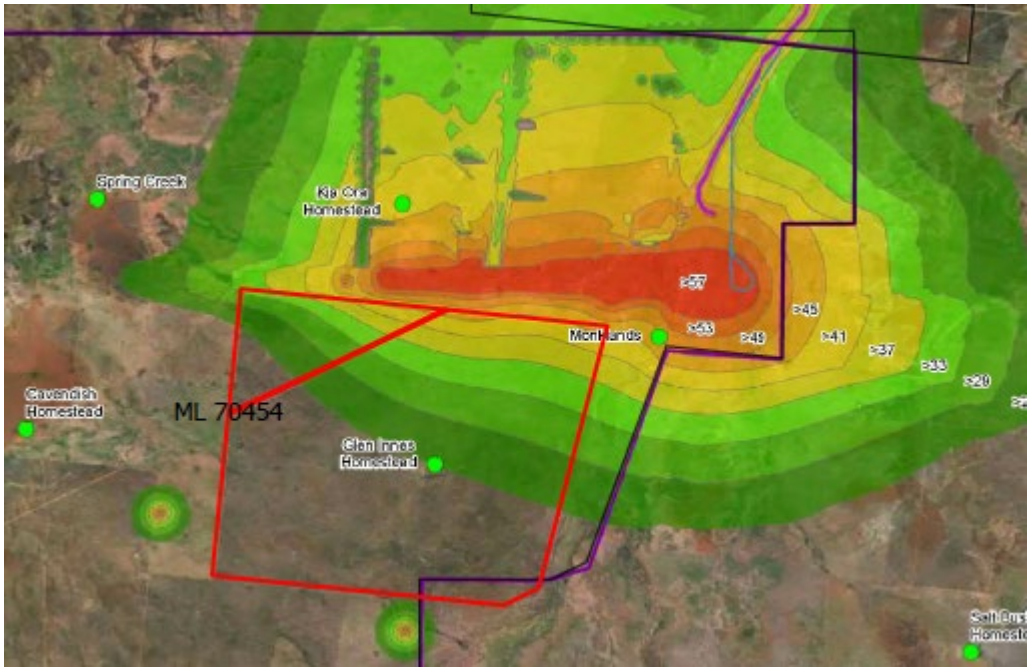
594 Vibration and airblast overpressure levels are also predicted to exceed the limits in the Draft EA at Monklands.[588]

595 Usefully, Mr Elkin has provided a series of noise contour maps, which YV and TBA have updated to include the boundary of Bimblebox.[589] These contours indicate exceedances of the Draft EA limits in yellow, orange and red, with exceedances predicted to occur on Bimblebox across all scenarios in neutral and adverse weather conditions.

596 See for example, extracted predictions from **[[WAR.0481.0142]]** and **[[WAR.0481.0147]]** below.



586 Noise and Vibration Impact Assessment [[**WAR.0478.0001**]], Table 20 and Table 21.
587 Noise and Vibration Impact Assessment [[**WAR.0478.0018**]].
588 Noise and Vibration Impact Assessment [[**WAR.0478.0001**]], Table 27 and Table 28.
589 Pages from Elkin Statement [[**YVL.0342.0001**]].



(5) <u>There is no information about the way in which projected noise impacts would affect the ecology of Bimblebox</u>

597 In proceeding on the basis that the dongas are the only sensitive receptor or place on Bimblebox, Mr Elkin remarks that he has undertaken the modelling 'for humans',[590] and appears resistant to accepting that (had he been aware of the definition[591]) measurements for other locations on Bimblebox should have been done. This appears to be on the basis that, 'on large homesteads or large acreages' it is not the done thing within the fraternity.[592]

598 **First**, Bimblebox is not simply a large homestead or acreage. It is a Protected area that is managed for its significant natural values as part of Australia's National Reserve System.

599 **Second**, as Mr Elkin rightly notes,[593] the Draft EA does not make distinction for its limits depending on the type of sensitive place. It has not imposed different limits for residences than for other parts of the Protected area.

600 **Third**, the EPP (Noise) provides some guidance as to the appropriate limits for protecting and enhancing the health and biodiversity of ecosystems on Protected Areas —— and that is, "the level of noise that <u>preserves</u> the amenity of the existing area or place." As Mr Elkin clarified, "amenity – from a noise perspective, it's how it's received, how it's perceived" for the purposes of the environmental value sought to be enhanced or protected.[594]

590 T6-49, ln 35; T 6-50, ln 30; T 6-52, lns 19-22; T 6-54, ln 35.
591 T 6-51, lns 1-10.
592 T 6-50, lns 26-45.
593 T 6-56, lns 14-17.
594 T 6-56, lns 2-10.

601 **Fourth**, Mr Elkin cannot ("not being an animal expert"[595]) and has not, provided any assistance to the Court as to the impacts of noise, vibration and overblast pressure on the health and biodiversity of ecosystems in Bimblebox. In part because he is not an ecologist, in part because there is very limited information available in the scientific literature,[596] and in part because Mr Elkin's analysis is limited to either the more extreme impacts of noise like temporary or permanent hearing loss, or reactive behaviours like alarm or flight response. Neither of these provide much insight for understanding the impacts of protracted mine noise, 24 hours a day 365 days a year, on the health and biodiversity of Bimblebox as an ecosystem with all of its constituent parts (a place with all manner of 'warm and fuzzies').[597]

602 Mr Caneris provided some (albeit limited) assistance with respect to the impacts on fauna. When asked why he held the view that the impacts on fauna would comprise the same as those for the previous mine plan, he stated that the impacts would be the same type with no change to intensity or extent "because there' – there's still noise and – and."[598]

603 It once again begs the question as to why the Applicant should, given the object of the EP Act, be permitted to undertake an experiment with any number and type of unknown and uncertain impacts on a Nature Refuge.

(ix) Impacts to air quality

604 The air quality impacts to Bimblebox are practically irrelevant under the original mine proposal, given around 5,885ha of vegetation clearing for open cut mining would impact 74% of the Nature Refuge.

605 The revised mine plan removes open cut mining from Bimblebox. Mr Welchman's Air Quality Assessment for the revised project concludes that predicted emissions for TSP, maximum 24-hour average concentrations of PM10 and PM2.5, annual average concentrations of PM2.5 and monthly dust deposition rates "in isolation comply with the relevant air quality objectives at all sensitive receptors that are not proposed to be purchased by Waratah Coal and Alpha Coal, with the application of standard mitigation measures"[599] with the exception of Kia Ora.[600]

606 Mr Welchman was instructed by the Applicant to assume that Bimblebox will be 'acquired' or 'relocated' to offset air impacts.[601] Of course, the property cannot be

---

595 T 6-53, ln 35.
596 Noise Report [[**WAR.0481.0001**]], [80], [87], [92], [103].
597 T 6-56, ln 47.
598 T 11-130, lns 13-22.
599 Air Quality Assessment – Welchman [[**WAR.0438.0037**]].
600 T 6-9, lns 5-24.
601 Letter of Instructions to Welchman – Annexure B to the Statement of Simon Welchman [[**WAR.0476.0046**]].

forcibly acquired and the Bimblebox owners have made it abundantly clear that they do not wish to sell. Paola Cassoni states:

> We do not want to be paid for damages because there should not be any. We want instead to be recognised for our passion and efforts, our time and money, our valuable contribution to this country, and we want to be respected with the certainty of tenure that all volunteers and caretakers of our native bush deserve.[602]

607 Mr Welchman concluded in his Air Quality Assessment that dust levels at the Bimblebox 'homestead' are predicted to exceed the Draft EA limits.[603] But that "with the application of a reactive air quality management plan, compliance with the objective for PM10 can be achieved."[604]

608 These conclusions carry the risk of misleading the reader for the following reasons:

(1) the predictive model relied on the accuracy of inputs about proposed run of mine (**ROM**) coal production that are uncertain;

(2) background air quality studies were not conducted, and therefore not included as an input to the predictive model;

(3) consequently, the predicted emissions are considered 'in isolation', without the addition of background levels;

(4) lungs do not distinguish between dust caused by mining activities and dust caused for other reasons (and nor does the health and biodiversity of ecosystems);

(5) it assumes that Bimblebox (Glen Innes) will be acquired and that the following modelled exceedances of air quality objectives for human health and wellbeing at Bimblebox are therefore irrelevant:

   (a) exceedances of maximum 24-hour average concentrations of PM2.5; and

   (b) exceedances of maximum 24-hour average concentrations of PM10;

(6) the assessment failed to recognise the entirety of Bimblebox as a sensitive receptor (or place); and

(7) it ignores the potential impacts to the health and biodiversity of ecosystems;

(8) exceedances are modelled with the application of 'standard mitigation measures', being largely the same measures that are proposed to be progressively implemented when trigger levels are reached "so that the draft EA limits are not exceeded";[605]

602 Affidavit of Paola Cassoni – Inquiry comments [[**YVL.0057.0454**]].
603 Air Quality Assessment – Welchman [[**WAR.0438.0037**]], T6-16, lns 40-3.
604 T 6-22, lns 15-18; Statement of Simon Welchman [[**WAR.0476.0013**]].
605 Air Quality Assessment – Welchman [[**WAR.0438.0006**]].

(9) A 'reactive air quality management plan' does not exist, and Mr Welchman admitted during cross examination that actions that may be in it could not be modelled to determine whether compliance could be achieved.[606]

(1) The predictive modelling of air quality impacts has limitations

609 Mr Welchman used the CALPUFF model to make predictions about the likely dispersion of dust and particulate matter emissions from the Proposed Project. Inputs to that model include:

(1) terrain;

(2) background levels;

(3) meteorological data;

(4) assigned values for the sources of dust emissions;

(5) particle size and weight;

(6) particle ranges; and

(7) location and scale of activities causing emissions.

610 The more accurate the inputs, the more accurate the outputs are likely to be,[607] but even so, a predictive model is just that, a prediction. For the CALPUFF model, there is understood to be a band of uncertainty within the range of plus or minus 10 to 40%.[608]

611 The Applicant did not undertake background studies on air quality for input to its modelling in the EIS and SEIS.

612 Mr Welchman's subsequent modelling aimed to be consistent with the EIS and SEIS so that it could be used for comparison purposes[609] — a purpose which is of no use to the Court's function.[610] What that means in practice is that the revised modelling also failed to undertake or include background studies and to include those levels in the predictive model.

613 From an experiential perspective, background level studies also assist in understanding the ways in which an increase in dust deposition and odour might affect the receiving environment. They also assist DES to determine whether the mining activities are causing the exceedance to enforce the conditions of the EA. For example, an environment with very low background levels would experience an increase up to the

606 T 6-22, lns 20-5.
607 T 6-15, lns 4-5.
608 T 6-16, lns 5-11, 25-26.
609 T 6-12, lns 10-27; and as per Mr Welchman's instructions "to provide an opinion which differentiates between the impacts associated with the Applicant's mine plan as described in the EIS and SEIS and the impacts associated with the Revised Mine Plan." [[**WAR.0358.0010**]] at 4.2.
610 See above paragraph 303.

applied limit in a greater way than an environment which already experiences emissions at a level close to the limit.

614 Per its revised EM Plan, the Applicant assumed background levels on the basis of the proposed mining lease area being within a predominantly rural environment.[611] There is no distinction made as to whether these assumed background levels are derived from a rural environment that is vegetated or cleared.

615 However, the Court is not without qualitative information to assist in understanding background levels and therefore appreciating the way in which predicted impacts would be experienced. For example, Mr Hoch's description of being on Bimblebox at paragraph 564 above, includes reference in particular to the quality of the air.

616 Clearly, the baseline air quality levels form a fundamental component of the experience of the Nature Refuge, something that goes to specific environmental values described in, and intended to be enhanced or protected by, the *Environmental Protection (Air) Policy 2019*, relevantly being:

> (a) the qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems; and
>
> (b) the qualities of the air environment that are conducive to human health and wellbeing.[612]

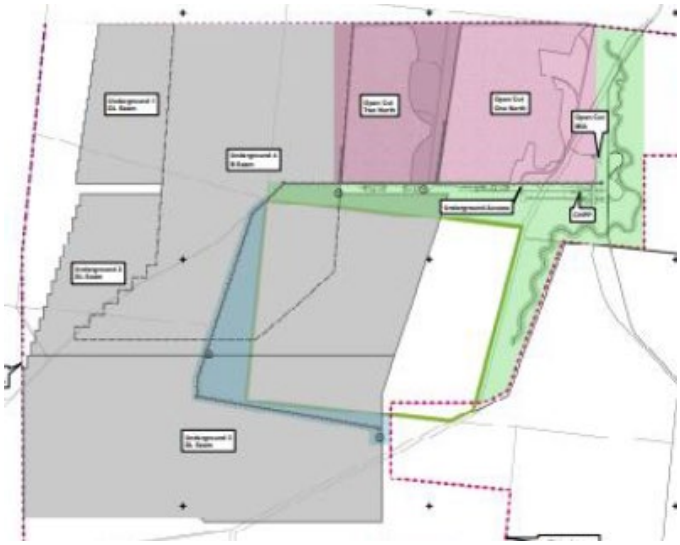
(2) <u>The Proposed Project would result in air quality limit exceedances at the Bimblebox homestead</u>

617 The homestead on Bimblebox is a 'sensitive place' in accordance with the definition contained in the Draft EA for the purposes of conditions relating to air, noise and vibration[613] and is included by the Applicant on the map of sensitive receptors.[614] Unlike the EPP (Noise), the EPP (Air) does not set air quality objectives for sensitive receptors or places, but only for defined environmental values, including health and wellbeing, and health and biodiversity of ecosystems.[615] It is logical that air quality objectives for health and wellbeing should be met at a residence, or other places regularly used by humans.

618 The sources of dust and particulate matter for the Proposed Project are the open cut pits situated to the north of Bimblebox and the associated infrastructure including vent shafts and roads, identified by pink (open cut), green (common user corridor) and blue

611 Revised Environmental Management Plan [[**WAR.0356.0028**]].
612 *EPP (Air)* s 6.
613 Draft Environmental Authority [[**WAR.0043.0001**]] Conditions B1, D1, D2 and D3.
614 Figure 7 – Restricted Land and Sensitive Receptors [[**WAR.0325.0001**]].
615 *EPP (Air)* s 6.

(vent shaft and high-voltage power) shading at Figure 3 of the Air Quality Assessment Report:



619 Bimblebox is the area outlined in green that is almost entirely encircled by the three key areas of emission sources.

620 The Air Quality Assessment makes predictions for emissions of PM10, PM2.5 and total suspended particles.[616] Each of these are regulated by the EPP (Air) for the purpose of enhancing or protecting human health and wellbeing, in recognition that such emissions have implications for human health and wellbeing;[617] however, this does not mean that these emissions have no impact on the health and biodiversity of ecosystems.

621 The EPP (Air) lists the following relevant objectives. The shaded objectives below have been adopted as levels in the Draft EA for the Proposed Project. In addition, the Draft EA includes levels for dust deposition, also shaded below.[618]

622 Bimblebox Table: Air 1

Indicator	Environmental value	Air quality objectives µg/m3	Period
PM2.5	health and wellbeing	25	24 hours
		8	1 year
PM10	health and wellbeing	50	24 hours
		25	1 year
Total Suspended Particles	health and wellbeing	90	1 year

616 Air Quality Assessment – Welchman [[**WAR.0438.0021**]].
617 T 6-14, lns 16-17, 39-42.
618 Draft Environmental Authority [[**WAR.0043.0001**]] at condition B1.

Dust deposition	-	120 mg/m^2/day	1 month

623 The Statutory Party provided to the Court an amended version of the Draft EA to reflect the expert evidence adduced during the hearing. Amendments to the air quality conditions include adopting the EPP (Air) objective for annual average PM10.[619]

624 Using the CALPUFF model, Mr Welchman has modelled the following 'worst case scenario' at the site of the homestead on Bimblebox.[620] Exceedances are bolded.

625 Bimblebox Table: Air 2

		Draft EA[621] / EPP (Air) objective	Prediction
PM2.5	Max 24-hour	25	26
	Annual average	8	2.6
PM10	Max 24-hour	50	84.6
	Annual average	25	9.6
TSP	Annual average	90	11
Dust deposition	Max monthly	120	5.9

626 Although Mr Welchman attempted to ease concern by reiterating that these predictions are the worst-case scenario,[622] the predictions must be assumed to be possible. Further, an error band of 10 to 40% greater or less must also be considered. The air quality objectives under the EPP (Air) are proposed for enhancing or protecting the qualities of the air environment that are conducive to human health and wellbeing.[623] The possibility of exceedances must not be diminished.

619 Amended Draft EA [[**DES.0029.0008**]].
620 Response to DES RFI – Welchman [[**WAR.0490.0001**]] pp7-14.
621 if included per Table: Air 1.
622 T 6-16, lns 13-18; T 6-34, lns 15-16.
623 *EPP (Air)* ss 6, 7.

627 The exceedances are predicted to occur in adverse conditions even with the application of standard mitigation measures, being:[624]

Table 3 Standard dust control measures and relative reduction in emissions

Activity	Control measure	Reduction
ROM coal haulage	Watering and/or suppressants/vehicle speed reduction	75%
Overburden haulage	Watering and/or suppressants/vehicle speed reduction	75%
Exposed areas (not recently disturbed)	Watering and/or suppressants	50%
Conveyor	Enclosure	100%

628 Critically, these exceedances are modelled without reference to background levels, which have not been determined. To determine the real level of impact to human health and wellbeing, which does not differentiate between dust emission sources,[625] background levels must be added to the predictions.

629 For illustrative purposes, if we accept the assumed background levels proposed in the revised EM Plan[626] and adopt Mr Welchman's practice of adding the 70th percentile, this amounts to the following three exceedances and percentage increases on assumed background levels for PM10 and PM2.5:

630 Bimblebox Table: Air 3

		Background	Predicted	Total	Objective[627]	Increase
PM2.5	Max 24-hour	5.2 (3.64)	26	29.64	25	570%
	Annual average	4.4 (3.08)	2.6	5.68	8	129%
PM10	Max 24-hour	26 (18.2)	84.6	102.8	50	395%
	Annual average	22 (15.4)	9.6	25	25	113%

624 Air Quality Assessment – Welchman [[**WAR.0438.0022**]].
625 T 6-25, lns 19-22; T 6-26, lns 27-36.
626 Revised Environmental Management Plan [[**WAR.0356.0028**]].
627 Per *EPP (Air)* and Draft EA where applicable.

(3) The whole of Bimblebox is a sensitive place

631 In undertaking the modelling for the revised mine plan, Mr Welchman accepted the list of sensitive places adopted by the Applicant in its EIS and SEIS in the interests of consistency.[628]

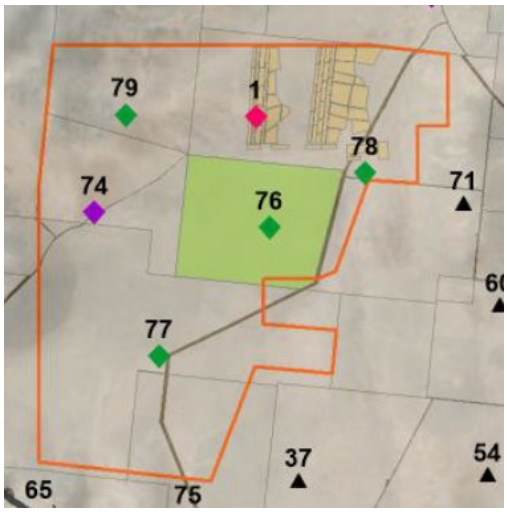
632 However, as per paragraphs 587 to 591 above, a sensitive place for the purposes of the draft EA conditions relating to air quality includes "a protected area under the *Nature Conservation Act 1992*",[629] including Bimblebox in its entirety.

633 To reflect this, the Statutory Party has included "Bimblebox Nature Refuge – centre of the northern boundary" as a monitoring location in its amended Draft EA.[630]

(4) The predicted exceedances of air quality limits across the entirety of Bimblebox are substantial

634 Although Mr Welchman did not provide specific predictions for the entirety of Bimblebox, the contour maps provide a useful indication as to the kinds of exceedances that might be expected at the northern boundary.

635 As a comparison point, the location of the Monklands sensitive receptor (which is number 78[631]) offers some comparability to the northern portion of Bimblebox.[632]



636 Plate 2[633] for example shows exceedances for predicted maximum 24-hour average ground-level concentration of PM10 using standard mitigation measures over the entirety of Bimblebox, with the predicted maximum being 84.6 at the dongas and 98.5 at Monklands.

628 T 6-29, lns 5-10.
629 Draft Environmental Authority [[**WAR.0043.0062**]].
630 Amended Draft EA [[**DES.0029.0010**]].
631 Air Quality Assessment – Welchman [[**WAR.0438.0020**]].
632 Air Quality Assessment – Welchman [[**WAR.0438.0020**]] per figure 6.
633 Air Quality Assessment – Welchman [[**WAR.0438.0041**]].

637 Plate 4[634] shows exceedances for predicted maximum 24-hour average ground-level concentration of PM2.5 using standard mitigation measures for most of Bimblebox, with the predicted maximum being 26 at the dongas (the air quality objective being 25) and 140.1 at Kia Ora, which is a better indicator given the shape of the contour:[635]

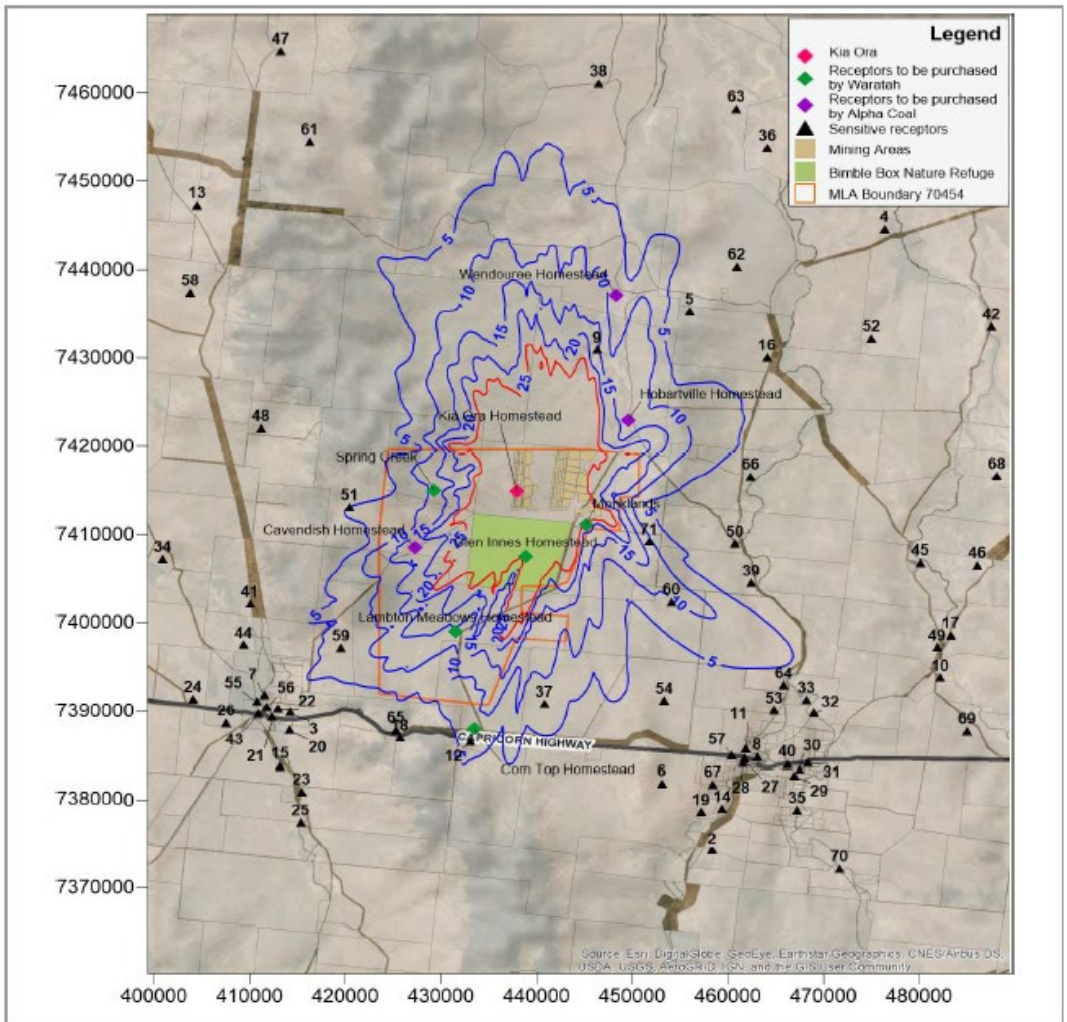


Plate 4 **Predicted maximum 24-hour average ground-level concentration of $PM_{2.5}$ using standard mitigation measures**

638 Plate 5 shows exceedances of objectives for predicted annual average ground-level concentration of PM2.5 using standard mitigation measures for a small portion of the northern section of Bimblebox.[636]

639 The Statutory Party's amended Draft EA includes provision for an air quality monitor on the northern boundary of Bimblebox. However, it is difficult to understand how the Applicant might manage for impacts so close to the source of emissions: see the map at paragraph 619.

634 Air Quality Assessment – Welchman [[**WAR.0438.0043**]].
635 Air Quality Assessment – Welchman [[**WAR.0438.0043**]].
636 Air Quality Assessment – Welchman [[**WAR.0438.0044**]].

640 The net result is that, even on the Applicant's inadequate modelling, major exceedances of the air quality limits will occur across large parts of Bimblebox, particularly in the north of the Nature Refuge. That will — by virtue of the definition of 'sensitive place' — mean that the Proposed Project will be in regular and comprehensive breach of its proposed EA.

641 The only way that such breaches could be avoided is if — as appears inevitable if the mine is approved over the area applied for — Bimblebox is degazetted as a nature refuge. That issue is dealt with below.

(5) <u>There is profound uncertainty as to the ways in which projected air quality impacts would affect the ecology of Bimblebox</u>

642 The inclusion of Protected areas in the definition of sensitive place demonstrates an intention to protect not just places important to humans, but also places which are dedicated "areas representative of the biological diversity, natural features and wilderness of the State"[637] given protection by the State for that reason.

643 Mr Welchman notes that "[t]here is limited information available on threshold concentrations and deposition rates to protect [fauna and ecologically significant environments] from air pollutants." Although some studies have been conducted into the impacts on cattle, those studies were specifically limited to cattle and focused on economic and environmental sustainability, and the quality of meat produced.[638] These studies are not transferrable to the kinds of fauna present on Bimblebox, including a diversity of bird species, small mammals (or at least small when compared with cattle), reptiles and frogs.[639]

644 Mr Welchman asserts, without justification, that odour "is not an issue for flora and fauna" and cites studies regarding adverse impacts on plant growth.[640] This evidence is beyond the scope of Mr Welchman's area of expertise and should be disregarded. In any event, the underlying data sources say nothing about fauna.

645 In its reply to the Statutory Party's request for information, the Applicant claimed, based on a memorandum prepared by Australian Mining Engineering Consultants, that emissions from the ventilation shafts would be "of a quality fit for human inhalation, having no contaminants and will not have an impact on flora, fauna and the environment."[641] Again, there is no justification provided for this claim.

646 The only reliable statement about the impacts of dust deposition on the ecology of Bimblebox is that there is no reliable evidence, and any impacts are thus uncertain.

---

637 *NC Act* s 5(b).
638 Air Quality Report [[**WAR.0476.0008**]] at 5.13-5.15.
639 Affidavit of Patricia Julien – Fauna List [[**YVL.0294.0001**]].
640 Air Quality Report [[**WAR.0476.0007**]].
641 Reply to Statutory Party's RFI [[**WAR.0310.0010**]] at [9(d)]; RFI - Memorandum from AMEC to Nui Harris [[**WAR.0302.0001**]].

(6) It cannot be said whether proposed mitigation measures would prevent exceedances at Bimblebox

01. The Applicant cannot rely on the acquisition of Bimblebox to avoid exceedances of air quality objectives.

647 As with noise, the Applicant's revised EM Plan states that "based on the air quality modelling results and recommended acquisition criteria" Glen Innes will be relocated or acquired "in order to avoid significant air quality impacts".[642]

648 Although this was recommended prior to the updated modelling, Mr Harris maintains that this is an option.[643] In his first affidavit, Mr Harris states that the Applicant will attempt to acquire or 'relocate' the sensitive receptor at Glen Innes but if this is not possible, "the Applicant will manage the operations so as not to cause adverse environmental impacts beyond those approved and conditioned in the EA."[644] No explanation of how this could possibly be achieved as a matter of practicality is provided.

649 If the Applicant does acquire Bimblebox, it will be acquiring a nature refuge (subject to any degazettal) and all the management obligations and objectives that accompany that declaration. On that basis, it would not be able to simply remove the label of 'sensitive receptor' from Bimblebox to avoid exceedances. It is not clear whether Mr Harris maintains the same level of confidence that adverse environmental impacts can be managed within conditioned levels when this is considered.

02. The effectiveness of any reactive air quality management plan is unknown

650 In any case, the proposed mitigation measures if sensitive receptors are not acquired are dubious.

651 Assuming that the landholders do not want to sell Bimblebox (as might be suggested by Ms Cassoni's indication that even if the mining lease were granted she would "still be drawing energy from what I can from my body to convince Waratah that it's not proper to mine a nature refuge"[645]), then Mr Welchman assumes that the application of a reactive air quality management plan, the terms of which are yet to be devised, would somehow ensure compliance with the objectives.[646]

652 Because the details of any such plan are unknown, he makes this assumption not by way of predictive model but by "[looking] at the sorts of things that could be contemplated and what their effect would be".[647]

---

642 Revised Environmental Management Plan [[**WAR.0356.0032**]].
643 T 2-44, ln 11.
644 Affidavit of N Harris [[**WAR.0291.0001**]], [245].
645 T 7-41, lns 38-40.
646 Air Quality Report [[**WAR.0476.0013**]].
647 T 6-22, lns 27-29.

653 These 'sorts of things' include:

(1) continuous monitoring (24 hours a day, 365 days a year) at sensitive receptors;[648] and

(2) if a trigger level is reached:

(a) understanding the activities the mine is currently undertaking; [649]

(b) assessing which is most likely to contribute to elevated levels;[650]

(c) establishing that sufficient controls are being done, that is, establishing that the standard mitigation measures (which are factored into the predictive model) are actually being effectively undertaken;[651]

(d) then, if satisfied that no further control measures can be undertaken, shifting activities or location, or 'stopping activities'.[652]

654 Mr Welchman agreed that managing the impacts of dust at the dongas by way of a reactive management plan may be possible;[653] however, this becomes increasingly impossible the closer to the dust emission source. Managing Kia Ora, for example, would be close to impossible.[654]

(x) The cumulative impacts of the above on the ecology and biodiversity of Bimblebox Nature Refuge

(1) <u>The cumulative impacts on habitat and floristic communities living on Bimblebox</u>

655 Given the consequences of the works necessary to comply with the Draft EA discussed above in respect of subsidence and surface water, the Court must consider the <u>unmitigated</u> impacts on that old growth habitat and the ecosystems it supports. As was said during the ecologist concurrent evidence session:

> … in essence, if there's no remediation done because the cure is worse than the disease, then that's the disease we live with?
>
> DR DANIEL: That's right.
>
> MR HOLT: That's the disease her Honour's assessing. [655]

656 There was a significant level of agreement between the experts as to the nature of the risks to the ecology of Bimblebox that the revised mine plan carries.

---

648 T 6-22, ln 35.
649 T 6-23, lns 1-5.
650 T 6-23, lns 1-5..
651 T 6-23, lns 6-11.
652 T 6-23, lns 16-19.
653 T 6-25, lns 41-42.
654 T 6-25, lns 38-39.
655 T 11-149, lns 39-44.

657 Before turning to those, there was also agreement that the lack of certainty about the scale of those impacts flowed from the uncertainty surrounding the physical deformation that could be expected from subsidence. Dr Daniel put it this way:

> To the extent that the EIS has not accurately identified the impacts of subsidence on the overlying native ecosystems, this is in part due to the lack of certainty behind what these impacts might be. In recognition of these uncertainties the subsidence management plan has committed to be adaptive [WAR.0356.0102] and to respond to the views of experts in this court in identifying the impacts of subsidence on the extant natural ecosystems [WAR.0356.0089], to mitigate and manage the effects on native vegetation as possible and finally to offset any residual impacts [WAR.0356.0098].[656]

658 Dr Daniel confirmed that position in oral evidence: "the uncertainty in the subsidence creates an uncertainty in the outcome for the vegetation."[657] The Applicant's failure to produce that information aside, the flora experts nonetheless agree that cracking and subsidence will harm the vegetation on Bimblebox, and the only question is by how much.

659 Dr Daniel and Dr Fensham agreed that "even minor changes in elevation influence the ways in which water moves across the landscape and through the soil profile and can result in a profound impact on vegetation".[658] As explained above, the changes to elevation in this case are far from minor.

660 Dr Daniel summarised the risk of harm in this way in the Ecology JER:[659]

> It is my opinion that the Revised mine plan will lead to the death of some canopy trees, the short term loss of some shrub and ground layer species and where surface ponding is increased may lead to a change in the dominant native species. The consequent exposure of bare soil will also facilitate buffel grass invasion and lead to a loss in ecological condition Waratah Coal has committed to developing a subsidence management program to control the surface effects of mine subsidence and return the land to similar pre subsidence conditions at the completion of remedial works [WAR.0356.0089]. It is my opinion that management of the impacts to the natural ecosystems of BNR would involve considerable weed management and remediation effort and even under such a regime the ecological values may never be as good as they currently are.

661 Dr Fensham warned that significant cracks would cause major root disruption and tree death in the vicinity of the cracks.[660].Similarly, Dr Daniel stated that cracks which report to the surface could cause root tearing[661] and that canopy trees on Bimblebox would disproportionately bear those negative impacts.[662]

---

656 Ecology JER [[**COM.0068.0064**]].
657 T 11-126, lns 45 – 46.
658 Ecology JER [[**COM.0068.0018**]].
659 Ecology JER [[**COM.0068.0065**]].
660 T 11-120, lns 45 – 47.
661 T 11-119, lns 40 – 43.
662 Ecology JER [[**COM.0068.0049**]], [147]

662 They both agreed that "impacts to canopy trees will take decades to recover and, in some circumstances, may lead to irreversible changes to the floristic makeup of BNRs ecosystems".[663]

663 Both also agreed that disturbance, in any form, favours buffel grass.[664]

664 Dr Daniel opined that trees and ecosystems lost to ponding or changes to the surface water flows caused by subsidence would be replaced by other native communities. However, Dr Fensham convincingly disagreed with that proposition:

> I certainly can't agree with that. I think Andrew might mean a sort of novel native vegetation community and – I mean – yeah. It was – you don't have ecological vacuums. Thing – nature has got a wonderful way of filling the vacuums, but it won't be, in my opinion – I don't think Poplar Box is going to find its way into those systems because Poplar Box likes a subsoil clay, so well-drained sandy soil, which is the western end of [Bimblebox], which is – had poor drainage imposed on it by a wall appearing across the drainage lines up to two metres high is not equivalent to a Poplar Box landscape at all. And, also, Poplar Box – all eucalypts are really poorly dispersed. They move really slowly through the landscape, so they won't find their way there. That's another problem. And you could say, well, you can plant them, but actually planting and seeding eucalypts in those landscapes, through my own experience – I can assure you it's really, really difficult.[665]

665 Dr Daniel summarised his concerns about the impact of the Proposed Project on Bimblebox in this way:[666]

> The implementation of the Revised Mine plan would lead to negative impacts to the native ecosystems of BNR that would require meaningful management and rehabilitation to repair. It is unlikely that the very high ecological condition of these ecosystems could be maintained but, in my opinion, a large intact natural remnant woodland can be maintained.

666 The ecologists agreed that Bimblebox is "a very large remnant patch of vegetation in very good ecological condition located in a part of the bioregion that has experienced extensive clearing."[667] By 'remnant' the flora experts here mean old growth trees, trees that have "always been there".[668] The flora experts agree that while it is not unique, it is nonetheless important.[669]

667 Dr Caneris, the Applicant's fauna expert, says that "[t]he poplar box and silver leaved ironbark woodland habitats provide foraging, roosting and breeding habitats for a suite of fauna species including conservation significant species."[670]

---

663 Ecology JER [[**COM.0068.0049**]], [152]
664 Ecology JER [[**COM.0068.0049**]], [151] – [152].
665 T 11-126, lns 3 – 15.
666 Ecology JER [[**COM.0068.0012**]], [76].
667 Ecology JER [[**COM.0068.0003**]] [1].
668 T 11-44, lns 15 – 27.
669 Ecology JER [[**COM.0068.0003**]] [5].
670 Ecology JER [[**COM.0068.0003**]] [3].

668 Regarding fauna, Mr Caneris agreed that consideration of fauna must follow flora, with respect to habitat.[671]

669 Further, Bimblebox is not an island. Its connectivity to Lambton Meadows, and through riparian areas to the north-east, is valuable, and compounds again the effect and magnitude of any loss.

(2) The cumulative impacts will provide ideal conditions for the spread of invasive species.

670 There is currently no appropriate vegetation or stream order mapping for the project.[672]

671 Further to that, there is also no weed management plan for the Applicant's project. On this point Mr Thompson, the Applicant's weed expert, said:

> The absence of a weed management plan is unusual in these sorts of projects in this day and age. That's the first point I'd make. Realising that this project is a older project – so that's no criticism of the system. It's just thing – the way you do these things and the way you go about conditioning these things has moved on. So that's the first point I'd make. Can it be done after the project commences? Definitively no. It – you need to have, at least in a draft version, a weed management plan that has a decent baseline to it. Now, some of the stuff that's just been spoken about – you want vegetation mapping – you can do that baseline with respect to weeds at the same time you do the mapping that Andrew's just spoken about and it ought to – it should have been done quite – quite frankly. [673]

672 The presence of buffel grass in the landscape, and the magnitude of the disturbance that would seemingly be inevitable were the Applicant's mine to go ahead, mean that buffel grass would be injected into the landscape[674] and control of buffel grass would be central to any possibility of protecting Bimblebox from further harm. However, the best evidence before the Court is that buffel grass could not be controlled in those circumstances. Dr Fensham stated:

> …You could have the most sophisticated plan in the world, but the actual implementation of the plan is the important thing. And we know from the big mines to the east of the Desert Uplands that they're just seas of buffel grass. Bill's in agreement that ground disturbance is the way you foster buffel grass. We're also in agreement that broadscale control of buffel grass is an impossibility, and I would predict that no matter what plan you've got and whatever your intentions, you wouldn't be able to have anything but a sea of buffel grass on those disturbed areas around the mine.
>
> MS O'CONNOR: Well, Dr Fensham, could I ask you this. If you assume that there is compliance with the condition to address buffel grass, and particularly a weed management plan, that would, in turn, reduce the risk in the spread of buffel grass.
>
> ASSOC PROF FENSHAM: No, because I think it would be an impossibility.[675]

---

671 T 11-130, ln 31 – T 11-151, ln 17.
672 T 11-157, lns 10 - 24.
673 T 11-157, lns 33 – 42.
674 T 11-149, ln 26.
675 T 11-58, lns 11 – 24.

673 Mr Thompson ultimately conceded that, despite his apparent optimism, he had never seen it done.[676]

674 In addition to buffel grass infestation, other invasive and exotic species would also benefit from the conditions caused by the Applicant's proposed mine. Mr Caneris stated that the ponding and increased water in the landscape would favour amphibians, but would also benefit feral species such as pigs and foxes.[677]

675 The experts "assume that the approval of either the Current or Revised Mine Plans will result in the loss of BNR's Nature Refuge Status"[678], pointing to offsets as a panacea. However, there are many assumptions bound up in such a conclusion. The threatening processes in the region are a fundamental issue for the Court in its consideration under the EP Act.

676 Dr Fensham, Dr Daniel, and Mr Caneris agreed that the key risks here are threat from clearance for open-cut mining, subsidence from underground mining, and invasion by buffel grass.[679] Even if an appropriate offset were available, and was implemented, there are exploration permits over large tracts of land in the region.[680]

(3) The Applicant's ecologists fall back on offsets

677 The Applicant's ecology experts, Dr Daniel and Mr Caneris, seemed to premise their opinions on the assumption that the Applicant's project would result in an increase in habitat despite the loss of Bimblebox. They say that in reliance on proposed offsets.

678 Mr Caneris and Dr Daniel were persistently unconcerned about the loss of Bimblebox on the basis that the provision of offsets elsewhere would ultimately result in an overall increase in intact habitats.[681] Despite agreeing that there is a national crisis in biodiversity in Australia[682], Mr Caneris in particular was dismissive of there being any overall risk of environmental harm caused by the Applicant's mine on the basis that the offsets would overbalance any loss of habitat.

679 Similarly, Dr Daniel indicated that he was unconcerned about the number of exploration permits in the Galilee Basin, saying that "impacts are required to be offset".[683]

---

676 T 11-58, ln 40 – T 11-59, ln 24.
677 T 11-155, lns 3 – 31; Ecology JER [[**COM.0068.0049**]], [155].
678 Ecology JER [[**COM.0068.0008**]], [48]
679 T 11-88, lns 8 - 20.
680 T 11-66, lns 10 – 24.
681 See for example Ecology JER [[**COM.0068.0009**]], [56]. [[**COM.0068.0065**]], [242], [[**COM.0068.0032**]], [83], [[**COM.0068.0040**]], [112], [[**COM.0068.0041**]], [127], [[**COM.0068.0049**]], [154], [[**COM.0068.0050**]], [157], [[**COM.0068.0051**]], [166]; T11-67 lns 38 – 68 lns 5.
682 T 11-59 lns 1-14.
683 T 11-65 lns 10 – 24.

680 Both Dr Daniel and Mr Caneris agreed that there was no ecological benefit to mining on Bimblebox.[684] The ecology experts in the JER, quite properly, defer to the offsets experts with respect to whether the Draft EA conditions concerning offsets were adequate.[685]

681 As will be explained later in these submissions, the agreed position of the offsets experts is that the offsets proposed in this case are deficient and inadequate.

(xi) The cumulative impacts of the above on the Nature Refuge status of Bimblebox

(1) <u>It is highly likely that the nature refuge status of Bimblebox cannot not be maintained if the Proposed Project is approved.</u>

682 The evidence before the Court as to what would happen to Bimblebox's nature refuge status is inconsistent and inadequate. It appears that the Applicant has not turned its mind to this most basic of questions.

683 On one hand, and as set out above, the experts assume that the environmental harm caused by the Applicant's mine would degrade the ecological values of Bimblebox to such a degree that it could no longer perform the functions mandated by the Conservation Agreement, and that it would cease to be a nature refuge.[686] These assumptions are reasonable. The nature of the subsidence impacts, noise and dust impacts and the ongoing nature of those matters makes it impossible to conceive of Bimblebox maintaining its essential features.

684 On the other hand, the Applicant's CEO, Mr Harris, claimed that the Applicant intends to retain the status of Bimblebox as a nature refuge, either by the work of the current owners (notwithstanding the environmental harm set out above) or by purchasing Glen Innes (notwithstanding that no such offer has ever been made). The idea that the Applicant could effectively operate Bimblebox as a nature refuge in accordance with the Conservation Agreement is, on the strength of the evidence in this case, a tough sell.

685 Mr Harris stated during his oral evidence that the Applicant would, in spite of the impacts outlined above, "*maintain as best as possible Bimblebox Nature Refuge*".[687] In the next breath Mr Harris stated that he did not understand the statutory obligations imposed on nature refuges by the NC Act, and was not even aware that interference with a nature refuge was an offence provision under the Act.[688]

---

684 T11-113 lns 40 – 134 lns 45.

685 Ecology JER [[**COM.0068.0010**]], [69], [[**COM.0068.0013**]], [89], [[**COM.0068.0056**]], [199], [[**COM.0068.0059**], [205], [[**COM.0068.0060**]], [211] and [[**COM.0068.0067**]] – [[**COM.0068.0068**]].

686 Section 50 of the NC Act provides for the revocation of a nature refuge declaration by the Governor in Council.

687 T 2-43, ln 28.

688 T 2-43, lns 30 – 45.

686 When asked about what the Applicant proposed for Bimblebox if the Draft EA conditions could not be met, Mr Harris said:

> We'd purchase the property. If the property-owner wanted to stay on the property, then we'd put in place mitigation of noise and vibration so that they're at acceptable limits, if at all possible.
>
> And if not at all possible?---Well, then we'd have to just move the sensitive receptor- - -
>
> And you'd do that - - -?--- - - - or purchase the property.
>
> And you'd move the sensitive receptor, what, in accordance with your surface rights?---Well, again, we'd work with the stakeholder, the property owner, in that regard.

687 Given that equivocation, and the collected conclusions of the experts regarding the damage which would be caused to Bimblebox, it is likely that if the Applicant's mine were to be approved, Bimblebox would no longer be a nature refuge, either in terms of legal status or performance of the functions required of it under the Conservation Agreement and the NC Act.

(2) <u>If, on the other hand, the nature refuge status is maintained, there would be a serious risk of breach of the NC Act, and the Conservation Agreement</u>

688 If the Applicant's mine is approved, but Bimblebox's nature refuge status is maintained, the management of those two things in concert would be extraordinarily fraught. In truth, it would seem impossible.

689 The unavoidable impacts of the Proposed Project, and the proposed means of remedying those impacts, are discussed above. Relevantly, they include the loss of old growth and otherwise untouched vegetation (either directly as a result of subsidence, or from clearing to reinstate surface water flows), the introduction of conditions in which buffel grass would proliferate, and 'reseeding' to replace the vegetation lost.

690 The Conservation Agreement relevantly prohibits:

(1) the interference with, or destruction or removal of, any native plants including trees, shrubs and grasses;

(2) the planting of any trees, shrubs, grasses or any other plants other than local indigenous native flora preferably derived from local seed stock;

(3) any act or omission which may adversely affect any indigenous flora or fauna or their related habitats;

(4) any deterioration in the natural state or in the flow, supply, quantity or quality of any body of water.[689]

---

689 Affidavit of Carl Rudd [[**YVL.0067.0055**]] Item 5 (Clause 4.6) (a) – (d).

691 There has not been any indication of what the Applicant would propose to reseed the disturbed areas with, and there is no evidence before the Court as to whether reseeding with local seed stock is even a commercial, practical or ecological possibility.

692 The Conservation Agreement is binding on the landholder, successors in title, and any person with an interest in the land.[690] An 'interest' includes a mining lease.[691] While it currently imposes obligations directly only on the landowners of Bimblebox, that would not be the case if the Applicant's mine were to go ahead. If the Applicant's mine is approved and Bimblebox's nature refuge status is maintained, the obligations set out in the Conservation Agreement would be binding upon the landowners and on the holder of the mining lease.

693 It is obvious from the Applicant's evidence that it could not comply with the Conservation Agreement (either as a party with an interest, or as a successor in title), and that the proposed actions under the mining lease would actively prevent the landowners from complying. The two positions — the nature refuge and the mining lease — are fundamentally irreconcilable.

(xii) The cumulative impacts of the above on the non-ecological aspects of the environment of Bimblebox

694 Based on the above-described ecological impacts, it is reasonable to expect that:

(1) if the landholders are not displaced, then the current management practices would be unable to continue;

(2) if the landholders are displaced, 22 years of acquired knowledge will be lost as well as the practices which have maintained the ecological health and biodiversity of Bimblebox;

(3) the baseline data collected over 22 years of scientific research and monitoring would be rendered useless for the purpose of future studies in conservation and land management;

(4) 22 years of a longitudinal study in cattle grazing for conservation outcomes would be lost for future use;

(5) the artist camps would be unable to continue; and

(6) public access to natural environments will be diminished.

695 This would have consequential impacts on the character, resilience and value of the surrounding region because each of the above makes contributions at varying scales.

690 *NC Act* s 51.
691 *NC Act* Schedule Dictionary, definitions of 'interest' and 'mining interest'.

(1) Current management, research and recreational activities could not continue on Bimblebox.

696 Bimblebox subject to a mining lease and EA has the following features:

(1) the Applicant exercising its surface rights over Bimblebox,[692] and requiring access "to all of the surface mining lease area for the purpose of accessing and maintaining water infrastructure facilities" as well (presumably) as constantly inspecting and remediating the continuous subsidence effects;[693] and

(2) the current owners acting as some kind of consultant for the Applicant in its efforts to:

(a) maintain the integrity of a nature refuge;[694]

(b) maintain the related research and monitoring efforts;[695] and

(c) run recreational activities;[696]

(d) all while in the midst of negotiating progressive rehabilitation, including ripping, tyning and seeding of the land and vegetation.[697]

697 It is difficult to imagine how the landholders could maintain their conservation-based cattle grazing operations within a dramatically changed landscape. Such a landscape would represent a workplace health and safety danger to cattle and people, in the form of cracks reporting to the surface, areas of the ground dropping between 2 and 4m in (possibly) a matter of a few minutes,[698] ponding of surface water flows and large-scale machinery conducting progressive rehabilitation.

698 Mr Hoch describes the way the soils on Bimblebox behave when wet, resulting in safety risks for the cattle:

> There is also the issue of stock bogging in big wets when the soil, (devoid of a duplex or hard pan underneath) turns to soup and a heavy beast buries itself alive with efforts to escape. The worst places for this to happen is where flood water arrives on what we might call naive ground.
>
> Our network of roads for instance become flood ways within minutes of heavy rain and yet can carry heavy loads, while there are times you can bog a duck on the higher saturated soil immediately adjacent. Over time our stock have learned to traffic the compacted and exposed surfaces when the paddocks get boggy; heavier soils, power lines

692 Affidavit of N Harris [[**WAR.0291.0020**]].
693 Affidavit of N Harris [[**WAR.0291.0021**]], [101].
694 T 2-44, lns 1-4, 26-30.
695 T 2-45, lns 1-23.
696 T 2-46, lns 1-2.
697 T 2-42, lns 12-16.
698 T 3-94, lns 29-30.

> and roads. One can only guess as to how they will navigate these sunken troughs in times of flooding rains.[699]

699 This is not a commercial cattle grazing operation where the landholders could fence out disturbed areas for the safety of the cattle and sow exotic pasture grasses for rehabilitation — the disturbed ground will give rise to invasion by buffel grass,[700] and aside from manual labour, the cattle are currently the best available tool in the landholder's kit to manage buffel grass.

700 Following the Applicant's exploration activities, the landholders complained about the Applicant forming between 200m and 1.7km of newly constructed, flat-bladed tracks for each drill site.[701] The creation of these tracks exposed the soil surface and increased "the potential for buffel grass to invade and increase its distribution throughout the property."[702]

701 This approach was completely at odds with the 'intense' and 'manual' management practices that include the very careful attention paid to internal tracks in an effort to reduce erosion and invasion by buffel grass. As Mr Hoch puts it:

> Could they imagine we actually clear the roads, grubbing out anthills and cutting the trees by hand to avoid denuding the ground.
>
> Maybe they don't realise all our roads came through the massive flood rains intact precisely because of all this attention to detail.[703]

702 Ultimately, the current landholders are managing a nature refuge. Their management objectives, as per the Management Plan, are:

> 1 Maintain and, where possible, enhance biodiversity values.
>
> 2 Fund the ongoing management of the property by grazing at an ecologically sustainable level, which may include innovative grazing techniques.
>
> 3 Demonstrate to the broader community that grazing in the eucalypt woodlands of the Desert Uplands is both ecologically sustainable and economically viable by extrapolating information from "Glen Innes" to larger properties.
>
> 4 Eliminate and/or control weeds and feral animals.[704]

703 Such objectives are inconsistent with the management intent of the Applicant and would be displaced by the Applicant's exercise of its own interest in the land — even if the Applicant does think "it's good practice to have a good relationship with the property

---

699 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0003**]], [16]-[17].
700 T 11-137, lns 44-47; T 11-147, lns 24-25.
701 Affidavit of Paola Cassoni – Exploration compliance assessment [[**YVL.0057.0076**]].
702 Affidavit of Paola Cassoni – Exploration compliance assessment [[**YVL.0057.0077**]].
703 Affidavit of Paola Cassoni – Exploration compliance assessment, Hoch [[**YVL.0057.0084**]].
704 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0075**]].

owners"[705] it does not seem likely that the management demands of the nature refuge would (or could) win out.

704 In respect of the long-term research on Bimblebox, the Applicant's nominated ecology experts agree that "the potential to conduct long term scientific studies building on past research would be removed through mining and would take many years to replace."[706] The suggestion that this valuable[707] research could instead be taken as the baseline for studies in the impacts of underground mining a nature refuge does not bode well for Australia's biodiversity crisis.

705 In addition to the ongoing management, Bimblebox supports bird monitoring activities, recreational visits and artist camps, all of which contribute to the ongoing health and biodiversity of Bimblebox through information gathering, donations[708] or public awareness.[709]

706 On this new version of Bimblebox, are the artists and bird watchers and other visitors to the property now required to wear 'hi-vis'?

(2) The social impacts of the Proposed Project on the local area are poorly assessed.[710]

707 The Applicant prepared its Social Impact Assessment in 2012, now a decade ago. Since then, it has taken no steps to revise the assessment, and its nominated expert in social impacts was very clear that he was not asked to undertake a social impact assessment.[711]

708 Not only is the 2012 assessment unreliable due to the length of time that has passed,[712] but Mr Holm makes additional criticisms of it primarily arising from a lack of transparency in the methodology.[713] Mr Holm notes that "[t]hese shortcomings limit the reliability of the assertions made in the SIA and also the ability to provide an informed assessment of them."[714]

---

705 T 2-42, lns 20-21.
706 Ecology JER [[**COM.0068.0041**]], [131].
707 Ecology JER [[**COM.0068.0006**]], [31].
708 Affidavit of Paola Cassoni [[**YVL.0057.0019**]], [168]
709 Affidavit of Paola Cassoni [[**YVL.0057.0020**]], [180]-[183]; [[YVL.0057.0021]], [189]-[191].
710 Issue raised by objection lodged by Atkinson (MRA, 2 April 2020, Non-Active Objector); McEwen (MRA, 2 April 2020, Non-Active Objector).
711 T 5-50, lns 32-33.
712 See the recommendation that a social impact assessment be updated if more than two years has lapsed, per Social Impact Report [[**WAR.0441.0010**]], [37].
713 T 5-53, lns 15-18; Social Impact Report [[**WAR.0441.0015**]], [53]-[56].
714 Social Impact Report [[**WAR.0441.0015**]], [57].

709 The lack of a reliable assessment and any useful inputs[715] meant that the Applicant's nominated social impact expert could not answer any questions about the impacts of mine closure,[716] or the mine going into care and maintenance[717] or the impacts of mine accommodation close to the town of Alpha,[718] except in hypotheticals or by reference to general types of impacts.

710 There is no assessment made as to the social cost of the loss of a Nature Refuge from the National Reserve System for future generations in Queensland, including the sustainable grazing and land management practices thereon; or the social cost of the State breaking its promise to private citizens; or the social cost of the loss of research infrastructure and programs on Bimblebox; or the social impacts to anyone who has invested time in the Bimblebox Art Project by contributing works, attending artist camps or visiting exhibitions.

711 There is no assessment made as to the social impacts of climate change on Queensland, but the parties are agreed that:[719]

> If human beings continue to emit greenhouse gases, then these will accrete in the atmosphere with greenhouse gases already present there, causing increasingly adverse impacts to:
>
> 38.1 the health, life, and way of life, of human beings, individually, in communities and as a species;
>
> […]
>
> The continued emission of greenhouse gases into the atmosphere will, eventually:
>
> 39.1 destroy the health, life, and way of life, of many human beings and human communities[720]

712 There are at least some likely known impacts arising from the economics evidence. The South-Central Highlands region will see an increase in gross domestic product[721] but a dramatic impact on prices for local commodities, including 65% price increase on rental properties.[722] Those costs and benefits would be experienced inequitably; the impacts of an increase in cost of living out to about 2039[723] will be felt most by people who are

---

715 It appears Mr Holm is unable to answer a range of questions because it would depend on the composition of the workforce, the extent of interaction between the local community and the mine, fly in-fly out workforce versus residential – all factors which affect an assessment of social impacts, per T 5-72, lns 11-18.

716 T 5-71, lns 6-41.

717 T 5-72, lns 4-38.

718 T 5-69, lns 35-47 – T 5-70, lns 1-4.

719 List of matters not in dispute [[**COM.0328.0002**]], [5.2].

720 YV TBA ML Objection [[**COM.0028.0012**]], [38]-[39].

721 CGE Model [[**WAR.0531.0152**]], lns 8-9.

722 CGE Model [[**WAR.0531.0152**]], lns 9-12.

723 CGE Model [[**WAR.0531.0159**]], Figure 2.1.4.

on low or medium incomes, who are not receiving a commensurate increase in their wages,[724] for example, local shop assistants, teachers and nurses.

713 For the individuals involved with the maintenance, care and upkeep of Bimblebox as a place and a community, the personal impacts of the Proposed Project have been and, if it is approved and carried out, will be increasingly, profound. As Ms Cassoni states,

> We have had Bimblebox for 20 years. For me, to be asked how would it feel if the mine goes ahead is to say, your child will crash his car and not survive. I cannot visit the hurt and the despair that it would cause.[725]

(3) The State should keep its promises.

714 In 1999, the State Government through its employee assisted in identifying Glen Innes as a property for protection.[726]

715 In August 2000, the Commonwealth of Australia entered into an agreement with Ian Herbert, Catherine Herbert, Carl Rudd and Kerri Rudd on behalf of all landholders (the Organisation) to provide funding for the purchase of land (Glen Innes) to form part of the National Reserve System for 999 years. The terms of that funding include:

> If the Organisation ceases to continue managing the Land to the standard specified in this Agreement prior to the end of 999 years from the date of signing this Agreement the Organisation shall be liable to repay to the Commonwealth the Funds.[727]

716 In 2002, the State of Queensland entered into a conservation agreement with Ian Herbert, Cathy Herbert, Carl Rudd and Kerri Rudd, which included requirements on the landholder to "inform the Minister as soon as practicable after becoming aware of the existence and nature of any threatening process in relation to The Land",[728] and limits the types of activities that the landholders may undertake. It states, "If the Landholder contravenes this Agreement, the Landholder may be required to pay back in full any financial assistance provided by the QPWS."[729]

717 Under the agreements, the landholders made substantial promises to the State and Commonwealth and agreed to redress mechanisms for any failure on their part to accord with those agreements. In exchange, the State and Commonwealth entrusted the landholders with protecting Australia's natural environment and helping to fulfil Australia's obligations under the Biodiversity Convention, and invested $314,600 in

---

724 T 6-66, lns 25-40.
725 Affidavit of Paola Cassoni [[**YVL.0057.0023**]], [204].
726 Affidavit of Carl Rudd [[**YVL.0067.0002**]], [16].
727 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0026**]], clause 7.5.1.
728 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0045**]].
729 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0055**].

the protection of the land which supports Bimblebox.[730] Implicit in those agreements is a promise of protection of the land for 999 years,[731] or indeed, in perpetuity.[732]

718 Under the promise of those agreements, the landholders invested their life savings,[733] their time and their energy.

719 In 2007, exploratory drilling commenced on Bimblebox under exploration permits issued by the State.

720 In 2013, the Commonwealth Minister for the Environment approved the Proposed Project under the EPBC Act, and the CG issued his Assessment Report, which concludes,

> On balance, I recognise the values of the BNR but do not consider them sufficiently high or unique to find that the project should not proceed in the interest of saving the BNR.[734]

721 In 2015, the Department of Environment and Science issued a draft environmental authority for the Proposed Project.

722 Ms Cassoni notes the Commonwealth approval "came as a shock" — "the feeling of injustice was overwhelming."[735] However, her family's commitment to the management intent of those agreements has persisted. She notes,

> I have not asked for government funding to help in our management. As far as I am aware, there have generally been two rounds of grants per year available to Nature Refuge owners to help with environmental projects on their properties. It felt contradictory and unethical to accept funding to look after the nature refuge from a government that at the same time gave an exploration permit and draft environmental authority to a mineral company planning to destroy the same land the government agreed with us to protect.[736]

723 Dr Rudd considered that Bimblebox would be "a worthy and lasting environmental legacy"[737] — the highlight of his life[738] — his main life-long legacy.[739]

724 The subsequent approvals for exploration activities had deleterious impacts on his mental health and wellbeing.[740] Dr Rudd describes the feeling of having to uphold his side of the bargain:

> Both the State and Federal Governments were active and enthusiastic partners in the establishment of the Bimblebox Nature Refuge. Both have subsequently signed off on its

730 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0036**]].
731 Affidavit of Carl Rudd – Funding Agreement [[**YVL.0067.0026**]].
732 Affidavit of Carl Rudd – Conservation Agreement [[**YVL.0067.0052**]].
733 Affidavit of Paola Cassoni [[**YVL.0057.0002**]], [12].
734 Coordinator-General's Report [[**WAR.0040.0051**]].
735 Affidavit of Paola Cassoni [[**YVL.0057.0011**]], [109]-[110].
736 Affidavit of Paola Cassoni [[**YVL.0057.0015**]], [145].
737 Affidavit of Carl Rudd [[**YVL.0067.0004**]], [32].
738 Affidavit of Carl Rudd [[**YVL.0067.0009**]], [80].
739 Affidavit of Carl Rudd [[**YVL.0067.0009**]], [81].
740 Affidavit of Carl Rudd [[**YVL.0067.0010**]], [85]-[88].

> destruction while still shackling us to the original terms of the "binding contract" to "protect the ecological values".[741]
>
> From my experience, the Nature Refuge program is a farce. The government encourages landowners to conserve areas of high conservation value by entering into a binding conservation/nature refuge agreement and then has no hesitancy in betraying the objectives of the agreement on the mere whiff of a coal dollar. And in an act of complete hypocrisy, the perpetrators of this betrayal have the audacity to maintain the binding "conservation agreement" - thereby forcing those landowners to abide by the conservation principles of the agreement to maintain the conservation values of the land - whilst they themselves give approvals to a 3rd party to damage/destroy the very same conservation values. What phenomenal hypocrisy.[742]

725 Regardless of whether or not the State was aware of the coal resources under Bimblebox, and regardless of whether or not mining is legally permitted to occur on a nature refuge, the State entered into agreements with private citizens who invested their money, time and energy on the basis that their efforts would be protected, and long-lasting. The consequential impacts on those landholders, which are particularly evident in Dr Rudd's statement, are a genuine expression of the betrayal felt.

726 Surely it is in the public interest for the State to keep its promises to private citizens, and to be seen to keep its promises, especially if it wishes to rely on the goodwill and cooperation of individuals as a key component of its nature conservation strategies.[743]

(xiii) Conclusion on local impacts

727 The known (and unknown) impacts on the environment of Bimblebox — understood to include its status, ecology, history, people and community — are plainly more than reason enough to recommend refusal of the EA Application and ML Application.

728 The impacts caused by cumulation of GHGs in the atmosphere — including from the from the burning of the coal extracted from the mining lease area — provides an additional compelling reason to recommend refusal. The environmental harm from GHG emissions is considered in the next section.

C-IV State-wide impacts from greenhouse gas emissions

(i) The agreed facts

729 As to the impacts of future GHG emissions, on all aspects of the 'environment', including both the human and non-human aspects of the environment, and limitations on relevant human rights, the active parties agree as per [11] and [12] above.

730 The significance of those agreed facts to this matter cannot be too often stated or repeated.

---

741 Affidavit of Carl Rudd [[**YVL.0067.0010**]], [90].
742 Affidavit of Carl Rudd [[**YVL.0067.0011**]], [94].
743 *NC Act* s 5(g).

(ii) Greenhouse gas emissions and increasing temperature

731 Further to those agreed facts, the evidence in this matter establishes the connection between future GHG emissions and increasing global average temperature, including (by way of summary only) the following.

732 Slightly less than half (about 44%) of CO_2 emissions from human activities at the Earth's surface remain in the atmosphere, accumulating from year to year.[744] The emission of CO_2 from human activities at the Earth's surface thereby increases the atmospheric CO_2 concentration.[745] CO_2 is a GHG that absorbs outgoing infrared (long-wave) radiation (heat) from the Earth's surface and re-emits it in all directions. Some of the re-emitted heat remains in the lower atmosphere, warming the Earth's surface and lower atmosphere, and thus increasing the global average surface temperature.[746]

733 Human activities (fossil fuel combustion and land-use change) have driven a rise in atmospheric CO_2 concentration from 1750.[747] In 1750, atmospheric concentration of CO_2 in the atmosphere was about 278 parts per million (**ppm**).[748] It has risen to 412.5 ppm in 2020.[749]

734 Human emissions of GHGs have increased since the beginning of the industrial revolution reaching about 43 Gt CO_2 per year in 2019. Further emission of CO_2 from human activities (combustion of fossil fuels and land use) will increase the global average surface temperature at a rate of approximately 1ºC for about every 2,200 Gt CO_2 emitted.[750] There is an approximately linear relationship between cumulative human emissions of CO_2 from all sources and the increase in global average surface temperature.[751]

735 However, there are also nonlinear relationships due to Earth System feedbacks that could accelerate warming. Examples include (i) melting of Arctic sea ice, which uncovers darker seawater, which absorbs more sunlight (in the northern hemisphere summer) and accelerates warming; (ii) increasing drought in the Amazon basin, which increases fire frequency, leading to an increase in the emissions of CO_2, and (iii) melting of permafrost, which releases both CO_2 and methane (**CH_4**) to the atmosphere, accelerating the warming.

736 There is considerable uncertainty around the temperature rises at which individual tipping points could be crossed. A tipping point is crossed when the temperature rises to a level beyond which feedback processes become self-reinforcing.[752] As the global

---

744 Climate JER **[[COM.0067.0001]]**, [118]-[120].
745 Climate JER **[[COM.0067.0001]]**, [118]-[119].
746 Climate JER **[[COM.0067.0001]]**, [122]-[125].
747 Climate JER **[[COM.0067.0001]]**, [100]-[102].
748 Climate JER **[[COM.0067.0001]]**, [92]-[93].
749 Climate JER **[[COM.0067.0001]]**, [99]-[100].
750 Climate JER **[[COM.0067.0001]]**, [328]-[330].
751 Climate JER **[[COM.0067.0001]]**, [719]-[721].
752 Climate JER **[[COM.0067.0001]]**, [729]-[738].

average surface temperature rises towards 2°C and beyond, the risk of activating such feedbacks and tipping points increases. Given that some of these feedback processes are likely to be linked, a global tipping cascade could form that would accelerate the rise in global temperature and could lead to a significantly hotter Earth on a multi-century time scale.[753]

737 The rates of change of atmospheric CO_2 concentration and global average surface temperature are both increasing.[754]

738 Atmospheric GHG concentrations will stabilise only when the addition of these gases to the atmosphere by human activities is matched by their removal from the atmosphere by natural processes and by human drawdown of CO_2, that is, when net-zero CO_2-e emissions is achieved.[755]

739 The maintenance of temperature at a stabilised level depends on several factors:

(1) achieving net-zero emissions of CO_2 from human sources;

(2) feedbacks within the Earth System that could release additional CO_2 to the atmosphere (e.g., melting permafrost, Amazon forest fires and dieback, etc.);

(3) natural processes that absorb CO_2 from the atmosphere, such as dissolution of CO_2 in ocean water and the uptake of CO_2 by growing forests

740 In addition to CO_2 concentration, the other factors that influence global surface temperature are:

(1) the concentrations of other GHGs such as CH_4, nitrous oxide (**N_2O**), sulphur hexafluoride (**SF_6**), hydrofluorocarbons (**HCFs**) and chlorofluorocarbons (**CFCs**);

(2) the atmospheric concentration of aerosols (small particles such as soot (black carbon) and dust);

(3) melting of ice (e.g., Arctic sea ice) that influences the reflectivity of the Earth's surface; and

(4) geophysical feedbacks within the Earth System such as cloud types and dynamics.[756]

741 To achieve stabilisation of global temperature, net-zero emissions from human activities need to be achieved and be held at net-zero indefinitely.[757]

---

753 Climate JER **[[COM.0067.0001]]**, [743]-[748].
754 Climate JER **[[COM.0067.0001]]**, [214]-[215].
755 Climate JER **[[COM.0067.0001]]**, [339]-[342].
756 Climate JER [[**COM.0067.0001**]], [352]-[362].
757 Climate JER **[[COM.0067.0001]]**, [368]-[370].

742 It is agreed that if the Proposed Project is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting GHGs (mostly CO_2) into the atmosphere.[758]

743 That thermal coal is owned by the State.[759] In other words, the State is asked to permit carbon it owns to be extracted for emission into the atmosphere.

744 Combustion of the saleable coal from the Applicant's Proposed Project will produce 2.16Gt CO_2-e,[760] or 1.58Gt CO_2-e,[761] emitted from 2029 until about 2051.

745 As explained at 'E-IV(v)(2) With the Proposed Project as an input assumption, scenarios below 2.5 degrees of warming are not possible' below, the minimum global average temperature rise above pre-industrial in a future with the Proposed Project will be 2.5°C above pre-industrial.

746 That is the minimum. The worst possible rise in temperature involves no stabilisation of global average surface temperature this century, with the 4°C above pre-industrial level breached late in the century and temperature continuing to rise into the 22nd century and probably beyond.[762]

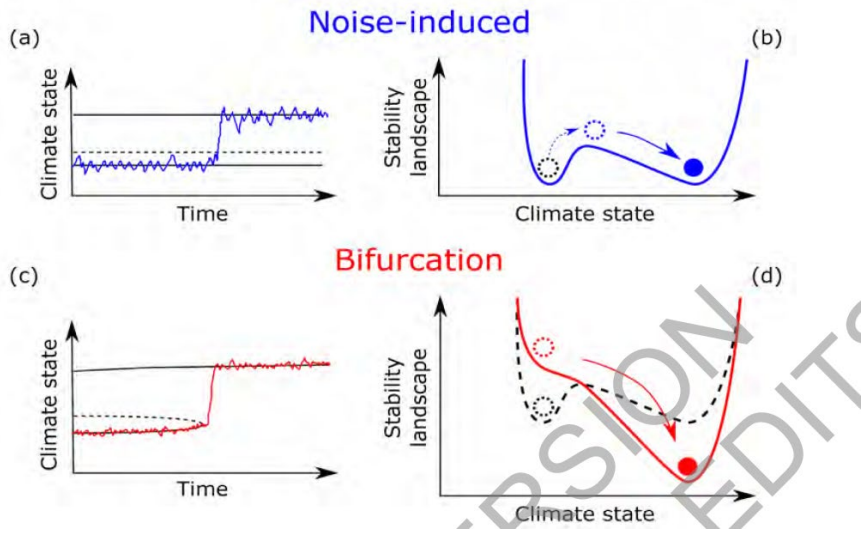
747 Further, it is important to appreciate that it may not be possible to hold the Earth to 3°C (or even lower),[763] because there is a significant risk that Earth System feedbacks will be activated by a 3°C warming, such that a 3°C stabilisation scenario may not be possible.

748 This has implications for a minimum global average temperature rise of 2.5°C above pre-industrial. To the best of current scientific knowledge, there will already, by that stage, be a real risk of triggering feedbacks. It is generally agreed that the risk of transgressing tipping points increases with the increase in global temperature.[764] The IPCC has estimated that there is a 'moderate' risk of triggering feedbacks already at a 2°C temperature rise, which increases when temperature rises above 2°C,[765] increasing up to a 3°C temperature forcing on the Earth System. The IPCC notes that every additional increment of global warming will amplify permafrost thawing, one of the carbon cycle feedbacks that would add additional CO_2 and CH_4 to the atmosphere.[766]

---

758 List of Issues not in Dispute **[[COM.0328.0001]]**, [4].
759 MR Act, s 8(2)(b).
760 Climate JER **[[COM.0067.0001]]**, [1242]-[1243].
761 See paragraph 69 above with T 20-107, ln 20 to 20-108, ln 12.
762 Climate JER **[[COM.0067.0001]]**, [822]-[824].
763 Climate JER **[[COM.0067.0001]]**, [838]-[848].
764 Climate JER **[[COM.0067.0001]]**, [740]-[742].
765 Climate JER **[[COM.0067.0001]]**, [1056]–[1057].
766 Climate JER **[[COM.0067.0001]]**, [987]-[994].

749 See also AR6 WGI, 1-65 to 1-67 and Figure 1.17 (1-195):



750 While AR6 WGI has concluded there is no evidence of non-linear responses whereby GHG emissions tip the global climate into a permanent hot for the next century,[767] many tipping points and feedback processes could be activated by a 3°C (or even lower) temperature rise, with a consequent risk that a 'tipping cascade' could be initiated, taking the global average surface temperature beyond 3°C and towards the SSP5-8.5 trajectory over a timescale of many centuries.[768] While there is a very low probability of initiating a tipping cascade at a range of (1.5-1.7°C), the probability rises at an increasing rate thereafter.[769] While that may not affect those alive today, it has profound implications for the addition of 1.58Gt, having regard to intergenerational equity over a longer timescale.

(iii) The carbon budget

751 Professor Church and Dr Warren explained:

> The carbon budget is a conceptually simple, yet scientifically robust, approach to estimating the remaining emissions consistent with meeting a desired temperature goal… The carbon budget is based on the near-linear relationship between (i) cumulative CO_2 emissions and (ii) the increase in global surface temperature. The baseline for both the cumulative carbon emissions and the temperature goal is the 1850-1900 period as shown in Figure 9 (IPCC 2021). The carbon budget can then be used to inform the GHG emission reductions required to meet the temperature goals. The carbon budget framework has been applied to estimate the remaining emissions that are allowable for achieving various desired temperature goals as shown in Table 1, below (IPCC 2021).[770]

767 WGI AR6 **[[YVL.0165.0001]]**, 1-66, [19]–[23].
768 Climate JER **[[COM.0067.0001]]**, [838]–[848].
769 Climate JER **[[COM.0067.0001]]**, [879]–[880].
770 Climate JER [[**COM.0067.0059**]], [1454]–[1464].

752 Or, as Professor Church explained more succinctly in oral evidence, "the carbon budget tells you how much you can emit if you want to keep temperatures to a certain value".[771]

753 The following definition from the AR6 WGI Glossary is clear and useful:

> … the maximum amount of cumulative net global anthropogenic CO_2 emissions that would result in limiting global warming to a given level with a given probability, taking into account the effect of other anthropogenic climate forcers. This is referred to as the Total Carbon Budget when expressed starting from the pre-industrial period, and as the Remaining Carbon Budget when expressed from a recent specified date.[772]

754 Figure 9 in the Climate JER is Figure SPM.10 from AR6 WGI (SPM-37[773]):

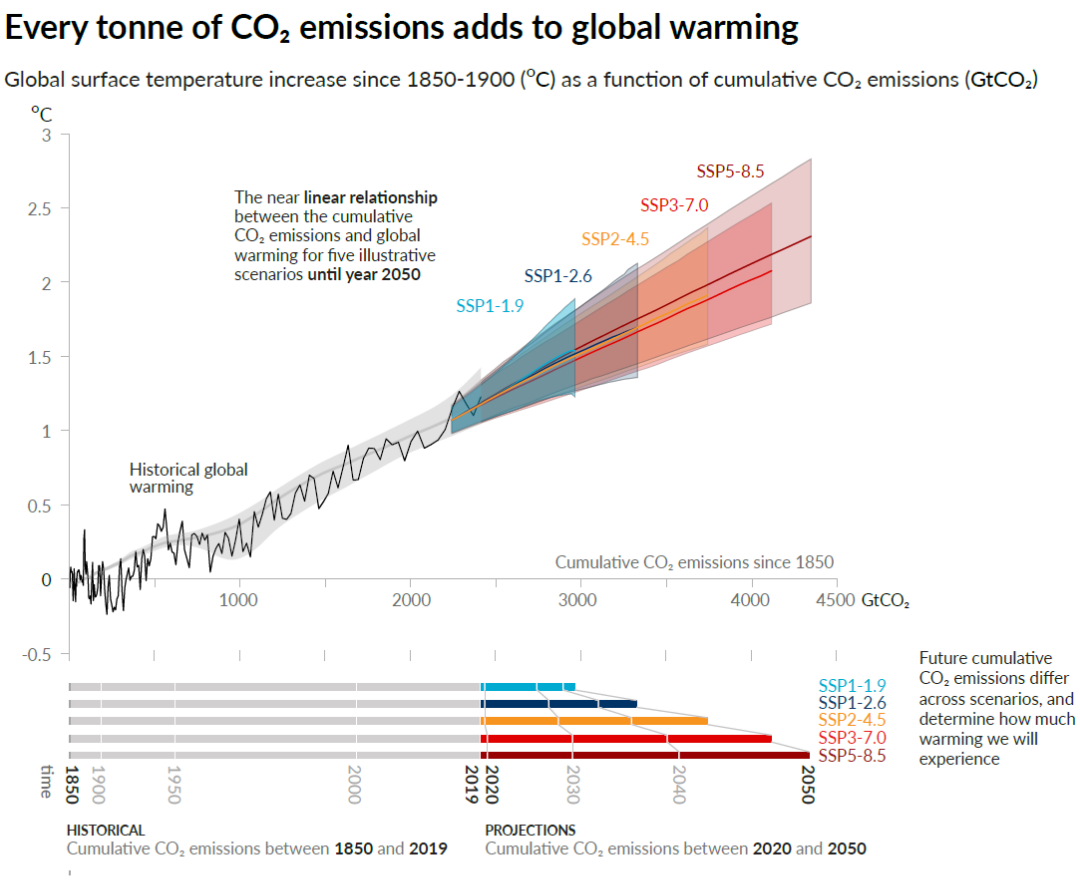


Figure SPM.10: Near-linear relationship between cumulative CO2 emissions and the increase in global surface temperature.

771 T 20-88, lns 41–42.
772 AR6 WGI [[**YVL.0165.3893**]].
773 AR6 WGI [[**YVL.0165.0038**]].

755 Table 1 in the Climate JER is Table SPM.2 from AR6 WGI (SPM-38[774]):

Table SPM.2: **Estimates of historical CO_2 emissions and remaining carbon budgets.** Estimated remaining carbon budgets are calculated from the beginning of 2020 and extend until global net zero CO_2 emissions are reached. They refer to CO_2 emissions, while accounting for the global warming effect of non-CO_2 emissions. Global warming in this table refers to human-induced global surface temperature increase, which excludes the impact of natural variability on global temperatures in individual years. {Table TS.3, Table 3.1, Table 5.1, Table 5.7, Table 5.8, 5.5.1, 5.5.2, Box 5.2}

Global warming between 1850–1900 and 2010–2019 *(°C)*	Historical cumulative CO_2 emissions from 1850 to 2019 *($GtCO_2$)*
1.07 (0.8–1.3; *likely* range)	2390 (± 240; *likely* range)

Approximate global warming relative to 1850–1900 until temperature limit *(°C)**(1)	Additional global warming relative to 2010–2019 until temperature limit *(°C)*	Estimated remaining carbon budgets from the beginning of 2020 *($GtCO_2$)* — *Likelihood of limiting global warming to temperature limit*(2)*					Variations in reductions in non-CO_2 emissions*(3)
		17%	*33%*	*50%*	*67%*	*83%*	
1.5	0.43	900	650	500	400	300	Higher or lower reductions in accompanying non-CO_2 emissions can increase or decrease the values on the left by 220 $GtCO_2$ or more
1.7	0.63	1450	1050	850	700	550	
2.0	0.93	2300	1700	1350	1150	900	

*(1) Values at each 0.1°C increment of warming are available in Tables TS.3 and 5.8.
*(2) This likelihood is based on the uncertainty in transient climate response to cumulative CO_2 emissions (TCRE) and additional Earth system feedbacks, and provides the probability that global warming will not exceed the temperature levels provided in the two left columns. Uncertainties related to historical warming (±550 $GtCO_2$) and non-CO_2 forcing and response (±220 $GtCO_2$) are partially addressed by the assessed uncertainty in TCRE, but uncertainties in recent emissions since 2015 (±20 $GtCO_2$) and the climate response after net zero CO_2 emissions are reached (±420 $GtCO_2$) are separate.
*(3) Remaining carbon budget estimates consider the warming from non-CO_2 drivers as implied by the scenarios assessed in SR1.5. The Working Group III Contribution to AR6 will assess mitigation of non-CO_2 emissions.

756 In oral evidence, Professor Church explained that "the science has evolved from doing straight projections with — with climate models, and — and that's still done, of course, but we've learned that the carbon budget actually encapsulates a lot of that knowledge, and so that is the most appropriate way forward now".[775]

757 (It is worth noting under this heading that the Supplementary Climate JER contains a useful table,[776] prepared by Dr Warren,[777] which uses a carbon budget out to 2050 in order to compare the IEA and Wood Mackenzie (**WM**) scenarios (total world emissions

774 AR6 WGI [[**YVL.0165.0039**]].
775 T 20-86, lns 26–29.
776 Supplementary Climate JER [[**COM.0341.0013**]].
777 T 20-41, lns 13–16.

calculated using the rough method of assuming linear relationships between 10-year projections). As this uses WM data from the same database as that which underpins the seaborne thermal coal figures provided by Mr Manley in the Energy Markets JER and the WM Databook, this provides further information about how the WM ETO seaborne thermal coal projections there correlate (on WM's modelling) to total emissions. This assumes significance on the substitution argument.)

(iv) Scenarios

(1) Climate JER – lowest level of temperature difference that remains a real possibility

758 Professor Church and Dr Warren were asked:[778]

> For the purpose of answering question 22 please choose several indicative points (by reference to the level of temperature difference at the point in time when the increase in temperature difference stabilises) on the spectrum of possible future worlds. Please start with the lowest level of temperature difference when it stabilises that is, at the present date, a real possibility. Please end with the highest level of temperature difference when it stabilises that is, at the present date, a real possibility. Please explain why you have selected these particular indicative points of temperature difference.
>
> 22. For each indicative possible future world:
>
> (a) what would be the level of temperature difference at the point in time when it stabilised?
>
> (b) in broad terms, what would need to occur for temperature difference to stabilise at that level?
>
> (c) when would temperature difference be most likely to stabilise at 756 that level?
>
> (d) what is the approximate total amount of future emissions of CO_2-e that could be emitted (assessed from the present day onwards) for temperature difference to stabilise at that level?
>
> (e) what is the likelihood of temperature difference stabilising at that level?
>
> (f) what is the effect on the likelihood of temperature difference stabilising at that level of any non-linear effects identified in response to question 21(b) or (c) above?
>
> (g) would it be possible for temperature difference to stabilise at that level if the coal presently available and permitted to be mined everywhere on Earth were extracted and combusted? If so, what would be the effect of that occurring on the likelihood of temperature difference stabilising at that level?
>
> (h) would it be possible for temperature to stabilise at that level if the coal presently permitted to be mined were extracted and combusted, and coal were also extracted and combusted from extant deposits for which

778 List of questions – climate [[**COM.0059.0005**]].

permission has not presently yet been granted? If so, what would be the effect of that occurring on the likelihood of temperature difference stabilising at that level?

(i) what would be the likely effects on the Earth system, subsidiary systems and/or natural phenomena, up to and including the point in time at which the level of temperature difference would stabilise?

759 They identified three "indicative possible future worlds", as instructed, although they described them as scenarios. As would become clear through the course of the hearing, climate scientists have long been using scenarios as a way of describing possible futures: see, for example, AR6 WGIII, Annex III, [1.3.1].[779]

(2) Scenario 1

760 In accordance with their instructions, Professor Church and Dr Warren started with a scenario with the lowest level of temperature difference when it stabilises that is, at the present date, a real possibility, which they called 'Scenario 1'.

761 Scenario 1 was identified by reference to the SSP1-1.9 scenario (explained further below), which would see temperature overshoot 1.5 degrees, and then decrease in the second half of the century as the result of a large drawdown of CO_2.[780] The remaining carbon budget from the end of 2022 would be about 320 Gt CO_2 for meeting a 1.5ºC goal and 620 Gt CO_2 for meeting a 1.7ºC goal (assuming a 67% probability of meeting the temperature goal, and accounting for carbon cycle feedbacks but only partially for non-GHGs).[781] Stabilisation of temperature would occur in the second half of the century, with net-zero emissions reached in 2050–60.[782] The probability of triggering a tipping cascade is very low.[783] Based on peer-reviewed studies published in *Nature*, including one showing that more than 95% of existing Australian coal reserves must stay in the ground to have a >50% chance of meeting a 1.5ºC goal, together with the IEA's *Net Zero by 2050. A Roadmap for the Global Energy Sector* (July 2021),[784] Professor Church and Dr Warren opined that, for Scenario 1, "new coal mines and extensions to existing coal mines cannot be allowed unless carbon abatement technology is implemented at the mine and the power generators burning the fuel to prevent the GHG emissions released to the atmosphere".[785]

762 The studies in *Nature*, by Welsby et al and Ekins et al are entirely consistent with, and supported by, the Wood Mackenzie data that was eventually produced (albeit only as the hard data spat out of the black box) by Mr Manley in the WM Databook.[786] Even on Wood Mackenzie's AET1.5[°C] scenario (which is very unlikely to actually achieve

779 AR6 WGIII Annex III [[**YVL.0457.0052**]], [18]–[37].
780 Climate JER [[**COM.0067.0034**]], [780]–[808].
781 Climate JER [[**COM.0067.0036**]], [854]–[857].
782 Climate JER [[**COM.0067.0036**]], [861]–[863].
783 Climate JER [[**COM.0067.0037**]], [878]–[880].
784 Climate JER [[**COM.0067.0037**]]-[[**COM.0067.0040**]], [881]–[966].
785 Climate JER [[**COM.0067.0040**]], [967]–[974].
786 WM Databook [[**YVL.0410.0001**]].

a 1.5ºC goal[787]), there is more than sufficient 'high rank' coal (as categorised by Wood Mackenzie) in coalmines that are already operating in 2022, to service seaborne thermal coal demand out to 2050.[788]

763 Even on the AET2.0[°C] scenario, high rank coal from currently operating mines is almost sufficient (205Mt of supply for 276Mt of demand), and there is another 276Mt of 'high rank project' coal (i.e., "high-rank coal from projects which Wood Mackenzie considers to be highly probable, probable, suspended or possible"[789]). Adding the high rank coal from currently operating mines to the 'high rank project' coal, there will be 481Mt of 'high rank coal' (as categorised by Wood Mackenzie), without the need for any new projects. That is almost sufficient to service even WM ETO, as recently revised to 512Mt by 2050.[790] And if one includes all coal (not only high rank) in 'operating' and 'project' categories, the total in 2050 is 665Mt,[791] more than sufficient for even the pre-revised WM ETO. Finally, for AET2.0, there will be sufficient coal out to 2050 from currently operating mines (i.e. 269Mt[792]).[793]

764 That is significant because, whereas McGlade and Ekins, and Welsby, used publicly available data sources for global coal trade, Wood Mackenzie has provided the figures from its own proprietary database, precisely targeted to the seaborne thermal coal trade. And the sequencing is more granular than the reserves/resources categorisation used in those peer-reviewed papers. In effect, it divides reserves into categories of 'currently operating', 'highly probable' and 'possible' (and 'suspended'). The coal in Waratah's proposed mining lease is in the category of 'reserve' together with the coal in currently operating coal mines, those approved and about to commence, and those approved but still some way off commencing. The Wood Mackenzie data provides a picture of the sequence, showing that not only is there no need to approve new coalmines, but for seaborne thermal coal, even on AET2.0, there is no need to open any coalmine that is not already operating.

(3) WGIII

765 AR6 WGIII was published after the Climate JER, but was the subject of additional questions answered in the Supplementary Climate JER. Asked whether AR6 WGIII affected the opinions in the Climate JER, Professor Church and Dr Warren answered:

---

787 See EM Professor Church's opinion at Supplementary Climate JER [[**COM.0343.0012]]-[[COM.0343.0013**]], [291]–[307]; and see T 20-48, ln 45 to 20-49, ln 17 and [[**COM.0343.0014**]].

788 WM Databook [[**YVL.0410.0001**]], Sheet F27 28 - Thermal supply shows that high rank operating supply in 2050 is 205Mt, see cell AD39: "High rank operating" for 2050. This refers to the projected volume of high-rank coal in 2050 from currently-operating coal mines; T 9-64, lns 25-30. See also AD36: AET1.5 seaborne thermal coal demand in 2050.

789 T 9-64, lns 32–34. All projects are categorised in Sheet, 'Project list', column E.

790 T 9-63, lns 3–30.

791 WM Databook [[**YVL.0410.0001**]], cell AD37+AD38.

792 WM Databook [[**YVL.0410.0001**]], cell AD37.

793 See also the proposition agreed by Mr Manley at T 10-21, ln 19 to 10-23, ln 15.

> [AR6 WGIII] does not affect the opinions of the Climate JER. The WGIII report contents and findings are consistent with the Climate JER.
>
> Briefly, [AR6 WGIII] focusses on the mitigation pathways to meet many scenarios, including the five IPCC physical pathways scenarios used in [AR6 WGI]. The five scenarios used in WGI are not significantly different to the much larger number of scenarios considered in WGIII.
>
> As the five SPP pathways referred to in the Climate JER are those used by IPCC WGI there are no required updates to the report. The WGIII reports finding on the required reduction of dependence on the fossil fuels is in line with the cited documents in the JER. The best estimate of the remaining carbon budget from 2022 is close to that presented by WGI and repeated in the JER as Table 1 on pages 58-59, but adjusted for the emission of 80 GT CO_2-e over the last two years.[794]

(4) The purpose of scenarios in climate science

766 AR6 WGIII explains:

> Scenarios and emission pathways are used to explore possible long-term trajectories, the effectiveness of possible mitigation strategies, and to help understand key uncertainties about the future. A scenario is an integrated description of a possible future of the human–environment system (Clarke et al. 24 2014), and could be a qualitative narrative, quantitative projection, or both. Scenarios typically capture interactions and processes driving changes in key driving forces such as population, GDP, technology, lifestyles, and policy, and the consequences on energy use, land use, and emissions. Scenarios are not predictions or forecasts. An emission pathway is a modelled trajectory of anthropogenic emissions (Rogelj et al. 2018a) and, therefore, a part of a scenario.[795]

767 Climate change scenarios are developed for the following four purposes:

> … First, they are constructed to explore possible climate change futures covering the causal chain from (i) socio-economic developments to (ii) energy and land use to (iii) greenhouse gas emissions to (iv) changes in the atmospheric composition of greenhouse gases and short-lived climate forcers and the associated radiative forcing to (v) changes in temperature and precipitation patterns to (vi) bio-physical impacts of climate change and finally to (vii) impacts on socio-economic developments, thus closing the loop. Quantitative scenarios exploring possible climate change futures are often called climate change projections and climate change impact projections[.]
>
> Second, climate change scenarios are developed to explore pathways towards long-term climate goals. Goal-oriented scenarios often carry the word pathway in their name, such as climate change mitigation pathway, climate change adaptation pathway, or more generally climate change transition / transformation pathway. …
>
> Third, climate change scenarios are used to integrate knowledge and analysis between the three different climate change research communities working on the climate system and its response to human interference (linked to WGI of the IPCC), climate change impacts, adaptation and vulnerability to WGII) and climate change mitigation (linked to

794 Supplementary Climate JER [[**COM.0343.0002**]], [4]–[13].
795 AR6 WGIII [[**YVL.0292.0451**]], [21]–[29]. See also Supplementary Climate JER [[**COM.0343.0001]]-[[COM.0343.0002**]], [37]–[44].

> WGIII) … . This involves the adoption of common scenario frameworks that allow the consistent use of, e.g., shared emissions scenarios, socio-economic development scenarios and climate change projections …
>
> Fourth, climate change scenarios and their assessment aim to inform society … . To achieve this, it is important to connect climate change scenarios to broader societal development goals … and relate them to social, sectoral and regional contexts … . To this end, scenarios can be seen as tools for societal discourse and decision making to coordinate perceptions about possible and desirable futures between societal actors …[796]

768 In the Supplementary Climate JER, Professor Church and Dr Warren further explained:

> It is important to understand that the IPCC does not do research but rather assesses research results from the literature and applies it to the questions addressed in the reports. The scenarios are used to ask and answer questions about the implications of policy and societal decisions. IPCC attempts to be policy neutral so rather than specifying a particular solution they present the choices and the implications of those choices. For example, if we want to limit the impacts of greenhouse gas emissions to global warming of 1.5°C or other values (and what that implies), then what are the required actions.[797]

(5) The range of scenarios

769 For AR6, WGIII collected in a dedicated AR6 database 3,131 scenarios, comprising 191 unique modelling frameworks, from 95+ model families.[798] These were then screened, vetted and evaluated for feasibility.[799]

770 Scenarios were submitted by both individual studies and model inter-comparisons.[800] The model inter-comparison studies includes the SSP model comparison scenarios.[801] These SSP scenarios, which were used as the basis for the scenarios chosen in the Climate JER in answer to question 22, were further explained by Professor Church and Dr Warren in the Supplementary Climate JER at [24]–[36].

771 The single model studies included, relevantly, the IEA NZE, which passed vetting.[802]

(6) Variables and dynamics

772 Scenarios are generated using a range of complex variables and dynamics, involving design choices and assumptions about matters such as:

(1) "Target setting — such as CO_2 e- concentrations, temperature targets, CO_2 budgets, temperature profiles, or any combination of targets".

(2) "Efficiency considerations — Cost effectiveness."

---

796 AR6 WGIII Annex III [[**YVL.0457.0001**]], [1.1], II-48-9.
797 Supplementary Climate JER [[**COM.0343.0003**]], [45]–[50].
798 AR6 WGIII Annex III [[**YVL.0457.0068**]], II-68, [22]–[27].
799 AR6 WGIII Annex III [[**YVL.0457.0068**]], [3.1].
800 AR6 WGIII Annex III [[**YVL.0457.0070**]], II-70, [7].
801 AR6 WGIII Annex III [[**YVL.0457.0071**]], II-71, Table II.5.
802 WGIII AR6, Annex III, Table II.6, II-74 [[**YVL.0457.0074**]].

(3) "Policy assumptions — global, regional, industry sector, shared."

(4) "Socio-economic drivers — populations, economic activity, energy per capita, sustainably development trends."

(5) "Technology availability and costs — types, costs, timing, deployment, implementation uptake, technology interactions".[803]

773 For a more detailed account, see AR6 WGIII, Ch 3.[804]

774 Ms Wilson gave a very helpful explanation of the use of models to produce scenarios, including the role of variables, input assumptions, and some different kinds of models that can be used.[805]

(7) Scenarios and mitigation pathways

775 AR6 WGIII identified two reference pathways and five "Illustrative Mitigation Pathways": gradual strengthening of current policies (GS), extensive use of net negative emissions (Neg), renewables (Ren), low demand (LD), and shifting pathways (SP) (see Supplementary Climate JER, [84]–[87], AR6 WGIII, [3.2.5][806] and AR6 WGIII, Annex III, [II.2.4]).[807]

(8) Scenarios and warming levels

776 AR6 WGIII also classified the global scenarios underpinning the assessment in AR6 WGIII, Ch 3 into eight categories scenari— C1 to C8 — depending on their warming levels.

777 These categories become very useful on the substitution argument, where the difference between the best feasible scenario without the Proposed Project (SSP1-1.9 or, by way of a single model example, IEA NZE) and scenarios with a warming of >2.5ºC takes on great significance.

803 Supplementary Climate JER, [53]–[60] [[**COM.0343.0003**]]; [107]–[119] [[**COM.0343.0004**]].
804 AR6 WGIII [[**YVL.0292.0440**]].
805 T 9-100 to 9-102; 9-104 ln 34 to 9-106, ln 1.
806 AR6 WGIII [[**YVL.0292.0458]]-[[YVL.0292.0009**]].
807 AR6 WGIII Annex III [[**YVL.0457.0060]]-[[YVL.0457.0063**]].

778 In that regard, it is worth noting Table II.7[808] in AR6 WGIII, Annex III, which gives the number of scenarios that passed feasibility vetting in each of categories C1 to C5 (all of which are <2.5ºC, and therefore inaccessible with the Proposed Project).

Table II.7. Classification of global pathways into warming levels using MAGICC (Chapter 3.2)

Description	Definition	Scenarios	
		Passed Vetting	All
C1: Below 1.5°C with no or low overshoot	<1.5°C peak warming with ≥33% chance and < 1.5°C end of century warming with >50% chance	**97**	**160**
C2: Below 1.5°C with high overshoot	<1.5°C peak warming with <33% chance and < 1.5°C end of century warming with >50% chance	**133**	**170**
C3: Likely below 2°C	<2°C peak warming with >67% chance	**311**	**374**
C4: Below 2°C	<2°C peak warming with >50% chance	**159**	**213**
C5: Below 2.5°C	<2.5°C peak warming with >50% chance	**212**	**258**
C6: Below 3°C	<3°C peak warming with >50% chance	**97**	**129**
C7: Below 4°C	<4°C peak warming with >50% chance	**164**	**230**
C8: Above 4°C	>4°C peak warming with ≥50% chance	**29**	**40**
No climate assessment	Scenario time horizon <2100; insufficient emissions species reported	**484**	**692**
	Total:	**1686**	**2266**

779 Table 3.2 in WGIII AR6 is also very useful, as it uses the warming categories (C1–C8) to display SSPs, Illustrative Mitigation Pathways, and a range of carbon budget, temperature rise, and timing information.

(Image displayed sideways on next page, due to size).

808 AR6 WGIII Annex III [[**YVL.0457.0075**]]-[[**YVL.0457.0076**]].

p50 (p5-p95) [6]	Global Mean Surface Air Temperature change		GHG emissions Gt CO_2-eq/yr			GHG emissions reductions from 2019 % [5]			Emissions milestones [6,7]			Cumulative CO_2 emissions Gt CO_2 [9]		Cumulative net-negative CO_2 emissions Gt CO_2	Year of net-zero CO_2 to 2100	Temperature change 50% probability [10] °C		Likelihood of staying below (%) [11]			Time when specific temperature levels are reached (with a 50% probability)		
Category [1,2,3,4] [# pathways]	Category description	WG1 SSP & IPs alignment	2030	2040	2050	2030	2040	2050	Peak CO_2 emissions	Peak GHG emissions	net-zero CO_2 [% net-zero pathways]	net-zero GHGs [8] [% net-zero pathways]	2020 to net-zero CO_2	2020-2100			at peak warming	2100	<1.5°C	<2.0°C	<3.0°C	1.5°C	2.0°C	3.0°C
C1 [87]	Below 1.5C with no or limited overshoot	SP_LD Ren, SSP1-19	31 (21-36)	17 (6-23)	9 (1-15)	43 (34-60)	69 (58-90)	84 (73-98)	2020-2025 [100%] (2020-2025)	2020-2025 [100%] (2020-2025)	2050-2055 [100%] (2020-2025)	2095-2100 [52%] (2050-...)	510 (330-710)	320 (-210-570)	-200 (-560-0)	1.6 (1.3-1.6)	1.3 (0.8-1.5)	38 (33-73)	90 (86-98)	100 (99-100)	2030-2035 [90%] (2030-...)	... -... [0%] (...-...)	... -... [0%] (...-...)
C2 [153]	Below 1.5C with high overshoot	Neg SSP2-2.6	42 (31-55)	25 (16-34)	14 (5-21)	23 (0-44)	55 (40-71)	75 (62-91)	2020-2025 [100%] (2020-2030)	2020-2025 [100%] (2020-2030)	2055-2060 [100%] (2045-2070)	2070-2075 [87%] (2055-...)	720 (540-930)	400 (-90-620)	-330 (-620-30)	1.7 (1.4-1.8)	1.4 (0.8-1.5)	24 (15-58)	82 (71-95)	100 (99-100)	2030-2035 [100%] (2030-2035)	... -... [0%] (...-...)	... -... [0%] (...-...)
C3 [311]	Likely below 2°C		44 (32-55)	29 (20-36)	20 (13-26)	21 (1-42)	46 (34-63)	64 (53-77)	2020-2025 [100%] (2020-2030)	2020-2025 [100%] (2020-2030)	2070-2075 [91%] (2060-...)	... -... [30%] (2075-...)	890 (640-1160)	800 (500-1140)	-40 (-280-0)	1.7 (1.4-1.8)	1.6 (1.1-1.8)	20 (13-66)	76 (68-97)	99 (98-100)	2030-2035 [100%] (2030-2040)	... -... [0%] (...-...)	... -... [0%] (...-...)
C3a [204]	Immediate action		41 (30-49)	29 (21-36)	20 (13-27)	26 (12-46)	47 (35-63)	63 (52-77)	2020-2025 [100%] (2020-2025)	2020-2025 [100%] (2020-2025)	2070-2075 [88%] (2060-...)	... -... [24%] (2080-...)	880 (640-1180)	790 (480-1160)	-20 (-280-0)	1.7 (1.4-1.8)	1.6 (1.1-1.8)	22 (14-71)	78 (69-97)	100 (98-100)	2030-2035 [100%] (2030-2040)	... -... [0%] (...-...)	... -... [0%] (...-...)
C3b [97]	NDCs	GS	52 (47-55)	29 (20-36)	18 (10-25)	5 (0-14)	46 (34-63)	68 (56-82)	2020-2025 [100%] (2020-2030)	2020-2025 [100%] (2020-2030)	2065-2070 [96%] (2060-2100)	... -... [42%] (2075-...)	910 (720-1150)	800 (560-1050)	-70 (-300-0)	1.8 (1.4-1.8)	1.6 (1.1-1.7)	17 (12-61)	73 (67-96)	99 (98-99)	2030-2035 [100%] (2030-2035)	... -... [0%] (...-...)	... -... [0%] (...-...)
C4 [153]	Below 2°C		50 (41-56)	38 (28-43)	28 (19-35)	10 (0-27)	31 (20-50)	49 (35-65)	2020-2025 [100%] (2020-2030)	2020-2025 [100%] (2020-2030)	2075-2080 [66%] (2065-...)	... -... [31%] (2075-...)	1210 (970-1500)	1160 (700-1490)	-30 (-390-0)	1.9 (1.5-2.0)	1.8 (1.2-2.0)	11 (7-50)	59 (50-93)	98 (95-99)	2030-2035 [100%] (2030-2035)	... -... [0%] (...-...)	... -... [0%] (...-...)
C5 [212]	Below 2.5°C		52 (46-56)	45 (36-52)	39 (30-49)	6 (-1-18)	18 (4-33)	29 (11-48)	2020-2025 [100%] (2020-2035)	2020-2025 [100%] (2020-2035)	... -... [40%] (2075-...)	... -... [11%] (2090-...)	1780 (1400-2360)	1780 (1260-2360)	0 (-140-0)	2.2 (1.6-2.5)	2.1 (1.5-2.5)	4 (0-28)	37 (18-84)	91 (83-99)	2030-2035 [100%] (2030-2095)	2060-2065 [99%] (2055-2095)	... -... [0%] (...-...)
C6 [97]	Below 3°C	SSP2-4.5 Mod-Act	54 (50-62)	53 (48-61)	52 (45-57)	2 (-10-11)	3 (-14-14)	5 (-2-18)	2030-2035 [100%] (2020-2085)	2030-2035 [100%] (2020-2085)	... -... [0%] (...-...)	... -... [0%] (...-...)	2790 (2440-3520)	2790 (2440-3520)	0 (0-0)	2.7 (2.0-2.9)	2.7 (2.0-2.9)	0 (0-2)	8 (2-45)	71 (53-96)	2030-2035 [100%] (2030-2095)	2050-2055 [100%] (2045-2060)	... -... [0%] (...-...)
C7 [164]	Below 4°C	SSP3-7.0 Cur-Pol	62 (53-69)	67 (56-76)	70 (58-83)	-11 (-18-3)	-19 (-31-0)	-24 (-41-2)	2090-2095 [100%] (2085-2100)	2090-2095 [100%] (2035-2100)	... -... [0%] (...-...)	... -... [0%] (...-...)	4220 (3160-5000)	4220 (3160-5000)	0 (0-0)	3.5 (2.5-3.9)	3.5 (2.5-3.9)	0 (0-0)	0 (0-5)	22 (7-80)	2030-2035 [100%] (2030-2095)	2045-2050 [100%] (2045-2055)	2080-2085 [100%] (2070-2100)
C8 [28]	Above 4°C	SSP5-8.5	71 (68-80)	79 (77-96)	87 (82-112)	-20 (-34-17)	-35 (-66-29)	-46 (-92-36)	2080-2085 [100%] (2060-2100)	2080-2085 [100%] (2060-2100)	... -... [0%] (...-...)	... -... [0%] (...-...)	5600 (4910-7450)	5600 (4910-7450)	0 (0-0)	4.2 (3.3-5.0)	4.2 (3.3-5.0)	0 (0-0)	0 (0-0)	4 (0-27)	2030-2035 [100%] (2025-2035)	2040-2045 [100%] (2040-2050)	2065-2070 [100%] (2060-2075)

(9) Feasibility and probability

780 It is also important, when one comes to assess the climate science evidence, and the substitution argument, to appreciate that the deep uncertainty attending the future trajectory of the planet makes it possible to describe scenarios that are technically feasible, if certain actions are taken, but not to make a probabilistic assessment of which scenario is most likely to transpire.

781 In this regard, Professor Church and Dr Warren gave the following evidence during their concurrent evidence session:[809]

> MR NEKVAPIL: … Professor Church, you were asked some questions about probabilistic adjectives and feasibility. Is it possible on the current state of climate science to make a probabilistic determination as to which scenario is the most likely to occur in future?
>
> PROF CHURCH: I think that's not a matter of climate science.
>
> MR NEKVAPIL: Is it – and to your knowledge, is it possible to do that based on any of the scientific fields reviewed by the IPCC?
>
> PROF CHURCH: I would have thought no. I don't know about whether social sciences can make an assessment of what decisions society and government is likely to make into the future, but it's not a climate science issue.
>
> MR NEKVAPIL: Yes. And, Dr Warren, do you agree with that?
>
> DR WARREN: Yes, I agree with that.
>
> MR NEKVAPIL: And is that, at least in part, because it depends how people behave in the future.
>
> PROF CHURCH: Yes.
>
> MR NEKVAPIL: Dr Warren?
>
> DR WARREN: Yes.

782 See also AR6 WGIII, Annex III, [2.2] and [2.3].[810]

809 T 20-49, lns 18–43.
810 AR6 WGIII Annex III [[**YVL.0457.0058**]].

783 The complexity arises from the Anthroposphere, as shown in the following diagram from the Climate JER:

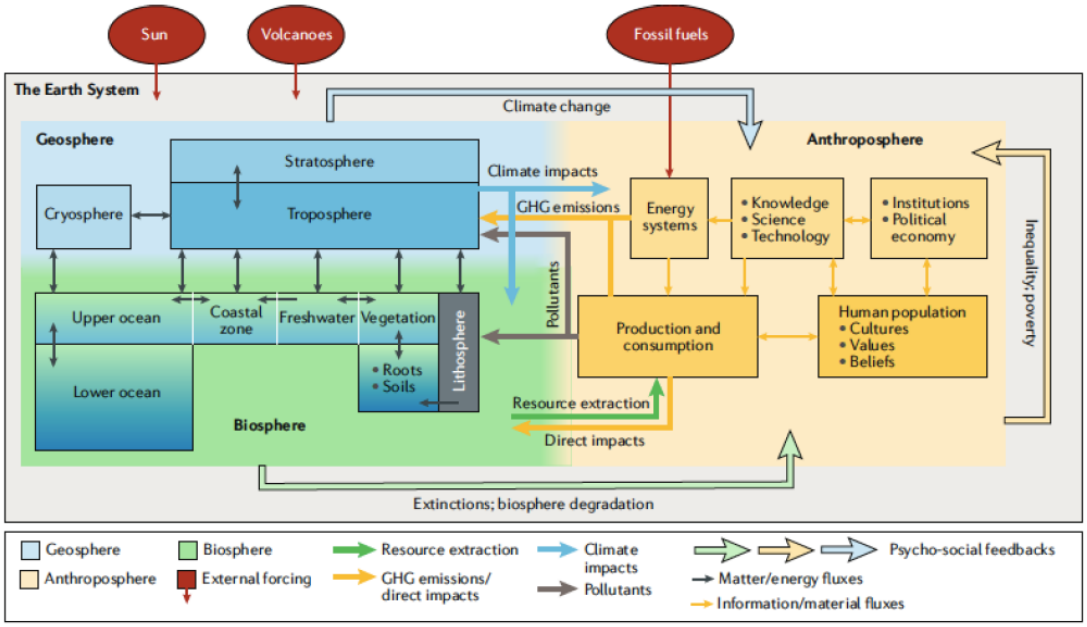


Figure 4: A detailed systems diagram of the Earth System, with humans (the anthroposphere) as a fully integrative, interacting sphere. The internal dynamics of the anthroposphere are depicted as a production/consumption core driven by energy systems and modulated by human societies, as influenced by their cultures, values, institutions, and knowledge. Interactions between the anthroposphere and the rest of the Earth System are two-way, with human greenhouse gas emissions, resource extraction and pollutants driving impacts that reverberate through the geosphere-biosphere system. Feedbacks to the anthroposphere are also important, including direct impacts of climate change and biosphere degradation but also psycho-social feedbacks from the rest of the Earth System and within the anthroposphere. Source: Steffen et al. (2020).

784 Whereas climate science can make probabilistic predictions about the Geosphere, and check the technical feasibility[811] of assumptions about energy systems, production and consumption, and technology, it cannot (at least at present) make probabilistic predictions about what institutions and political economy will do.

(10) Scenarios with higher warming than Scenario 1

785 Professor Church and Dr Warren provided two more scenarios — Scenario 2 and Scenario 3 — as they had been asked to do.

786 Scenario 2 corresponds to SSP2–4.5, and the Moderate Action reference pathway (see C6 row in Table 3.2, [780] above).

787 Scenario 3 corresponds, as requested, to the highest level of temperature difference when it stabilises that is, at the present date, a real possibility. It corresponds to SSP5–8.5 and falls into the C8 warming category (see C8 row in Table 3.2 above).

811 T 20-26, ln 43 (EM Professor Church: "it's more on a technical feasibility than, 'Will governments decide to go down that route?' That's not a question for the IPCC or me as a scientist").

788 The selection of SSP5–8.5 for use as Scenario 3 is consistent with Box 3.3 in AR6 WGIII.[812] As the authors note, "high-end scenarios have become considerably less likely since AR5 but cannot be ruled out. It is important to realize that RCP8.5 and SSP5-8.5 do not represent a typical 'business-as-usual projection but are only useful as high-end, high-risk scenarios. Reference emission scenarios (without additional climate policy) typically end up in C5–C7 categories included in this assessment".[813]

789 In this regard, it should be noted that the two reference pathways (Moderate Action and Current Policies) correspond to C6 (<3ºC) and C7 (<4ºC), respectively.

790 Other scenarios have also been considered in evidence, especially those prepared by the IEA, as well as those prepared by Wood Mackenzie (albeit, those ought be subject to a good degree of caution). For the Supplementary Climate JER, Professor Church prepared the following figure, which helpfully shows the spread of these scenarios:[814]

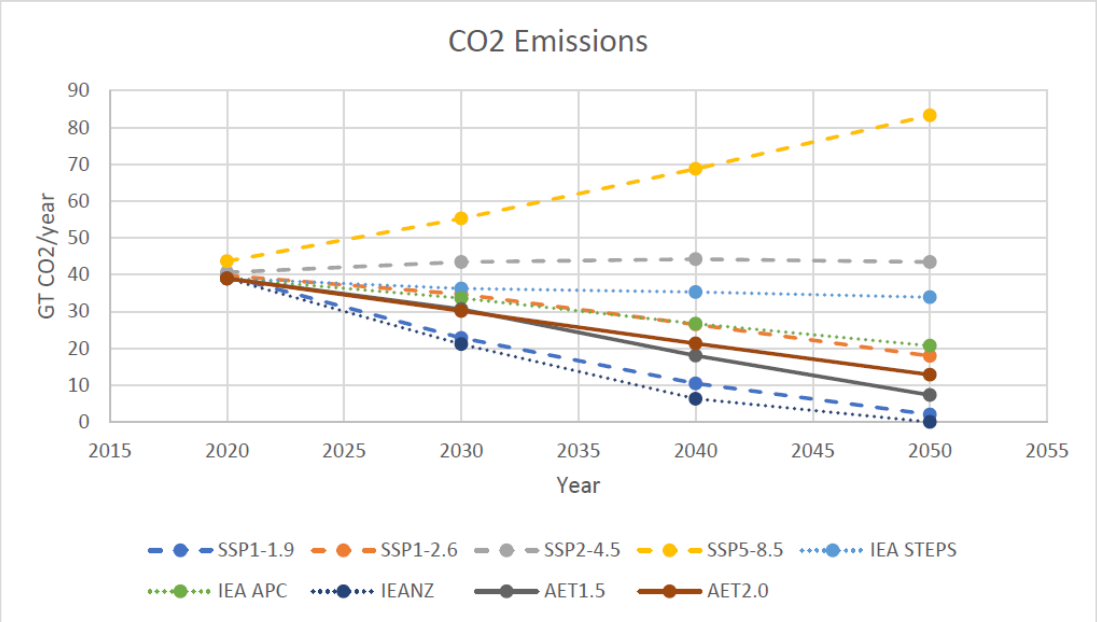
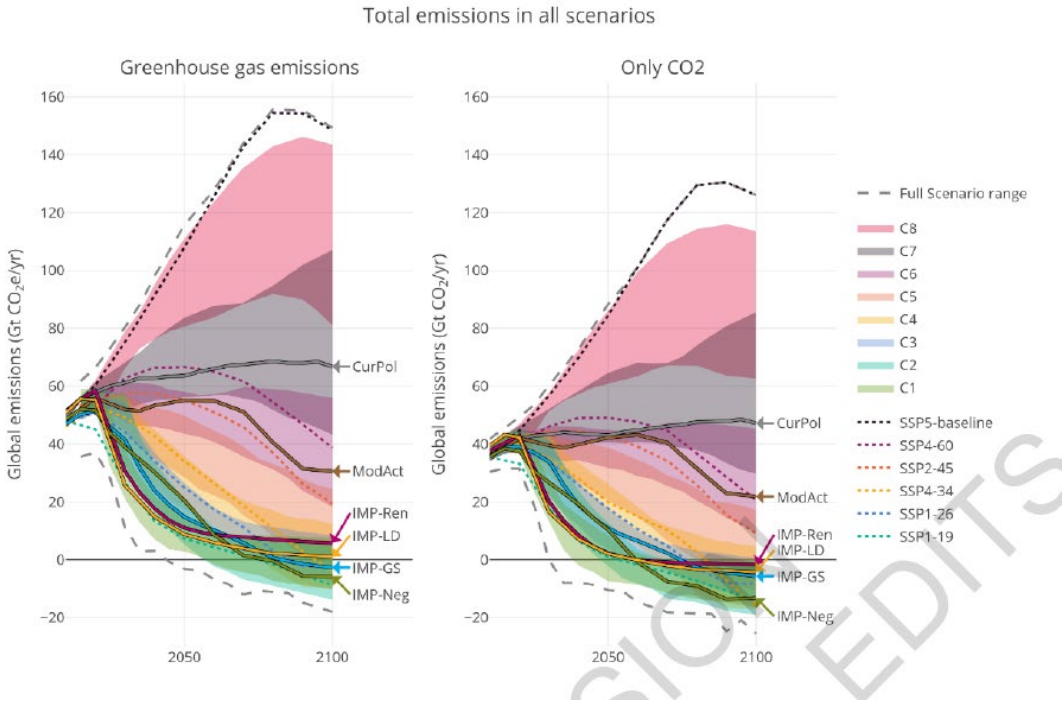


Figure 4. Comparison of the different emission scenarios.
Four of the IPCC scenarios from 2020-2050 (See Figure 1 to see the full 2015 to 2100 scenarios) are shown by the dotted lines. From bottom to top these are SSP1-1.9 (best estimate of 2050/2090 global warming of 1.6 ℃/1.4 ℃), SSP1-2.6 (best estimate of 2050/2090 global warming of 1.7 ℃/1.8 ℃), SSP2-4.5 (best estimate of 2050/2090 global warming of 2.0 ℃/2.7 ℃), SSP5-8.5 (best estimate of 2050/2090 global warming of 2.4 ℃/4.4 ℃).
The IEA STEPS, APS and NZE scenarios are shown (Bottom to top) by the dotted lines.
The Wood Mackenzie AET1.5 and AET2.0 are shown (bottom to top) by the solid lines.

791 It is important to remember that there are thousands of other feasible scenarios falling within this range (and a potentially infinite range of possible pathways that may in fact

812 AR6 WGIII [[**YVL.0292.0467**]], 3-28.
813 AR6 WGIII [[**YVL.0292.0001**]], 3-28, [26]–[30].
814 Supplementary Climate JER [[**COM.0343.0009**]].

transpire). For context, see Figure 3.10 from AR6 WGIII,[815] which can then usefully be matched up to Table 3.2, [780] above:



(v) Additional evidence about impacts on the non-human environment

(1) Agreed facts

792 As to the non-human aspects of Queensland's environment, the most relevant agreed facts are those numbered 34, 35, 40 and 42 in [11] above, and the agreed fact in [12] above.

(2) Generally

793 In addition to the agreed facts, the evidence before the Court shows the awesome scale of harm that will result to Queensland's 'natural' environment, as the result of the future accretion of GHG emissions in the atmosphere, the degree of harm depending (generally speaking) on the volume of further emissions.

794 As Professor Church and Dr Warren explained:

> Future climate change will be driven in the near-term (several decades into the future) by the further amount of greenhouse gas emissions emitted by human activities, and in the longer term (centuries) by both human emissions and feedbacks in the climate system (e.g., melting of permafrost, conversion of the Amazon rainforest to a savanna) that could emit significant additional amounts of greenhouse gases to the atmosphere. Climate scientists use a number of approaches to project how the climate system might change in the future and what impacts might occur because of these changes. The most common approach to explore future climate changes is based on quantitative projections by Earth

815 ARG WGIII [[**YVL.0292.0467**]].

> System models, which are based on mathematical descriptions of the major features of the Earth System and their interactions. The models are driven by projected human emissions of greenhouse gases and land-use change, as well as natural drivers of change such as changes in solar radiation. Model outputs provide detailed insights into the risks that humanity faces at various levels of climate change, often characterised by changes in global average surface temperature. Evidence from past changes in the Earth System, such as loss of mass from glaciers and ice sheets during previous warm periods, provide important supplemental information that give insights into how the Earth System might change in the future.[816]

795 In the Climate JER, the experts identified a range of near-term changes, by reference to CSIRO and BOM reports.[817] We refer to that list in full, without setting it out here.

796 As to consequences for Australian ecosystems of more than 3 degrees of warming, see *The risks to Australia of a 3°C warmer world*, Ch 7, [[**YVL.0128.0039**]]ff.

(3) Sea level rise

797 The Climate JER sets out a carefully expressed and eloquent joint opinion about sea level rise — see [1747]–[1914]. We refer to it in full, and do not summarise it here.[818]

798 Rather, we note the following key points.

799 **First**, in high emission scenarios, sea level will rise by metres over coming centuries and millennia. Looked at through a lens requiring long-range inter-generational equity, it is therefore important not to focus only on 2100. "Projections to 2300 in the IPCC AR6 under SSP1-2.6 are for a sea-level rise of 0.5 to 3 m, and under SSP5-8.5 a rise of 2 to 7 m. They [the IPCC] also noted rises higher than 15 m cannot be ruled out."[819]

800 **Second**, sea-level rises under high emission scenarios are effectively irreversible on centennial and potentially millennial time scales, and could be significantly determined by warming thresholds occurring before 2100.[820]

801 **Third**, the evidence in the affidavits of the Gutchens and Jiritju Fourmile is consistent with the expected impact of rising sea levels and climate change, and future impacts expected under high emission scenarios are likely to be substantially larger than recently observed impacts, with higher rates of sea level rise in Cairns and Zenadth Kes also leading to more frequent and severe flooding events and increased coastal erosion.[821]

---

816 Climate JER [[**COM.0067.0029**]], [646]–[661].
817 Climate JER [[**COM.0067.0029**]], [662]–[697].
818 Likewise we refer to the First Nations evidence in full regarding sea level rise. In particular, we ask the Court to listen to the evidence from Kapua Gutchen on 12 May 2022 and Florence Gutchen on 13 May 2022.
819 Climate JER [[**COM.0067.0074**]], [1811]–[1813].
820 Climate JER [[**COM.0067.0075**]], [1814]–[1816].
821 Climate JER [[**COM.0067.0078**]], [1901]–[1914].

802 **Fourth**, a table was prepared showing projected sea level rise in 2100 in Zenadth Kes and Cairns, together with global mean rise, for the AR5's RCP2.6, RCP4.5 and RCP8.5:

	RCP2.6	RCP4.5	RCP8.5
Global mean rise (m) Rate of rise (mm/yr)	0.43 [0.29 to 0.59] 4 [2 to 6]	0.55 (0.39–0.72) 7(4–9)	0.84 [0.61 to 1.10] 15 [10 to 20]
Cairns region rise (m) Rate of rise (mm/yr)	0.44 [0.31-0.60] 4.4 [2.7-6.5]	0.56 [0.41-0.76] 6.7 [4.6-9.5]	0.88 (0.66-1.20) 15.2 (11.3-21.3)
Torres Strait rise (m) Rate of rise (mm/yr)	0.45 [0.32-0.61] 4.5 [2.8-6.6]	0.58 [0.43-0.77] 7.0 [4.9-9.9]	0.90 (0.68-1.21) 15.5 [11.5-21.7]

803 It may be observed that for RCP2.6, the global mean rise is close to the rise in Cairns and Zenadth Kes. From this, it may be deduced that the sea level rise in 2100 for Cairns and Zenadth Kes will be close to the global mean rise of 0.38m predicted for SSP1-1.9 in 2100:

	SSP1-1.9	SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP5-8.5 Low confidence
Global mean rise (m) Rate of rise (mm/yr)	0.38 (0.28-0.55) 4.3 (2.5-6.6)	0.44 (0.33-0.61) 5.3 (3.3-8.1)	0.68 (0.55-0.90) 10.4 (7.5-14.9)	0.77 (0.63-1.02) 12.2 (8.8-17.7)	0.88 (0.63-1.61) 15.9 (8.8-30.2)

804 Finally, and helpfully given the agreement by the energy markets experts that the Proposed Project is inconsistent with any scenario below 2.5°C, in explaining thresholds and irreversible changes, Professor Church and Dr Warren say that:

> … for a sustained warming of 2.5° C (a warming we could attain during the 21st century without strong mitigation), Gregory et al. (2020) estimate the Greenland ice sheet might lose the equivalent of about 4 m of sea-level rise over millennia, and would not regrow to its present size if late 20th century climate was restored. For Antarctica, the contribution under high emissions is uncertain but could amount to many metres as a result of ice sheet instabilities and would be essentially irreversible. (Kemper-Fox et al. 2021).[822]

(4) AR6 WGII

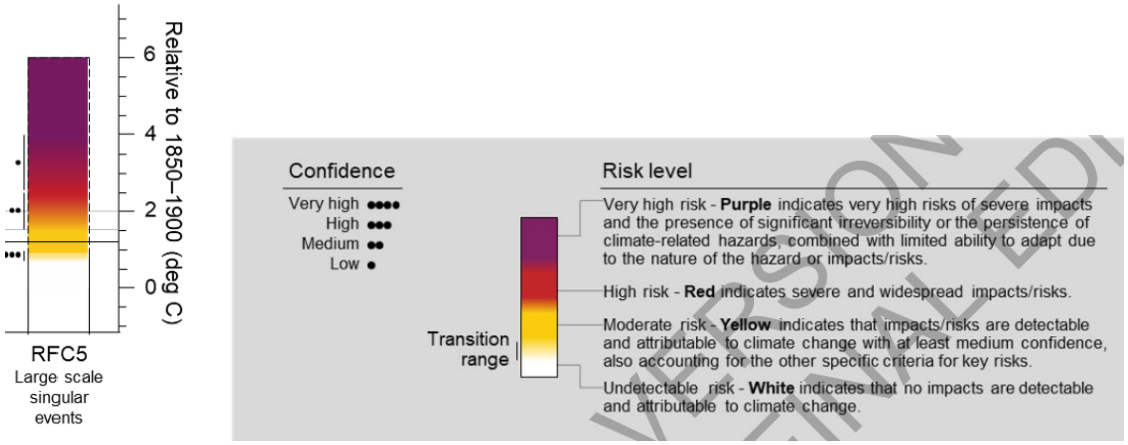
805 After the Climate JER, but before the climate and GHG experts gave their oral evidence, AR6 WGII was published. The experts were briefed with it, and reviewed it before giving oral evidence. Professor Church opined that AR6 WGII was consistent with, and confirms, the opinions in the Climate JER.[823] Dr Warren agreed, adding that "[s]ome of the effects on climate have just increased in terms of confidence".[824]

822 Climate JER [[**COM.0067.0095**]]-[[**COM.0067.0096**]], [2348]–[2354].
823 T 20-20, ln 40-42.
824 T 20-20, ln 46-47.

806 That is true of their opinions on tipping points. AR6 WGII says:

> Present-day risks associated with large-scale singular events (sometimes called tipping points or critical thresholds) (RFC5) are already moderate (*high confidence*), with a transition to high risk between 1.5–2.5ºC (medium confidence) and to very high risk (new in AR6) between 2.5–4ºC (low confidence).[825]

807 Figure 16.15 supports the opinions in the Climate JER about the increasing likelihood of tipping points above 1.7 ºC, and then 2ºC:[826]



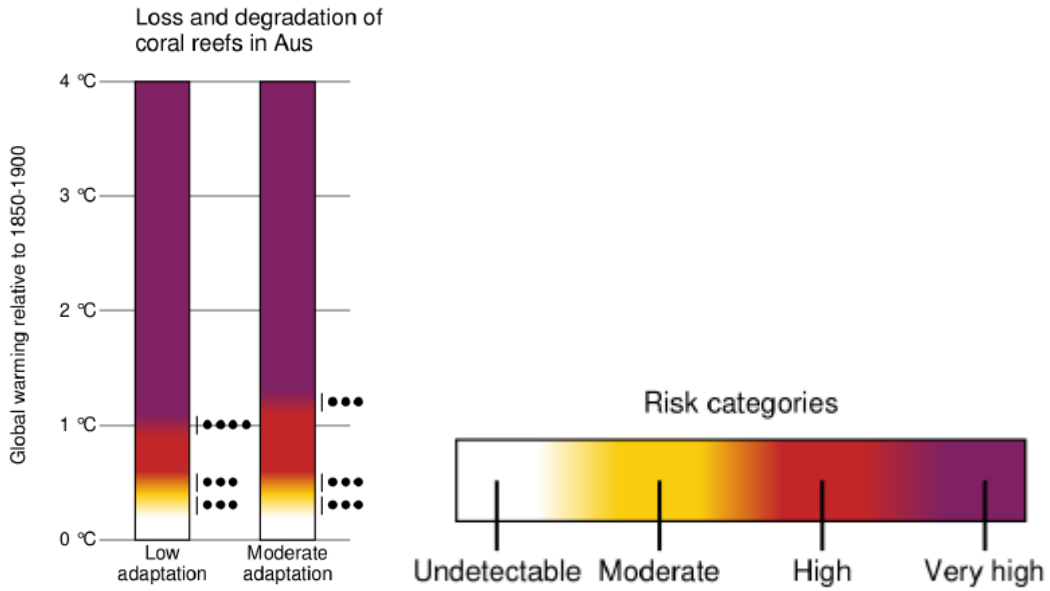
808 The explanatory text for these 'burning ember' diagrams states, "**RFC5 Large-scale singular events**: relatively large, abrupt and sometimes irreversible changes in systems caused by global warming, such as ice sheet disintegration or thermohaline circulation slowing. Comparison of the increase of risk across [Reasons For Concern (**RFCs**)] indicates the relative sensitivity of RFCs to increases in [global mean surface air temperature (**GSAT**)]. The levels of risk illustrated reflect the judgments of IPCC author experts from WGI and WGII".[827]

809 AR6 WGII evaluates the science about Australasia in Ch 11. It is expressed efficiently, and there is limited utility in further summarising it here; we refer to it in full. Box 11.2 (11-37ff) focuses on the Great Barrier Reef. Box 11.4 (11-45ff) describes changing flood risk. Box 11.6 concerns sea-level rise.

825 AR6 WGII [[**YVL.0289.0001**]], 16-7, [55] – 16-8, [2].
826 AR6 WGII **[[YVL.0289.0001]]**, 16-99.
827 AR6 WGII [[**YVL.0289.0001**]], 16-99, [16]–[19].

(5) Great Barrier Reef

810 The risks to the Great Barrier Reef are shown in a 'burning ember' diagram (Figure 11.6):



811 As AR6 WGII explains, "[w]hile there is no risk category beyond very high, risks obviously get worse with further global warming, and the risk for coral reefs is already very high".[828]

812 Many more references could be given; but it is unnecessary to do so in light of the agreement, in particular to the facts stated at 40 in [11] above.

(vi) Additional evidence about impacts on human aspects of the environment, and limitations on human rights

(1) The agreed facts

813 Again, it is important to start with the agreed facts numbered 34, 35, 41, 42, 44, 45 in [11] above, and the agreed fact in [12] above.

(2) The evidence of Professor Church and Dr Warren

814 Importantly, Professor Church and Dr Warren expressed the joint opinion that:

(1) the impacts described by the Gutchen family in their written evidence — particularly as to long-term coastal erosion and flooding, damage to infrastructure and coastal features caused by storm surges, and the health impacts of extreme heat — can be linked to changes in the climate system that are ultimately caused

828 AR6 WGII [[**YVL.0289.0001**]], 11-84, [3]–[4].

by the increase in global mean surface air temperature compared to the pre-industrial level.[829]

(2) all of those impacts are projected to become more severe, to varying degrees, in the scenarios articulated in the Climate JER.[830]

815 Consistently with the fact agreed at 45.2 in [11] above, the climate and GHG experts opined that,

> on the basis of sea level rise alone, the potential changes in the climate system over the next few centuries could well pose an existential threat to First Nations Torres Strait island societies, which have lived on their home islands for tens of thousands of years.[831]

816 AR6 WGII states that RFC5 (tipping point risk: see [807807807807807] above) includes,

> risks that are irreversible, such as species extinction, coral reef degradation, loss of cultural heritage, or loss of a small island due to sea level rise. Once such risks materialise, as is expected at very high risk levels, the impacts would persist even if global temperatures would subsequently decline to levels associated with lower levels of risk in an 'overshooting' scenario.[832]

817 AR6 WGII [[YVL.0289.0001]], [11.4.1] (11-69) evaluates the science on climate-related impacts on Aboriginal peoples and Torres Strait Islander peoples; summarised in Table 11.10 (11-70).

818 More generally, as to health and wellbeing impacts, see AR6 WGII, at [11.36].[833]

(3) <u>The evidence of Professor Bambrick and Mr Coleman</u>

01. Introduction

819 Professor Hilary Bambrick is the Director of the National Centre for Epidemiology and Population Health at the Australian National University. At the time of giving evidence, she was an Adjunct Professor at Queensland University of Technology.

820 Mr Anthony Coleman is a qualified actuary, with over 40 years of experience.

821 Professor Bambrick and Mr Coleman each gave evidence to the Court about the human impacts of climate change from their respective fields of expertise: public health and actuarial studies.

822 Their evidence is consistent with the agreement between the parties that climate change is having, and will continue to have, increasingly adverse human impacts in Queensland.

---

829 Climate JER [[**COM.0067.0045**]], [1080]–[1087], and see [1088]–[1107].
830 Climate JER [[**COM.0067.0046**]], [1108]–[1109], and see [1110]–[1170].
831 Climate JER [[**COM.0067.0047**]], [1130]-[1133].
832 AR6 WGII [[**YVL.0289.0001**]], 16-8 [12]–[15].
833 [[**YVL.0289.0001**]].

823 Professor Bambrick explained that humans are creatures of our environment: despite all our modern technologies, we remain fundamentally dependent on the environment in which we live. And as the climate changes, the risks to our health change as well.[834]

824 The public health effects of climate change are already being felt by communities in Queensland and across Australia. In her written report, filed in February 2022, Professor Bambrick provided several examples of climate-related health events within recent memory.

02. Recent examples of climate-related health events

825 Her evidence outlined events such as the Black Saturday bushfires in Victoria in 2009, during which catastrophic fires killed 174 people and injured 414 more; the Dengue outbreak in Far North Queensland in 2009 that caused a shortage in the national blood supply; the floods in southeast Queensland in the summer of 2010-2011; and the Black Summer bushfires of 2019-2020, during which hazardous smoke covered the major cities of Brisbane, Sydney, Melbourne and Canberra, exposing more than a third of the Australian population to dangerous levels of particular pollution.[835]

826 Within the short period between her report being filed and Professor Bambrick giving evidence, Queensland suffered two further extreme climate events with significant public health consequences.

827 Professor Bambrick updated the Court first on the floods that ravaged large parts of Queensland and northern New South Wales between February-April 2022. Some 20,000 homes had been inundated and 22 people had lost their lives.[836] In addition to these direct impacts, Professor Bambrick expressed significant concerns about the ongoing mental health impacts of the floods, having regard to the loss of lives and property, and widespread displacement.[837]

828 Professor Bambrick also updated the Court on the spread of Japanese Encephalitis since the recent rainfall and flooding events.[838] At the time of filing her report, Japanese Encephalitis was a rare disease in Australia — over the course of the past ten years, there had been approximately 15 cases identified. By contrast, this year alone has seen 37 diagnosed cases in Australia.[839] The Court heard that the disease is not only becoming more widespread in terms of numbers, but also geographically, now presenting across four States.[840]

---

834 Public Health Report [[**YVL.0280.0015**]] [66]; T7-18 [31]-[35].
835 Public Health Report [[**YVL.0280.0016-0017**]] [70]-[71].
836 T 7-8, lns 15-35.
837 T 7-9, lns 8-13.
838 T 7-9.
839 T 7-9, lns 36.
840 T 7-20, ln 1-10.

03. As emissions and global average temperature increase, human impacts will too

829 Professor Bambrick gave evidence that extreme heat events are predicted to become more frequent, more intense, and to last longer.[841] The direct clinical effects of such events include heat exhaustion, heat stroke and, ultimately, fatalities.

830 Extreme heat events are only one example of the worsening public health impacts we will see as the Earth continues to warm, but they are certainly the most profound, at least in Queensland. As Mr Coleman's report showed, and as he emphasised in his oral evidence, Queensland will be far and away the worst-affected State,[842] adopting a conservative estimate of 1,250 deaths per annum by 2100 in his 'Moderate Scenario' (which equates, approximately, to the climate experts' Scenario 2,[843] which equates approximately to the best scenario that can be achieved with the Proposed Project: see (see [38], C-IV(iv)(10)).

831 Climate change will also mean that bushfires are more likely to occur, more often, over a longer season, and across a wider geographical area.[844] Bushfires and associated smoke have not only primary health impacts, such as death and injury, but also long-lasting consequences for survivors and communities, including grief, displacement, and trauma.[845]

832 Mr Coleman observed that the 2019-20 bushfire season in eastern Australia resulted not only in the direct deaths of 33 people,[846] but also 429 premature deaths caused by smoke-related illness, an additional 3,230 hospital admissions for cardiovascular and respiratory disorders, 1,523 emergency attendances for asthma,[847] and the forced evacuation and displacement of thousands of people.[848]

833 The spread of mosquito borne diseases is also likely to increase,[849] and emergence of new diseases in human populations will become more likely.[850] Adverse effects on water and food security are also predicted, with resulting health impacts, such as the spread of diseases, contaminated water supplies, and critically, the loss of crops.[851]

834 Climate change will also, very likely, result in the loss of the Great Barrier Reef. Tourism associated with the Great Barrier Reef employs around 60,000 people in Queensland. The loss of the reef will therefore result in substantial loss of livelihood,

---

841 Public Health Report [[**YVL.0280.0019**]], [75]; [[**YVL.0280.022**]], line 95.
842 See paragraph 845 below. See Actuarial Report [[**YVL.0279.0068**]], Appendix C, Table 3.
843 Actuarial Report [[**YVL.0279.0009**]], [43], Table 2A.
844 Public Health Report [[**YVL.0280.0025**]], [115].
845 Public Health Report [[**YVL.0280.0025**]], [115].
846 Actuarial Report [[**YVL.0279.0032**]], [148].
847 Actuarial Report [[**YVL.0279.0032**]], [152].
848 Actuarial Report [[**YVL.0279.0032**]], [148].
849 Public Health Report [[**YVL.0280.0028-0029**]] [132]-[140].
850 Public Health Report [[**YVL.0280.0033**]], [168].
851 Public Health Report [[**YVL.0280.0024**]], [106]-[109]; [[**YVL.0280.0030-0031**]], [145]-[158]. See also T 7-9, lns 1-2.

causing, in combination with the loss of an iconic natural environment, significant psychosocial distress.[852]

835 Professor Bambrick described the broader psychosocial effects of the loss of the natural environment as a type of 'solastalgia', giving the example of the destruction of the south coast of New South Wales by the Black Summer bushfires: "that sense of loss of what we did have rather than nostalgia of looking back with joy on something in the past. It's sort of looking back with sadness … increasingly we're seeing that as a significant problem".[853]

836 But the mental health impacts caused by climate change are also more direct and immediate than solastalgia — including the trauma involved in surviving extreme and catastrophic events, the loss of livelihoods and community cohesion through 'slow burning' catastrophes such as drought, and the anxiety over concern for future climate, which all represent significant challenges.[854] And these are only what we have started to experience with the changes we have seen to date.

837 The effects of climate change also likely present challenges to the provision of health services and systems, through increased and potentially highly unpredictable loads from extreme events, impacts on the health workforce, and direct damage to facilities and infrastructure.[855]

838 Professor Bambrick's evidence was that the direct impacts of fatalities and injury caused by climate change are likely to be only the tip of the iceberg. Tertiary, broader impacts such as displacement, conflict and famine are likely to deliver the greatest ultimate burden to human health.[856]

839 In this regard, the concept of a tipping point is also useful. AR6 WGII observed that:

> Social tipping points refer to similar mechanisms of destabilization resulting from impacts of climate change on human societies at multiple scales and the societal context conditions in which these impacts occur. They are reached when climate change impacts force destabilizing social transformations from one state to another … : from sporadic losses due to climate change to chronic losses and impoverishment, from peace to violence, from a democracy to an authoritarian regime, from adequate food provisioning to famine, or into forced migration. For example, small variations in the rainfall or temperature can jeopardise livelihoods that are dependent upon subsistence agriculture, which can lead to migration and/or tensions around resources … . Social tipping points can also occur when intangible elements that ensure the survival of individuals and communities are eroded or removed. This is the case, for example, when the social fabric of a community falls apart. The Millennium drought in Australia led to higher rates of male suicide, especially among farmers, and droughts in Ghana led to similar outcome

852 Public Health Report [[**YVL.0280.0033**]]-[[**YVL.0280.0034**]], [170]-[173].
853 T 7-24, ln 46 – T 7-25, lns 1-14.
854 Public Health Report [[**YVL.0280.0034]]-[[YVL.0280.0035**]], [178]-[183].
855 Public Health Report [[**YVL.0280.0035**]], [184]-[187].
856 Public Health Report [[**YVL.0280.00140-0015**]], [61]; T 7-30, lns 15-21.

> when people were forced to drink from the same water source as their animals, which they perceived as robbing them of their human dignity …

840 Already, climate impacts "are cascading, compounding and aggregating across sectors and systems due to complex interactions".[857] And in the future, "Cascading, compounding and aggregate impacts are projected to grow due to a concurrent increase in heatwaves, droughts, fires, storms, floods and sea level".[858]

04. The relationship between temperature increase and human impact is not linear, but involves step changes

841 Professor Bambrick's evidence was that, as the Earth continues to warm, the public health impacts of climate change will become increasingly catastrophic — put simply: "the more global warming there is, the bigger the risks to human health and life."[859] However, that relationship is not linear. Rather, public health consequences may include orders of magnitude or 'step changes' in health outcomes as certain climate thresholds are surpassed; like flicking a switch on and off.[860]

842 Professor Bambrick used heatwaves, as an instructive example. The ambient temperature affects hospitalisation and mortality rates, and there are different 'thresholds' in different parts of the country, accounting for some acclimatisation. For example, the increase in hospitalisations and fatalities occurs at a lower temperature in Tasmania than it does in Queensland. Professor Bambrick explained that the surpassing of certain temperature thresholds might involve significantly higher rates of hospitalisations and fatalities. For example, while a 35-degree day might result in 300 additional hospitalisations, a 36-degree day might result in an additional 3,000.[861] Mr Coleman's evidence was consistent on this point.[862]

05. The burden of climate change is not felt equally across geographical areas

843 The evidence was that climate change impacts do not have an even geographical spread, and that people living in Queensland will bear a disproportionate burden as compared with other States and Territories.

844 Mr Coleman gave evidence that certain impacts would be felt more strongly by Queenslanders because of its unique topography and climate. He said that Queensland bears a "very heavily disproportionate cost of climate change compared to the rest of Australia."[863] In particular, he says it is heavily exposed to cyclones "far more than any other state by a long way"[864] and is going to suffer more from heatwaves because a

---

857 WGII AR6 [[**YVL.0289.0001**]], 11-73, [16]–[17].
858 WGII AR6 [[**YVL.0289.0001**]], 11-74, [32]–[33].
859 Public Health Report [[**YVL.0280.0003**]] [4].
860 Public Health Report [[**YVL.0280.0005**]] [8]; [[**YVL.0280.0015**]] [63].
861 T7-18, lines 37-47 (numbers used for illustrative purposes only).
862 T13-24, lines 5-32.
863 T13-25, lines 16-18.
864 T13-25, lines 16-22.

much larger proportion of its population is exposed to the likelihood of temperatures over 40 degrees than any other state of Australia.[865]

845 He also observed in his report that more than two-thirds of all residential properties exposed to climate change risk in Australia are in Queensland.[866]

846 It is clear from the evidence that the effects of climate change do not fall like acid rain; it matters where you are. For Queenslanders, the result is a substantial and disproportionate burden.

06. Impacts will be disproportionate

847 It is agreed that the adverse impacts described above will disproportionately affect:[867]

(1) children who are living now and are born in future, at an ever-increasing level into the future (in particular, present and future children will be at a disproportionately greater risk of poorer health outcomes and premature mortality); and

(2) older people, people living in poverty, other disadvantaged people, and First Nations Aboriginal and Torres Strait Islander peoples.

848 And it is also agreed[868] that First Nations Aboriginal and Torres Strait Islander peoples will be adversely affected by the continued accretion of greenhouse gases in the atmosphere in specific ways, including by causing:[869]

(1) disruption of traditional cultural practices, including those which depend on connection to place and ecological systems;

(2) displacement from traditional lands;

(3) impediments to the continuation, preservation and development of culture into the future and for future generations; and

(4) irreversible harm to their traditional land and waters.

849 Children are disproportionately impacted by climate change in two key ways. First, young children are at increased risk of the health effects of climate change, such as extreme heat events, because of their underlying vulnerabilities.[870]

---

865 Actuarial Report [[**YVL.0279.0016**]], [73].
866 Actuarial Report [[**YVL.0279.0016**]], [73].
867 Issues not in dispute [[**COM.0328.0002**]], [5]; YV and TBA EA Objection [[**COM.0053.0015**]], [44].
868 Issues not in dispute [[**COM.0328.0002**]], [5]; YV and TBA EA Objection [[**COM.0053.0015-0016**]], [45.1]-[45.4].
869 YV and TBA EA Objection [[**COM.0053.0015-16**]], [45.1]-[45.4].
870 Public Health Report [[**YVL.0280.0005**]] [7].

850 Second, because they will be alive for longer than adults, children will disproportionately bear the impacts of climate change.[871]

851 Throughout this case, and in the scientific literature, the year 2100 has been used as a reference point by which we measure the increase in global average surface temperatures since pre-industrial times. The adults of today will not be around to experience that future. But the children of today will. A child born in 2020 will never know a world that hasn't yet felt the effects of climate change. And over their lifetime, the climate will continue to change around them, to a greater or lesser extent depending on the choices we make today.[872]

852 For example, the evidence is that on the current trajectory, by the end of the century large areas of Queensland will be unliveable. It is the young Queenslanders of today who will experience that future and who will be subjected to the increased risks to health and life wrought by climate change.[873]

853 At the other end of the age spectrum, older people are also disproportionately impacted by climate change through their underlying vulnerabilities to extreme heat events.[874] (And, of course, the young today will be the old in 2100.)

854 The evidence is also clear that First Nations peoples disproportionately suffer the human impacts of climate change. Professor Bambrick observed that First Nations peoples carry a disproportionately high burden of underlying disease, being 3.3 times as likely to have diabetes, twice as likely to have asthma, and more than twice as likely to have a chronic kidney disease as compared with the rest of the population.[875] This makes First Nations peoples more vulnerable to the health effects of climate change, such as extreme heat events.[876]

855 The psychosocial impacts of climate change are particularly profound for First Nations communities, who have special spiritual and cultural connections to the land and its ecosystems.[877] Professor Bambrick's evidence on this, of course, only serves to reinforce the overwhelming evidence of the First Nations witnesses about the impact of climate change on their Countries, cultures, communities and obligations.[878]

856 The health burden of climate change will be particularly profound in the communities of Zenadth Kes, including those visited by the Court. Consisting of low-lying islands and sand and coral cays, Zenadth Kes is subject to sea level intrusion, providing a breeding ground for mosquito-borne diseases, including malaria. It is predicted that

---

871 This is the inevitable consequence of the agreed facts, and the evidence in this case about climate impacts. See also *Minister for the Environment v Sharma* [2022] FCAFC 35, [136].
872 See Public Health Report [[**YVL.0280.0040**]], [209].
873 Public Health Report [[**YVL.0280.0022**]], [96].
874 Public Health Report [[**YVL.0280.0020**]], [85].
875 Public Health Report [[**YVL.0280.0013**]], [50].
876 Public Health Report [[**YVL.0280.0037**]].
877 Public Health Report [[**YVL. 0280.0036**]], [189].
878 Which we invite the Court to consider in full.

climate change will lead to shortages of safe drinking water and changes in key seafood sources.[879]

857 Mr Coleman predicted that approximately 2,000 Torres Strait Islander people may be required to relocate because of coastal inundation due to rising sea levels.[880] The psychosocial and cultural impacts of such displacement have been articulated by the First Nations witnesses in this case: Kapua, Florence and Lala Gutchen, Jiritju Fourmile and Harold Ludwick.[881]

07. Different scenarios result in very different impacts

858 The Applicant opened its case by accepting the above impacts but arguing that its contributions do not matter or make a difference.[882]

859 But that is not true. The choices we make today will determine the future we live in tomorrow, and for generations to come.

860 Without the Proposed Project, the climate experts' Scenario 1[883] remains feasible, albeit very challenging. Scenario 2 would see stabilisation at or very close to 3ºC.[884] And Scenario 3 would see temperatures rise above 4ºC by late in the century.[885] Mr Manley and Ms Wilson told the Court that the Proposed Project proceeding is inconsistent with scenarios of less than 2.5ºC of warming.[886] They agreed that the Proposed Project can exist only in a world with at least as much seaborne thermal coal supply as in WM ETO (2.5–2.7ºC warming[887]), which Professor Church and Dr Warren agree is similar to the IEA STEPS scenario (either 2.6 or 2.7ºC warming[888]). These scenarios are slightly better than the climate experts' Scenario 2. But the climate experts make clear that Scenario 2 may not be possible, as tipping points may push the world past Scenario 2 into Scenario 3. The same is true of WM ETO, albeit the risk of triggering the tipping points is slightly lower than in Scenario 2. In other words, for the Proposed Project to proceed, the world must exceed 2.5ºC, with a real risk of up to 4.4ºC or higher, with global climatic conditions not seen for many millions of years.

861 The impact on humans as between the scenarios is vastly different.

862 Mr Coleman quantified the risk of impacts according to three scenarios: his Paris scenario was broadly consistent with the climate science experts' Scenario 1, his

879 Public Health Report [[**YVL.0280.0037**]], [198].
880 Actuarial Report [[**YVL.0279.0038**]], [182].
881 Which we invite the Court to read and listen to in full.
882 T 1-17, lns 35-36.
883 Climate JER [[**COM.0067.0034**]] [780].
884 Climate JER [[**COM.0067.0035**]] [816]-[817].
885 Climate JER [[**COM.0067.0035**]]. [822]-[833].
886 T10-88, lines 1-45.
887 T 10-87, lns 43–45; T 10-88, lns 31–35.
888 Supplementary Climate JER [[**COM.0341.0013**]].

Moderate scenario with their Scenario 2, and his Fossil Fuel Future scenario with their Scenario 3.[889]

863 Where he was able to, Mr Coleman demonstrated the difference in human impact under each scenario. When measuring differences in cost, Mr Coleman compared the costs under Scenarios 2 and 3 to the cost under Scenario 1 — because Scenario 1 is the best possible future humanity can aim for, the cost of that scenario is inevitable, and therefore provides a baseline against which the other scenarios can be measured.[890]

864 Tables 18[891] and 19[892] in his report demonstrate the difference in costs related to property damage, loss of agricultural production and deaths from cyclones, floods, bushfires, heatwaves and drought, and sea level rise in Scenario 2 and Scenario 3 respectively.

865 In total, the difference is between $5377 million per annum (for Scenario 2) and $19,020 million per annum (for Scenario 3).

866 Under Scenario 2, Mr Coleman found there to be a risk of 1,263 additional people in Queensland dying every year between 2021-2100 for reasons attributed to climate change.[893] 1,250 of these people would die because of heatwaves and drought.

867 Mr Coleman found that 8,663 additional people in Queensland would die each year under Scenario 3.

868 People impacted by morbidity in Queensland would increase from 45,213 people (Scenario 2) to 157,958 people (under Scenario 3).[894]

869 Professor Bambrick wrote in her report that the health outcomes under Scenario 2 and 3 will be far worse than the health outcomes under Scenario 1.[895]

870 She discussed the 'cascading' extreme public health crises that will occur in Scenario 3, which will cause "significant system failures."[896]

871 Ultimately, Professor Bambrick's evidence was that all global warming is bad for human health, but that if we reach 4ºC warming by 2100 (Scenario 3), the public health impacts of climate change will be 'unimaginable'.[897]

889 Actuarial Report [[**YVL.0279.0010**]].
890 Actuarial Report [[**YVL.0279.0010**]].
891 Actuarial Report [[**YVL.0279.0045**]].
892 Actuarial Report [[**YVL.0279.0046**]].
893 Actuarial Report [[**YVL.0279.0040**]], [193].
894 Actuarial Report [[**YVL.0279.0043-0044**]], [202].
895 Public Health Report [[**YVL.0280.0005**]], [9].
896 Public Health Report [[**YVL.0280.0035**]], [187].
897 T 7-29, ln 4.

872 Reflecting on the climate experts' opinion that Scenario 2 may not be possible due to tipping points, Professor Bambrick's opinion was that "the only reasonable Scenario available to aim for that is compatible with protecting human health and wellbeing is Scenario 1."[898]

873 A world in which the Proposed Project proceeds is a world in which the door to Scenario 1 has closed.

874 It is a world in which the cumulative impacts of accretions of at least 971Gt of future CO_2-e emissions,[899] including 1.58Gt from the Proposed Project, have increased temperatures by at least 2.5ºC (and up to 4.4ºC or higher) above pre-industrial. It is a world hitherto the provenance of Hollywood movies and nightmares.

C-V Economic benefits?

(i) The Applicant relies on economic benefits

875 As in most such cases, the Applicant relies on claimed economic benefits of the Proposed Project, to justify the environmental harm it would be permitted to cause.

876 Presumably, the Applicant will make its case on economic benefit, based primarily on the evidence of Mr Andrew Tessler.

877 However, in anticipation of that case, and in rejoinder to it, YV and TBA say as follows.

(ii) The Applicant's financial case[900]

(1) Overview

878 The Applicant's financial case is based on the spreadsheet referred to in the hearing as the 'King spreadsheet' but better-named the '**Harris-King spreadsheet**'.[901]

879 That is because the Harris-King spreadsheet is not an independent financial model, but rather, is based exclusively on data provided to Mr King by the Applicant.

880 Mr King also prepared a covering report to the Harris-King spreadsheet known as the '**King report**'.[902]

881 The Applicant provided Mr King with unrealistically optimistic input assumptions, including:

(1) an inflated coal price, particularly with reference to:

(2) a stunningly low interest rate; and

---

898 Public Health Report [[**YVL.0280.0005**]], [10].
899 Supplementary Climate JER [[**COM.0341.0013**]]; Manley Comparison Document [[**WAR.0767.0001**]].
900 Grounds relied on in YV ML Objection [[**COM.0028.0001**]] 3.7, 3.11, 3.12 and TBA ML Objection [[**COM.0042.0001**]] 3.7, 3.11, 3.12.
901 Harris-King spreadsheet [[**YVL.0449.0001**]].
902 King Report [[**WAR.0360.0001**]].

(3) an 80-20 debt-equity ratio.

882 Regarding (2) and (3), it became clear during oral evidence that the future of the Proposed Project balances precariously on Clive Palmer's decision-making about resource allocation within the Mineralogy group.

883 The Applicant's input assumptions in the Harris-King spreadsheet have infected the Applicant's wider financial case, including:[903]

(1) its economic case, in the Cost-Benefit Analysis prepared by Mr Tessler (**CBA**);

(2) its Computable General Equilibrium Model (**CGE**), which is attached to the CBA; and

(3) its case for market substitution.

(2) <u>The Applicant's financial case is based on the Harris-King spreadsheet</u>

884 Mr Harris told the Court that the Harris-King spreadsheet is the basis upon which it is asserted that the Proposed Project is viable.[904]

885 It was provided to Mr Tessler, Mr Manley and the authors of the CGE to inform their analyses of the CBA, the Energy Markets JER and the CGE respectively.[905] A different spreadsheet was provided to the experts formally during the briefing process inadvertently,[906] resulting in the counterpart experts called by YV and TBA, Ms Wilson and Mr Campbell, not having independent access to the Harris-King spreadsheet throughout the conclave process.[907]

(3) <u>The Harris-King spreadsheet is neither independent nor robust</u>

01. The Applicant chose the input data to build a case

886 Mr Harris called the Harris-King spreadsheet and the King report 'independent'.[908] He explained that the Applicant provided the inputs and Mr King then conducted an analysis of the Proposed Project as an 'independent operator'.[909] Mr Harris said Mr King "basically sets up the entire discounted cash flow model."[910]

---

903 Mr Harris confirmed the Harris-King spreadsheet was provided to Mr Tessler, Mr Manley and the authors of the CGE to form the basis of their analyses at T 5-7, lns 11-20.
904 T 5-7, lns 33-40.
905 T 5-7, lns 11-20.
906 T 5-7, lns 42-47; Sixth Affidavit of Nui Harris [[**WAR.0747.0001**]].
907 T 5-7, lns 29-31.
908 T 5-10, lns 34-46.
909 T 5-10, lns 38-46.
910 T 5-11, lns 8-10.

887 However, Mr Harris conceded that every datum in the King spreadsheet was provided by Waratah.[911] Mr King did not alter any of the data provided to him.[912] Of note:

(1) a coal price of $85 USD/t for Newcastle 6000 kcal/kg for the entire mine life of the Proposed Project was chosen by Waratah engineers and Mr Harris;[913]

(2) a 4% interest rate for debt funding was chosen by Mr Harris, Waratah engineers and Mr Palmer;[914] and

(3) Mr Harris included an 80-20 debt-equity ratio, up from 70-30 in 2011.[915]

888 These inputs were unresearched and unsubstantiated, misrepresenting the Applicant's true financial case.

889 Further, it became clear in cross-examination that Mr Harris provided Mr King with all the input assumptions already in the form of a discounted cash flow model (**DCF**). The product that Mr King then created and returned was itself a DCF[916] with identical inputs. That is, all that Mr King did, in effect, was add his name to the work that had been done by the Applicant. There was nothing independent about it.

890 Mr King, of course, has not been called to give evidence. However, the emails exchanged between him and Mr Harris demonstrate the absence of any independence at all, particularly where Mr King simply permitted Mr Harris to amend and mark-up his 'report'.[917]

02. Coal price is inflated

891 Mr Harris said that Waratah chose $85 USD/t because it was the benchmark price for Newcastle 6000 kcal/kg on the day it decided the inputs to send to Mr King.[918] It appears from the text of the King Report that it was also the average spot price for 2011-2020.[919] But no regard was had to forecasts, let alone the forecasts of independent organisations or analysts whose job it is to project coal prices.[920]

---

911 T 5-24, lns 1-4.
912 T 5-20, lns 36-37.
913 T 5-12, lns 19-20. $85 USD/t is equivalent to approximately $113 AUD/t. Conversions in these submissions between AUD and USD use a 1.33 exchange rate consistent with Tessler in [[**YVL.0522.0001**]].
914 T 5-24, lns 6-21.
915 Attachment to email 3, King-Harris [[**YVL.0425.0009**]].
916 Email 3, King-Harris [[**YVL.0425.0004**]]; T 5-16, ln 43 – T 5-18, ln 23; T 5-19, lns 19-23.
917 Email 7, King-Harris [[**YVL.0435.0001**]]; Attachment to email 7 [[**YVL.0436.0001**]].
918 T 5-12, lns 25-27.
919 King Report [[**WAR.0360.0004**]].
920 T 5-13, lns 1-12.

892 YV and TBA have placed such analyses before the Court. For example:

(1) the World Bank Commodities Price Forecast for October 2021 forecasts a decline in the price of coal to $67.9 USD/t by 2030 and $55 USD/t by 2035;[921]

(2) 23 analyst contributors to the KPMG Forecasts published in January 2022 predicted a long-term low of $58 USD/t and high of $85 USD/t;[922] and

(3) the International Energy Agency (**IEA**) Net Zero Emissions Scenario (**NZES**) in October 2021 predicted thermal coal prices in 2030 at between $24 USD/t and 60 USD/t across US, EU, Japanese and Chinese markets.[923]

893 The sensitivity analysis in the King Report indicates that a 13% reduction in price from $85 USD/t would make the Proposed Project unviable.[924] So, if the price of coal drops below $74 USD/t between now and the scheduled completion of mining operations, the mine will become unviable.

894 The forecasts of the World Bank, IEA and KPMG would all have the Proposed Project unviable by at least 2030 and possibly earlier.

895 Other evidence of coal price projections before the court from the Applicant's own experts emphasises the extent to which the Harris-King estimate that drives the analysis of benefits in this case is overblown:

(1) the proprietary coal price projections from BIS Oxford Economics (**BIS Oxford**) average at $73 USD/t but drop to $62 USD/t by 2050;[925]

(2) the Wood Mackenzie coal price projections for its 1.5ºC scenario range from $74 USD/t to $51.70 USD/t through until 2050;[926]

(3) the Wood Mackenzie coal price projections for its 2.0ºC scenario range from $77.50 USD/t to $55 USD/t through until 2050;[927] and

(4) the Wood Mackenzie 'base case' coal price projection, which assumes a world with 2.7ºC warming,[928] is the only projection that supports the Harris number. As the Court will recall, those prices were based on demand assumptions for seaborne thermal coal in October 2021. By the time of trial, Wood Mackenzie's estimates for demand for seaborne thermal coal over the life of the Proposed Project had been 'destroyed' by a further 18%.[929] Mr Manley did not update the

---

921 World Bank Commodities Price Forecast [[**YVL.0473.0001**]].
922 KPMG Forecasts [[**YVL.0474.0003**]].
923 IEA Net Zero by 2050 [[**COM.0174.0052**]], cited in Energy Markets JER by Ms Wilson at [[**COM.0069.0070**]].
924 King Report [[**WAR.0360.0007**]].
925 CGE in CBA [[**WAR.0531.0103**]] (average "BISOE" forecast price converted to $US using Oxford Economics assumed exchanged rate of 0.77).
926 WM Databook [[**WAR.0410.0001**]], F24.
927 WM Databook [[**WAR.0410.0001**]], F24.
928 T 10-87, lns 33-45.
929 T 10-50, lns 3-11; T 10-69, ln 20.

Court on what that means for projected coal prices, but as a matter of basic economics, it is likely to result in a further downgrading of price projections.

896 These price projections, and the declining market for coal, mean that the likelihood of the Applicant securing funding for the Proposed Project is low. Yet, Mr Harris, Mr Palmer and the Waratah engineers chose an implausibly optimistic interest rate and debt-equity ratio for the Harris-King spreadsheet.

03. Debt-equity ratio is unlikely, particularly at a 4% interest rate

897 Mr Harris said that the debt-equity ratio was lifted from 70-30 to 80-20 from the 2011 King Report because of a 'letter of intent' from the Import-Export Bank of China in 2011 which was for credit for up to 85% of the total amount for construction.[930]

898 Still, he admitted that he was not aware of any coal mine operators or comparable ASX listed companies that have a debt-equity ratio anywhere near 80-20.[931]

899 The Applicant has not made enquiries with potential funders since that time.[932] Mr Harris says that Waratah will attempt to secure an agreement only after it has obtained an EA and ML.[933] Mr Harris claimed — in one of the stranger moments in the trial — that it would be 'embarrassing' to make any efforts to see whether financing or equity funding might conceivably be available more than a decade after the letter of intent was signed.[934] The only 'embarrassing' thing is coming to a hearing in 2022 operating on grossly outdated and obviously flawed assumptions without making any effort to update those assumptions.

900 Mr Harris did accept several propositions that demonstrate it is unlikely the Applicant would be able to secure funding for a coal mine seeking to sell coal at prices that would be above market value.

(1) There is not a single lender in Australia who will lend to a thermal coal mine at present.[935]

(2) Trillions of dollars of previously available equity funding for coal projects is no longer available.[936]

(3) In 2011, the Bank of China announced it would not fund overseas coal-fired projects.[937]

---

930 Letter of Intent, China Eximbank [[**WAR.0208.0001**]].
931 T 5-28, lns 4-12.
932 T 29- lns, 18-32.
933 T 5-25, lns 41-45.
934 T 5-15, lns 28-32; T 5-25, lns 42-45.
935 T 5-25, lns 1-7.
936 T 1-81, lns 14-15.
937 T 1-82, lns 28-30.

901 Mr Harris also accepted that capital is dramatically constrained for thermal coal mines at present and as a result, interest rates would go up.[938] However, he cited a 'different time'[939] as the reasoning behind Mr Palmer, Mr Harris and the Waratah engineers' decision to instruct Mr King to input a 4% interest rate on the Proposed Project's debt[940] in the Harris-King spreadsheet.[941] Mr King had estimated a 5.5% interest rate in the 2011 iteration of his report.[942]

902 Mr Harris appears to suggest that Mineralogy will fund the Project at a 4% interest rate if no other equity or debt funding could be obtained, however the details of this arrangement are unclear,[943] and plainly hinge on resource allocation decisions within the Mineralogy Group, ultimately determined by the sole ultimate shareholder, Mr Palmer.

04. Funding for the Proposed Project will turn on Mr Palmer's unpredictable priorities

903 On day one of his cross-examination, the following exchange occurred between Mr Holt and Mr Harris:

> So I just want to be clear, there is no expectation that Mineralogy will invest the $6.323 billion requires [sic] for this project if equity finance can't be obtained?---no one company on their own would invest $6.323 billion in a company.[944]

904 On the third day of his cross-examination, Mr Harris said that Mineralogy has "funds that can be provided to this particular project."[945] He said he would not get advice from Goldman Sachs or KPMG about the cost of capital because "we've got a revenue stream coming in from Mineralogy which is excessive, and it can fund this mine."[946] When pressed, he said there was an 'undertaking' that Mineralogy would fund the Proposed Project.[947] He said this undertaking was based on "discussions with Mineralogy".[948] He clarified that one year ago, Mr Palmer had told him that he would fund the Proposed Project depending on what is going on overseas.[949]

905 In short, the evidence of Mr Harris suggests that funding relies on Mr Palmer's willingness to lend Mineralogy funds to Waratah at a low interest rate, in circumstances where the mine is unlikely to be financially viable long-term. Although described at

---

938 T 5-27, lns 13-19.
939 T 5-24, lns 36-38.
940 T 5-24, lns 25-27. Mr Harris said that Mineralogy decided on 4% because "you can buy cash at 0.1 and you can make 3.9 percent. So, on that basis, we've gone ahead with the 4%." On 3 May 2022, the day Mr Harris gave this evidence, the Reserve Bank of Australia lifted the cash rate from 0.1 to 0.35.
941 T 5-24, lns 6-21.
942 Emails King-Harris [[**YVL.0425.0009**]].
943 T 5-25, lns 12-40.
944 T 1-79, lns 45-47.
945 T 5-24, lns 35-38.
946 T 5-26, lns 11-17.
947 T 5-26, lns 28-29.
948 T 5-26, ln 38.
949 T 5-35, lns 1-10.

one point as an 'undertaking' it became clear very quickly that there was no such 'undertaking'.

05. The Harris-King spreadsheet has infected the Applicant's broader financial and economic case

906 The data in the Harris-King spreadsheet has infected the Applicant's entire financial and economic case, upon which it seeks the relevant approvals.

907 In particular:

(1) the ways in which the Harris-King spreadsheet data has impacted the Applicant's economic case for the mine are outlined in detail at [(iii)(3) below]; and

(2) Mr Manley's preparation of Figures 3 and 4 in the Energy JER was based on the Harris-King spreadsheet.

(iii) Economic benefits and costs of the Proposed Project[950]

(1) Overview

01. The role for economics is limited

908 Deployed responsibly, economic analysis can be a useful tool. Its particular lens provides a different perspective and can bring into sharp focus the economic consequences of the choices to be made.

909 In a matter governed by the statutory framework of the EP Act, the MR Act and the HR Act, however, the role for economic analysis is limited. The evidence must primarily be filtered and understood through the relevant statutory lenses.

910 Under the EP Act for example, the Court is commanded to perform its task in the way that best achieves the object of the Act:

> [P]rotect[ing] 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.[951]

911 Economic conditions are but one small aspect of the 'environment' as defined.[952]

912 The Court must also recognise and consider the 'global dimension' of environmental impacts, and be guided by the precautionary principle, and the principle of intergenerational equity.[953]

---

950 Issues raised by objections lodged by YV and TBA (EPA [[**COM.0053.0001**]]; [[**COM.0042.0001**]], 2 April 2020, Active Objectors), Browns (MRA [[**COM.0004.0001**]], 1 December 2019, Non-Active Objectors); McEwen (MRA [[**COM.0014.0001**]], 2 April 2020, Non-Active Objector).

951 *EP Act* ss 3, 5.

952 *EP Act* s 8(d).

953 See further, B-III(vii) - The s 223 mandatory considerations.

913 The risk of economic analysis in this context is that its focus on monetisation, economic efficiency and preference for current generations over future generations distorts the statutory lens. That risk is exacerbated when the underlying assumptions of the analysis are not laid bare. Discount rates trammel the principle of intergenerational equity, apportionment by state population belies the global dimension of environmental impacts, and a focus on efficiency over equity paints a distorted picture of an already small aspect of the environment.

914 For economic analysis to truly assist this Court's task, its assumptions must first be uncovered, interrogated and, if appropriate, discarded.

02. The role for a CBA is even more limited

915 A CBA is one tool that sits within the broader field of economics. As Mr Tessler explained, it essentially operates as a set of scales. One the one side it measures benefits, on the other, costs.[954]

916 To do so, a CBA attempts to quantify a range of complex economic impacts, and to price otherwise unpriced externalities. According to Mr Tessler, the logic of a CBA demands that scope be limited to a consistent 'community of standing'.[955]

917 Of course, not everything that matters can be quantified, and environmental impacts, unlike a CBA, do not respect state or national boundaries.

918 Ultimately, the Court acts according to the logic of the statutory framework, not the CBA.

919 Conducted properly, a CBA can inform the statutory task. But the inherently narrow focus of the CBA framework means that the Court will need to look well outside of its four walls to answer the statutory questions at hand.

03. Overview of YV and TBA's submissions on the CBA

920 To the extent the CBA can assist the Court here, YV and TBA submit that it demonstrates four key matters.

921 **First**, to the extent there is profit, it is profit to one man, Clive Palmer. As a result, Net Producer Surplus (**NPS**) is not a true benefit to Queensland.

922 **Second,** the only true benefit to Queensland is royalties — payroll tax should not be included as a benefit, and company tax is uncertain and has been over-estimated.

923 **Third,** there is a real risk that the Proposed Project will become unprofitable during its lifetime and either cease operations entirely or oscillate between periods of operation and care and maintenance. The consequence will be that the full benefits of the

954 T 18-7, lns 24-27.
955 T 17-109, lns 25-28.

Proposed Project are never realised but environmental, social, and economic costs occur. That risk assumes particular significance under the MR Act.[956]

924 **Fourth**, assuming the Proposed Project does progress to its full extent (such an assumption being necessary to the EP Act task),[957] royalties are eclipsed by the true costs of the Proposed Project, even when only accounting for scope 1 and 2 emissions.

925 **Fifth**, when the harm caused by the carbon dioxide emitted from the burning of the Proposed Project's coal is properly quantified, it dwarfs any benefits assessed within the CBA.

926 These matters compel the conclusion that, to the extent economics assists the Court's task, the economic analysis weighs decidedly in favour of a recommendation to refuse the applications.

(2) Where there is profit, it is profit to one person

927 In the CBA, the NPS, royalties, company income tax and payroll tax combine to produce a present value "net benefit to Queensland" of:[958]

(1) $4.1 billion if the costs of transporting coal from the mine mouth to the vessel are not included; or

(2) $2.5 billion including such costs.[959]

928 The NPS in the CBA is the costs paid by the Applicant subtracted from the gross mining revenue[960] (essentially, profit).[961]

929 Mr Tessler calculated the present value NPS of the Proposed Project as: [962]

(1) $1,752.5 million if the costs of transporting coal from the mine mouth to the vessel are not included; or

(2) $211.6 million including such costs.

930 According to the logic of the CBA, there is nothing controversial about the inclusion of NPS as a benefit to the Queensland community. It is CBA standard practice.[963]

931 Within the statutory framework, however, the uncritical attribution of NPS as net benefit to Queensland is unhelpful.

---

956 See, [55] above.
957 See, [54] above.
958 CBA [[**WAR.0531.0095**]].
959 For reasons explained below at 970-975, only the costs with rail should even be considered.
960 CBA [[**WAR.0531.0026**]], Fig 8.
961 T 18-9, lns 15-29.
962 CBA [[**WAR.0531.0034**]].
963 NSW Guidelines [[**WAR.0655.0015**]].

932 The evidence of Waratah's CEO, Nui Harris, was that Mr Palmer runs his business so that "ultimately, all the money ends up with Clive Palmer."[964] So much is supported by the evidence in this case of Waratah's company structure, which culminates in a single shareholder: Mr Palmer.[965]

933 NPS is therefore not, in any real sense, a benefit to Queensland but rather profit to a single, already extremely wealthy man.

934 Inclusion of NPS as a benefit to Queensland in that context discloses nothing about how NPS will benefit the other approximately 5.257 million people who live in Queensland; it does nothing to assist the Court in understanding whether the Proposed Project will 'provide for equity within and between generations'.[966]

935 Perhaps it is for that reason that Mr Tessler has previously (when engaged as an independent reviewer of CBAs in New South Wales) been critical of CBAs for failing to disclose distributional impacts.[967]

936 In any event, the Court is left with clear evidence that NPS, here, is a benefit to one person. To the extent profit is generated, it therefore does not support, to any significant degree, the approvals sought.[968]

937 This puts into proper focus the claimed conservatism of attributing only (approximately) 20% of the NPS to Queensland (one fifth of the Australian population). It is agreed to be 'conservative' because Mr Palmer is a resident of Queensland and, so the logic goes, all the 'benefits' will accrue to Queensland. This does not alter the basic point: however attributed, NPS is a benefit to one person. A five times larger profit to Mr Palmer does not, in any real sense, amount to a five times larger benefit to the Queensland community.

938 More importantly, several (much more) credible coal price scenarios see NPS as negative. As Mr Tessler agreed, to attribute all those NPS results to Queensland would see a five times more negative number.[969]

939 The lack of suitability of the CBA — and especially the uncritical attribution of profit as a benefit to Queensland — can be demonstrated by a simple example. The CBA attributes a value of $40 million to the harm caused by the local extinction of a species.[970] It follows that, under its logic, a billion dollars' worth of profit to Mr Palmer would permit the local extinction of 25 species before the CBA became negative.

---

964 T 1-78, ln 28.
965 Ownership of Waratah Coal Pty Ltd, prepared 26 April 2022 [[**YVL.0502.0001**]].
966 National Strategy for Ecologically Sustainable Development, endorsed by the Council of Australian Governments on 7 December 1992 [[**YVL.0295.0001**]], sld 9.
967 See, for example, BIS Oxford Review of Tahmoor South Proposed Project, [[**YVL.0327.0005; 0019**]]; T 18-14, lns 1-34; T 18-15, lns 21-29.
968 See by analogy, *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7, [565].
969 T 18-83, lns 7-35; T 18-89, lns 28-36; T 18-63, lns 22-23.
970 CBA [[**WAR.0531.0053**]].

940 Similarly, the CBA here attributes a 'value' of $700,000 to the loss of Bimblebox.[971] Again, under its logic, a billion dollars' worth of profit to Mr Palmer would permit the loss of 1,428 Bimblebox Nature Refuges before the CBA became negative.

(3) The only true benefit to Queensland is royalties

941 Aside from NPS, there are three other categories in Mr Tessler's CBA which combine to calculate the claimed 'net-benefit' of the Proposed Project to Queensland in Net Present Value (**NPV**). These are:

(1) payroll tax ($150 million);

(2) company income tax ($175.8 million); and

(3) royalties ($2010.3 million).

942 The evidence before the Court is that:

(1) payroll tax should not have been included as a benefit Queensland; and

(2) company income tax estimates are overstated and uncertain.

943 Therefore, the true value of the Proposed Project to Queensland is in its royalties.

01. Payroll tax is not a benefit

944 In the concurrent evidence session, Mr Tessler agreed that payroll tax should not be calculated as a benefit where the assumption is that employment from the Proposed Project is not additional because of the constrained nature of the labour market.[972]

945 Mr Tessler attempted to explain that payroll tax had been included as a benefit only because it had also been included as a cost — that to get NPS from gross revenue, you deduct payroll tax, so he effectively added it back in. "It's a bit of an arithmetic operation," he explained, "simply to try to be consistent with the guidelines."[973]

946 Through this "mathematical nuance",[974] Mr Tessler claimed to have treated payroll tax as neither a cost nor a benefit, but rather as a transfer.

947 The problem with Mr Tessler's explanation is that the approach he adopted is plainly inconsistent with the guidelines he purports to apply. Those guidelines, 'for the

971 CBA [[**WAR.0531.0053**]].
972 T 18-112, lns 1-45.
973 T 18-109, lns 10-18.
974 T 18-112, ln 8.

economic assessment of mining and coal seam gas proposals'[975] (**NSW Guidelines**), clearly state that payroll tax should be included as a cost:[976]

> Note that a new mine will also pay out the taxes, such as payroll tax and personal income tax. The majority of these taxes will have been generated without the project as people would have been employed elsewhere; hence, these should be included as costs.

948 Under cross-examination, Mr Tessler conceded that his approach had treated royalties and payroll tax — which he accepted are fundamentally different because one is additional, and the other is not — the same, mathematically. That is, royalties had also been deducted from gross producer surplus to reach NPS, and Mr Tessler's CBA therefore treated economic unequals, as equals.[977]

949 Mr Tessler's inclusion of payroll tax as a benefit is particularly concerning given that he has been unerringly critical of other authors of CBAs in New South Wales when independently reviewing them for the NSW government. Even more concerning is that when the obvious flaw in his 'I've just treated payroll tax as a transfer' argument was pointed out to him, he literally had no answer.[978]

950 The result is that Mr Tessler's approach is not only inconsistent with the NSW Guidelines, but more importantly, is substantively flawed.

951 Consequently, payroll tax should not be included as a benefit to Queensland in the Court's assessment of the Proposed Project.

02. Company income tax is overstated

952 Mr Tessler's CBA assumes the Applicant will pay $72.5 million a year in company tax.

953 Mr Campbell's opinion is that this is likely heavily overstated.[979]

954 Given the company structure of the Applicant and the evidence of Mr Harris that taxation arrangements for Waratah are managed at the Mineralogy Group level,[980] Mr Campbell's opinion is clearly the more credible one.

955 Indeed, under cross-examination, Mr Tessler accepted that the amount of company tax paid by a corporation is subject to any arrangements within company structures which can offset tax requirements of some companies against others in the same group.[981]

956 He also agreed that the presence of overseas companies within the company structure of Waratah creates risk that the profits will be sent and retained overseas.[982]

---

975 NSW Guidelines [[**WAR.0655.0014**]]
976 NSW Guidelines [[**WAR.0655.0014**]]. See also, T 18-119, lns 43-46.
977 T 18-118 to T 18-119.
978 T 18-121 to T18-122.
979 Economics JER [[**COM.0302.0015**]].
980 T 5-38, lns 40-41.
981 T 18-123, lns 17-46.
982 T 18-124, lns 26-30.

957 Ultimately, he accepted that the amount of company tax paid by the Applicant could be anywhere between zero and 30 per cent of the $175.8 million.[983]

958 The Court should act on that basis — that the Applicant could pay company tax anywhere in the range of 0-30% of gross revenue, keeping in mind that gross revenue itself has likely been overestimated, having regard to the matters outlined at paragraphs [994] 982–1001 [1001] below.

03. Therefore, royalties are the only real benefit to Queensland

959 In the result, it is submitted that the Court should accept Mr Campbell's suggestion that "a more useful comparison of costs and benefits for the court is of royalty revenue with external costs."[984]

960 Royalties are the only true benefit to Queensland and the Court should consider the Proposed Project (for the purpose of the economic analysis) on that basis.

961 As outlined in the following sections, however:

(1) the royalties are uncertain; and

(2) they are outweighed by the true costs of the Proposed Project, even when only accounting for scope 1 and 2 emissions of carbon dioxide.

(4) <u>There is a real risk this mine is not viable, therefore its benefits — including royalties — are uncertain and may never be realised</u>

962 Properly done, a CBA of the Proposed Project reveals that there is a very real risk (in truth, a likelihood) that it will become unprofitable during its lifetime.

963 In the economics concurrent evidence session, the Applicant and Mr Tessler drew a conceptual distinction between 'economic viability' and 'financial viability',[985] noting that a CBA measures the former. Mr Tessler suggested that even if the mine is not profitable, it may nevertheless proceed.[986]

964 As a matter of conceptual economics, that may be true. But this Court should seek to operate in the real world in which a coal miner will not continue to mine coal (and so pay royalties) when they would make a loss by doing so.

965 There are, of course, examples of companies choosing to trade through a period of losses with a view to achieving profits at some later stage. The structural decline of demand for thermal coal which is a matter of agreement in this case tends powerfully against such a scenario.

---

983 T 18-125, lns 27-28.
984 Economics JER [[**COM.0302.0015**]].
985 See, for example, T 17-70, lns 12-15.
986 T 18-67, ln 13.

966 More importantly, the evidence of Mr Harris in this case is that if the Proposed Project ceases making profit, it will go into care and maintenance.[987] True it is that Mr Harris referred to seeking long-term offtake agreements that ensured the Proposed Project would make profit. This is yet another example of the Applicant's magical thinking which it uses as a substitute for both logic and evidence. There is no evidence that any such compliant and apparently economically irrational purchaser of thermal coal exists who would be prepared — in effect — to underwrite this project.

967 This next section outlines the real risk of that situation eventuating, having regard to:

(1) rail and transport costs;

(2) coal price; and

(3) production volumes.

968 The risk is also highlighted by the agreed evidence that the profitability of this mine is only consistent with a scenario of 2.5ºC or greater of warming.

01. The CBA's primary case does not factor in the cost of coal leaving the mine mouth and should be disregarded

969 Mr Tessler was instructed by the Applicant to conduct a CBA that modelled the mine mouth alone, excluding the construction of a rail link, and payments to rail and port operators for coal transport and handling.[988]

970 Mr Tessler treated these instructions as his primary case in the CBA, but also identified results for the model including transport costs.[989] The difference between the NPS in each model is approximately $1,500 million (i.e., $1.5 billion).

971 Under cross-examination, Mr Tessler agreed that to work out the actual NPS of the Proposed Project, it is necessary to account for the costs of taking the coal from the mine mouth to the port of shipment, where the free-on-board (**FOB**) price is then attained.[990]

972 Given that Mr Tessler used the FOB coal price in his calculations, to exclude transport costs is to assume an economic fiction that the coal is magically moved for free from the mine mouth to the ship.

973 Mr Campbell agreed, emphasising that it is "completely meaningless to do an economic assessment of a mine without understanding how the coal can be sold."[991]

---

987 T 5-14, lns 14-19 (assuming coal price drops and there is no long-term offtake agreement, it will go into care and maintenance). See also, T 1-85, lns 35-46.

988 T 18-45, lns 22-38; CBA [[**WAR.0531.0012**]].

989 T 18-41, lns 1-6.

990 T 18-41, ln 24 to T 18-42, ln 49.

991 T 18-56, lns 34-36.

974 As a result, the Court should disregard the primary case. Again, it should be a matter of concern that the Applicant has placed a primary case for benefits — and one that improves its economic bottom line by $1.5 billion — that is indefensible. That Mr Tessler accepted instructions to proceed on that basis needs no further comment.

02. The CBA model including transport costs is the best we have, but is also seemingly flawed

975 Disregarding the primary case, it should be possible to instead rely on the 'with transport' case modelled by Mr Tessler. That is because the 'with transport' model includes the rail (operational and capital) costs and the port handling costs that place the coal "free on board" a ship such that a purchaser can buy the coal FOB.

976 However, during cross-examination, it became apparent that the basis for the 'with transport' case may be flawed as well.

977 What happened, it transpires, was this:

(1) Mr Harris gave instructions to Mr Tessler that the transport costs within the Harris-King spreadsheet were associated with a plan to build a fixed rail-link to connect the Proposed Project to Abbott Point.[992] Mr Tessler then calculated the 'with transport costs' model on that basis.[993] That is, he thought he was modelling for Abbott Point.

(2) Mr Harris, however, gave the opposite instructions to Mr King — he instructed Mr King that the Applicant planned to use existing narrow-gauge rail from Alpha to Gladstone.[994] Those instructions informed the Harris-King spreadsheet, which in turn informed the actual numbers in the CBA.[995]

(3) Under cross-examination, Mr Harris confirmed (without any qualification) that the mine was modelled on Gladstone.[996]

(4) Mr Tessler, however, later asserted that the capital costs included in the Harris-King spreadsheet (approximately $1.4 billion dollars) would be excessive for Gladstone and would appear to relate to Abbott point.[997]

978 What the Court is left with is this: Mr King modelled the mine based on transport costs that Waratah's CEO has told the Court relate to Gladstone. Mr Tessler gave evidence that in his opinion, some of the modelled costs may in fact relate to Abbott Point. Critically, the Court has not been told anything about the actual capital costs of transport

992 Email from Mr Tobin to Mr Tessler on 24 February 2022 [[**WAR.0531.0147**]].
993 T 18-53, lns 5-8.
994 Emails from Mr Harris to Mr King [[**YVL.0425.0001**]]; T 5-11, ln 35.
995 King report [[**WAR.0360.0003**]].
996 T 5-11, lns 35-41.
997 T 18-53.

to Gladstone. Further, no-one suggests that Mr Tessler is an expert in transport costs for coal mines.

979 The Applicant having made no attempt to clarify the situation, the Court should proceed on the basis that the 'with transport costs' tables throughout the CBA are the best (indeed only) basis to assess the CBA. The only other option is to put the CBA entirely to one side.

980 The 'with transport costs' numbers have therefore been used in the analysis that follows throughout this section.

03. Profits are calculated on an unrealistic coal price

981 The price of coal has a direct relationship to the NPS derived in the CBA. Mr Tessler agreed that the gross mining revenue (which becomes NPS following the deduction of costs paid by the Applicant) is the price of coal multiplied by the production volumes.[998]

982 Mr Tessler relied on the Harris-King spreadsheet to input a coal price of $85 USD/t into his CBA.[999]

983 The problems with the King price are outlined at paragraphs [892] to [897]. Every datum in the Harris-King spreadsheet was provided by Mr Harris to Mr King.[1000] The price of coal was decided by Mr Harris and Waratah's engineers after searching the coal price of the day in May 2021.[1001]

984 But it is not only the price's provenance that is dubious. The price projection is at odds with the predictions of the World Bank, KPMG, the IEA[1002] and Mr Tessler's own company's projections,[1003] which predict significantly lower prices for coal that steadily decrease out to 2054.

985 Mr Tessler's CBA includes a sensitivity analysis table at Figure 25[1004] which compares the base case price of $85 USD/t to other coal price projections, demonstrating negative NPS under most coal price forecasts other than King's $85 USD/t.

998 T 18-41, lns 27-33.
999 T 18-59, ln 46 to T 18-60, ln 1.
1000 T 5-11.
1001 T 5-12, lns 32-41.
1002 See, paragraph [893] above.
1003 T 18-67, lns 19-20.
1004 CBA [**WAR.0531.0101**]].

986 Mr Tessler's Figure 25 is copied below for reference.

Fig. 25. Breakdown of net benefits to Queensland with transport costs

Scenario	Net producer surplus	Royalties	Company income tax	Payroll tax	Externalities	Total
Central Scenario	**211.55**	**2,010.26**	**175.76**	**149.98**	**31.00**	**2,516.55**
30% Price Increase	1,179.43	3,003.93	555.80	149.98	31.00	4,858.15
20% Price Increase	861.87	2,660.93	426.44	149.98	31.00	4,068.22
10% Price Increase	540.65	2,329.37	298.42	149.98	31.00	3,287.42
10% Price Decrease	(138.53)	1,712.28	69.82	149.98	31.00	1,762.55
20% Price Decrease	(532.58)	1,453.04	-	149.98	31.00	1,039.44
30% Price Decrease	(1,004.61)	1,234.22	-	149.98	31.00	348.59
BISOE forecast prices	(3.75)	1,791.65	88.13	149.98	31.00	1,995.01
WM forecast prices	491.95	2,429.35	281.48	149.98	31.00	3,321.76
IEA STEPS (Variation only in prices)	337.55	2,248.26	214.33	149.98	31.00	2,919.12
IEA STEPS (Variation in prices and volumes)	(11.00)	2,019.54	77.98	149.98	31.00	2,205.50
IEA APS (Variation only in prices)	61.25	1,967.59	110.48	149.98	31.00	2,258.30
IEA APS (Variation in prices and volumes)	(1,200.16)	1,366.67	-	149.98	31.00	285.49
IEA NZES (Variation only in prices)	(699.47)	1,407.66	-	149.98	31.00	827.17
IEA NZES (Variation in prices and volumes)	(2,884.95)	562.56	-	149.98	31.00	(2,203.40)

Source: BIS Oxford Economics

987 Two scenarios Mr Tessler describes as 'IEA' return a positive NPS, the APS (Announced Pledges Scenario) and STEPS (Stated Policies Scenario). However, the prices used are based on estimates for Coastal China coal, reflecting a balance of imports and domestics sales, and including the costs of freight.[1005] This is an unsatisfactory comparison to the central scenario of the King price of $85 USD/t ($113 AUD), which is a FOB, Newcastle Benchmark equivalent price. Under cross-examination, Mr Tessler agreed that IEA prices equivalent to the King price would be lower, in turn lowering NPS.[1006]

988 Even so, Figure 25 shows that on a Coastal China IEA NZES price, the NPS is grossly negative (-$700 million as apportioned to Queensland or, more plainly, a -$3500 million loss to Mr Palmer). [1007]

989 The Wood Mackenzie price ('WM forecast prices') returns a positive NPS. This is based on forecasts provided by Wood Mackenzie to BIS Oxford on 17 December 2021,[1008] averaging $106.36 AUD/t ($77.7 USD/t) (FOB Newcastle 6000).[1009] Again, this coal price estimate is significantly higher than the projections of the World Bank,[1010] and of KPMG.[1011] And it does not account for the 18% drop in Wood

1005 T 18-73 to T 18-74.
1006 T 18-73, lns 38-44.
1007 T 18-69, lns 28-31.
1008 CBA [[**WAR.0531.0099**]], fnt 211.
1009 Economics JER [[**COM.0302.0022**]].
1010 World Bank October 2021 Forecasts [[**YVL.0473.0001**]].
1011 KPMG Forecasts [[**YVL.0474.0003**]].

Mackenzie's own demand forecasts in the short period between December 2021 and this proceeding.[1012]

990 BIS Oxford's forecast price — i.e. Mr Tessler's company — shows a negative NPS of $3.75 million[1013] when apportioned to Queensland, or a negative loss to Mr Palmer of five times that, namely $18.75 million.

991 From the Harris-King spreadsheet and Mr Harris' evidence,[1014] it will be recalled that a 13% drop in the price estimate from $85 USD/t to $74 USD/t at any stage in operations will make the Proposed Project financially unviable.

992 Clearly, there is a real risk (in truth, a likelihood) of that 13% drop eventuating.

04. Production is overstated and benefits are uncertain

993 Mr Tessler agreed that price drives financial viability.[1015] Financial viability, in turn, determines productivity; rational economic behaviour suggests that if a business is not profiting, it will stop producing.[1016]

994 Mr Tessler accepted[1017] that a 13% reduction from the baseline price of $85 USD/t would make the Proposed Project financially unviable (that is, below $74 USD/t).[1018]

995 The evidence demonstrates a high likelihood that this will occur. Indeed, for reasons outlined at [C-V(ii)(3)02] it is more likely than not that the price of coal will fall below $74 USD/t in the early stages of mine operations.

996 Mr Campbell gave evidence that the viability of the Proposed Project is 'highly questionable'[1019] and 'dubious'.[1020] And Mr Tessler conceded there is a risk that the Proposed Project either will not begin operations or will stop producing coal before the proposed end of mine life.[1021]

997 Indeed, Mr Harris himself gave evidence that unless the Applicant can secure a long-term offtake agreement with a floor price above $74 USD/t, the Proposed Project would go into care and maintenance if the price of coal follows the trajectory predicted by the World Bank.[1022]

1012 T 10-50, lns 3-21.
1013 T 18-67, lns 19-20.
1014 T 18-106, lns 1-12; [[**WAR.0360.0007**]].
1015 T 18-59, lns 29-32.
1016 T 18-67, lns 8-11.
1017 T 18-59, lns 39-44.
1018 T 5-14, lns 3-6.
1019 T 18-100, ln 27.
1020 Economics JER [[**COM.0302.0006**]].
1021 T 5-67, lns 33-37.
1022 T 1-85, lns 25-38.

998 In short, the use of an inflated coal price in the CBA model, which in turn influences the viability of the Proposed Project, has propped up the predicted $211.6 million NPS from this mine.

999 The evidence demonstrates that it is more likely that Mr Palmer would make a loss if the Proposed Project were to proceed. In turn, it is more likely than not that the Proposed Project either will not proceed or will oscillate between operations and periods of care and maintenance.

1000 That has consequences not just for NPS, but also company tax and, more importantly, royalties.

05. Royalties are uncertain

1001 It is Mr Tessler's view that there is an economic case for the Proposed Project, meaning a net-benefit to Queensland, even in cases where modelling demonstrates there may be low or negative net-benefits to the Applicant.[1023]

1002 Mr Tessler's sensitivity analysis in Figure 25 in the CBA applies this view. It models the Applicant paying royalties under every scenario despite NPS being negative in many of them.[1024] As Mr Campbell notes, this assumes the Proposed Project "would operate indefinitely while losing money." [1025]

1003 In Mr Campbell's words, that approach is misleading:

> it is misleading to suggest that the project could produce positive economic values while losing money for the proponent either overall, or for significant periods. Most economic analyses rests on basic assumptions, such as the rationality of all parties and that businesses seek to maximise profits and minimise losses.[1026]

1004 If Mr Campbell is right, royalty payments will stop or slow when the Proposed Project stops operating, and the Queensland community will not benefit from the estimated $2,010.3 million NPV.

1005 Yet Mr Tessler does not model a scenario where the mine goes into care and maintenance or stops producing coal at any stage.[1027]

1006 In the absence of any sensitivity testing, the Court should accept the view of Mr Campbell that the benefits of royalties from the Proposed Project are uncertain.[1028]

1023 Economics JER [[**COM.0302.0003**]].
1024 T 18-65, lns 1-15.
1025 Economics JER [[**COM.0302.00030**]].
1026 Economics JER [[**COM.0302.0030**]].
1027 T 18-64, lns 32-37.
1028 Economics JER [[**COM.0302.0038**]].

06. Profit is only achievable under a 2.5 degree scenario

1007 Beyond speculation about the Proposed Project's chances of profiting, it is certain that profit is unachievable unless the world exceeds at least 1.5ºC, and likely 2.5ºC, of warming.

(1) The coal and energy markets experts, Mr Manley and Ms Wilson, accepted that the input assumption of the King price excludes climate change scenarios under 2.5ºC.[1029]

(2) The Wood Mackenzie forecast price in Mr Tessler's sensitivity testing — Wood Mackenzie's base case — is approximately $10.00 higher than Wood Mackenzie's forecast price for a 1.5ºC world.[1030]

(3) Mr Manley agreed that Wood Mackenzie's base case would result in a world of about 2.7ºC of warming.[1031]

(4) IEA STEPS and IEA APS prices used by Mr Tessler in his sensitivity testing exclude a 1.5ºC world which is modelled under IEA NZE.[1032]

1008 The above are the only prices in Mr Tessler's base case and sensitivity cases which return a positive NPS.

1009 On Mr Tessler's IEA NZE price scenario, Mr Palmer suffers a loss of $3,500 million (i.e. $3.5 billion).[1033]

1010 It follows that the Applicant cannot demonstrate a positive NPS for the Proposed Project in a world where global warming has stabilised at 1.5ºC or indeed at anything less than 2.5ºC. The Court is entitled to have regard to this fact in weighing economic benefit against issues of intergenerational equity.

1029 T 10-88 lns 12-45.

1030 WM Databook [[**YVL.0410.0001**]], Sheet F24, cell C51. Comparison is WM 1.5-degree price in 2022 to base case forecast in 2021.

1031 T 10-87, lns 33-45.

1032 World Energy Outlook [[**WAR.0619.0036**]], Table 1.1.

1033 Mr Tessler accepted that NPS would be 5 times greater unapportioned as "benefit" to Queensland at T 18-63, lns 1-44.

(5) The estimated royalties are eclipsed by the cost to society of scope 1 and 2 emissions alone

01. Mr Tessler's externality cost for emissions distorts the true harm

1011 Mr Tessler attributes only $1.2 million for the cost of carbon dioxide emissions in the CBA. Several assumptions and methodological choices sit behind this number:

(1) scope 3 emissions are excluded;

(2) the monetised value applied to the harm caused by the emission of a tonne of carbon dioxide is $74.42 AUD;

(3) the cost of $5,468,272 million (i.e. nearly $5.5 billion) is discounted to NPV using a 7% discount rate and so becomes $1,839,711 million;

(4) that $1,839,711 million (i.e. $1.8 billion) is then apportioned to Queensland's share of the world's population, so becoming $1.2 million.

1012 These assumptions and methodological choices combine to distort the monetised value of the emissions that the Court is tasked with assessing.

1013 The first choice is the exclusion of scope 3 emissions. This is done primarily on the basis that a CBA deals only with a 'community of standing'. Here, that is Queensland. However, the Court must also deal with the 'global dimension' under the EP Act and consider scope 3 emissions under the 'public right and interest' criterion in the MR Act.

1014 Respecting both of those considerations, these submissions proceed on the following basis:

(1) the formal CBA is assessed on the basis of only scope 1 and 2 emissions.

(2) the methodology to monetise the harm caused by the emission of carbon dioxide is then applied to scope 3 emissions to assist the Court to understand the scale of such harm.

1015 As to the first issue, as the following demonstrates, on a proper analysis the cost of scope 1 and 2 emissions far outweigh any royalties. That is without even considering other external costs, including those relating to the destruction of Bimblebox, discussed below at [1083] 1083– [1089]1089.

1016 Scope 3 emissions are considered in the following part of these submissions. Suffice it to say at this stage that a properly assessed monetised harm from carbon dioxide emitted from the coal to be burnt from the Proposed Project is massive. It is orders of magnitude greater than any conceivable assessment of economic benefit.

02. The costs of emissions should not be apportioned to Queensland's share of the world's population

1017 Mr Tessler apportioned the cost of carbon of scope 1 and 2 emissions at a rate of 0.07% because that is Queensland's proportion of the world's population.

1018 Mr Tessler justified this approach by reference to the technical notes to the NSW Guidelines (**Technical Notes**)[1034] which he says prescribe it.[1035]

1019 The Court heard evidence that Mr Tessler was aware of serious debate as to whether that interpretation is correct.[1036] The Independent Planning Commission (NSW) itself has declined to apply apportionment even after the Technical Notes were promulgated in 2018.[1037]

1020 However, again concerningly, Mr Tessler did not expose the existence of that controversy in his CBA or in the Economics JER.

1021 In any case, and to the state the obvious, this Court is not bound by NSW guidelines.[1038]

1022 More importantly, Mr Tessler's substantive opinion on the appropriateness of population apportionment of carbon costs is not positive. Before reading the Technical Notes, Mr Tessler had described the approach of apportioning carbon dioxide emissions by population in his independent assessment of the Tahmoor South Proposed Project (**Tahmoor South**) as 'dubious'[1039] and 'questionable'.[1040]

1023 Indeed, in his review of Tahmoor South, Mr Tessler compared the approach to that of former US President Donald Trump — an approach with which Mr Tessler disagreed.[1041] Again, Mr Tessler did not expose his substantive disagreement with apportionment in the CBA report or in the Economics JER. It had to be pointed out to him in cross-examination.

1024 Under cross-examination, Mr Tessler conceded that apportioning scope 1 and scope 2 emissions to the population of a particular jurisdiction results in a massive unpriced global externality that is borne by people across borders.[1042]

1034 NSW Guidelines [[**WAR.0659.0001**]].
1035 T 18-175, lns 6-21; T 18-178, ln 33 to T 18-179, ln 9; T 18-180, ln 14. Mr Tessler later admitted that he was aware there was controversy in NSW about interpretation of the NSW Guidelines on apportionment of population, see T 18-181, lns 33-37.
1036 T 18-181, lns 33-45.
1037 CIE Glendell Review [[**YVL.0515.0028-0029**]].
1038 T 18-212, lns 42-47.
1039 BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0005**]].
1040 BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0020**]].
1041 BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0020**]] and New York Times article referenced therein [[**YVL.0502.0001**]].
1042 T 18-191, lns 6-45.

1025 Mr Campbell's evidence was that apportionment by population is out-of-step with the Earth Systems evidence, as explained by the climate science experts. As Mr Campbell explains, climate change impacts have no borders. For example, a tonne of carbon emitted in NSW may be 'borne' by Siberia through melting permafrost, but this in turn could increase emissions and costs borne by NSW in the form of sea level rise.[1043]

1026 The Court should accept Mr Campbell's evidence — and Mr Tessler's substantive opinion — that the cost of scope 1 and 2 emissions should not be apportioned to the Queensland population. To apportion by population is to draw false boundaries that do not exist, either in the real world, or under the relevant statutory framework.

1027 Additionally, the logic of apportionment — that climate change harms can be equally divided among the world's population — is contrary to the unchallenged evidence in this case.

1028 Mr Coleman, Professor Bambrick, Professor Church and Dr Bethany Warren, each gave evidence to the Court that the carbon dioxide emissions caused by this mine would cause harm to the environment and to people in Queensland in a way that does not respect state or national boundaries or fall equally upon each global citizen:

(1) Professor Bambrick told the Court that First Nations people will be disproportionately affected by climate change harms and that Queensland has a higher-than-average population of First Nations people compared with the rest of Australia.[1044]

(2) Mr Coleman gave evidence that Queensland will bear a "heavily disproportionate cost of climate change compared to the rest of Australia", particularly through exposure to severe heatwaves.[1045]

(3) The climate experts gave evidence that Australia's coasts and Zenadth Kes are experiencing sea level rise at a rate higher than the global average.[1046]

1029 This evidence before the Court overwhelmingly demonstrates that apportionment of carbon cost by population is at best, 'dubious' and 'questionable'. It distorts the true harm that will be felt by Queenslanders if the coal from this Proposed Project is mined. For that reason alone, it is an assumption that this Court should discard.

1030 Returning to the logic of the NSW Guidelines (rather than the Technical Notes), apportionment makes no sense. As Mr Tessler accepted, the methodology of the NSW Guidelines is to determine a 'price' to apply to carbon dioxide in the absence of a current mandatory market price. That is because, if there was such a mandatory market price,

---

1043 Economics JER[[**COM.0302.0018**]].
1044 Public Health Report [[**YVL.0280.0009**]].
1045 T 17-25, lns 11-30.
1046 Climate JER [[**COM.0067.0172**]].

then the Applicant would have to pay it. The 'externality' would therefore not be 'unpriced' and the price would simply be a cost to be accounted for in NPS.

1031 Critically, Mr Tessler accepted (as he had to) that if there was such a mandatory price then it would be paid by an emitter in full.[1047] That is, an emitter in Queensland would not be required to only pay 0.07% of a mandatory carbon price for scope 1 and 2 emissions. Indeed, Mr Tessler agreed that there was nowhere else in Australia or the world that he was aware of that apportions a carbon price for scope 1 and 2 emissions by the proportion of the country or state in which the emissions were occurring to the world's population.[1048]

1032 When apportionment is removed, Mr Tessler's $1.2 million carbon cost becomes a cost of $1,840 million (i.e. $1.84 billion).[1049]

1033 Once these costs are subtracted from royalties, only $170 million in benefit to Queensland remains, accepting for now Mr Tessler's discount rate and price of carbon.

Economics Table 1				
Price	Apportionment	Discount rate[1050]	Cost of scopes 1 and 2 (m)	Royalties ($2010.3) – cost (m)
$74.42	0.07%	7%	$1.2	$2009.1[1051]
$74.42	100%	7%	$1839.7	$170.6

03. The cost of carbon should not be discounted — and certainly not at 7%

1034 Mr Tessler applied a blanket 7% real discount rate which he says is consistent with Queensland government guidance.[1052] That it is standard practice or adherent to guidelines (in very different context, it might be noted) is irrelevant. The logic of the discount rate may fit soundly within the narrow logic of a CBA, but it does not translate to the Court's task.

1047 T 18-131, lns 34-43; T 18-186, lns 7-19.
1048 T 18-193, lns 1-18.
1049 The number before apportionment is found in G79 of Mr Tessler's spreadsheet at [[**YVL.0522.0001**]]. See Appendix A, at end of submissions.
1050 Discount rate formula can be changed in Cell G79 of Mr Tessler's spreadsheet at [[**YVL.0522.0001**]].
1051 Green numbers in the final column to the right of each table represent positive numbers; red numbers indicate negative numbers.
1052 CBA [[**COM.0531.0025**]].

1035 Mr Tessler explained the logic of the discount rate in the Economics JER:

> Costs and benefits in a CBA represent a discounted stream of values over time. In other words, while future generations are considered, the costs and benefits accruing to such generations are discounted (reduced) relative to the present.[1053]

1036 Mr Campbell explained that discounting is fundamentally about:

(1) people's natural preference for benefits sooner and costs later; and

(2) to account for uncertainty,

1037 the sum of which skews assessment of the Proposed Project towards the current generation at the expense of future generations.[1054]

1038 The extent to which the methodology of the CBA skews the assessment of the Proposed Project in favour of the current generation is startling:

(1) the CBA only operates over a 30-year period. That is, it does not value costs and benefits outside that period at all; and

(2) the mathematical effect of a 7% discount rate is that $1 of harm in 100 years (if the CBA covered that period of time – which it does not) is valued at 0.1 of a cent for the purposes of the CBA.[1055]

1039 Yet the climate and GHG experts, Professor Church and Dr Warren, told the Court that the climate change harms felt by the generations alive in 50-100 years will be significantly more severe than those felt by the current generation.[1056] Mr Coleman and Dr Bambrick also gave evidence to this effect.[1057]

1040 Discounting methodology is at odds with the science and the Court's obligations to consider ecologically sustainable development and human rights.

1041 In particular:

(1) insofar as the discount rate accounts for uncertainty, it is of no use to costing carbon because the negative effects of GHG emissions are certain. To act on any other basis would be contrary to the precautionary principle; and

(2) insofar as the discount rate is used to reflect human preference for benefits sooner and costs later, that principle applied to costing carbon is discriminatory against young people and future generations. It is profoundly contrary not only to the principles of ecologically sustainable development, but also to the protection

---

1053 Economics JER [[**COM.0302.0020**]].
1054 Economics JER [[**COM.0302.0021**]].
1055 Economics JER [[**COM.0302.0034**]].
1056 See e.g. Climate JER [[**COM.0067.0078**]], [1908]-[1909].
1057 See, Public Health Report [[**YVL.0280.0039**]], [208]-[211]. Mr Coleman also gave various evidence showing increase in mortality and morbidity between 2021 and 2100. See, for example, Actuarial Report [[**YVL.0279.0040**]], Table 12.

against discrimination in s 15 of the HR Act and the rights of the child in s 26(2) of the HR Act.

1042 Under cross-examination, Mr Tessler conceded that the theory of discounting should not apply when trying to ensure equity between generations in the context of GHG emissions.[1058] And indeed, in another context, he had previously applied a discount rate of 2.65%.[1059]

1043 The Applicant might argue —– as Mr Tessler seemed to faintly suggest — that a consistent discount rate should be applied across the CBA.[1060] For example, a 3% discount rate applied across the CBA would result in a higher cost of carbon but comparatively greater benefits to Queensland.

1044 The Court should reject this proposition. There is no reason why (and no good reason has been proffered) different aspects of a CBA should not have different discount rates applied. The logic of not discounting climate change costs (because they are certain and will be borne by future generations) does not apply to profit to Mr Palmer or royalties to the Queensland Government. Both of those categories of 'benefits' fit classically within orthodox economic discounting to NPV. That is, Mr Palmer will value money now much more than money promised to be received in 30 years' time. So too will the Queensland Government. By contrast, harm caused by climate change impacts can only be discounted if the principle of intergenerational equity is (by the application of a mathematical formula) given no value.

1045 YV and TBA submit that no discount rate should apply to the harms caused by climate change if the principle of intergenerational equity is to be properly applied and human rights are to be properly considered. At the very least, a 'no discount rate' output is valuable to help in understanding what the monetised scale of impacts to future generations truly is.

1046 However, even using a 1.35%, or 4% discount rate, the cost of carbon still far exceeds the estimated benefit of royalties, unapportioned but for now still at Mr Tessler's carbon price.

1058 T 18-224, lns 1-18.

1059 See, for example, Valuing the effects of the Great Barrier Reef [[**YVL.0516.0006**]] and T 18-223, lns 10-45.

1060 T 18-219, lns 29-37.

1047 As can be seen, at a 4% discount rate the cost of scope 1 and 2 emissions alone is $4.3 billion NPV, more than double the NPV of royalties.

Economics Table 2				
Price (AUD/t)	Apportionment	Discount rate[1061]	Cost of scopes 1 and 2 (m)	Royalties ($2010.3) – cost (m)
$74.42	0.07%	7%	$1.2	$2009.1[1062]
$74.42	100%	7%	$1839.7	$170.6
$74.42	100%	4%	$2814.7	-$804.4
$74.42	100%	1.35%	$4313.0	-$2302.7
$74.42	100%	0%	$5468.3	-$3458.0

04. The cost of carbon is far greater than Mr Tessler estimates

1048 Mr Tessler's $74.42 AUD/t does not represent the cost of harm that the Court should consider.[1063]

1049 Mr Tessler's price is not a social cost of carbon. It is the midpoint of Australian Carbon Credit Unit (**ACCU**) prices and European Union (**EU**) Emissions Trading Scheme (**ETS**) prices at the time of conducting the CBA: $39 AUD/t and $110 AUD/t respectively.[1064]

1050 The Court should accept Mr Campbell's evidence that a social cost of carbon should be used instead of a price of carbon, because:

(1) a price of carbon refers to the market price to offset CO_2 emissions and there is no proposal to offset the relevant emissions in this case;[1065]

(2) offset prices are highly variable, based on supply and regulations, and are disconnected from the actual cost incurred by the community.[1066] This is especially so where a scheme is voluntary and not subject to real market pressures, such as ACCUs;[1067] and

---

1061 Discount rate formula can be changed in Cell G79 of Mr Tessler's spreadsheet at [[**YVL.0522.0001**]]. See Appendix A for screenshots demonstrating this process.

1062 Green numbers in the final column to the right of each table represent positive numbers; red numbers indicate negative numbers.

1063 T 18-203, lns 10-15.

1064 T 18-171, lns 1-9.

1065 Economics JER [[**YVL.0302.0016**]].

1066 Economics JER [[**YVL.0302.0016**]].

1067 T 18-252, lns 17-31.

(3) there are major integrity issues with offset schemes, leading them to under-price the true costs of abatement.[1068]

1051 By contrast, the social cost of carbon is an attempt to value the actual harm done by the emission into the atmosphere of a tonne of CO_2 (or its equivalent).

1052 Given the object of the EP Act, the Court should be interested in a measure that seeks to measure and represent actual environmental harm rather than to identify and evaluate market mechanisms.

1053 The NSW Treasury Guidelines on CBA[1069] explain that:

(1) market prices should be used as a basis for valuing the costs of carbon dioxide emissions where "reliable evidence can demonstrate that those market prices are not significantly biased as a direct consequence of scheme design"; and

(2) where market prices "are not deemed to reflect the true cost of carbon dioxide emissions, estimates of damage or damage mitigation costs may be used".

1054 The Technical Notes commend the EU ETS price as "one of the clearest indications of a market based carbon price linked to longer term emission targets." It goes on, "as a central estimate of a carbon price, the EU ETS potentially provides a benchmark to proponents" and concludes "…a proponent may in their economic assessment justify the use of a different central estimate carbon price".[1070]

1055 Mr Tessler did not refer to that guidance in the CBA or in the Economics JER. He provides no justification for departing from the use of the EU ETS as a central case. Instead, he used it as an upper bound and took a mid-point between it and the much lower ACCU price.[1071] The ACCU price is voluntary. Presumably that is why it is so low. There is nowhere in any of the guidelines relied upon by Mr Tessler, any suggestion that it be used, even as a lower bound.

1056 Had Mr Tessler used the EU ETS as his central case then the figure at the time of his CBA report was $109 AUD/t. By the time of his evidence, it was in the order of AUD $120 AUD/t.[1072]

1057 Mr Tessler's price is not comparable to reasonable estimates of social costs of carbon. He reasons that he used the US 2021 social cost of carbon of $70.44 AUD/t (USIWG)[1073] to test his price.[1074] However, Mr Campbell gave evidence that he cannot recall seeing a study of the social cost of carbon lower than that number and explained

---

1068 Economics JER [[**YVL.0302.0016**]]; T 18-252, lns 17-31.
1069 NSW Treasury Guidelines on CBA [[**YVL.0505.0067**]]. Emphasis added.
1070 Technical Notes to NSW Guidelines [[**WAR.0659.0058**]].
1071 Tessler Spreadsheet [[**YVL.0522.0001**]], rows 6-21.
1072 EU ETS Current Price [[**YVL.0514.0001**]].
1073 US Government (2021) Interagency Working Group on the Social Cost of Greenhouse Gases. Cited in Tessler Spreadsheet [[**YVL.0522.0001**]].
1074 T 18-202, lns 23-28.

that it is so low because of its unique context in the US, including ongoing court proceedings which are preventing changes to the price.[1075] This history and limitation of the USIWG social cost of carbon is confirmed in detail in the ACT Climate Change Council Report, 'The Social Cost of Carbon and Implications for the ACT', published in 2021.[1076]

1058 There is a wide range of literature on an appropriate social cost of carbon.

1059 The Court has evidence before it of some examples, including:

(1) scientific and research-based estimates between $235 AUD/t - $1069 AUD/t;[1077]

(2) UK government guidance between $216 AUD/t - $652 AUD/t;[1078]

(3) ACT government research that references between $235 -1070 AUD/t.[1079]

1060 The 2021 ACT Climate Change Council Report contains helpful and unchallenged analysis. What it demonstrates emphatically is that every current estimate of the cost of carbon is likely to be an underestimate of the true cost. That is, not least, because current estimates have not caught up with the rapidly increasing body of science of climate change impacts.[1080] Further, the estimates do not account for "costs associated with adaptation, biodiversity loss, cultural loss, tipping points in the climate system, climate effects with very long-term consequences (sea level rise and ocean acidification)".[1081]

1061 The Applicant might point the Court to the lowest estimates for the social cost of carbon available to it, as the Applicant's Senior Counsel did with Mr Campbell.[1082] It might argue that such costs of carbon as listed above at 1059 have not been implemented as a matter of public policy in Australia.

1062 This approach does not assist the Applicant. The Court will be interested in understanding what price on carbon dioxide best reflects the actual harm of emitting that carbon dioxide into the atmosphere. On that front, the scientific evidence is plain, and market-based pricing dramatically underestimates the true cost of GHGs.

1075 T 18-203, lns 1-15; Economics JER [[**COM.0302.0017**]].
1076 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0326.0015**]] - [[**YVL.0326.0016**]].
1077 Economics JER [[**COM.0302.0017**]].
1078 Economics JER [[**COM.0302.0017**]].
1079 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]].
1080 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]].
1081 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]].
1082 T 18-246, lns 427.

1063 Regardless, the argument is not determinative in this case given that a cost of carbon of only $81.50 AUD/t applied in Mr Tessler's spreadsheet sees the costs of scope 1 and 2 emissions alone overtake the estimated benefit of royalties, even on his 7% discount rate.[1083] It will be recalled that $81.50 AUD/t is well under the EU ETS price at the time of the CBA and even further distant from the current EU ETS price. It is in a different universe from proper scientific assessments of the cost of carbon.

Economics Table 3				
Price (AUD/t)	Apportionment	Discount rate[1084]	Cost of scopes 1 and 2 (m)	Royalties ($2010.3) – cost (m)
$74.42[1085]	0.07%	7%	$1.2	$2009.1
$74.42[1086]	100%	7%	$1839.7	$170.6
$81.5	100%	7%	$2010.5	-$0.3
$145[1087]	100%	7%	$3556.3	-$1546
$216[1088]	100%	7%	$5284.6	-$3274.3
$555[1089]	100%	7%	$13,536	-$11,525.7
$1070[1090]	100%	7%	$26,072.5	-$24,062

05. Most scenarios other than Mr Tessler's return a negative CBA

1064 The table below has been prepared to demonstrate to the Court how the CBA results change when altering each of Mr Tessler's input assumptions that were contested by Mr Campbell.

1065 It shows that only the very narrow set of assumptions Mr Tessler chose to input into his CBA (some of which contradicted opinions he has previously expressed) can return a positive CBA result for the Proposed Project (recognising for the reasons discussed above that the true comparison is between royalties and externalities).

1083 Adjust Cell D28 of the Tessler Spreadsheet to $82 and read price at G79 at a 7% discount rate. Cell G76 gives the number prior to application of the discount rate. This number is unapportioned to the population of Queensland. See Appendix A for screenshots demonstrating this process.

1084 Discount rate formula can be changed in Cell G79 of Mr Tessler's spreadsheet at [[**YVL.0522.0001**]].

1085 Tessler in [[**YVL.0522.0001**]].

1086 Tessler in [[**YVL.0522.0001**]].

1087 Rod Campbell higher end of range at [[**COM.0302.0014**]].

1088 Economics JER [[**COM.0302.0017**]].

1089 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]] (median global Social Cost of Carbon USD x 1.33 (exchange) = approx. $555 AUD).

1090 Economics JER [[**COM.0302.0017**]].

Economics Table 4				
Price (AUD/t)	Apportionment	Discount rate[1091]	Cost of scopes 1 and 2 (m)	Royalties ($2010.3) – cost (m)
$74.42[1092]	0.07%	7%	$1.2	$2009.1
$74.42	100%	7%	$1839.7	$170.6
$81.5	100%	7%	$2010.5	-$0.3
$145[1093]	100%	7%	$3556.3	-$1546
$216[1094]	100%	7%	$5284.6	-$3274.3
$555[1095]	100%	7%	$13,536	-$11,525.7
$1070[1096]	100%	7%	$26,072.5	-$24,062
$74.42	100%	4%	$2814.7	-$804.4
$81.5	100%	4%	$3077.3	-$1067
$145	100%	4%	$5452.4	-$3442.1
$216	100%	4%	$8108.1	-$6097.8
$555	100%	4%	$20,789.9	-$18,779.6
$1070	100%	4%	$40,050	-38,039.7
$74.42	100%	1.35%	$4312.9	-$2302.6
$81.5	100%	1.35%	$4716.6	-$2706.3
$145	100%	1.35%	$8367.2	-$6356.9
$216	100%	1.35%	$12,449.1	-$10,438.8
$555	100%	1.35%	$31,938.7	-$29,928.4
$1070	100%	1.35%	$61,546.7	-$59,536.4
$74.42	100%	0%	$5468.2	-$3457.9

1091 Discount rate formula can be changed in Cell G79 of Mr Tessler's spreadsheet at [[**YVL.0522.0001**]].
1092 Tessler in [[**YVL.0522.0001**]].
1093 Rod Campbell higher end of range at [[**COM.0302.0014**]].
1094 Economics JER [[**COM.0302.0017**]].
1095 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]] (median global Social Cost of Carbon USD x 1.33 (exchange) = approx. $555 AUD).
1096 Economics JER [[**COM.0302.0017**]].

$81.5	100%	0%	$5958.7	-$3947.9
$145	100%	0%	$10,615.3	-$8605
$216	100%	0%	$15,797.4	-$13787.1
$555	100%	0%	$40,540	-$38,529.7
$1070	100%	0%	$78,128.4	-$76,118.1

1066 Monetisation of the scope 1 and 2 emissions only has demonstrated that, on a wide range of assumptions, any royalties the Proposed Project will pay will be overwhelmed by the costs that current and future generations will bear.

(6) Monetised value of 'scope 3' emissions

1067 As discussed above, Mr Tessler was clear that the methodology for a CBA requires the identification of a 'community of standing' in respect of whom both costs and benefits are attributed. He considers — consistent with the NSW Guidelines — that scope 3 emissions (that is, carbon dioxide emissions from the burning of coal mined during the life of the Proposed Project) are global harms rather than Queensland harms. That reasoning is contestable. The physical reality is that the location where coal is burnt (and so where carbon dioxide is emitted) bears no relationship to the locations where the harm is felt.

1068 Nonetheless, to maintain fidelity with Mr Tessler's CBA methodology, scope 3 emissions are here dealt with as a separate, non-CBA issue.

1069 They are dealt with though. That is because scope 3 emissions are legally relevant to the various statutory tasks that the Court is called on to perform. On that basis, it is useful to apply the methodologies discussed above to scope 3 emissions. By so doing, a range of monetised values of the harm caused can be identified. That monetised value will never be precise; however, the sheer scale of it is telling.

1070 As can be seen from the table below, accounting for the full emissions of the Proposed Project, that is, including scope 3 emissions, the costs are up to orders of magnitude higher than any conceivable benefit.

1071 They start (using Mr Tessler's cost of carbon and discount rate) at $69 billion and end (using the higher bounds of the social cost of carbon literature and without a discount

rate) at more than $3 trillion. At the widely accepted midpoint of the social cost of carbon literature and with a modest discount rate of 1.35% they exceed $1 trillion.

Economics Table 5						
Price (AUD/t)	Appt.	Dscnt.	Cost of scopes 1 and 2 (m)	Cost of scope 3 (inc. trans) (m)	Scopes 1, 2, 3 (m)	Royalties ($2010.3) – cost of scopes 1-3
$74.42	100%	7%	$1839.7	$70,095[1097]	$71,934.7	-$69,924.4
$81.5	100%	7%	$2010.5	$76,701	$78,711.5	-$76,701.2
$145[1098]	100%	7%	$3556.3	$136,463	$140,019.3	-$138,009
$216[1099]	100%	7%	$5284.6	$203,282	$208,566.6	-$206,556.3
$555[1100]	100%	7%	$13,536	$522,323	$535,859	-$533,849
$1070[1101]	100%	7%	$26,072.5	$1,007,001	$1,033,073.5	-$1,031,063.2
$74.42	100%	4%	$2814.7	$108,170	$110,984.7	-$108,974.4
$81.5	100%	4%	$3077.3	$118,366	$121,443.3	-$119,433
$145	100%	4%	$5452.4	$210,590	$216,042.4	-$214,032.1
$216	100%	4%	$8108.1	$313,706	$321,814.1	-$319,803.8
$555	100%	4%	$20,789.9	$806,050	$826,839.9	-$824,829.6
$1070	100%	4%	$40,050	$1,554,006	$1,594,056	-$1,592,046
$74.42	100%	1.35%	$4312.9	$165,505	$169,817.9	-$167,807.6
$81.5	100%	1.35%	$4716.6	$181,105	$185,821.6	-$183,811.3
$145	100%	1.35%	$8367.2	$322,211	$330,578.2	-$328,567.9

1097 See cell AE79 for result before apportionment [[**YVL.0522.0001**]].
1098 Rod Campbell higher end of range at [[**COM.0302.0014**]].
1099 Economics JER [[**COM.0302.0017**]].
1100 The Social Cost of Carbon and Implications for the ACT, May 2021 [[**YVL.0507.0013**]] (median global Social Cost of Carbon USD x 1.33 = $555 AUD).
1101 Economics JER [[**COM.0302.0017**]].

$216	100%	1.35%	$12,449.1	$479,983	$492,432.1	-$490,421.8
$555	100%	1.35%	$31,938.7	$1,233,291	$1,265,229.7	-$1,263,219.4
$1070	100%	1.35%	$61,546.7	$2,377,695	$2,439,241.7	-$2,437,231.4
$74.42	100%	0%	$5468.2	$209,032	$214,500.2	-$212,489.9
$81.5	100%	0%	$5958.7	$228,733	$234,691.7	-$232,681.4
$145	100%	0%	$10,615.3	$406,949	$417,564.3	-$415,554
$216	100%	0%	$15,797.4	$606,214	$622,011.4	-$620,001.1
$555	100%	0%	$40,540	$1,557,633	$1,598,173	-$1,596,163
$1070	100%	0%	$78,128.4	$3,003,004	$3,081,132.4	-$3,079,122.1

1072 These figures should not be surprising. This coal mine — if approved — will be more than double the next biggest thermal coal mine in Australia.[1102] The total CO_2 emissions from the burning of the coal from this mine represents 1% of the global carbon budget remaining to limit global warming to 1.7 degrees.[1103] The burning of coal from this mine will amount annually to 0.16% (or 1/625th) of current global annual emissions. That percentage would, of course, become greater if global emissions decrease. It is not exaggerating to say that this coalmine would be one of the single biggest sources of emitted CO_2 in the world.

1073 The Applicant might submit — and Mr Tessler asserted — that if the global costs of scope 3 emissions are to be considered, then the global benefits should also be accounted for.

1074 There are three responses to that submission:

(1) Mr Tessler's position on this issue falls within the confines of CBA methodology. It makes perfect sense in that context that he wants to 'conduct a CBA'. But that

1102 WM Databook [[**YVL.0410.0001**]], Sheet F4. See cells D86 and D151. Mt Arthur Project and Carmichael Project are listed as having productions of 16mtpa respectively.

1103 Climate Change JER [[**COM.0067.0055**]].

is not what the Court is called on to do. The real question is whether any of those 'global benefits' are relevant (and if so, how relevant) to the statutory tasks here.

(2) bearing that in mind, the only benefits identified by Mr Tessler are producer surplus (that is, profit) to the owners of coal fired power stations in other countries (assumed by Mr Tessler to be South Korea for ease of analysis) and consumer surplus to residential electricity customers in other countries (again assumed to be South Korea for ease of analysis). Neither category of 'benefits' has any relevance to the Court's functions under the EP Act, MR Act or HR Act. Even if they could be said to have some relevance, they would be given little if any weight.

(3) the only category of 'benefits' subjected to any form of analysis by Mr Tessler is consumer surplus. Even if the profound irrelevance of consumer surplus (discussed below) to the statutory tasks is put to one side, the monetised value of that benefit is dwarfed by any proper analysis of the cost of the CO_2 emitted.

1075 Mr Tessler explains that he sought — in a general way — to measure the benefits in terms of consumer surplus accruing to residents of South Korea through the generation of electricity.[1104] In this context, consumer surplus is the difference between the price that a consumer pays for a product and the price that the consumer would be willing to pay for that product. No credible argument could be made that this highly theoretical 'benefit' to South Korean electricity consumers could have any relevance to the task that the Court faces here.

1076 Further, consumer surplus as a concept is unhelpful when it comes to utilities where the demand is highly inelastic (because electricity is an essential service). Here, it results in a 'surplus' of two or three times what consumers pay for the electricity.[1105]

1077 In any event, and more importantly, the benefit of the electricity accrues regardless of how it is made (through coal, nuclear, gas, renewables or otherwise). Mr Tessler accepted as much,[1106] and there is no evidence that there will be a shortage of electricity in South Korea if this mine does not proceed. To the contrary, there is evidence that this coal is not required to meet any such demand.[1107]

1104 T 18-235 to T 18-236.
1105 T 18-237 to T18-238.
1106 T 18-239, ln 40.
1107 See from paragraph 1720 below.

(7) The Court should recognise the full economic impact of the Proposed Project in the context of the statutes

01. The Court will consider matters beyond the CBA

1078 The CBA, properly understood and interrogated, can inform the Court's task. For example, the Court can glean from the CBA and the concurrent evidence session in monetary terms:

(1) where there is profit from the Proposed Project, that profit is enjoyed only by Mr Palmer;

(2) but, it is more likely that Mr Palmer will make a loss;

(3) the true value of the Proposed Project is its royalties paid to the State;

(4) the estimated royalties, if they eventuate, are undone by the cost to society of even scope 1 and 2 emissions alone; and

(5) when emissions from the burning of coal are considered, the cost to the world (that is the global dimension) is astronomical.

1079 As is demonstrated for different reasons in the evidence of the energy markets experts, the reality is that this coal mine can only be financially viable in world of more than 2.5 degrees because only then is the price of coal high enough to sustain it. In such a world, the costs of the carbon emitted dramatically outweigh any benefits.

1080 These propositions are made good above. On that basis alone, the Court would decide that the cumulative harm from climate change is not outweighed by the economic benefits of the Proposed Project.

1081 However, the Court is not limited to an assessment of benefits and costs in monetary terms. Balancing benefits and costs through the lens of the EP Act is ultimately a qualitative exercise.

02. Bimblebox will be destroyed as a nature refuge, whether or not the mine produces coal

1082 Additional to matters included in the CBA, YV and TBA submit that the Court should consider that Bimblebox would be destroyed, at least as a nature refuge, and a human community and endeavour, with serious environmental harm to its non-human environmental values. These costs are felt upon the approval of the Proposed Project, irrespective of financial viability and its effects on operation of the mine.

1083 Mr Tessler used a choice modelling survey with Brisbane-based participants,[1108] which modelled the Desert Uplands Region before the establishment of Bimblebox, to ultimately value the loss to terrestrial ecology and biodiversity at $700,000.[1109]

1108 T 18-136, lns 37-39.
1109 CBA [[**WAR.0531.0053**]].

1084 Mr Campbell was critical of choice modelling in general but particularly its use in environmental decision-making.[1110] He favoured a qualitative assessment of Bimblebox[1111] believing that such impacts cannot be reliably quantified.[1112] He was conscious of the limitations of the economic frame for valuing nature, stating:

> Economics has little to say about the rights of other species to exist outside of human consideration, or the morality of basing decisions about nature conservation on human values.[1113]

1085 The Court should find that the valuation of the loss of Bimblebox at $700,000 based on an outdated and marginally relevant choice modelling survey is unhelpful.

1086 Instead, the Court should be guided by the evidence of the people who have spent two decades maintaining, protecting and enhancing Bimblebox: Paola Cassoni, Ian Hoch, Jill Sampson, Eric Anderson, Carl Rudd and Patricia Julien. Their evidence is summarised from paragraph [346] above, and encapsulates 22 years of monitoring, research, awareness raising, advocacy, recreation and artistic endeavour, education and tireless tending to the maintenance, protection and enhancement of Bimblebox.

1087 Critically, the loss of Bimblebox will be incurred if the Proposed Project is approved, even if operations do not proceed because the mine is financially unviable.[1114]

1088 Mr Campbell is familiar with mining lease approvals whereafter the benefits of employment and royalties are never reaped. He told the Court about the approval of the Cobbora Coal Project in NSW, which catalysed people leaving the region and the town of Dunedoo. Lots of farming families left the region, the school didn't have enough students — there were serious social changes. But the mine never even produced any coal. He accredited the outcome to a faulty economic assessment which did not properly consider if the mine was financially viable.[1115]

03. Global average surface temperature increases to at least 2.5 degrees when all emissions are considered

1089 The CBA assessed only scope 1 and 2 emissions. The Court is however concerned with the Proposed Project's total emissions.[1116]

1090 The Court has heard evidence from Mr Manley and Ms Wilson that in a future with the Proposed Project's carbon dioxide emissions, the best feasible outcome is 2.5ºC of

---

1110 T 18-135, lns 1-10; Economics JER [[**COM.0302.0041-43**]], citing *Bulga Milbrodale Progress Association Inc. v Minister for Planning and Infrastructure and Warkworth Mining Limited* [2013] NSWLEC 48, [496].
1111 T 18-136, lns 28-31.
1112 Economics JER [[**COM.0302.0043**]].
1113 Economics JER [[**COM.0302.0040**]].
1114 See [C-III(xi)] above.
1115 T 17-91, lns 4-25.
1116 See paragraph 200 above.

warming. Without the Proposed Project, Professor Church and Dr Warren agree the best feasible future is 1.4ºC of warming.[1117]

1091 The difference between 1.4ºC and 2.5ºC of warming is significantly greater impacts on life and health on human and all other populations of beings.

1092 In monetary terms, the costs of all carbon dioxide emissions are outlined in Table 5 above at [1072]1068.

1093 There would remain qualitative considerations that cannot be adequately quantified, such as:

(1) loss of human life;[1118]

(2) deterioration of mental health, particularly of children and young people;[1119]

(3) the destruction of ancient cultures in Queensland that are intrinsically linked to the health of the land and seas;[1120]

(4) the loss of islands and cays that hold creation stories;[1121] and

(5) the psychological impacts of displacement after extreme weather events.[1122]

1094 The Court should find that these costs are of gargantuan proportions compared with the benefits that may arise from the Proposed Project.

(8) Conclusions from the evidence

1095 Based on the above:

(1) the benefits, to the extent they accrue, largely accrue to Mr Palmer;

(2) to the extent the benefits might accrue to Queensland, they are uncertain, hinging on the precarious viability of the Proposed Project;

(3) if the Proposed Project is approved but does not proceed, the local costs will still be borne; and

(4) if the Proposed Project is approved and proceeds, the global costs and costs to Queensland resulting from the accumulation of GHGs in the atmopshere will be of unprecedented proportions.

1117 Climate JER [[**COM.0067.0034**]], [787]–[790], [795]–[799].
1118 Actuarial Report [[**YVL.0279.0039**]].
1119 Public Health Report [[**YVL.0280.0034**]].
1120 Affidavit of Jiritju Fourmile [[**YVL.0068.0001**]]; Affidavit of Harold Ludwick [[**YVL.0050.0001**]]; Affidavit of Lala Gutchen [[**YVL.0036.0001**]]; Affidavit of Florence Gutchen [[**YVL.0033.0001**]]; Affidavit of Kapua Gutchen [[**YVL.0044.0001**]].
1121 Affidavit of Kapua Gutchen [[**YVL.0044.0006**]], [51]-[111].
1122 T 7-25, lns 1-23.

1096 Even looked at only through an economic lens, the recommendations of the Court should be for refusal of the ML and non-approval of the EA.

(9) Mr Campbell's evidence should be preferred over Mr Tessler's

1097 To the extent there is any doubt in the evidence, the Court should prefer Mr Campbell's evidence over Mr Tessler's.

1098 This Court has before it multiple examples of opinions given by Mr Tessler in other contexts;[1123] examples where Mr Tessler has given frank, informed opinions, acknowledging areas of debate and laying bare underlying assumptions and weaknesses in CBAs.

1099 The gap between those examples and Mr Tessler's evidence in this case is of concern. The Court would be entitled to conclude that Mr Tessler's approach was not transparent and that he did not seek to assist the Court to the best of his expert knowledge, in accordance with his duties.

1100 Rather, each of Mr Tessler's choices in how to represent the CBA favoured the Applicant's case for a positive NPV, yet the availability of alternative approaches was not made explicit. For example:

(1) Mr Tessler did not make clear to the Court the distributional impacts in his CBA, despite the uniquely inequitable structure of the profits.[1124] This was contrary to the NSW guidelines,[1125] which Mr Tessler often cited as the basis of his approach, and contrary to his own critique in his review of Tahmoor South;[1126]

(2) Mr Tessler did not make explicit that the NPS reported in the CBA executive summary as the economic outcome for the Proposed Project did not attribute the costs of transporting the saleable coal to market;[1127]

(3) Mr Tessler included payroll tax as a benefit in his CBA, despite having written in other reports that there should be evidence of high unemployment rates to be able to include payroll taxes as a benefit of a Proposed Project;[1128]

1123 See, for example, BIS Oxford Hume Coal and Berrima Rail Proposed Project Supplementary Report [[**YVL.0512.0004**]]; BIS Oxford Review of Tahmoor South Proposed Project[[**YVL.0327.0001**]].

1124 T 18-167; BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0019**]]; T 18-18, lns 9-26.

1125 NSW Guidelines [[**WAR.0655.0007**]]; T 18-15, lns 6-29.

1126 BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0019**]].

1127 T 18-46, lns 42-46.

1128 BIS Oxford Hume Coal and Berrima Rail Proposed Project Supplementary Report [[**YVL.0512.0004**]]; BIS Oxford Review of Tahmoor South Proposed Project [[**YVL.0327.0001**]].

(4) Mr Tessler's sensitivity analyses did not model likely scenarios, including a scenario where the Proposed Project becomes unviable. Mr Campbell describes a 'key problem' with Mr Tessler's sensitivity analysis to be that he "models a number of scenarios but a lot of them are not very useful";[1129]

(5) Mr Tessler had access to Wood Mackenzie coal price scenarios on a 1.5ºC and 2ºC future three months in advance of his CBA being provided to Mr Campbell, but did not sensitivity test these scenarios,[1130] which would have returned a negative NPS.[1131] Instead, he only modelled Wood Mackenzie's base case in 2021 which is based on a world of 2.7ºC of warming.[1132] He did not even make clear that he had access to, and was aware of, the Wood Mackenzie 1.5 and 2ºC price series;

(6) when it came to pricing carbon, Mr Tessler deviated from the Technical Notes[1133] which suggested EU ETS as the central point for carbon price to make EU ETS his upper bound for a lower estimate between the voluntary ACCU scheme and EU ETS price.[1134] He otherwise cited compliance with the NSW Technical Notes to justify his approach to apportionment.[1135]

(7) Mr Tessler did not sensitivity test for apportionment and non-apportionment approaches to carbon costing despite being aware of controversy around the apportionment approach.[1136] He said that he was following the NSW Guidelines and that was sufficient[1137] despite having previously considered the approach substantively 'questionable' and 'dubious';[1138]

(8) Mr Tessler did not disclose that he had previously seen fit to apply a much lower social discount rate when valuing the Great Barrier Reef. Under cross-examination, he explained that report was not one trying to adhere to NSW guidelines, despite their having no formal application to this Queensland proceeding;[1139] and

(9) when it came to quantifying the losses caused to Bimblebox, Mr Tessler used a choice model that he recognised had serious limitations. He acknowledged under cross-examination that such limitations could be noted qualitatively in a CBA.

1129 T 18-85, lns 34-36; T 18-86, lns 11-13; T18-30, lns 21-23.
1130 T 18-79, lns 33-47.
1131 WM Data Book [[**YVL.0410.0001**]], Sheet F24; T 18-80, lns 18-21.
1132 T 18-80, lns 28-30.
1133 NSW Technical Notes [[**WAR.0659.0058**]]; T 18-200, ln 18 to T18-202, ln 28.
1134 T 18-201, lns 14-47.
1135 T 18-214, lns 27-28.
1136 T 18-184.
1137 T 18-185, lns 4-20.
1138 T 18-213, lns 3-6.
1139 T 18-223, lns 10-45.

> Yet he did not note those limitations, either in the CBA, or in the Economics JER.[1140]

(iv) CGE Analysis

1101 The formal objection to the admission of evidence relating to the CGE analysis is withdrawn.

1102 Nonetheless, it is submitted that the CGE analysis should be given little if any weight. The CGE report, along with the CBA, was provided to Mr Campbell just days before the commencement of the conclave process, with no notice. That is despite an initial report being available as early as December 2021.[1141]

1103 The CGE report was authored by a Mr Glyn Wittwer at the Centre of Policy Studies, Victoria University. The Applicant did not call Mr Wittwer to give evidence, nor did it call anyone who assisted in the preparation of the report or its underlying model.

1104 The only witness called who purported to speak to the CGE report was Mr Tessler. But, as Mr Tessler said, he is "not a CGE expert."[1142] He was unable to answer questions about the CGE, such as how it modelled investment.[1143] And he ultimately characterised the CGE as containing 'black box issues', with which he was not familiar.[1144]

1105 In the result, the Court and the parties are not privy to the basis of the evidence and are therefore unable to properly challenge its contents.[1145]

1106 On its face though, the CGE provides some relevant information that might assist the Court. In particular, it demonstrates the potential cost to the local region of the Proposed Project through local 'price squeezes'.

1107 For example, Figure 2.1.4 outlines cost of living impacts. It suggests that under one model, by 2026-2027, housing rentals on average across the region would reach 65% above base but could be much higher in settlements close to the mine. Employees in education, healthcare and other local services would require substantial additional wages to compensate for working in the region.[1146]

1108 That occurs in a context where these local areas are not, at present, reliant on mining activities. Indeed, and as the CGE makes clear (and Mr Tessler agreed[1147]) increases in mining exports will come at the expense of other exporting industries such as agriculture.[1148]

1140 T 18-145 to T 18-146.
1141 T 17-41, lns 24-48.
1142 T 17-43, ln 25.
1143 T 17-43, lns 30-33.
1144 T 17-43 to T 17-44.
1145 See, *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705, [85].
1146 CGE in CBA [[**WAR.0531.0159**]].
1147 T 17-65, lns 4-22.
1148 T 17-65, lns 1-22.

1109 Approval of the Proposed Project would drastically alter the existing local economic conditions, making it financially difficult for many residents to continue living in the region. It would do so in the context of precarious viability. That is, against the real risk that at some point during the proposed life of the mine, it is likely to cease operations, or go into care and maintenance. Again, there are no other coalmines in this area on which the local economy and community could rely.

1110 By the time the mine ends, the local area will look very different. In this respect, the Court might be assisted by the evidence of Mr Campbell about the impacts of the approval of the Cobbora Coal Project in NSW, outlined at 1089 above, which caused people to leave the region, but ultimately did not result in the production of any coal.

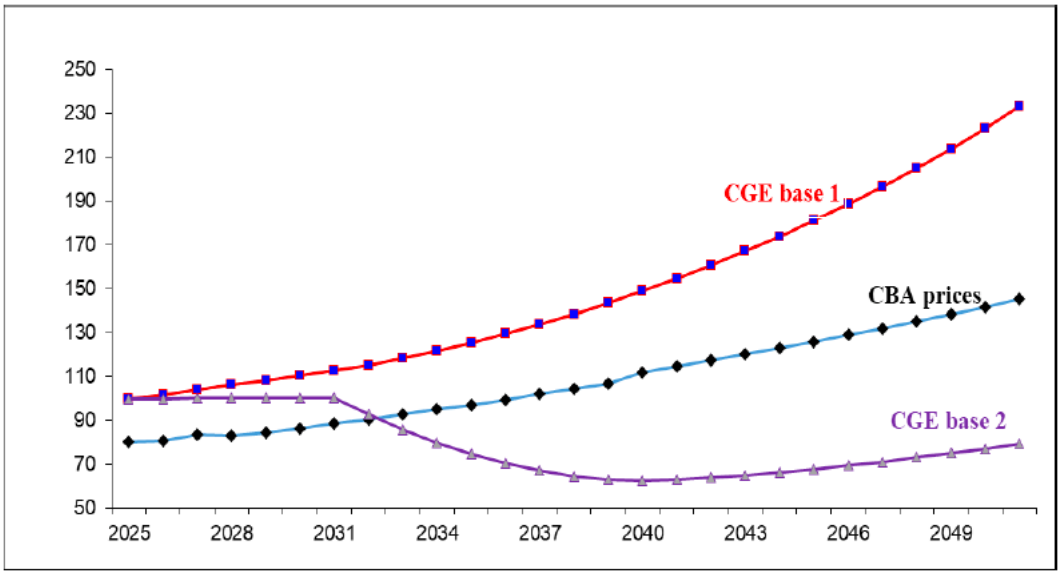
1111 Finally, the CGE (again) makes clear that the Proposed Project relies on heavily inflated price assumptions. The following figure[1149] shows the way in which the main case in the CGE works. It shows coal prices rising rapidly throughout the life of the Proposed Project and ending up at about $230 USD/t. Such a figure (and the trajectory that precedes it) belies credibility considering the other evidence in the case. In the absence of anyone to explain the CGE modelling, the claimed benefits should be rejected on this basis alone.

1112 The second price scenario (noted in the figure below as 'CGE Base 2') assumes that demand for seaborne thermal coal reduces in 2030. Because price is endogenous in the CGE model, that line shows prices reducing and then rising again. Tellingly, it reduces below the Harris-King financial break-even point of $74 USD/t in about 2035 and it never recovers above that point. Even the 2030 reduction is optimistic given that Wood Mackenzie predicts the collapse in demand to be occurring now (see Figure 23 of the

1149 CGE in CBA [[**WAR.0531.0176**]].

Energy Markets JER[1150]) and (based on Wood Mackenzie's most recent update) to be happening faster and harder than previously predicted.

Figure A2: Coal price
(US$/tonne, nominal)



1113 To the extent that anything can be made of the so-called 'welfare benefits' in the CGE model report, they are heavily qualified by the author. First, he makes clear that "given how sensitive the welfare outcomes are to the future price of coal, any ostensible net benefits of the Proposed Project must be weighed against the potential costs of environmental damage from further mining of coal." Second, he notes that "[e]xternalities are not included in CGE modelling."[1151] Of course, externalities are included in the CBA as discussed above and environmental harm is — to the extent possible — monetised. The net result is hopelessly negative for the Proposed Project.

1150 Energy Markets JER [[**COM.0069.0073**]].
1151 CGE in CBA [[**WAR.0531.0173**]], [3.1].

D. ARGUMENT ON OBJECTIONS

D-I The EP Act

(i) Summary of argument

1114 A recommendation to refuse an environmental authority will best 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.

1115 When the evidence is viewed through the requisite lens, having regard to the mandated considerations, that conclusion is compelling.

1116 In this section of the submissions, we argue for the conclusions the Court should reach on applying the law in B to the facts in C.

(ii) The evidence of environmental harm to Bimblebox requires refusal

(1) The environment and environmental values protected by refusal

1117 Locally, the upside of refusal is the maintenance of Bimblebox, as:

(1) a nature refuge, and as such:

(a) a protected area, under the NC Act;

(b) a matter of State environmental significance under the EO Act and EO Regulations;

(c) a part of the comprehensive, adequate and representative national reserve system, created and maintained by Australia in performance of its obligations under art 8 of the Biodiversity Convention;

(d) the subject of the Funding Agreement, made for the purpose of a Commonwealth grant under;

(e) the faithful implementation by the landholders over 22 years of the promises they made under:

(A) the Funding Agreement with the Commonwealth, under the *National Heritage Trust of Australia Act 1997* (Cth);

(B) the Conservation Agreement with the State, under the NC Act;

(C) the Management Agreement, made pursuant to the Funding Agreement and the Conservation Agreement.

(f) the subject of distinct criteria under the EPP Air and Noise;

(g) an irreplaceable place-based combination of nature and nurture;

(h) a location grounding a community;

(2) an entire ecosystem, comprising all elements of "environment" present as one interconnected whole — including soil, flora and fauna — in a state maintained and enhanced by the assiduous effort of people and community;

(3) an ecosystem of very good ecological condition in an area that has been, and is, being rapidly cleared for human development;

(4) all individual species (flora and fauna) present on Bimblebox (regardless of their museum status);

(5) matters of national environmental significance and matters of state environmental significance;

(6) a human-nurtured ecosystem, where:

(a) use of cattle grazing to achieve conservation outcomes is modelled;

(b) scientific knowledge and education is promoted;

(c) recreational and cultural opportunities, and an opportunity to participate in community, is offered to visitors;

(d) artistic endeavour is nurtured and cultivated;

(7) a whole properly described by the original meaning of "unique": "Of which there is only one; single, sole, solitary".[1152]

1118 Under the EP Act, each of these, and their combinations and permutations, are:

(1) aspects of the local "environment" (s 8), in all of its human and non-human aspects; and

(2) accordingly, "environmental values" (s 9(a)), being qualities or physical characteristics of that local environment that are conducive to ecological health or public amenity or safety.

(2) The environmental harm authorised by approval

1119 Locally, the downside of approval is the destruction of Bimblebox:

(1) as a nature refuge, either sooner or later;

(2) as a place comprising soil, air, water and ecosystem — by subsidence; consequential impacts on surface water; consequential impacts of mitigation and rehabilitation measures; impacts from changes in groundwater quality; noise, vibration and light pollution, and impacts to air quality;

[1152] "unique, adj. and n.", meaning 1, *OED Online*. Oxford University Press, June 2022. Web. 13 June 2022.

(3) as an ecosystem, including all flora and fauna as an interactive whole, from the cumulative impacts described above, in a landscape where such ecosystems are in a state of rapid and irreversible decline;

(4) as an environment incorporating the endeavours of human beings, having faithfully and assiduously carried out obligations willingly shouldered on the faith of agreements with the Commonwealth and State, for the protection and improvement of the environment at Bimblebox, for 22 years of their lives;

(5) as a habitat for matters of national and state environmental significance;

(6) as a human community, with all of the cultural, scientific, artistic and other benefits it confers.

1120 Under the EP Act, each of these constitutes "environmental harm", that would be caused by the Proposed Project, within the meaning of s 14(1) and (2).

(3) Conditions as to specific harms are not an answer

1121 The conditions provided by the Statutory Party, and updated throughout the course of the matter, as the true inadequacy of the EIS, SEIS and CG Report as any kind of foundation for assessment of the Proposed Project (on the new mine plan, or at all) became evident do not provide an answer.

(1) As explained at B-III(ix), YV and TBA submit that conditions have a discrete role under the EP Act, and cannot be used to delegate or abdicate the core function committed to the Court under s 222, or the officer of the State to whom the Court's recommendation is directed.

(2) Applying the precautionary principle, the evidence before the Court is so problematic as to be unfixable by conditions without the Court delegating or abdicating its function.

1122 Accepting the approach proffered by the Statutory Party in the version of conditions uploaded at the end of the hearing would, in effect, be to proceed as though: (a) the entire statutory process leading to the draft EA, and objections; and (b) the functions of this Court in hearing objections and making recommendations, are a hollow exercise the substantive content of which can be deferred to persons paid by the Applicant post-approval. Such an approach is fundamentally inconsistent with the substantive scheme Parliament intended here to enact.

(4) Offsets are not an answer

1123 For the reasons in E-II:

(1) the environmental harm to Bimblebox is such that it cannot appropriately be characterised as "residual impacts" that can be counterbalanced by offsets;

(2) applying the precautionary principle, the complete absence of evidence, or the state of uncertainty left by the evidence, are such that the Court cannot be satisfied that any residual impacts would or could be counterbalanced by offset conditions;

(3) there is no evidence to support a conclusion that a condition deferring assessment and imposition of offsets will be effective to counterbalance the environmental harm;

(4) the conditions now proposed by the Statutory Party would be contrary to the commitment by the Applicant, on the basis of which YV and TBA have conducted the entirety of this matter; and

(5) given the state of the evidence, to authorise the local environmental harm caused by the Proposed Project, on the basis of the conditions proposed by the Statutory Party, would be to impermissibly delegate or abdicate the function conferred on the Court by s 222.

(5) There is no evidence of any benefit to Bimblebox

1124 As against those downsides, there is no evidence before the Court of any benefit to Bimblebox, its landholders, or other aspects of the "environment" (including people and communities) in respect of Bimblebox.

(6) The precautionary principle

1125 To recapitulate, the Goal of the National Strategy correlates to the object of the EP Act, which shapes the Court's performance of its function under s 222. A Guiding Principle in service of that goal is the precautionary principle: 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".

1126 The evidence of local impacts in this matter calls out for the application of that principle.

(1) The informational foundation intended by Parliament is profoundly flawed. The manifest inadequacy of the EIS, SEIS and CG Report has been compounded by the effluxion of time and the mine plan change.

(2) Building on a flawed foundation is fraught with risk, and it proved so here. The local impact experts did their best, but the inadequacy of the foundational information was further exacerbated by the nebulosity of the Applicant's intentions and "commitments".

(3) In effect, the Court is asked to take a leap of faith, on the resultant state of scientific uncertainty, and recommend approval of the Proposed Project, despite the real risk on the evidence of the effective destruction of the myriad environmental values of Bimblebox.

(4) That is precisely the kind of risk to which the precautionary principle is directed; it counsels against such risks, because if they materialise, the harm cannot be undone.

(7) Intergenerational equity

1127 Similarly, the principle of intergenerational equity is strongly engaged by the fate of Bimblebox. Remove the activities of the landholders and broader community, and add the potential impacts caused by the mining, and there is a serious risk that this nature refuge, and the ecosystem and community it houses, will be lost for future generations.

1128 That loss must be assessed in the context of a massive decline in biodiversity, which the present generation has brought about.

(8) The public interest

1129 In the context of the EP Act, the public interest is primarily that embodied in s 3, as informed by the principles of ecologically sustainable development and the National Strategy.

1130 Here, there is an additional dimension to the public interest — being the interests of the people for the furtherance of which the Queensland Parliament enacted the NC Act, the Commonwealth Parliament enacted the *National Heritage Trust of Australia Act 1997* (Cth), the Commonwealth Executive ratified the Biodiversity Convention, and the State the State made a nature refuge a matter of state environmental significance under the EO Act and EO Regulations. Approval of the Proposed Project would detract from those interests.

1131 More specifically, here, there is a public interest in the State adhering to an agreement, in reliance on which the landholders spent 22 years of their life, to their detriment if the State were now to depart from its agreement. As a matter of legal principle[1153] and the proper construction of the NC Act (which does not preclude a mining lease being granted over a nature refuge), the State is not bound by that agreement in making its decision under the EP Act — as a question of power. That its power is unfettered does not, however, make the promises and agreement of the State, so extensively relied on by the landholders, irrelevant as a consideration. Indeed, TBA and YV submit that there is an important public interest in the State adhering to such commitments, which is coherent with the scheme of the NC Act.

[1153] See, generally, *Searle v Commonwealth of Australia* (2019) 100 NSWLR 55, [91]ff (Bell P).

1132 In other words, the State can, as a matter of power, depart from its agreement, but there is a strong public interest in it not doing so. That public interest has two aspects. First, there is a public interest in the State honouring its agreements, as a matter of principle, even though it has power to walk away from them. Second, there is an instrumental aspect; if landholders who might in future enter a conservation agreement see the State walking away from this conservation agreement, on the strength of which Dr Rudd, Mr Hoch and Ms Cassoni have invested 22 years of their life for the public good, they will think twice about entering into a similar agreement with the State in future. This instrumental aspect underpins the public interest in protecting the identity of police informers — if potential informers see police break an agreement to keep their identity confidential, they will think twice about becoming an informer themselves.[1154]

(9) The character, resilience and values of the receiving environment

1133 The environmental harms identified above are directly referable to the character, resilience and values of the receiving environment.

(10) Other mandatory considerations

1134 For the assistance of the Court, we propose to prepared a table that cross-references each mandatory consideration to relevant parts of our submissions, to be provided at the time of delivering oral submissions.

1135 However, we reiterate our submission that the power in s 222 is a purposive power, shaped by ss 3 and 5, and not merely a check-a-box procedural exercise followed by an unbridled discretion.

(iii) The evidence of environmental harm throughout Queensland requires refusal

(1) The Statewide economic benefits

1136 Statewide, the upside is an economic benefit to one member of the human species (out of the Queensland population of 5.2 million people), in the order of $1 billion (NPV) profit, and a benefit to the State of Queensland of approximately $2 billion (NPV).

(2) The environment and environmental values

1137 When one comes to consider the "environment" and "environmental values" likely to be harmed by the accretion of GHG emissions, one need only to look at the agreed facts in [11] to appreciate the inability of the human mind to properly grasp the full extent of what is being described. Almost every aspect of every environment, and the whole environment, of Queensland, human, flora, fauna, climate, air, water, soil, beaches, forests, wetlands; the country to which each Aboriginal people and Torres Strait Islander people is connected; those peoples, and all other people and communities,

---

1154 See, for example, *Jarvie v Magistrates' Court of Victoria* [1995] 1 VR 84, 88 (Brooking J).

small townships, big cities … everything will be affected, much will be harmed, and eventually destroyed.

(3) Environmental harm

1138 And the inability of the human mind to grasp the enormity of what is involved is a problem. What we cannot grasp, we cannot measure, we cannot consider, we cannot weigh. But, of course, s 222 requires an attempt, for (if our submissions on jurisdiction to consider combustion emissions and on the substitution argument be accepted) it is that environmental harm which the Land Court is asked to recommend the State to authorise.

1139 Once one has attempted to bring before one's mind the entire environment and environmental values of Queensland, the environmental harm requires no more than reference to s 14(2) of the EP Act, the agreed fact at [12] and the agreed fact at [11].

1140 To recapitulate, "environmental harm" is defined in s 14(1) as "any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value".

1141 Section 14(2) then provides a precise rule of causation, containing elements found in environmental legislation around the world: comprehending direct, indirect and cumulative harm:

> ***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.

1142 The agreed fact in [12], together with the Climate JER, establishes that if the Proposed Project is approved, and the coal is extracted, for sale to a power generator, the physical effect of burning the coal will be to emit the carbon, owned by the State, and presently stored in the mining lease area, into the atmosphere, where it will accrete with other GHGs, which will cumulatively cause increasing concentration of GHGs in the atmosphere, a correlate increase in average temperature above pre-industrial, and have the environmental and human consequences agreed in [11].

1143 These will then be environmental harm caused cumulatively by the combined effects of the activity and other activities or factors. On the agreed evidence, the least harmful world in which that cumulative harm will be caused is one with 2.5 degrees warming above pre-industrial. And it could be higher — where it will end is a matter of deep scientific uncertainty that even the world community of scientists collated by AR6 has been unable to reduce to any form of probabilistic reasoning.

1144 This deep uncertainty surely provides a paradigm case for application of the precautionary principle, such that the possibility of the Climate JER Scenario 3 (a C8-category scenario equivalent to SSP4–8.5), and the threat of irreversible damage it

poses to the ecological processes on which life depends, call for extreme precaution as to what measure should be adopted in the making of the present recommendation.

(4) The environmental harm authorised by approval requires refusal

1145 The consequence Statewide of approving the Proposed Project is a material contribution to destabilising the stable climate system of the holocene, in which all present ecosystems flourished, including the development of most human cultures and societies, and as a consequence:

(1) destroying the Country belonging to Aboriginal and Torres Strait Islanders since long before the holocene, which supports their identity, cultural heritage, traditional knowledge, distinctive spiritual practices, observances, beliefs and teachings, language, kinship ties; weakening and undermining their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition or Island custom; and directly undermining and denying their right to conserve and protect the environment and productive capacity of their land, territories, waters, coastal seas and other resources;

(2) threatening the lives of Queenslanders (a constituent part of Queensland's environment), including today's generation of children and young people, by forcing them to live in an inhospitable land, filled with danger from heatwaves, fires, floods, vector-borne diseases, and economic and societal disruption and, perhaps, collapse;

(3) driving many species to extinction, destroying unique ecosystems that have evolved over epic timescales — including World Heritage areas such as the Great Barrier Reef and the Daintree Rainforest — heating and acidifying the oceans, causing more heat, fires, floods, cyclones, extreme weather events, sea level rise, property damage, and sooner or later, the breakdown and loss of much that we take for granted; and

(4) the other myriad matters referred to in the agreed facts and the evidence summarised in above.

(5) The mandatory considerations

1146 Once one removes the blinkers (imposed by an overly narrow construction of the scope of s 222), then (as Margaret McMurdo P anticipated in *CCAQ Appeal*), the problem engages the Core Objectives and Guiding Principles of the National Strategy, in service of the goal as enacted in s 3 of the EP Act, like no other. It is worth considering each of those principles, as it were bearing the agreed facts about at [11] steadily in the forefront

of one's mind by way of comparison. The exercise requires no commentary, beside underlining particularly salient expressions:

(1) Core Objective 1: to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations.

(2) Core Objective 2: to provide for equity within and between generations.

(3) Core Objective 3: to protect biological diversity and maintain essential ecological processes and life-support systems.

(4) Guiding Principle 1: decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations.

(5) Guiding Principle 2: 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

(6) Guiding Principle 3: the global dimension of environmental impacts of actions and policies should be recognised and considered.

(6) The public interest

1147 It is difficult to conceive of a public interest greater than maintaining the ecological processes on which life depends, or of a matter threatening our ability to do so more than anthropogenic GHG emissions, or of a decision more consequential than to approve a massive new coal mine, unlocking carbon for emission out to 2051.

1148 As to other mandatory considerations, we refer to the table where we have cross-referenced them to parts of the submissions.

(iv) Conclusion

1149 The Proposed Project will degrade the total quality of life, both now and in the future, and threatens the ecological processes on which life depends. The economic benefit is outweighed by, and perhaps incommensurable to, the environmental harm sought to be authorised.

1150 The Court should recommend refusal of the environmental authority.

D-II The HR Act (in performance of the EP Act functions)

(i) Overview of YV & TBA's Human Rights submissions

1151 To briefly re-state what has already been decided in *Waratah Coal Pty Ltd v Youth Verdict Ltd & Ors*:[1155]

> [T]he Court is subject to s 58(1) of the HR Act in fulfilling its function under the MRA and the EPA because it is a public entity for that purpose, and in making its recommendations on the applications, the Court will 'act or make a decision' within the meaning of that section.

1152 The Court's recommendations in turn inform the administering authority in making the ultimate administrative decisions under the EP Act and MR Act, in respect of which that authority is also a public entity that must comply with the HR Act.[1156]

1153 YV and TBA contend that recommendations, and/or ultimate decisions, to approve the EA and ML sought by the Applicant would be incompatible with the human rights of Queenslanders.

1154 For convenience, these submissions articulate the human rights case primarily by reference to the decisions at hand: the recommendations. But they should be understood to apply equally to the ultimate decisions.

1155 Specifically, YV and TBA assert that the rights under ss 15(2), 16, 24(1), 25(a), 26(2) and 28 of the HR Act would be limited by approval of the Proposed Project, in a manner which has not been justified.

1156 Absent YV and TBA's objections, the HR Act would apply with no less force. Section 58(1) imposes mandatory obligations on public entities. Those obligations shape the very nature of the decision-maker's task; they do not depend on any external objection.

(ii) Approach to interpretation of the HR Act

1157 In approaching questions arising under the HR Act, YV and TBA submit that the following principles apply to its construction.

(1) The provisions of the HR Act should be given a wide construction

1158 Like any statute, the HR Act should be construed having regard to its text, context and purpose, and in the way that best achieves its objects.[1157] Consistently with that uncontroversial proposition, and with its character as beneficial legislation, all

---

1155 [2020] QLC 33 at [92] (**HR strikeout decision**).

1156 *HR strikeout decision* [2020] QLC 33 at [53].

1157 *SZTAL v Minister for Immigration and Border Protection* (2017) 262 CLR 362 at 368 [14] (Kiefel CJ, Nettle and Gordon JJ); 375 [38]-[38] (Gageler J); See also: section 14A of the *Acts Interpretation Act 1954* (Qld) (**Acts Interpretation Act**).

provisions of the HR Act bestowing, protecting or enforcing rights should be construed as widely as their terms permit.[1158]

(2) Victorian Charter jurisprudence may be instructive, but is not determinate

1159 The HR Act should also be understood in its broader context, including its legislative history. Being based on the Victorian Charter, decisions applying that Act may be useful in construing the HR Act. However, due regard must also be given to the textual differences between the two Acts.[1159] The HR Act should ultimately be construed on its own terms.

(3) International and foreign law may be considered

1160 Section 48(3) makes clear that which is already true: international law and the judgments of domestic (including decisions about the Victorian and ACT Human Rights Acts), foreign and international courts and tribunals may be considered in interpreting a statutory provision.[1160]

1161 A degree of care, however, should be exercised. The observations of French CJ in ***Momcilovic*** *v R* are apt to foreign domestic and international decisions:[1161] "such judgments are made in a variety of legal systems and constitutional settings which have to be taken into account when reading them."

1162 One such difference is the contrast between the dialogue model of human rights,[1162] adopted in Queensland, and human rights frameworks centred on the right to a remedy. It will often be unhelpful to try to directly transpose reasoning from one to the other, particularly when dealing with concepts in treaties that are bound up with the obligations of State Parties to provide remedies. Other examples frequently arise — the significance of our Constitutional separation of powers, being a prominent example.

1163 However, foreign and international materials often contain cogent analysis. The above qualification should not be understood to detract from their proper comparative use — for their logical and analogical relevance to the statutory questions at hand.[1163]

1164 So long as due regard is paid to relevant differences, international and foreign law have the potential to enrich the HR Act, in turn promoting its objects. So much is the clear intention of s 48(3).

1158 See, *Owen D'Arcy* [2021] QSC 273 at 36 [118]-[120] citing *AB v Western Australia* (2011) 244 CLR 390; *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415 at 434 [80] (Warren CJ); *WBM v Chief Commissioner of Police* (2012) 43 VR 446, 489 [201]; *Bare v Independent Broad-based Anti-Corruption Commission* (2015) 48 VR 129, 182 [160]. See also *SQH v Scott* [2022] QSC 16 at [324].

1159 HR Strikeout decision [2020] QLC 33 at [21].

1160 See, *Owen D'Arcy* [2021] QSC 273 at 35 [114]: "s48(3) states no more than would ordinarily apply when construing a statute of this nature. It is, perhaps, designed to act as a reinforcement of the capacity to refer to those laws and judgments which are relevant and of assistance."

1161 (2011) 245 CLR 1 at 37-38 [19], [recently cited in *Owen D'Arcy* [2021] QSC 273 at 35 [114].

1162 See further below under "Section 58 and the dialogue model" from [1187].

1163 See further, *Momcilovic* at 37 [18] (French CJ).

(iii) The objects and statutory framework of the HR Act

(1) Objects and overview

1165 The Parliament of Queensland introduced the HR Act to "change the culture of the public sector" and "embed a human rights understanding in thinking about policy."[1164]

1166 The main objects of the Act are set out in s 3:

> (a) to protect and promote human rights; and
>
> (b) to help build a culture in the Queensland public sector that respects and promotes human rights; and
>
> (c) to help promote a dialogue about the nature, meaning and scope of human rights.

1167 Those main objects are expressed in s 4 to be achieved primarily by, relevantly:

> (a) stating the human rights Parliament seeks to protect and promote; and
>
> (b) requiring public entities to act and make decisions in a way compatible with human rights; and
>
> (c) …
>
> (d) requiring courts and tribunals to interpret statutory provisions, to the extent possible that is consistent with their purpose, in a way compatible with human rights.
>
> …

1168 The key operative provisions that give force to these mechanisms are ss 8, 13, 48 and 58.

(2) Sections 8 & 13

1169 Section 8 defines 'compatibility with human rights' — a central concept throughout the Act that informs the content of the obligations under ss 48 and 58.[1165]

1170 Section 8 provides:

> An act, decision or statutory provision is compatible with human rights if the act, decision or provision:
>
> (a) does not limit a human right; or
>
> (b) limits a human right only to the extent that is reasonable and demonstrably justifiable in accordance with section 13.[1166]

1164 Queensland, *Parliamentary Debates*, Legislative Assembly, 31 October 2018 (Yvette D'Ath, Attorney-General and Minister for Justice) (**second reading speech**) at 3184, 3186.

1165 'Compatibility with human rights' is also central to other, not presently critical, sections of the Act including s 39 (scrutiny of Bills and statements of compatibility by portfolio committee), s 41 (Human rights certificate for subordinate legislation) and s 53 (declaration of incompatibility).

1166 *HR Act* s 8 (emphasis added).

1171 The proportionality exercise under s 13 is therefore also critical to the operation of the Act. The combined effect of ss 8 and 13 is that human rights under Pt 2 may be limited, but only to the extent that the limitation can be justified by reference to s 13.

1172 Section 13(1) provides: "a human right may be subject under law only to reasonable limits that can be demonstrably justified in a free and democratic society based on human dignity, equality and freedom."

1173 Section 13(2) then sets out guiding factors that may be relevant in deciding whether a limit is reasonable and justifiable.

> (2) In deciding whether a limit on a human right is reasonable and justifiable as mentioned in subsection (1), the following factors may be relevant—
>
> (a) the nature of the human right;
>
> (b) the nature of the purpose of the limitation, including whether it is consistent with a free and democratic society based on human dignity, equality and freedom;
>
> (c) the relationship between the limitation and its purpose, including whether the limitation helps to achieve the purpose;
>
> (d) whether there are any less restrictive and reasonably available ways to achieve the purpose;
>
> (e) the importance of the purpose of the limitation;
>
> (f) the importance of preserving the human right, taking into account the nature and extent of the limitation on the human right;
>
> (g) the balance between the matters mentioned in paragraphs (e) and (f).

1174 While those factors are only a guide, the explanatory materials to the HR Act explained that they are "intended to align generally with the principle of proportionality — a test applied by courts in other jurisdictions to determine whether a limit on rights is reasonable and justifiable."[1167]

1175 In this respect, it is relevant to note that s 13 bears similarities with s 7(2) of the *Victorian Charter*, s 1 of the *Canadian Charter of Rights and Freedoms*[1168] (**Canadian Charter**) and s 5 of the *New Zealand Bill of Rights.*[1169]

1176 Each of these provisions embodies a form of proportionality testing by which limitations on human rights are assessed. The seminal Canadian decision of *R v*

1167 Explanatory Notes, Human Rights Bill 2018 (Qld), 5; Queensland, *Parliamentary Debates*, Legislative Assembly, 31 October 2018 (second reading speech) at 3185.

1168 *Canada Act 1982* (UK) c 11, sch B pt 1 ('*Canadian Charter of Rights and Freedoms*').

1169 *New Zealand Bill of Rights Act 1990* (NZ), s 4.

Oakes[1170] has been particularly influential in Victoria,[1171] and was picked up by the Queensland Supreme Court in *Owen D'Arcy*[1172] and subsequently by this Court in *Waratah Coal Pty Ltd v Youth Verdict Ltd (No. 5)*.[1173]

1177 The test has been explained as follows.[1174]

1178 **First**, the objective the measures in question are designed to achieve must be sufficiently important to warrant overriding a fundamental right or freedom. The objective must be 'pressing and substantial'.

1179 **Second**, the means chosen to achieve the objective must pass a form of proportionality test. This test will generally involve three elements:

(1) there must be a rational connection between the limitation and the objective sought to be achieved;

(2) the means used to achieve the objective must impair the right as little as possible; and

(3) there must be an overall proportionality between the effect of the limitation on the individual's enjoyment of the right in question and the advancement of the objective sought to be achieved. In other words, the limitation must strike a 'fair balance.'

1180 The requirement that the objective be 'pressing and substantial' is reflected in the explanatory materials to the Human Rights Bill.[1175]

1181 The words in s 13(1) should also, of course, be given work to do. The limitation must be capable of justification in a "free and democratic society based on human dignity, equality and freedom." Those are not mere precatory words. They invoke important underlying values upon which the HR Act is based and are foundational to the Court's task under s 13.[1176]

1170 [1986] 1 SCR 103.

1171 See, eg, *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415 at 449 [148]; *Kracke v Mental Health Review Board* (2009) 29 VAR 1 at [99], [107]-[130]; *Certain Children v Minister for Families and Children* (2016) 51 VR 473 at 511 [208]; *Certain Children v Minister for Families and Children (No 2)* (2017) 52 VR 441 (**Certain Children (No 2)**) at 505 [205].

1172 *Owen D'Arcy* [2021] QSC 273 at [104]-[107] citing *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415.

1173 [2022] QLC 4 at [24].

1174 *R v Chaulk* [1990] 3 SCR 1303 at 1335-1336.

1175 Explanatory Notes, Human Rights Bill 2018 (Qld), 17.

1176 See further, *Owen D'Arcy* [2021] QSC 273 at [104]-[107] citing *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415, in turn citing *R v Oakes* [1986] 1 SCR 103 at [64].

1182 This structured proportionality approach shares much in common with the structured proportionality test now applied by the High Court in the contexts of the implied freedom of political communication and s 92 of the Constitution.[1177] However, the two approaches arise in different settings and fulfill different purposes. One is applied in the specific statutory context of the HR Act; the other is a judicial test of constitutional validity of legislative and executive action.

1183 Those differences matter, and they perhaps explain the divergent approaches to the stringency of the test applied. In *Owen D'Arcy*, Martin J expressly disavowed any notion that the imbalance must be 'unreasonable or unjustifiable' to result in incompatibility.[1178] By contrast, the High Court has made clear that a law is to be regarded as 'adequate in its balance' unless the benefit sought to be achieved by the law is manifestly outweighed by the adverse effect on the implied freedom.[1179] The latter test is reflective of the constitutional relationship between the judiciary and the other arms of government. It should not be adopted here, in a context where Parliament has clearly evinced an intention to apply a test that is similar, but with a critical difference.[1180]

1184 Brief mention should also be made of the onus under s 13. The authorities have established that the onus of demonstrably justifying a limitation lies with the party seeking to uphold the limitation.[1181] Given what is required to be justified, the standard of proof is high. The burden requires "a high degree of probability which is commensurate with the occasion" and the evidence of justification should be 'cogent and persuasive.'[1182]

(3) Section 48

1185 Section 48(1)-(2), outlined in detail above, provides that "all statutory provisions must, to the extent possible that is consistent with their purpose, be interpreted in a way that is compatible with human rights" and "if a statutory provision can not be interpreted in a way that is compatible with human rights, the provision must, to the extent possible

---

1177 See, *LibertyWorks In v Commonwealth* (2021) 95 ALJR 490 (**LibertyWorks**), 504 [48] (Kiefel CJ, Keane and Gleeson JJ), and the authorities collected at footnotes 58 (implied freedom of political communication) and 59 (section 92). As those authorities indicate, that approach is now applied by a majority of the Court.

1178 *Owen D'Arcy* [2021] QSC 273 at [144]. See also, recently in the Victorian context: *Thompson v Minogue* [2021] VSCA 358 at [72] where the Court of Appeal said 'a corollary of the requirement that the limitation must be 'demonstrably justified' is that a measure of stringency is involved in meeting that standard.'

1179 *LibertyWorks* at 510 [85] (Kiefel CJ, Keane and Gleeson JJ).

1180 Cf K Blore, 'Proportionality under the Human Rights Act 2019 (Qld): When are the Factors in s 13(2) Necessary and Sufficient, and When are They Not?' (2022) 45 (2) Melbourne University Law Review (forthcoming), available at: <https://law.unimelb.edu.au/__data/assets/pdf_file/0011/4079099/Blore-452-Advance.pdf>.

1181 As this Court has already noted in *Waratah Coal Pty Ltd v Youth Verdict Ltd (No 5)* [2022] QLC 4 at [25].

1182 *Owen D'Arcy* [2021] QSC 273 at [108]-[110] citing *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415.

that is consistent with its purpose, be interpreted in a way that is most compatible with human rights."

(4) Section 58 and the dialogue model

1186 Section 58(1) imposes the core obligations on public entities that are the subject of this proceeding. It provides:

> (1) It is unlawful for a public entity —
>
> (a) to act or make a decision in a way that is not compatible with human rights; or
>
> (b) in making a decision, to fail to give proper consideration to a human right relevant to the decision.

1187 Subsection (2) then provides that subsection (1) does not apply if the public entity could not reasonably have acted differently or made a different decision under law.

1188 Because the Land Court is exercising a discretion in this proceeding, subsection (2) has no role to play.

1189 The provision thus comprises two cumulative limbs: the **substantive limb** (a), and **procedural limb** (b).[1183]

1190 To comply with the substantive limb, the Land Court's recommendations must either:

(1) not limit human rights; or

(2) only limit human rights to an extent that is demonstrably justifiable by reference to s 13.

1191 To comply with the procedural limb, the Land Court must properly consider any relevant human rights which includes:

(1) identifying the human rights that may be affected by the decision; and

(2) considering whether the decision would be compatible with human rights.[1184]

1192 Those last two requirements depart from the approach of the Victorian Charter, which has a less stringent procedural requirement. A useful exposition of the procedural limb is contained in Justice Martin's reasons in *Owen D'Arcy,* where his Honour noted the limited utility of much of the Victorian jurisprudence for that reason.[1185]

1183 See further, *Owen D'Arcy* [2021] QSC 273 at [125].

1184 *HR Act* s 58(5).

1185 *Owen D'Arcy* [2021] QSC 273 at 39-41 [134]-[141], comparing s 38(1) of the *Charter of Human Rights and Responsibilities Act 2006* (Vic).

1193 One relevant matter which does arise from the Victorian cases, however, is that requirements of the procedural limb entail a degree of elasticity, depending on the nature of the decision and the decision-maker in question.[1186]

1194 Section 58(1) makes clear that failure to comply with either the substantive or the procedural limb renders the decision or act in question 'unlawful.'

(iv) The obligations under s 58 are engaged by the Court's task

1195 The Applicant seeks this Court's recommendation for approval to mine coal for the sole purpose of selling it, to be combusted to produce electricity. During combustion, GHGs will be emitted into the atmosphere, materially contributing to human-induced climate change.

1196 The Applicant has agreed that "[i]f the Proposal is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting greenhouse gas (mostly CO_2) into the atmosphere".[1187]

1197 By contrast, if approval is not given, the carbon in the coal, owned by the State, will remain locked safely under the Earth's surface, out of the atmosphere.

1198 The decision in question may therefore properly be characterised as a decision by the State whether or not to unlock its carbon for emission into the atmosphere.

1199 The adverse consequences for human rights caused by the emissions of GHGs, including those formed from the carbon presently stored in the mining lease area, are properly to be seen as limitations of the decision or act that unlocks that carbon for emission.

1200 Those limitations, and their lack of demonstrable justification, are explained below.

1201 But it is worth dealing at the outset with anticipated arguments about why the Court's obligations under s 58(1) might not be engaged. Five potential arguments have been identified; each should be dismissed.

1202 **First**, the Applicant may argue that s 58(1) is not engaged because the obligations arise in respect of unspecified individuals. That argument has already been rejected, including by the Queensland Supreme Court.

1203 In *Innes v Electoral Commission of Queensland (No 2),*[1188] Ryan J proceeded on the basis that "it is not necessary for an identifiable individual to be affected in order for a human right to be engaged so as to trigger the obligations imposed on public entities by

---

1186 See, eg. *Thompson v Minogue* [2021] VSCA 358 at [90]-[91]. See also the decision below (not reversed on this point): Minogue v Thompson (2021) VSC 56 at [54]-[55].

1187 Issues not in dispute [[**COM.0328.0001**]]–[[**COM.0328.0002**]], [4].

1188 [2020] QSC 293 at [291]-[292].

s 58(1). A potential effect on the rights of a class of persons is sufficient." Ryan J's approach also accords with the Victorian jurisprudence on its cognate provision.[1189]

1204 **Second,** the Applicant might argue that the Court's recommendations, and the administrative decisions they inform, are too causally removed from the combustion of the coal to engage s 58(1). That argument too, should be rejected.

1205 In the first place, the Court's decision is directly causative of the emission of carbon into the atmosphere. Just as the decision to unlock a floodgate is directly causative of damage from the floodwaters thereby released, or the decision to unlock a door restraining a dangerous dog is directly causative of damage by that dog.

1206 As explained above, for the purpose of the EP Act, the Court must assume the Proposed Project will proceed, and in any event, that is consistent with the agreed fact recorded in paragraph 1197 above. The proponent seeks approval to operate the Proposed Project, so that it can extract the coal and sell it for combustion. The Applicant has already set its intention and chosen its course. The only critical causal step is whether or not the State should unlock the door.

1207 For that reason, the present situation is properly to be characterised as "direct causation", from the approval decision to the physical effects. However, even if the Applicant (in extracting the coal) or another entity (in burning the coal) were seen to add an additional link into the causal chain, s 58(1) is not so flimsy as to break at that addition.

1208 In *Certain Children (No 2)*, relied upon by this Court in the HR Act strikeout decision, the Victorian Supreme Court dealt with analogous arguments. The plaintiffs, certain children detained in the Grevillea Unit of Barwon Prison, challenged decisions to (a) gazette the unit as a Youth Justice Centre; (b) transfer children there; and (c) exempt staff from certain weapons prohibitions that would otherwise apply.

1209 The defendants submitted that (a) and (c) did not engage the substantive limb of the Victorian equivalent of s 58(1) because those decisions (or their maker) did not, of themselves, directly affect the rights of any individual.[1190] That is, the actual harm was contingent on further acts, and at least in some circumstances, acts of other actors. For example, the gazettal decision would not cause actual harm unless and until a child was transferred to the unit, and the weapons exemption decision would not cause actual harm unless and until a weapon was possessed in the unit. The defendants argued that in those circumstances, the plaintiffs did not have standing to vindicate rights in the abstract. This was made clear, they argued, by the Victorian equivalent of s 59.

1210 The Court rejected those arguments, and for cogent reasons.

1189 See, *Certain Children (No 2)* at 501 [190].

1190 *Certain Children (No 2)* at 499 [181] (gazettal decision); 500 [186] (weapons exemption decision).

1211 The Court explained that there is a distinction between the obligations imposed on public authorities and the right of a particular person to seek a particular form of relief or remedy. Thus, there may be situations where there could be a breach of s 38(1) of the Victorian Act in the 'general' sense, but particular individuals may not be able to bring proceedings to seek relief or remedy in respect of the breach.[1191] The imposition of a standing requirement did not support a narrow interpretation of s 38(1). Rather, it supported a broad interpretation because Parliament placed appropriate boundaries on the ability to litigate.[1192]

1212 The Court went on to explain that Parliament clearly intended human rights would be considered from the early stages of the development of government policy, which by its nature will involve some level of generality.[1193]

1213 The same can be said for the HR Act. So much is consistent with the normative objects of the Act, as well as its text. For example, 'act' is defined in s 6 to include 'a proposal to act' — a clear indication that human rights ought to be considered at an early stage of decision-making, including before any direct harm occurs. So much is also consistent with the approach adopted by the Queensland Supreme Court in *Innes v Electoral Commission of Queensland (No 2)* — a potential effect on the rights of a class of persons is sufficient.[1194]

1214 **Third,** the Applicant might contend that the human rights are either not limited or are limited to a lesser extent because the decisions of the Land Court and the ultimate administrative decision makers contribute to climate change but are not solely responsible for it.

1215 Of course, as a matter of fact that is true. But it in no way diminishes YV and TBA's case. The HR Act is squarely focussed on the acts of decision-makers within Queensland. Decisions made by Queensland public entities that contribute to climate change — which, it is agreed, will harm and eventually "destroy the health, life, and way of life, of many human beings and human communities"[1195] — are no less significant because they limit rights by way of contribution, rather than sole causation. The act of a company whose factory deposits cyanide into a lake limits the right to life of the villagers on the far shore, notwithstanding that it is the cyanide from ten factories that causes the lethal limit to be exceeded. That logic holds, *a fortiori*, when the normative objects of the HR Act are considered.

1216 And, of course, the experts in this case agree that no tonne of CO_2 is immaterial.[1196] In the words of Professor John Church: "we, as a society, have firmly got our hands on the

---

1191 *Certain Children (No 2)* at 501-503 [191]-[197].
1192 *Certain Children (No 2)* at 502 [193].
1193 *Certain Children (No 2)* at 503 [195].
1194 [2020] QSC 293 at [291]-[292].
1195 Issues not in dispute, [[**COM.0328.0002**]], [5], read with YV and TBA's objections under the EP Act, [[**COM.0053.0013**]], [35.1]; [[**COM.0042.0013**]], [35.1].
1196 Climate JER [[**COM.0067.0005**]].

temperature knob of the world by our CO_2 emissions … and every tonne of emissions counts."[1197]

1217 The present approval sought concerns not one tonne, but 1.58 Gt CO_2-e. On any analysis, that will be a material contribution; how material depends on the extent of future emissions.

1218 Finally, it is important to apply the HR Act by reference to the function being performed under the EP Act. As s 14(2) expressly allows for cumulative causation of environmental harm (including to people and communities), and approval of an EA application concerns authorisation of such harm, limitations for the purpose of s 58 should be understood conformably.

(v) Approach to the evidence under the HR Act

1219 Having established that s 58(1) applies generally, the following sections turn to an examination of the limitations on each right, including why they cannot be justified by reference to s 13.

1220 In respect of each right, YV and TBA submit that the Court should take the following approach.

1221 **First**, ascertain the nature and the scope of the right.

1222 **Second**, determine whether and how the right would be limited in respect of people in Queensland by the recommendations and approvals sought by the Applicant.

1223 **Third,** if the right is so limited, consider whether the limitation can be demonstrably justified by reference to s 13. This involves a proportionality assessment taking into account the factors in s 13(2). If the right is to be demonstrably justified, there must be a 'pressing and substantial' objective sought to be achieved by the limitation, of which there is 'cogent and persuasive' evidence.

(vi) Approval of this mine would unjustifiably limit the right to life of people in Queensland (s 16)

(1) Nature and scope of the right to life

1224 Section 16 of the HR Act provides: "Every person has the right to life and has the right not to be arbitrarily deprived of life." As the explanatory materials indicate, the section is drawn from article 6(1) of the International Covenant on Civil and Political Rights (**ICCPR**).[1198]

1197 T 20-58, lns 30-35.

1198 Explanatory Notes, Human Rights Bill 2018 (Qld), 3.

1225 Under the ICCPR,[1199] the right to life confers both negative and positive obligations on States. That is, States must not only refrain from engaging in conduct that limits the right but must also take positive steps to ensure it is protected.

1226 The same is true of the HR Act.[1200] However, in this case, it is unnecessary to refer further to the positive aspect of s 16. That is because approval will positively unlock the carbon in the mining lease area, for release into the atmosphere. The approval will limit the negative right, by causing the release of a large amount of carbon into the atmosphere.

1227 'Arbitrary' in the HR Act has a 'specific human rights' meaning. It is concerned with capriciousness, unpredictability, injustice and unreasonableness, in the sense of not being proportionate to the legitimate aim sought.[1201]

1228 The Victorian Court of Appeal has recently observed that there is necessarily a degree of overlap between rights with such internal qualifications and the proportionality exercise under s 13.[1202] The Victorian Court of Appeal has held that the assessment of whether a deprivation is arbitrary does not mean direct and express consideration must be given to the factors set out in [s 13(2)]. That is because the s 13 proportionality analysis is not incorporated into the scope of the right itself. Rather, assessment of arbitrariness requires a 'broad and general' assessment of whether, in all the circumstances, the interference extends beyond what is reasonably necessary to achieve the statutory or other lawful purpose being pursued.[1203] YV and TBA submit that the same approach should be adopted here.

1229 The 'broad and general' assessment of arbitrariness under s 16 is dealt with below from [1243].

1230 First, the nature and scope of the right in terms of its relationship to climate change is addressed.

1231 International and foreign law are useful sources in navigating the relationship between climate change and human rights law. And materials considering art 6 of the ICCPR, on which s 16 is based, assume particular significance.[1204]

1232 Under the ICCPR, deprivation of life is understood to entail 'intentional or otherwise foreseeable and preventable life terminating harm or injury, caused by an act or

---

1199 *International Covenant on Civil and Political Rights*, opened for signature 16 December 1966, 999 UNTS 171 (entered into force 23 March 1976) art 6(1) ('ICCPR').

1200 Explanatory Notes, Human Rights Bill 2018 (Qld), 19.

1201 See, *WBM v Chief Commissioner of Police* (2012) 43 VR 446 at 472 [114],[117] (Warren CJ) approved in *Thompson v Minogue* [2021] VSCA 358 at [55].

1202 *Thompson v Minogue* [2021] VSCA 358 at [58].

1203 *Thompson v Minogue* [2021] VSCA 358 at [56].

1204 See, *Momcilovic* at 37 [18] (French CJ).

omission.'[1205] It extends to threats posed by climate change. In General Comment 36, the Human Rights Committee observed:

> Environmental degradation, climate change and unsustainable development constitute some of the most pressing and serious threats to the ability of present and future generations to enjoy the right to life. The obligations of States parties under international environmental law should thus inform the content of article 6 of the Covenant, and the obligation of States parties to respect and ensure the right to life should also inform their relevant obligations under international environmental law. Implementation of the obligation to respect and ensure the right to life, and in particular life with dignity, depends, inter alia, on measures taken by States parties to preserve the environment and protect it against harm, pollution and climate change caused by public and private actors. States parties should therefore ensure sustainable use of natural resources … and pay due regard to the precautionary approach.[1206]

1233 Foreign and international decisions have also considered the interaction between the right and climate change. By way of illustration:

(1) In *Teitiota v New Zealand*,[1207] although the author's complaint was ultimately dismissed,[1208] the Human Rights Committee acknowledged the threat to the right to life posed by climate change:

> [W]ithout robust national and international efforts, the effects of climate change in receiving States may expose individuals to a violation of their rights under articles 6 or 7 of the Covenant, thereby triggering the non-refoulement obligations of sending States. Furthermore, given that the risk of an entire country becoming submerged under water is such an extreme risk, the conditions of life in such a

---

1205 Human Rights Committee, *General Comment No 36: Article 6: Right to Life,* 124th sess, UN Doc CCPR/C/GV/36 (3 September 2019) at 2 [6].

1206 Human Rights Committee, *General Comment No 36: Article 6: Right to Life,* 124th sess, UN Doc CCPR/C/GV/36 (3 September 2019) at 13 [62].

1207 Human Rights Committee, Views: Communication No, 2728/2016, UN Doc CCPR/C/127/D/22728/2016 (23 September 2020) ('Teitoa v New Zealand') ('Teitoa').

1208 The author was a citizen of Kiribati. He claimed that climate change and sea level rise forced him to migrate to New Zealand and that he was entitled to refugee status in New Zealand on that basis. The essence of his complaint was that removing him to Kiribati violated his right to life under article 6 of the ICCPR. The Committee found that "due to the impact of climate change and associated sea level rise on the habitability or Kiribati and on the security situation on the islands, he faced a real risk of impairment to his right to life under article 6." [8.6] However, recalling the nature of the obligations of States parties not to extradite, deport, expel or otherwise remove a person from their territory when there are substantial grounds for believing there is a real risk of irreparable harm, the Committee noted that the risk must be personal; it cannot derive from the general conditions in the receiving state. This requirement, as well as the fact that the committee was not satisfied the author had established that there was a "real and reasonably foreseeable risk" that he would be exposed to a situation that could threaten his right to life at the time he was removed [9.9] were ultimately determinative of the outcome. The committee also noted, in relation to sea level rise, that the timeframe within which Kiribati would become uninhabitable was ten to fifteen years, allowing time for intervening acts by Kiribati to protect and where necessary, relocate, its population. The Committee observed that, based on the information made available to it, it was not in a position to conclude that the domestic authorities' assessment that the measures taken by Kiribati would suffice to protect the author's right to life was "clearly arbitrary or erroneous" at [9.12].

> country may become incompatible with the right to life with dignity before the risk is realized.[1209]

(2) In *Future Generations v Ministry of the Environment*, a case dealing with a '*tetula*' constitutional claim that the deforestation of the Amazon was contravening fundamental rights, including because of its climate change impacts, the Supreme Court of Colombia observed:

> The fundamental rights of life, health, the minimum subsistence, freedom, and human dignity are substantially linked and determined by the environment and the ecosystem. Without a healthy environment, subjects of law and sentient beings in general will not be able to survive, much less protect those rights, for our children or for future generations.[1210]

(3) And in *State of the Netherlands v Urgenda Foundation*, the Supreme Court of the Netherlands said "the Court believes that it is appropriate to speak of a real threat of dangerous climate change, resulting in the serious risk that the current generation of citizens will be confronted with loss of life and/or a disruption of family life".[1211]

1234 Of course, each of these decisions is to be treated with the usual caution: they arise in legal and constitutional settings with meaningful differences from those of Queensland. However, the common thread underlying each decision is that human beings are fundamentally dependent on the environment, including for our very lives. That notion is perfectly consonant with the HR Act and the EP Act.

1235 More importantly, though, the agreed facts and the evidence in the present matter make it abundantly clear that GHG emissions (together, perhaps with nuclear war or a more lethal global pandemic) present the clearest present danger to the conditions that support human life on Earth. See [C-IV(v)] above.

1236 Evidence of the nature and extent of the limitation, and assessment of arbitrariness and proportionality, follow.

(2) Approval of the project would limit the right to life of people in Queensland

1237 It is not in dispute that if the proposal is allowed to proceed, the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting GHGs into

---

1209 *Teitoa* at [9.11].

1210 Corte Suprema de Justicia [Supreme Court of Justice], STC4360-2018, Radicación n. 11001-22-03-000-2018-00319-01, April 5, 2018 (*Amazon case*). Unofficial translation of key excerpts are available at <https://www.dejusticia.org/en/climate-change-and-future-generations-lawsuit-in-colombia-key-excerpts-from-the-supreme-courts-decision/> and the Court may also be assisted by an English article on the case: P Alessandro, 'An Intergenerational Ecological Jurisprudence: The Supreme Court of Colombia and the Rights of the Amazon Rainforest' (2020) 2(1) Journal of Law, Technology and Humans, available at: http://classic.austlii.edu.au/au/journals/LawTechHum/2020/4.html.

1211 *State of the Netherlands v. Urgenda Foundation*, ECLI:NL:HR:2019:2007, Judgment (Sup. Ct. Neth. Dec. 20, 2019) (Neth.) (unofficial translation), [45].

the atmosphere.[1212] And as noted above, the agreed evidence of the climate experts is that no tonne of CO_2 is immaterial.

1238 It is also not in dispute that continued accretion of GHGs in the atmosphere will, among other things, cause increasingly adverse impacts on the environment and to the health and life of human beings in Queensland.[1213]

1239 The agreed facts are supplemented by the uncontested evidence of Professor Hilary Bambrick and Mr Anthony Coleman about the human impacts of climate change, including threats to life, outlined at [C-IV(v)] above.

1240 In short, the evidence indicates that:

(1) the continued accretion of GHGs in the atmosphere will lead to unprecedented increased fatalities in Queensland through mechanisms including bushfires and bushfire smoke, heat waves, mosquito borne diseases, floods and cyclones;

(2) climate change induced loss of life will occur under any scenario, but it will be far more extensive under Scenario 3 than under Scenario 2, and under Scenario 2 than Scenario 1.

1241 In those circumstances, the approval of the project would clearly contribute to a profound deprivation of life.

(3) The deprivation is 'arbitrary'

1242 Applying the 'broad and general' assessment of arbitrariness, the limitation on the right to life described above is plainly manifestly disproportionate 'to the legitimate aim sought.'

1243 The legitimate aim sought is, at its highest, a significant economic benefit to one person, and an economic benefit to the State of Queensland, primarily through royalties. For reasons explained above at [C-V Economic benefits?], those benefits have been heavily over-stated, and are in fact vastly outweighed by the true economic costs of the Proposed Project.

1244 Even taking that benefit at its highest though, the sheer magnitude of unnecessary loss of life caused by climate change is clearly 'unjust, unreasonable, and disproportionate' when compared to the economic benefits sought.

(4) The limitation cannot be demonstrably justified by reference to s 13

01. The objective sought to be achieved, including its importance

1245 The Applicant seeks approval of the Proposed Project on the basis that it will result in significant economic benefit.

1212 Issues not in dispute [[**COM.0328.0001**]]-[[**COM.0328.0002**]], [4].

1213 List of matters not in dispute [[**COM.0328.0002**]], [5], read with [[**COM.0042.0015**]], [40]-[41];

1246 Economic benefits produced by development are a great source of social good, and one expressly anticipated and encouraged by the scheme of the EP Act. Such economic benefits are entirely consistent with 'a free and democratic society based on human dignity, equality and freedom.'

1247 However, in circumstances where an act or decision of a public entity must limit rights in order to produce an economic benefit, then that benefit (together with any other beneficial aspects of the decision) must be such as to demonstrably justify the harm it will cause. In undertaking this exercise, the importance of the benefit must be interrogated, as must the cogency of the evidence indicating that it will result.

1248 Starting with the latter. The evidence about the Harris-King spreadsheet and Mr Tessler's resulting CBA is set out at [C-V(ii) The Applicant's financial case]. In short, the entire economic model of the mine (as represented in the Harris-King spreadsheet) was based on unresearched, unsubstantiated and unrealistic data. The CBA relied upon by the Applicant was built on those shaky foundations. And as emerged under cross-examination, according to the Applicant's own expert, it appears that the financial model (and therefore the CBA) assumed transport costs to Abbott Point, rather than Gladstone. As emphasised above, the result is that the Court is left with very little, if any, reliable information with which to undertake its evaluative task.

1249 The evidence adduced by the Applicant is a far cry from the 'cogent and persuasive' evidence required to demonstrably justify any limitation on human rights,[1214] let alone a limitation that materially contributes to extensive loss of life.

1250 For that reason alone, the Court would find that the objective cannot be demonstrably justified.

1251 However, moving on for argument's sake to consider the importance of the objective sought: the purported benefit is an economic benefit accruing to one, already very wealthy man and to Queensland, including via royalties and company tax.

1252 For reasons explained above, the Proposed Project is much more likely to result in a net cost to the State and the "benefit" sought should accordingly be given very little weight. Understood in its true context,[1215] the benefit sought is clearly not a "pressing and substantial objective," as required by the HR Act.

1253 But even taking the CBA at its highest for a moment, the net benefit to Queensland is approximately $2.5 billion (with transport costs), including approximately $2 billion in royalties.

1254 That is a large benefit, true. But its importance is to be understood through the lens of the EP Act, and in particular s 3. As explained above, economics are only a small part of the 'environment' as defined, and development is consistent with the objects of the

---

1214 See, *Owen D'Arcy* [2021] QSC 273, [108]-[110] citing *Re Application under the Major Crimes (Investigative Powers) Act 2004* (2009) 24 VR 415.

1215 See C-V(iii)(7) above.

EP Act only to the extent that it "improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends."

1255 Understood through that lens, economic benefits should not be understood as ends in and of themselves, but rather as means to promote the total quality of life, both now and in the future. In this way, the importance of an economic benefit is delineated by the objects of the EP Act.

02. The nature of the right

1256 Turning to the nature of the right sought to be protected:[1216] under the ICCPR, the right to life is an absolute right; that is, there can be no derogation from it.[1217]

1257 Under the HR Act, s 16 is subject to s 13. However, the nature of the right, including its non-derogable status under international law, assumes significance in the proportionality exercise.

1258 The HRC has described article 6(1) as "the supreme right … most precious for its own sake as a right that inheres in every human being, but it also constitutes a fundamental right, the effective protection of which is the prerequisite for the enjoyment of all other human rights."[1218]

1259 Clearly, the nature of the right to life is such that demonstrable justification could only occur in very rare circumstances.

03. The importance of preserving the human right taking into account the nature and extent of the limitation

1260 This factor speaks for itself. The importance of a public entity not contributing to a massive threat to human life cannot be overstated.

04. The relationship between the limitation and its purpose (rational connection)

1261 Superficially, the purpose of the limitation may at first appear to be the attainment of economic benefits *per se*. So conceived, there is nothing irrational about conducting mining activities to gain an economic benefit. There is a rational connection between mining approvals and economic gain.

1262 However, that must be ameliorated in two respects.

1263 First, having regard to the evidence in this case, as explained above, the evidence for economic benefits from the Proposed Project (on the assumption it proceeds) is far from cogent.

1216 *HR Act* s 13(2)(a).

1217 *ICCPR,* art 6; Human Rights Committee, *General Comment No 36: Article 6: Right to Life,* 124th sess, UN Doc CCPR/C/GV/36 (3 September 2019) at 1 [2].

1218 Human Rights Committee, *General Comment No 36: Article 6: Right to Life,* 124th sess, UN Doc CCPR/C/GV/36 (3 September 2019) at 1 [2].

1264 Second, at this stage we are concerned with the purpose of a limitation imposed in the exercise of a power under the EP Act. That power is one that must be exercised in the way that best achieves the object of the EP Act. Thus understood, the purpose of the limitation is the purpose of allowing 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, not the purpose of economic benefit as an end in itself.

1265 While there is a rational connection between the approval of the Proposed Project and the objective sought to be attained, these two ameliorative factors substantially reduce the strength of that relationship.

05. Whether there are any less restrictive and reasonably available ways to achieve the purpose

1266 On the evidence before the Court, there is no less restrictive way of achieving the specific purpose sought. To generate the economic benefits relied on to justify the Proposed Project, the coal must be burned, emitting the carbon in the mining lease area into the atmosphere. No extraction and combustion, no benefit.

06. The balance between the above matters

1267 Having regard to the above matters, the irresistible conclusion is that approval would be inconsistent with the right to life, in a manner that cannot be justified in a free and democratic society.

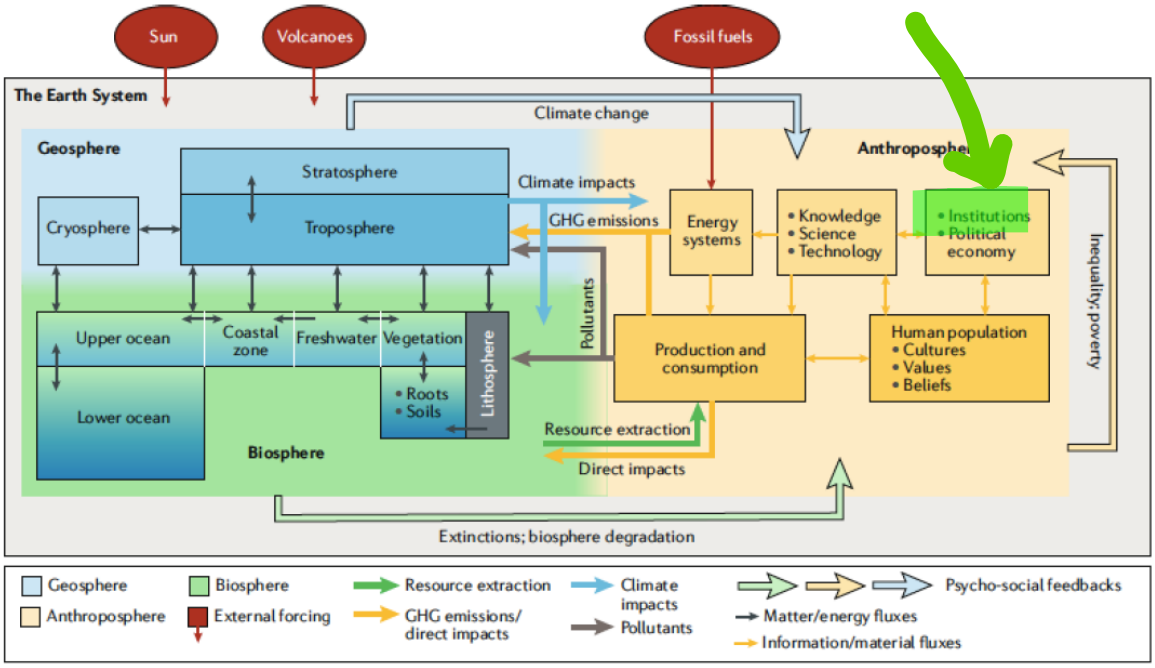
1268 Without the Proposed Project, there are scenarios from 1.4 degrees that are today technically feasible for humanity to achieve, the question being, "Will governments decide to go down that route?"[1219].

1269 With the Proposed Project, scenarios below 2.5 degrees are unachievable. The cumulated harm caused by the 1.58Gt of CO_2-e emissions from the carbon presently locked up in the mining lease area, together with the other approximately 1,000Gt+ of CO_2-e emissions in possible scenarios where the Proposed Project is approved, will cause massive harm, including the loss of many Queenslanders' lives, as compared to the best possible scenarios presently achievable.

1270 The act or decision of this Land Court is a recommendation to the State, in respect of the Proposed Project, as to what route it should take. The Land Court, and the

[1219] T 20-26, ln 43 (Em. Prof Church).

administering authority, are a part of the Earth System, as described by Professor Church and Dr Warren, and not apart from it.



1271 The question what, in a free and democratic society, can justify a decision by its government to knowingly contribute to destroying the Earth System on which the lives of its citizens depend, is one requiring the gravest reflection.

1272 It is, of course, a very difficult question, and often the answer will be that activities of the State, as we transition to a state of net zero emissions, will justify contribution. For example, emissions required to power a public hospital are plainly justifiable, where no less restrictive form of energy generation is available.

1273 But here, on the evidence before the Court, any possible benefits to Waratah and its ultimate shareholder, and to the State through royalties and other economic benefits, cannot justify such a massive contribution of emissions, so far into the future, with all that entails.

1274 YV and TBA submit that a similar approach to s 13 should be adopted by the Court in relation to the other relevant rights. For that reason, abbreviated accounts of the s 13 analysis have been adopted throughout the remainder of these submissions, focussing primarily on the nature of each right.

1275 In relation to s 28 with s 13, YV and TBA have made additional submissions, which are outlined below.

(vii) Approval of the Proposed Project would unjustifiably limit the rights of First Nations People (s 28)

(1) Nature and scope of the right — overview

01. Introduction

1276 In 1992, the High Court acknowledged the historical fact that Aboriginal and Torres Strait Islander peoples "were dispossessed of their land parcel by parcel" — a dispossession which "underwrote the development of the nation".[1220]

1277 The development of that nation has wrought deep cultural and spiritual losses to the First peoples of Australia. Those losses are permanent and intergenerational.[1221]

1278 Against that background — First Nations sovereignty from the Creation (at least 2,000 generations), and 231 years of colonial dispossession — the Queensland Parliament in 2019 enacted the HR Act. Its preamble includes the following acknowledgment:

> Although human rights belong to all individuals, human rights have a special importance for the Aboriginal peoples and Torres Strait Islander peoples of Queensland, as Australia's first people, with their distinctive and diverse spiritual, material and economic relationship with the lands, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition and Ailan Kastom. Of particular significance to Aboriginal peoples and Torres Strait Islander peoples of Queensland is the right to self-determination.

1279 Section 28 of the HR Act outlines distinct human rights that belong to Aboriginal and Torres Strait Islander peoples:

> (1) Aboriginal peoples and Torres Strait Islander peoples hold distinct cultural rights.
>
> (2) Aboriginal peoples and Torres Strait Islander peoples must not be denied the right, with other members of their community—
>
> (a) to enjoy, maintain, control, protect and develop their identity and cultural heritage, including their traditional knowledge, distinctive spiritual practices, observances, beliefs and teachings; and
>
> (b) to enjoy, maintain, control, protect, develop and use their language, including traditional cultural expressions; and
>
> (c) to enjoy, maintain, control, protect and develop their kinship ties; and
>
> (d) to maintain and strengthen their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition or Island custom; and

---

1220 *Mabo v Queensland (No 2)* (1992) 175 CLR 1 at 69 ('**Mabo'**) (Brennan J, with whose reasons Mason CJ and McHugh agreed: at 15.

1221 *Northern Territory v Griffiths* (2019) 269 CLR 1 at 107, [230] (Kiefel CJ, Bell, Keane, Nettle and Gordon JJ).

(e) to conserve and protect the environment and productive capacity of their land, territories, waters, coastal seas and other resources.

(3) Aboriginal peoples and Torres Strait Islander peoples have the right not to be subjected to forced assimilation or destruction of their culture.

1280 Section 28, like any provision of any statute, should be construed according to its text, purpose and context. That context includes the common law of Australia[1222] and international law — particularly those international declarations and covenants upon which the provision is based.

1281 Analysis of that text, purpose and context follows.

1282 What the analysis demonstrates is that s 28 represents Parliamentary recognition and protection of a form of self-determination for Aboriginal and Torres Strait Islander peoples. By enacting s 28, the Parliament of Queensland, much like the High Court in *Mabo* before it, has recognised that there are anterior, surviving forms of sovereignty: peoples, with fully-formed, pre-existing systems of lore and custom.

1283 This was explained by Nettle J in *Love v Commonwealth* (***Love***) as follows:[1223]

> Logically anterior to, however, and more fundamental than the common law's recognition of rights and interests arising under traditional laws and customs is the common law's recognition of the Aboriginal societies from which those laws and customs organically emerged. As Gleeson CJ, Gummow and Hayne JJ explained in *Yorta Yorta Aboriginal Community v Victoria*:
>
> > "Laws and customs do not exist in a vacuum. They are, in Professor Julius Stone's words, 'socially derivative and nonautonomous'. As Professor Honoré has pointed out, it is axiomatic that 'all laws are laws of a society or group'. Or as was said earlier, in Paton's Jurisprudence, 'law is but a result of all the forces that go to make society'. Law and custom arise out of and, in important respects, go to define a particular society. In this context, 'society' is to be understood as a body of persons united in and by its acknowledgment and observance of a body of law and customs".[1224]

1284 Section 28 operates to recognise, but not to define, a matter that is self-determined by each Aboriginal and Torres Strait Islander people, out of its own "society". As explained below, it protects (albeit, by operation of ss 8 and 13, partially not absolutely) that matter from denial and degradation by acts and decisions of the public entities of the State,[1225] whose legislative authority to confer that protection itself derives from the

---

1222 *Momcilovic* at 51 [53]–[54] (French CJ), 203 [522] (Crennan and Kiefel JJ).
1223 (2020) 270 CLR 152 at [269].
1224 *Love* at [269] (Nettle J).
1225 Through s 58 and the definition of public entity.

colonial assertion of sovereignty (the validity of which cannot be questioned in a court[1226]).

1285 The scope of protection, including the right of Aboriginal and Torres Strait Islander peoples to participate in decision-making that will affect their rights, is considered further below.

02. The text of s 28

1286 Like all rights under the HR Act, s 28 should be construed as broadly as its terms allow, having regard to the objects of the HR Act, and its beneficial character.

1287 Careful attention must also be paid to the text of the provision itself. YV and TBA make the following points.

1288 **First**, s 28 is included in addition to, and distinct from, s 27. This is no accident. It reflects the unique and distinct position of Aboriginal and Torres Strait Islander peoples, as compared to any other cultural community that may be found to exist within the multicultural community that comprises the people of Queensland. People and communities who arrived in Queensland on or after colonisation stand in a completely different category, historically and legally, from the peoples who have lived in Queensland since the Creation, since time immemorial, for thousands of generations. Section 28(1)'s declaration that Aboriginal peoples and Torres Strait Islander peoples "hold distinct cultural rights" may be understood as emphasising this point of distinction from s 27.

1289 **Second**, this is further reflected in the preamble, which provides important textual context for s 28(2) (see paragraph 1279 above).

1290 In respect of "the Aboriginal peoples and Torres Strait Islander peoples of Queensland", the preamble refers to the "distinctive and diverse spiritual, material and economic relationship with the lands, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition and Ailan Kastom".

1291 Plainly, "Aboriginal peoples" has a different meaning to "Aboriginal people" as defined in s 36 and Sch 1 of the *Acts Interpretation Act*. The expression used in the HR Act, in both the preamble and s 28, recognises the multiplicity of distinct "societies" in the geographical areas now known as Queensland, and Australia more broadly. Similarly, "Torres Strait Islander peoples" (in the HR Act) recognises the reality of multiple societies, in a way that "Torres Strait Islander" as defined in s 36 and Sch 1 of the *Acts Interpretation Act* does not.

1226 *New South Wales v Commonwealth (Seas and Submerged Lands Case)* (1975) 135 CLR 337 at 388, cited in Mabo at 31; 69 (Brennan J); 95 (Deane and Gaudron JJ); see also at 15 (agreement of Mason CJ and McHugh J).

1292 Nevertheless, the expression "Aboriginal tradition", as used in the HR Act preamble, has the meaning given in s 36 and Sch 1 of the *Acts Interpretation Act*, which is capable of application to a specific Aboriginal people (ie, a subset of all "Aboriginal people" as defined in Sch 1):

> … the body of traditions, observances, customs and beliefs of Aboriginal people generally or of a particular community or group of Aboriginal people, and includes any such traditions, observances, customs and beliefs relating to particular persons, areas, objects or relationships.

1293 The same is true of Ailan Kastom, found within "Island custom" in Sch 1 (vis a vis "Torres Strait Islanders"):

> ***Island custom***, known in the Torres Strait as Ailan Kastom, means the body of customs, traditions, observances and beliefs of Torres Strait Islanders generally or of a particular community or group of Torres Strait Islanders, and includes any such customs, traditions, observances and beliefs relating to particular persons, areas, objects or relationships.

1294 Without setting them out in full, it is also important by way of context to the preamble to refer to:

(1) the preamble to the *Torres Strait Islander Land Act 1991* (Qld);

(2) the preamble to the *Aboriginal Land Act 1991* (Qld);

(3) the preamble to the *Native Title (Queensland) Act 1993* (Qld); and

(4) the preamble to the *Constitution of Queensland 2001* (Qld).

1295 The text of the preamble recognises that there exist Aboriginal peoples and Torres Strait Islander peoples (within the meaning of the HR Act), with their own systems of "Aboriginal tradition" or "Ailan Kastom", respectively, from which each derives a distinctive and diverse spiritual, material and economic relationship with their lands, territories, waters, coastal seas and other resources. That this can be recognised in a law made by the Parliament of Queensland in the exercise of its law-making functions in respect of those same territories, is possible only as a product of the unique circumstances of Australia's history, discussed further below.

1296 In this way, the text itself recognises, and is the product of, that historical context. That context, and its embodiment in that text, becomes important in construing the right in s 28, and in ascertaining its nature and importance, for the purpose of an asserted justifiable limitation of that right.

1297 The text is the product of "the deeper truth … that the Indigenous peoples of Australia are the first peoples of this country, and the connection between the Indigenous peoples of Australia and the land and waters that now make up the territory of Australia was not severed or extinguished by European 'settlement'."[1227]

[1227] *Love* at [289] (Gordon J).

1298 **Third**, s 28(1) is properly to be understood as declaring that each Aboriginal people and each Torres Strait Islander people holds cultural rights that are distinct from those held by other peoples, and other cultures, both in the sense that each has a distinct culture, and (more importantly) in the sense that the nature of the right is distinct.

1299 **Fourth**, the opening words of s 28(2) — "Aboriginal peoples and Torres Strait Islander peoples must not be denied" — expresses the content of the right to the extent that it is defined by the Queensland Parliament.

1300 It may be objected that the right is thus far expressed in the grammatical form of a duty. But that is not unusual in the human rights context, and follows from the language used in the ICCPR and other treaties: see, eg, HR Act, ss 17; 18(1) and (2); 24(2); 29(2) and (3); 30(1), (2) and (3); 33(1), (2) and (3); 35(1) and (2); and 37(2).

1301 Section 28(2) then describes the matter that must not be denied: "the right, with other members of their community", followed by:

(1) infinitive verbs, indicative of processes deriving from and reinforcing a society of the kind indicated in the preamble — enjoy, maintain, control, protect, conserve, strengthen, develop;

(2) objects indicative of aspects of such societies also indicated in the preamble: as to the interpersonal, the social, and connections to country — identity; cultural heritage; traditional knowledge; distinctive spiritual practices; observances; beliefs; teachings; language; traditional cultural expressions; kinship ties; distinctive spiritual, material and economic relationship with land, territories, waters, coastal seas and other resources; and

(3) as to s 28(2)(e), language indicative of the obligations to country, and correlate rights, deriving from each such society.

1302 What is the content of this matter? An important key is found in the final sentence of the preamble: "[o]f particular significance to Aboriginal peoples and Torres Strait Islander peoples of Queensland is the right to self-determination". That significance is also borne out by the express reference to the right to self-determination in the second reading speech[1228] and the Explanatory Notes.[1229]

1303 In understanding the right to self-determination, it may be useful to consider the UNDRIP, where the content of that right, as concerns Indigenous peoples, is articulated.

1228 Hansard, 31 Oct 2018, 3184.

1229 Explanatory Notes, *Human Rights Bill 2018* (Qld) 12.

By way of example (and in addition to the articles more directly relevant to the terms of s 28, set out below):

> **Article 3**
>
> Indigenous peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.
>
> **Article 4**
>
> Indigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to their internal and local affairs, as well as ways and means for financing their autonomous functions.
>
> **Article 5**
>
> Indigenous peoples have the right to maintain and strengthen their distinct political, legal, economic, social and cultural institutions, while retaining their rights to participate fully, if they so choose, in the political, economic, social and cultural life of the State.
>
> …
>
> **Article 9**
>
> Indigenous peoples and individuals have the right to belong to an [I]ndigenous community or nation, in accordance with the traditions and customs of the community or nation concerned. …
>
> …
>
> **Article 11**
>
> 1. Indigenous peoples have the right to practice and revitalize their cultural traditions and customs. …
>
> …
>
> **Article 12**
>
> 1. Indigenous peoples have the right to manifest, practice, develop and teach their spiritual and religious traditions, customs and ceremonies …
>
> …

1304 It is consistent both with the historical facts giving rise to the preamble and s 28, and the right to self-determination, that the content of the matter commencing with "the right, with other members of their community" is to be determined by each Aboriginal or Torres Strait Islander people, not constructed or imposed by the law of the Queensland Parliament.[1230]

[1230] See also *Love*, [290] (Gordon J).

1305 **Fifth**, it follows from this that the content of the matter protected by s 28(2) — the matter which members of an Aboriginal people or Torres Strait Islander people have a right to not be denied — is to be determined as a fact by the relevant public entity or court. This is discussed in further detail below.

1306 **Sixth**, the expressions used in s 28(2) — especially the verb 'develop' — also signal that Parliament did not intend for the scope of the matter to be fixed in time at the moment of colonisation. It recognises that culture grows and develops and indicates that s 28 protects not only traditional cultural practices, lore and custom, but also modern expressions of culture.[1231] That is consistent with the Explanatory Note, which states "this right is also directed towards ensuring the survival and continual development of culture".[1232]

1307 **Seventh**, s 107 (with which s 28 is intended to be read[1233]) shows that s 28, and in particular the matter protected by s 28(2) and (3), is different and distinct from Native Title rights and interests.

1308 **Eighth**, s 28(3), as will be seen below, is based on and gives effect to the right in article 8(1) of UNDRIP. Its text speaks plainly to the fundamental importance of the right. That importance is underscored by the extent to which that right has not historically been protected in the territory now known as Australia.

03. The Common Law of Australia

1309 In *Momcilovic*,[1234] at least French CJ[1235] and Gummow J (with whom Hayne J relevantly agreed),[1236] exhorted the need to construe the Victorian Act within its domestic constitutional context. Just as the right under s 25(1) of that Act to be presumed innocent was considered by the High Court in *Momcilovic* by reference to the common law of Australia about that right,[1237] so too there exists a body of common law that informs the scope and content of the right in s 28 of the HR Act.

1310 That body of common law commenced with *R v Ballard*.[1238] Forbes CJ, with whom Dowling J agreed, observed that as a matter of practice, British law was applied to disputes between coloniser and Aboriginal, but disputes between Aboriginal people were left to their own system of law and government. His Honour stated his understanding that this practice was consistent with that in other colonies.

1231 As explained below from [1349] this is also consistent with international law, in particular jurisprudence on article 27 of the ICCPR.

1232 Explanatory Notes, Human Rights Bill 2018 (Qld), 23.

1233 Explanatory Notes, Human Rights Bill 2018 (Qld), 24.

1234 (2011) 245 CLR 1 (***Momcilovic***).

1235 (2011) 245 CLR 1, [20], [50].

1236 (2011) 245 CLR 1, [146](i), (ii), (v), [155], [156], [159].

1237 *Momcilovic*, [53]–[54] (French CJ), [522] (Crennan and Kiefel JJ).

1238 (1998) 3(3) Australian Indigenous Law Reporter 410, which was produced by Professor Bruce Kercher, by transcribing the notebook of Dowling J: Dowling, *Proceedings of the Supreme Court*, Vol. 22, Archives Office of New South Wales, 2/3205, p. 98.

1311 However, in *R v Murrell*, the defendant challenged the jurisdiction of the NSW Supreme Court, arguing that, as the country was not deserted, and was not conquered or ceded, "but was a country having a population which had manners and customs of their own, and we have come to reside among them; therefore in point of strictness and analogy to our law, we are bound to obey their laws, not they to obey ours".[1239] The demurrer was overruled by Burton J, with the concurrence of Forbes CJ and Dowling J. The first element of his Honour's reasoning was:

> … although it be granted that the aboriginal natives of New Holland are entitled to be regarded by Civilized nations as a free and independent people, and are entitled to the possession of those rights which as such are valuable to them, yet the various tribes had not attained at the first settlement of the English people amongst them to such a position in point of numbers and civilization, and to such a form of Government and laws, as to be entitled to be recognized as so many sovereign states governed by laws of their own.[1240]

1312 His Honour referred to *Vattel's Treatise on the Law of Nations*, including s 209. In a version published a year earlier, s 209 relevantly stated as follows:

BOOK I. CHAP. XVIII.

§ 209. Whether it be lawful to possess a part of a country inhabited only by a few wandering tribes.

There is another celebrated question, to which the discovery of the new world has principally given rise. It is asked whether a nation may lawfully take possession of some part of a vast country, in which there are none but erratic nations whose scanty population is incapable of occupying the whole? We have already observed (§ 81), in establishing the obligation to cultivate the earth, that those nations cannot exclusively appropriate to themselves more land than they have occasion for, or more than they are able to settle and cultivate. Their unsettled habitation in those immense regions cannot be accounted a true and legal possession; and the people of Europe, too closely pent up at home, finding land of which the savages stood in no particular need, and of which they made no actual and constant use, were lawfully entitled to take possession of it, and settle it with colonies. The earth, as we have already observed, belongs to mankind in general, and was designed to furnish them with subsistence: if each nation had, from the beginning, resolved to appropriate to itself a vast country, that the people might live only by hunting, fishing, and wild fruits, our globe would not be sufficient to maintain a tenth part of its present inhabitants. We do not, therefore, deviate from the views of nature in confining the Indians within narrower limits. However,

[101]

1239 *R v Murrell* (1836) 1 Legge 72, 72.

1240 (1998) 3(3) Australian Indigenous Law Reporter 410, which was produced by Professor Kercher from the corrected version of the judgment prepared by Burton J: "Supreme Court, Miscellaneous Correspondence relating to Aborigines", Archives Office of New South Wales, 5/1161, pp. 210-16.

1313 From the time of *R v Murrell*, the doctrine of "terra nullius" held sway. In *Cooper v Stuart*, the Privy Council stated:[1241]

> The extent to which English law is introduced into a British Colony, and the manner of its introduction, must necessarily vary according to circumstances. There is a great difference between the case of a Colony acquired by conquest or cession, in which there is an established system of law, and that of a Colony which consisted of a tract of territory practically unoccupied, without settled inhabitants or settled law, at the time when it was peacefully annexed to the British dominions. The Colony of New South Wales belongs to the latter class. In the case of such a

1314 In *Milirrpum v Nabalco Pty Ltd*,[1242] Blackburn J applied *Cooper v Stuart*. The plaintiffs argued that "the statement of their Lordships that New South Wales was 'a colony which consisted of a tract of territory practically unoccupied, without settled inhabitants or settled law' was a statement which was historically inaccurate".[1243] His Honour held that *Cooper v Stuart* could not be distinguished, because "the question is one not of fact but of law",[1244] and continued: "[w]hether or not the Australian aboriginals living in any part of New South Wales had in 1788 a system of law which was beyond the powers of the settlers at that time to perceive or comprehend, it is beyond the power of this Court to decide otherwise than that New South Wales came into the category of a settled or occupied colony".[1245]

1315 Nevertheless, the factual premise in *Cooper* was inaccurate.

1316 In *Millirpum*, following 11 weeks of trial, Blackburn J dismissed the claim, but made important findings of fact. His Honour's findings about the social organisation and relationship to land of various "clans" from Arnhem Land, although imperfectly mediated through expert anthropological evidence, demonstrated a very subtle and elaborate form of social organisation and culture. His Honour observed:

> I am very clearly of opinion, upon the evidence, that the social rules and customs of the plaintiffs cannot possibly be dismissed as lying on the other side of an unbridgeable gulf. The evidence shows a subtle and elaborate system highly adapted to the country in which the people led their lives, which provided a stable order of society and was remarkably free from the vagaries of personal whim or influence. If ever a system could be called "a government of laws, and not of men", it is that shown in the evidence before me.[1246]

1317 His Honour held that "I must recognize the system revealed by the evidence as a system of law".[1247]

1241 (1889) 14 App. Cas. 286, 291.
1242 (1971) 17 FLR 141.
1243 (1971) 17 FLR 141, 243.8.
1244 (1971) 17 FLR 141, 244.2.
1245 (1971) 17 FLR 141, 244.3.
1246 (1971) 17 FLR 141, 267.3.
1247 (1971) 17 FLR 141, 268.7.

1318 Nor was the factual premise for Vattel's justification met: Aboriginal peoples "cultivated the Earth".[1248]

1319 It follows that the basis for the assertion of British sovereignty was fundamentally flawed. In *Mabo*, Deane and Gaudron JJ wrote:

> Under the laws or customs of the relevant locality, particular tribes or clans were, either on their own or with others, custodians of the areas of land from which they derived their sustenance and from which they often took their tribal names. Their laws or customs were elaborate and obligatory. The boundaries of their traditional lands were likely to be long-standing and defined. The special relationship between a particular tribe or clan and its land was recognized by other tribes or groups within the relevant local native system and was reflected in differences in dialect over relatively short distances. In different ways and to varying degrees of intensity, they used their homelands for all the purposes of their lives: social, ritual, economic. They identified with them in a way which transcended common law notions of property or possession. As was the case in other British Colonies, the claim to the land was ordinarily that of the tribe or other group, not that of an individual in his or her own right.[1249]

1320 The validity of the assertion of sovereignty, which is an act of state, is not justiciable in a court.[1250]

1321 But "courts have jurisdiction to determine the consequences of an acquisition under municipal law", which may require consideration of the mode and circumstances of acquisition.[1251] In *Mabo*, the High Court reasoned that the common law of England became the law of the Australian colonies on 'settlement',[1252] but rejected as factually false, discriminatory and demeaning the colonial doctrine of terra nullius laid down in *Cooper v Stuart*.[1253] As Nettle J explained in *Love* (quoting *Mabo*, and an academic commentator), "the application of that doctrine to the territory of the Australian colonies has given rise to 'some difficulties', which have been attributed to an 'incongruity between legal characterisation and historical reality', or between 'theory [and] our present knowledge and appreciation of the facts'."[1254]

1322 By majority, the High Court, in *Mabo*, recognised a form of "native title". For present purposes, what is most relevant is the identification of rights deriving from traditional law and custom as a key element in the reasoning of the justices in the majority.

1248 As to the Meriam people specifically, see *Mabo v Queensland (No 2)* (1992) 175 CLR 1, 33.4 (Brennan J).
1249 *Mabo*, 99–100 (Deane and Gaudron JJ).
1250 *Mabo*, 31 (Brennan J).
1251 *Mabo*, 32 (Brennan J).
1252 *Mabo*, 38 (Brennan J).
1253 *Mabo*, 39–42 (Brennan J).
1254 *Love*, [265].

1323 Native title rights — both collective and individual — were the product of traditional law or custom. Brennan J wrote:

> … there is no impediment to the recognition of individual non-proprietary rights that are derived from the community's laws and customs and are dependent on the community title. A fortiori, there can be no impediment to the recognition of individual proprietary rights.
>
> Once it is accepted that [I]ndigenous inhabitants in occupation of a territory when sovereignty is acquired by the Crown are capable of enjoying — whether in community, as a group or as individuals proprietary interests in land, the rights and interests in the land which they had theretofore enjoyed under the customs of their community are seen to be a burden on the radical title which the Crown acquires.[1255]

1324 Deane and Gaudron JJ wrote:

> Since the title preserves entitlement to use or enjoyment under the traditional law or custom of the relevant territory or locality, the contents of the rights and the identity of those entitled to enjoy them must be ascertained by reference to that traditional law or custom. The traditional law or custom is not, however, frozen as at the moment of establishment of a Colony. Provided any changes do not diminish or extinguish the relationship between a particular tribe or other group and particular land, subsequent developments or variations do not extinguish the title in relation to that land.
>
> The rights of an Aboriginal tribe or clan entitled to the benefit of a common law native title are personal only. The enjoyment of the rights can be varied and dealt with under the traditional law or custom. … They can … be lost by the abandonment of the connexion with the land or by the extinction of the relevant tribe or group. It is unnecessary, for the purposes of this case, to consider the question whether they will be lost by the abandonment of traditional customs and ways. Our present view is that, at least where the relevant tribe or group continues to occupy or use the land, they will not.[1256]

1325 Consistent with that view, their Honours would have declared that "the entitlement of particular Island families or individuals with respect to particular land under that common law communal title falls to be determined by reference to traditional law or custom".[1257]

1326 The scope and content of native title rights (collective or individual) were a question of fact to be determined on evidence. For example, Brennan J observed that "[n]ative title has its origin in and is given its content by the traditional laws acknowledged by and the traditional customs observed by the [I]ndigenous inhabitants of a territory. The nature and incidents of native title must be ascertained as a matter of fact by reference to those laws and customs".[1258]

1255 *Mabo*, 52 (Brennan J).
1256 *Mabo*, 110 (Deane and Gaudron JJ).
1257 *Mabo*, 119 (Deane and Gaudron JJ).
1258 *Mabo*, 58 (Brennan J). See also *Love*, [368] (Gordon J).

1327 In *Love*, Gordon J observed (quoting findings in *Milirrpum*) that:[1259]

> The fundamental premise from which the decision in *Mabo* … proceeds — the deeper truth — is that the Indigenous peoples of Australia are the first peoples of this country, and the connection between the Indigenous peoples of Australia and the land and waters that now make up the territory of Australia was not severed or extinguished by European "settlement".
>
> That connection is spiritual or metaphysical: "[t]here is an unquestioned scheme of things in which the spirit ancestors, the people of the clan, particular land and everything that exists on and in it, are organic parts of one indissoluble whole". And the connection that persisted, and continues to persist, is a connection determined according to Indigenous laws acknowledged, and the traditional customs observed, by the Indigenous peoples.
>
> …

1328 Native title derives from the common law's recognition of a form of proprietary interest deriving from anterior laws and customs of an Aboriginal community. That is clear from the definition of 'native title' in s 223(1) of the *Native Title Act 1993* (Cth), which refers to rights and interests "possessed under the traditional laws acknowledged, and the traditional customs observed, by the Aboriginal peoples or Torres Strait Islanders".[1260]

1329 Plainly, however, the rights and interests possessed under traditional law or custom are not confined to proprietary rights cognisable by the common law as native title. This was recognised by Nettle J in *Love*, at [269] (quoted in [1284] above).

1330 At the arrival of Captain Phillip, there were nations throughout Queensland — stable and sophisticated communities, with laws and customs regulating membership and conferring rights and interests, both among members of the nation, in relation to land, and inter-nationally (ie, between different Aboriginal nations). At the time, those nations knew little or nothing of the arrival of Captain Phillip, of the assertion of territorial sovereignty over the lands they had possessed since time immemorial, or of the asserted legal sovereignty, subjecting them to the law of a foreign power, in place of their own laws.

1331 As the High Court recognised in *Mabo* and *Love*, those communities, and their laws, customs and culture, were subjected to severe pressures by the twin fictions of terra nullius and absolute title, and the consequent dispossession and removal of those communities from their lands.

1332 It is important not to confuse the question whether such co-extant sovereignty exists, with the question whether its existence can be determined by a domestic court. Its existence is not justiciable by an Australian court, although an Australian court can

---

1259 *Love,* [289]-[290].

1260 See *Northern Territory v Griffiths* (2019) 269 CLR 1 at 37-38, [21]–[23].

develop the common law to recognise particular rights and interests that are the product of it.

1333 Parliament, however, is not so constrained. The Queensland Parliament is free to recognise facts about the assertion of British sovereignty, as it has in the preamble to the HR Act.

1334 In *Mabo*, the late Sir Gerard Brennan articulated the common law recognition of the existence of an anterior form of sovereignty:

> Native title has its origin in and is given its content by the traditional laws acknowledged by and the traditional customs observed by the [I]ndigenous inhabitants of a territory. The nature and incidents of native title must be ascertained as a matter of fact by reference to those laws and customs. The ascertainment may present a problem of considerable difficulty …. It is a problem that did not arise in the case of a settled colony so long as the fictions were maintained that customary rights could not be reconciled "with the institutions or the legal ideas of civilised society", that there was no law before the arrival of the British Colonists in a settled colony and that there was no sovereign law-maker in the territory of a settled colony before sovereignty was acquired by the Crown.[1261]

1335 Section 28 must be understood against that historical context, which now forms a critical part of the "skeleton of legal principle which gives the body of our law its shape."[1262]

1336 Just as *Mabo* recognised the existence of anterior sovereignty, located rights and interests within that anterior system, and gave them colonial legal force through common law recognition, by s 28, the Queensland Parliament has recognised the continuing self-determination of Aboriginal and Torres Strait Islanders peoples, and provides that their cultural rights are not to be interfered with except as can be justified by reference to s 13.

1337 To borrow the words of Gleeson CJ, Gummow and Hayne JJ in *Members of the Yorta Yorta Aboriginal Community v Victoria*:[1263]

> What survived were rights and interests in relation to land or waters. Those rights and interests owed their origin to a normative system other than the legal system of the new sovereign power; they owed their origin to the traditional laws acknowledged and the traditional customs observed by the [I]ndigenous peoples concerned.

1338 So too, the content of what is protected by s 28 owes its existence to a cultural and normative system other than the system of law of the Queensland Parliament. Section 28 was enacted by the Queensland Parliament, and draws its force therefrom; but it recognises and protects something outside of that law-making body.

1261 *Mabo*, 58 (Brennan J).
1262 *Mabo*, 29 (Brennan J).
1263 (2002) 214 CLR 422 at [38].

1339 Before leaving the above discussion, it is important to point out important differences between s 28 and Native Title. As stated above, that distinction has a textual root in s 107 of the HR Act, but it also derives from the important differences in text, context and purpose between proprietary interests recognised by the common law and a much broader recognition and protection by Parliament of the matter indicated by s 28(2) of the HR Act.

1340 To begin, s 28 is not limited to proprietary rights in relation to the land. There is no requirement from its text, context or purpose for any aspect of the right to require proof of connection to land, or continuity of such connections.[1264] Cultural rights under s 28 of the HR Act, as demonstrated below, incorporate not only traditional rights, culture and custom, but also modern expressions of culture, including economic and social activities.

1341 As a matter of proof, the HR Act does not require anthropological evidence to establish the cultural practices, custom or lore.[1265] That practice arose out of the unique context of Native Title claims. It is inconsistent with the approaches adopted under article 27 of the ICCPR, upon which s 28 was based,[1266] and it does not reflect the approach adopted in Victoria.[1267] More to the point, it would be contrary to the terms of s 28 itself, and its protection of a self-determined matter, for Aboriginal and Torres Strait Islander peoples to have to prove <u>their</u> cultures, lore and custom through anthropological evidence. Aboriginal and Torres Strait Islander peoples have the right to "maintain, <u>control</u>, protect and develop their identity and cultural heritage, including their traditional knowledge, distinctive spiritual practices, observances, beliefs and teachings."[1268] The matter in s 28(2) belongs to, and is to be defined by, the people concerned.

1342 Such an approach to proof has been adopted by the Queensland Supreme Court in other contexts, admitting evidence from people affected and making decisions on that basis.[1269] That is the approach that s 28 of the HR Act demands.

1343 That approach is especially apposite to the Land Court, which may inform itself as it sees fit, and has done so in this matter by taking on Country evidence.

1264 Cf claims under the *Native Title Act 1993* (Cth).
1265 Cf the *Native Title Act 1993* (Cth).
1266 See discussion with respect to *Poma Poma v Peru* below at [1351].
1267 No Victorian Charter case has adopted such an approach. Examples of cases considering s 19(2) of the Victorian Charter include, for example, *Cemino v Cannan* [2018] VSC 535.
1268 *HR Act* s 28(2)(a).
1269 See, eg, *Accoom v Pickering* [2020] QSC 388; Johnson v George [2019] 1 Qd R 333.

1344 It is also consonant with a recent decision of the High Court of South Africa, from which guidance can be taken. There, considering the beliefs and practices of the, Amadiba traditional community, Bloem J observed:[1270]

> How can ancestors reside in the sea and how can they be disturbed, may be asked. It is not the duty of this court to seek answers to those questions. We must accept that those practices and beliefs exist.

04. The International Context

1345 The meaning of s 28 may also be informed by international law, and in particular by reference to the covenants and declarations upon which it was based: article 27 of the ICCPR and articles 25, 29 and 31 of the United Nations Declaration on the Rights of Indigenous Persons.[1271]

1346 Starting with the ICCPR

1347 Article 27 of the ICCPR, unlike s 28, protects cultural rights more broadly. The main Human Rights Committee (**HRC**) guidance on article 17 is provided by General Comment No. 23, which relevantly states:

> With regard to the exercise of the cultural rights protected under article 27, the Committee observes that culture manifests itself in many forms, including a particular way of life associated with the use of land resources, especially in the case of [I]ndigenous peoples. That right may include such traditional activities as fishing or hunting and the right to live in reserves protected by law.[1272]

1348 The HRC in its opinions has also made the relationship between environmental degradation and cultural rights evident.

1349 In *Poma Poma v Peru*, for example, the author complained of drilled wells to draw groundwater, which had caused the gradual drying out of the wetlands where llama-raising was practised in accordance with the traditional customs of the descendants of the Aymara people. The result was that the families could no longer practice this traditional form of subsistence. The HRC observed:[1273]

> .. the Committee takes note of the author's allegations that thousands of head of livestock died because of the degradation of 10,000 hectares of Aymara pasture land - degradation caused as a direct result of the implementation of the Special Tacna Project during the 1990s - and that it has ruined her way of life and the economy of the community, forcing its members to abandon their land and their traditional economic activity …

1270 *Sustaining the Wild Coast NPC v Minister of Mineral Resources and Energy* (2021) Case No. 3491 (High Court, South Africa) at case [32].

1271 Explanatory Notes, Human Rights Bill 2018 (Qld), 23.

1272 Human Rights Committee, *General Comment No. 23: Article 27 (Rights of Minorities) Addendum*, 50th sess, UN Doc CCPR/C/21/Rev.1/Add.5 (26 April 1994).

1273 Human Rights Committee, *Views: Communication No 1457/2006* (27 March 2009) ('*Poma Poma v Peru*') at 7.3-7.6.

1350 The committee in the circumstances found a violation of article 27, noting, "the [economic] measures must respect the principle of proportionality so as not to endanger the very survival of the community and its members".[1274]

1351 In addition to being disproportionate, the HRC also held that there had been a violation because State party had failed to provide the community with a meaningful opportunity to participate in the decision-making process:

> In the Committee's view, the admissibility of measures which substantially compromise or interfere with the culturally significant economic activities of a minority or [I]ndigenous community depends on whether the members of the community in question have had the opportunity to participate in the decision-making process … The Committee considers that participation in the decision-making process must be effective, which requires not mere consultation but the free, prior and informed consent of the members of the community.

1352 That holding, it should be recognised, conforms neatly with the notion of the right to "control" expressed in the terms of s 28.

1353 It should also be noted that the meaning of 'culture' for the purposes of article 27 has been held to be broad. It embraces the maintenance of traditional beliefs and practices, but also includes social and economic activities that are a part of the group's tradition.[1275]

1354 In *Länsman v Finland*,[1276] a case regarding the cultural rights of Sami people to herd reindeer, the HRC stated:

> …The right to enjoy one's culture cannot be determined *in abstracto* but has to be placed in context. In this connection, the Committee observes that article 27 does not only protect traditional means of livelihood of national minorities, as indicated in the State party's submission. Therefore, that the authors may have adapted their methods of reindeer herding over the years and practice it with the help of modern technology does not prevent them from invoking article 27 of the Covenant….

1355 Turning to UNDRIP.

1356 Section 28 is also drawn from articles 8, 25, 29 and 31 of the UNDRIP.[1277] Those articles state:

> **Article 8:**
>
> 1. Indigenous peoples and individuals have the right not to be subjected to forced assimilation or destruction of their culture.
>
> 2. States shall provide effective mechanisms for prevention of, and redress for:

1274 *Poma Poma v Peru* at 7.6.

1275 Human Rights Committee, *Views: Communication No. 197/1985* (27 March 1987) ('*Kitok v Sweden'*).

1276 Human Rights Committee, *Views: Communication No. 511/1992* (26 October 1994) ('*Länsman v Finland'*) at 9.3.

1277 Explanatory Notes, Human Rights Bill 2018 (Qld), 4.

a. Any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities;

b. Any action which has the aim or effect of dispossessing them of their lands, territories or resources;

c. Any form of forced population transfer which has the aim or effect of violating or undermining any of their rights;

d. Any form of forced assimilation or integration;

e. Any form of propaganda designed to promote or incite racial or ethnic discrimination directed against them.

…

Article 25:

Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

…

Article 29

1. Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for [I]ndigenous peoples for such conservation and protection, without discrimination.

2. States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of [I]ndigenous peoples without their free, prior and informed consent.

3. States shall also take effective measures to ensure, as needed, that programmes for monitoring, maintaining and restoring the health of [I]ndigenous peoples, as developed and implemented by the peoples affected by such materials, are duly implemented.

…

Article 31

1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.

2. In conjunction with [I]ndigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights

1357 Of course, as already discussed, s 28 is based in self-determination, and the cultural rights protected by it are declared to be 'distinct'. While reference to international law can be helpful, the similarities between some Indigenous cultures globally, articulated in UNDRIP, should not be taken as defining, or confining, the unique content of the matter that s 28 protects.

(2) Section 13 and Aboriginal and Torres Strait Islander Peoples

1358 Section 13(1) of the HR Act provides:

> A human right may be subject under law only to reasonable limits that can be demonstrably justified in a free and democratic society based on human dignity, equality and freedom.

1359 The approach to proportionality has been addressed above. The proportionality analysis in relation to s 28, giving full meaning to the command in s 13(1) and to the nature of the s 28 right, construed in the context described above, presents unique issues.

1360 **First**, the preamble, and the historical and legal context that gives rise to the existence of s 28, underscore the fundamentally important nature of the rights, with respect to s 13(2)(a).

1361 **Second,** the right in s 28(2) is a right to not be denied a matter, but the content of that matter is self-determined.

1362 **Third**, s 28 is properly to be understood as a recognition by the Queensland Parliament of the pre-existing sovereignty of the peoples to whom it relates, and the fundamentally flawed basis on which the new sovereignty (in which the Parliament has its foundations) was asserted.

1363 **Fourth**, at the same time, however, the conferral of the right, together with the provision for its justifiable limitation, constitutes an assertion of the sovereignty in which the Queensland Parliament has its foundation, which cannot be questioned in any court.

1364 **Fifth**, approached in this way, the question under ss 8, 13 and 28(2) becomes whether denial of the matter in s 28(2) is justified in accordance with s 13.

1365 **Sixth**, YV and TBA submit that this question should be answered taking into account, as critical context, the extent of denial of the s 28(2) matter apart from the limitation imposed by the act or decision in question.

1366 **Seventh**, that s 28 is modelled squarely on articles of UNDRIP and on article 27 of the ICCPR,[1278] makes the principle of free, prior and informed consent relevant to the s 13 exercise in respect of s 28.

[1278] Explanatory Notes, Human Rights Bill 2018 (Qld), 4.

1367 Article 27 of the ICCPR has been held to include obligations on the State to ensure groups are given the opportunity to meaningfully participate in decisions that affect their rights. Additionally, article 19 of UNDRIP states:[1279]

> States shall consult and cooperate in good faith with the [I]ndigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

1368 That requirement is also consistent with the obligation imposed by s 58(1)(b) to give proper consideration to the right in s 28(2): once it is recognised that the matter s 28(2) protects from denial is self-determined, how can a public entity give proper consideration to s 28(2) without consulting with the people who know and determine its content?

1369 Where a limit of s 28(3) is imposed by relocation from country, free, prior and informed consent is specifically and separately required by article 10 of UNDRIP. That is of special relevance to Torres Strait Islander peoples in the present matter.

1370 **Eighth**, while s 28(3) is distinctly based on, and gives effect to, article 8(1) of UNDRIP (see above), within the text of s 28, it may properly be characterised as a form of denial contrary to s 28(2) that is at the absolute or extreme end of the spectrum of possible forms of denial. For that reason, it may properly be characterised as a right of fundamental importance, which would be very difficult to justify.

1371 That proposition draws strength from Queensland's, and Australia's, history.

1372 In his *Report on the Aboriginals of Queensland*,[1280] Archibald Meston, Special Commissioner under Instructions from the Queensland Government, recorded the product of an inquiry which involved him (among other things) speaking to 2,000 members of 65 different Aboriginal peoples, speaking 30 dialects. In that report, he clearly recorded, and denounced, the immoral colonial practices that had until then prevailed throughout northern Queensland, including kidnapping of children, prostitution of women, "dispersal" (massacres) and the activities of the native police (the first recommendation in his report was its total abolition). He also made a polite, but damning, assessment of the mission stations then in force. Perhaps most relevantly, he gave an account of the terrible effect of opium on Aboriginal peoples, and (in characteristically euphemistic terms, reported that "[w]hite men whose position and reputation should be a guarantee at least of respect for the law, if not a decent regard for the unfortunate aboriginal, supply the men with opium to induce them to work, and the women so that they may remain about the station". He made 12 recommendations, including creation of "Aboriginal Reserves" where absolute segregation would be enforced (citing the approach of Canadian and US governments), which he regarded as

---

1279 Although not based on art 19 – relevant context – particularly given art 27.

1280 Available electronically from the National Library of Australia, <https://nla.gov.au/nla.obj-52864172/view>.

being "the only possible method of saving any part of the race from extinction", and the appointment of a Protector, to be "charged solely with the care and supervision of the aboriginals".

1373 Many of his observations and recommendations appear to have been ignored, but the Report prompted the enactment the following year of the *Aboriginals Protection and Restriction of the Sale of Opium Act 1897* (Qld), whose long name was "A Bill to make Provision for the better Protection and Care of the Aboriginal and Half-caste Inhabitants of the Colony, and to make more effectual Provision for Restricting the Sale and Distribution of Opium". That Act kicked off the policies of removal, segregation, and "protection", and eventually assimilation, detailed in *Bringing them home*,[1281] which found that:

> By 1940 assimilation had become official policy in all Australian mainland States and the Territories. In fact the practice of child removal with the aim of children's 'absorption' pre-dated the term 'assimilation'. The assimilation policy persisted until the early 1970s and continues to influence public attitudes and some official practices today. Yet within a few years of the end of the Second World War, Australia, together with many other nations, had pledged itself to standards of conduct which required all governments to discontinue immediately a key element of the assimilation policy, namely the wholesale removal of Indigenous children from Indigenous care and their transfer to non-Indigenous institutions and families.

1374 The history of Queensland, from the flawed assertion of sovereignty and first encounters between colonisers and Aboriginal peoples and Torres Strait Islander peoples, down to the present time, has been marked by forced assimilation and destruction of culture. Section 28(3) — as a right "directed towards ensuring the survival and continual development of culture" — must, against that backdrop, be treated as fundamental, and the circumstances in which its limitation could be justified, extreme.

(3) <u>The approach YV and TBA invite the Court to take to ss 28 and 58 of the HR Act</u>

1375 As to the substance of their submissions on ss 13 and 28, YV and TBA have taken the following approach.

1376 As counsel for YV and TBA, we do not consider it appropriate for us to attempt to summarise or package up the evidence given by the First Nations witnesses, as we ordinarily would, and have in this submission, in respect of the application of other legal rules to evidence.

1377 The Court has properly, in performance of its obligation to give proper consideration to the rights in s 28, taken on-Country evidence from Kapua, Florence and Lala Gutchen and Jiritju Fourmile, and has the written evidence of Harold Ludwick.

[1281] Available electronically at <https://humanrights.gov.au/our-work/bringing-them-home-report-1997>.

1378 As to the on-Country evidence, we do not consider that the transcript prepared by Auscript is useful as a shortcut to the audio recordings made by the Court, and we do not propose to refer to it. In any event, we refer to order 9 of the orders made on 18 March 2022, which requires that, excepting filed affidavits and exhibits, where possible, all First Nations evidence will be received by the Court in narrative form via oral testimony. We therefore rely on the Court's memory of what was seen and heard, and the audio where necessary as a record.

1379 We want to be absolutely clear about what this approach does and does not mean, in terms of how YV and TBA put their case.

1380 YV and TBA rely on the on-Country evidence in its entirety — what the Court heard and saw — and the absence of that evidence from this submission does not signal any reticence or non-reliance on that evidence. To the contrary, YV and TBA ask the Court to consider the whole of that evidence (as it is in any event obliged to do under the procedural limb of s 58) and to have regard to the whole of that evidence in informing itself of nature and content of the s 28 right, for the s 13 exercise.

1381 We invite you, the Court, to listen again to all of the audio, to determine, properly consider and decide for yourself, based on what the First Nations witnesses have told you, the content of the matter in s 28(2) (which also informs the 'destruction of culture' aspect of s 28(3)).

1382 We consider that this approach we have adopted is most consistent with the right to self-determination, as it is embodied in s 28, as we have sought to explain above.

1383 Having done that, we ask your Honour to consider whether, on the evidence before you:

(1) the grant of an EA and its correlate — a recommendation to so grant — is an act or decision that will:

(a) limit s 28(2), by denying the matter in s 28(2); or

(b) limit the matter in s 28(3).

(2) if so, having regard to the nature and importance of those rights, and the other matters in s 13(2), whether such limitation is demonstrably justified in a free and democratic society based on human dignity, equality and freedom, as required by s 13(1).

1384 In undertaking that task, we ask that, in particular, you consider the following matters:

(1) the context in which any limitation occurs, including Australia's history and the extent of denial and limitation that has already occurred.

(2) paragraphs 45.1–45.4 of YV's EA Objection, which are agreed:

> Accretion of greenhouse gases in the atmosphere will also adversely affect First Nations Aboriginal and Torres Strait Islander peoples in specific ways, including by causing:
>
> 45.1 disruption of traditional cultural practices, including those which depend on connection to place and ecological systems;
>
> 45.2 displacement from traditional lands;
>
> 45.3 impediments to the continuation, preservation and development of culture into the future and for future generations;
>
> 45.4 irreversible harm to their traditional lands and waters;
>
> …

(3) evidence about the content of the matter protected by s 28(2).

(4) evidence about the limitations, both written and on-Country, on the rights in both s 28(2) and s 28(3).

(5) in particular, in respect of matter of the kind identified in 28(2)(e), we ask you to consider evidence about the fundamental obligations to Country that arise from the society of each relevant people, and how the ability to comply with those obligations is affected by the decision.

(6) consistently with the mandatory considerations attending the function conferred by ss 222 and 223 of the EP Act, considerations of intergenerational equity, in the context of societies, cultures and connections to Country that have already existed for thousands of generations.

1385 Our submission is that, having considered those matters, the Court should conclude that:

(1) the grant of an EA, and a recommendation to so grant, would limit the rights in s 28(2) and (3) in numerous ways, all stemming from the increase in GHGs accreted in the atmosphere and correlate temperature increase.

(2) on the evidence, those limitations cannot be demonstrably justified, applying s 13(2).

1386 We invite the Court to consider the contrast between the quality of the evidence about the particular "environment" that comprises the Country of the people to whom the First Nations witnesses belong and the quality of the evidence of a kind routinely provided by experts considering a particular area of land.

1387 The contrast seemed, to us, to be striking.

1388 There was, in the on-Country evidence, a depth derived from careful observation of, and care for, a particular area of Country over thousands of generations, during which time the society and culture of that people had become inextricably shaped by Country, and the Country had become inextricably shaped by that people. From such a perspective, the changes wrought by climate change are profound and irremediable at depths we cannot pretend to comprehend.

1389 Contrast the multitude of abstract language-games used every day in court rooms, by which an environment can be first reduced to discrete fungible objects, which can then be moved around, offset or bought.

(viii) Approval of the Proposed Project would unjustifiably limit the rights of children (s 26(2))

(1) Nature and scope of the right

1390 Section 26(2) of the HR Act provides: "Every child has the right, without discrimination, to the protection that is needed by the child, and is in the child's best interests, because of being a child."

1391 'Child' is not defined in the HR Act, but consistent with the definition of the term in other Queensland legislation, it can be taken to mean an individual under 18 years.[1282]

1392 Section 26(2) is drawn from article 24(1) of the ICCPR, which states: "Every child shall have, without any discrimination as to race, colour, sex, language, religion, national or social origin, property or birth, the right to such measures of protection as are required by his status as a minor, on the part of his family, society and the State."

1393 In General Comment no. 17, the HRC explained that the right under s 24(1) "entails the adoption of special measures to protect children, in addition to the measures that States are required to take under article 2 to ensure that everyone enjoys the rights provided for in the Covenant."[1283]

1394 That is, the right confers additional obligations on States in relation to children, over and above the obligations it owes to adults.

1395 The vast weight of international jurisprudence concerning article 24(1) relates to parental access and family unity in a migration context.[1284] However, there is a rich body of jurisprudence from the Committee of the Rights of the Child (**CRC**), in relation to the Convention on the Rights of the Child (**CROC**).

1282 See, e.g. s 8 of the *Child Protection Act 1999* (Qld).

1283 Human Rights Committee, *General Comment No 17: Article 24 Rights of the Child*, 35th sess (1989) at [1].

1284 M Castan and S Joseph, The International Covenant on Civil and Political Rights: Cases, Materials and Commentary (3rd ed, 2013) at [21.63].

1396 The CROC and the CRC's decisions have been influential on the Human Rights Committee's interpretation of the ICCPR,[1285] and have played a significant role in understanding the nature and scope of the cognate right in the Victorian Charter: s 17(2), the text of which exactly mirrors s 26(2).[1286]

1397 The foundational guidance on the obligations on State parties under the CROC is found in General Comment No. 5 of the CRC, which outlines the 'general measures of implementation.'[1287]

1398 The General Comment identifies four overarching principles of the CROC:

(1) the principle of **non-discrimination** in article 2;

(2) the **best interests** principle found in article 3(1), which requires States to adopt the best interests of the child as a primary consideration in all actions concerning children;

(3) the requirement in article 6 that obliges States to ensure to the maximum extent possible the survival and development of the child, with 'development' to be construed broadly; and

(4) the principle of **participation** in article 12 that the child has a right to express their views freely in all matters affecting the child, those views being given due weight. This final principle highlights the role of the child as an active participant in the promotion, protection and monitoring of their own rights.

1399 YV and TBA submit that these principles, particularly regarding best interests, discrimination and participation, are consistent with the text, purpose and history of s 26(2) and should be given prominence in its construction.

1400 The CRC has also provided guidance specific to the impacts of climate change.

1401 In General Comment no. 15, published in 2013, the CRC recognised the relationship between climate change and the right of the child to the enjoyment of the highest attainable standard of health (article 24).

1402 That right is not protected by the HR Act,[1288] however, the CRC's observations remain pertinent.

1285 M Castan and S Joseph, The International Covenant on Civil and Political Rights: Cases, Materials and Commentary (3rd ed, 2013) at [21.63].

1286 See e.g, *Certain Children* v Minister for Families and Children (2016) 51 VR 473 at [146]-[150]; *ZZ v Secretary, Department of Justice* [2013] VSC 267 at [55]-[71]; *A & B v Children's Court of Victoria* [2012] VSC 589 at [109]-[110]; *Secretary to the Department of Human Services v Sandling* (2011) 36 VR 221at [11]-[23]; *Director of Public Prosecutions v SL* [2016] VSC 714 at [7].

1287 Committee on the Rights of the Child, General Comment No 5:

1288 Although similar outcomes might be reached through s 26(2), for example.

1403 The CRC observed that there is a "growing understanding" of the relationship between the impacts of climate change and children's health, and drew attention to "to the relevance of the environment, beyond environmental pollution, to children's health."[1289]

1404 The CRC observed that climate change is "one of the biggest threats to children's health and exacerbates health disparities" and that "States should, therefore, put children's health concerns at the centre of their climate change adaptation and mitigation strategies."[1290]

1405 Since the publication of General Comment No. 15, the CRC's jurisprudence on climate change and children's rights has developed.

1406 In September 2021, the CRC delivered its decision in the case of *Saachi*.[1291] There, several children resident in different States parties filed complaints with the CRC alleging that the various States parties had contravened their rights under the CROC by failing to prevent and mitigate the consequences of climate change. The cases were ultimately held to be inadmissible on the basis that the authors had not yet exhausted domestic remedies. However, in considering the complaints, the CRC made several pertinent observations as to the relationship between the rights of children and climate change.

1407 **First**, it referred to its joint treaty body statement on Human Rights and Climate Change, published in May 2020,[1292] and in particular, that the statement had noted that the IPCC had confirmed that "climate change poses significant risks to the enjoyment of the human rights protected by the Convention such as the right to life … and cultural rights."[1293]

1408 **Second**, in relation to the victim status of the children, the Committee considered that:

> … as children, the authors are particularly affected by climate change, both in terms of the manner in which they experience its effects and the potential of climate change to have an impact on them throughout their lifetimes, particularly if immediate action is not taken. Due to the particular impact on children, and the recognition by States parties to the Convention that children are entitled to special safeguards, including appropriate

---

1289 Committee on the Rights of the Child, *General Comment No. 15: On the Right of the Child to the Enjoyment of the Highest Attainable Standard of Health*, 62nd sess (2013) at [5] and [50].

1290 Committee on the Rights of the Child, *General Comment No. 15: On the Right of the Child to the Enjoyment of the Highest Attainable Standard of Health*, 62nd sess (2013) at [50].

1291 Committee on the Rights of the Child, *Views: Communication No. 107/2019*, 88th sess, UN Doc CRC/C/88/D/107/2019 (22 September 2021) ('*Saachi v Germany*'). This decision was in fact multiple decisions as complaints were brought by the same complainants against several States Parties. Each decision is relevantly the same for present purposes. The main divergence between the decisions is whether the complainants in each case had exhausted domestic remedies — a question that must be answered in relation to each State individually, but not one that affects the nature and scope of the right. As the German decision outlines the background to the proceedings in more detail, it has been cited in these submissions.

1292 *Saachi* at 9.6. The Joint Treaty Body Statement is available electronically: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G20/113/08/PDF/G2011308.pdf?OpenElement>.

1293 *Saachi* at 9.6.

> legal protection, States have heightened obligations to protect children from foreseeable harm.[1294]

1409 More recently, the CRC has determined to draft a General Comment on children's rights and the environment, with a special focus on climate change. The concept note is illustrative of the matters the CRC is considering, although consultations are ongoing.[1295] The note opens with the following observation:

> Environmental harm adversely affects the life trajectory of children much more than adults. The loss of biodiversity, pollution, as well as climate change are significant interrelated contributors to the world experiencing political and economic instability, growing inequality, declining food and water security and increased threats to health and livelihoods.

1410 It continues:

> While all children are exceptionally vulnerable to climate change, children with disabilities, children on the move, children living in poverty, children separated from their families, and the youngest are most at risk.

1411 The note identifies the CRC's intentions for the General Comment, stating that the objectives include to:

(1) emphasise the urgent need to address the adverse effects of environmental harm and climate change on children; and

(2) shed light on the societal, legal and other implications of concepts such as 'international cooperation', 'extraterritorial obligations', 'future generations' and 'intergenerational equity' with a view to improve the legislative, administrative and other measures that States as well as other stakeholders undertake to uphold the rights of the child in the context of the environment and climate change.

1412 That General Comment will not be finalised during this matter, but the content note nevertheless carries significant persuasive force in its reasoning.

1413 Considering the above, YV and TBA submit that s 26(2) should be understood to:

(1) impose obligations on public entities with regard to the rights of children, taking into account their 'best interests';

(2) impose obligations on public entities not to discriminate against children, as children, or as different classes of children based on other intersecting qualities such as disability or race; and

---

1294 *Saachi* at 9.13.

1295 Available electronically at: <https://www.ohchr.org/en/treaty-bodies/crc/concept-note-general-comment-childrens-rights-and-environment-special-focus-climate-change>.

(3) to the extent possible consistent with their functions, to consult children in decision-making that affects their rights, such that children can meaningfully participate.

1414 The scope of the right should also be understood against the background of the international context, in which the link between climate change and limitations on children's rights has been explicitly acknowledged and highlighted by authoritative Treaty Bodies.

(2) The rights of children under s 26(2) would be limited by approval of the Proposed Project

1415 It is agreed that the adverse impacts of climate change will disproportionately affect children who are living now and are born in future, at an ever-increasing level into the future. In particular, it is agreed that present and future children will be at a disproportionately greater risk of poorer health outcomes and premature mortality.[1296]

1416 This Court has heard significant evidence about the science of climate change, and how the continued accretion of GHGs in the atmosphere will have increasingly adverse impacts on the Earth and all the life it sustains.

1417 Throughout this matter, the year 2100 has been used as a reference point by which temperature increases since pre-industrial times are measured. This Court heard evidence of what a world consistent with the Proposed Project looks like by 2100: temperature increases of at least 2.5 degrees, increased floods, bushfires and heatwaves, associated with unprecedented levels of mortality, the loss of biodiversity, widespread displacement, the list goes on. To use Professor Bambrick's words, that future is 'unimaginable.'[1297]

1418 But that future, despite being unimaginable now, is the one in which children born today will live. Throughout their lifetimes, they will experience foreseeable, catastrophic consequences that will threaten their lives, health and development. They will witness unnecessary loss of life, cascading natural disasters, mass displacement, and grief. They will also, as they do now, live with the knowledge that the climate and the life it sustains will continue to destabilise and deteriorate around them. In short: their lives will be marked by a truly unprecedented existential threat.

1419 Because the effects of climate change will become increasingly extreme, today's decisions have vastly greater consequences for today's children than for adults. Yet, despite being the most affected by them, children have very little power to control the decisions made today; the decisions that will determine their future.

1296 Issues not in dispute [[**COM.0328.0002**]], [5] read with YV EA Objection [[**COM.0053.0015**]], [44].

1297 T 7-29, ln 4.

1420 Plainly, in those circumstances, a decision to unlock 1.58Gt gt of carbon into the Earth's atmosphere limits those rights. Rights, it will be recalled, that are informed by the best interest principle and principle of non-discrimination.

1421 The decision would limit the rights of children because the trajectory of their lives, by reason of their age, will be vastly more impacted by climate change than adults. It also limits their rights because, as children, they are owed a special degree of protection by the State. That is brought into sharp relief when it is recalled that young children are particularly vulnerable to the health effects of climate change, such as heatwaves.[1298] And it limits their right because, as the CRC has noted, the burden of climate change does not fall evenly, even among children. Children with intersecting vulnerabilities will be at even greater risk of harm.

(3) The limitation cannot be justified

1422 Having regard to the nature of the right sought to be protected, and the extent of the limitation, the limitation cannot be justified.

1423 YB and TBA wish to emphasise the following matters.

1424 **First**, the nature of the right in s 26(2) is of paramount importance, as demonstrated by its scope, which recognises that children are owed a special degree of care, over and above the obligations owed by the State to adults.

1425 **Second**, the nature and extent of the limit is articulated above, and by the evidence of the experts in this case, as well as First Nations witnesses. It is profound and unprecedented. Taking into account the nature of that limitation and its extent, the importance of preserving the right is — quite literally — of existential proportions. It is no exaggeration to say that the future is at stake.

1426 **Third**, the special vulnerabilities of children and their lack of voice in the political process underscores the importance of their rights being afforded the upmost importance by decision-makers.

1427 **Fourth**, giving full effect to the words in s 13(1), the limitation is not one that can be "demonstrably justified in a free and democratic society based on human dignity, equality and freedom." To the contrary, the limitation preferences the interests of adults today over the future and lives of children tomorrow. That is profoundly inconsistent with values of human dignity and equality.

1428 **Fifth and finally**, viewing the s 13 analysis through the lens of the EP Act brings the question of fair balance into particularly sharp relief. For example, the precautionary principle, read with the HR Act, assumes significance in respect of children, because decisions taken today will affect children much more than adults. Similarly, the

---

1298 Public Health Report [[YVL.0280.0020]], [85]-[86].

principle of intergenerational equity obliges decision makers to ensure the rights of future generations.

(ix) Approval of the Proposed Project would unjustifiably limit the right to property of people in Queensland (s 24(2))

(1) Nature and scope of the right to property

1429 Section 24(2) provides that "a person must not be arbitrarily deprived of the person's property."

1430 The section is drawn from article 17 of the United Nations Declaration on Human Rights (**UDHR**) and can be contrasted with s 20 of the Victorian Charter, which stipulates that "a person must not be deprived of his or her property other than in accordance with the law."

1431 From the text of s 24(2), it can be seen that contravention of the right involves three elements.

1432 **First,** there must be property;

1433 **Second,** there must be a deprivation;

1434 **Third,** the deprivation must be arbitrary.

1435 None of those terms are defined in the HR Act, however, consistently with its objects and beneficial character, those terms should be construed broadly.[1299] This is the approach that has been adopted in relation to the cognate right in Victoria, where it has been said that the terms 'property' and 'deprivation' should be interpreted "liberally and beneficially to encompass economic interests and deprivation in a broad sense."[1300]

1436 As to the first element, 'property' has been understood in Victoria to encompass "real and personal property such as land, chattels and other economic interests."[1301]

1437 As to the second element, that there must be a 'deprivation', this concept has also been interpreted broadly.

1438 Guidance can be taken from decisions concerning article 1 of protocol 1 of the European Convention on Human Rights (**ECHR**). That article has been held to include not only forced displacement or extinguishment of title, but also any 'de facto expropriation' by

---

1299 See above at paragraph 1159.
1300 *PJB v Melbourne Health* (2011) 39 VR 373 at [87].
1301 *PJB v Melbourne Health* (2011) 39 VR 373 at [90].

means of substantial restriction in fact of a person's use or enjoyment of their property.[1302] As Bell J explained in *PJB v Melbourne Health:*[1303]

> [The ECtHR] jurisprudence assists in relation to what amounts to a deprivation of property in human rights legislation … It is well-established that a formal expropriation is not required (although it does suffice) and a de facto expropriation is sufficient. Citing earlier authorities, in *Zwierzynski v Poland* the European Court of Human Rights gave this statement of principle:
>
> > The Court recalls that in order to establish whether or not there has been a deprivation of possessions it is necessary not only to consider whether there has been a formal taking or expropriation of property, but also to look beyond appearances and investigate the realities of the situation complained of. Since the Convention is intended to guarantee rights that are 'practical and effective', it has to be ascertained whether that situation amounted to a de facto expropriation.

1439 Examples of de facto expropriation in the European courts include events which prevented people's access to their properties or ability to gift them,[1304] or caused partial loss of land from construction of public works.[1305]

1440 Such understandings are clearly sufficiently broad to encompass the forced displacement and substantial property damage, amounting to de facto expropriation, caused by climate change.

1441 By way of a specific example, in *Budayeva v Russia*, [1306] the ECtHR held that property destruction caused by a preventable mudslide engaged the relevant right under the ECHR.

1442 As to the third element, that the deprivation be 'arbitrary', the approach that should be adopted is outlined above.

(2) Approval of the Proposed Project would limit the right to property of people in Queensland

1443 It is agreed that continued accretion of GHGs into the atmosphere will increasingly cause displacement of individuals and communities, decline in the amount of land available for productive agriculture and adverse impacts on property due to sea level rise and increases in extreme weather events and natural disasters.[1307]

1444 Mr Coleman, Professor Bambrick, and the First Nations witnesses gave uncontested evidence on these topics.

1302 *Sporrong and Lonnroth v Sweden (1982)* 5 EHHR 35*; Zwierzynski v Poland* (2004) 38 EHHR 6.
1303 *PJB v Melbourne Health* (2011) 39 VR 373 at [89] citing *Zwierzynski v Poland*.
1304 *Yavuz Ozden v Turkey* [2021] ECHR 741.
1305 *Aygun v Turkey* ECtHR (Application No. 35658/06), judgment of 14 September 2011.
1306 [2008] 2 ECHR 267.
1307 Issues not in dispute [[**COM.0328.0002**]], [5]; YV and TBA EA Objection [[**COM.0053.0014**]], [40], [41.1].

1445 In short, the evidence is that:

(1) property will be lost or damaged because of increased severity and frequency of weather events such as bushfires and floods;[1308]

(2) displacement from properties will increasingly occur because of extreme weather events and sea level rise on coastal areas and low-lying islands;[1309]

(3) loss and damage to property will be significantly greater in a Scenario 2 future compared with a Scenario 3 future;[1310]

(4) on the current trajectory, by the end of the century, large areas of Queensland will be unliveable.[1311]

1446 In those circumstances, the approval of the Proposed Project would clearly contribute to de facto deprivation of property for (at least) thousands of Queenslanders.

(3) The limitation is arbitrary

1447 A 'broad and general'[1312] assessment of all the circumstances shows that the limitation on property rights extends beyond what is reasonably necessary to pursue economic development of the type proposed by the Applicant.

1448 In purely monetary terms, property loss caused by climate change will bring about significant economic loss.[1313]

1449 Monetary terms cannot, of course, capture the grief and loss that will be felt by those displaced, which adds weight to the injustice, unreasonableness and disproportion of the limitation for the 'legitimate aim sought.'

(4) The limitation cannot be demonstrably justified

1450 Taking into account the nature of the right and the extent of the limitation, YV and TBA wish to emphasise the following points.

1451 **First**, the right to one's property has played a foundational role in Australian legal history long prior to commencement of the HR Act. In Victoria, Justice Bell has said of the right to property that it is "an ancient feature of the common law, established by the time of *Magna Carta 1297*"[1314] and "a fundamental common law right for the purpose of the application of the principle of legality."[1315]

1308 Actuarial Report [[**YVL.0279.0045**]], [208].
1309 Actuarial Report [[**YVL.0279.0038**]], [182]; Affidavit of Lala Gutchen [[YVL.0036.0033]] [395]-[409], [349]-[359].
1310 Actuarial Report[[**YVL.0279.0045**]], [208].
1311 Public Health Report [[**YVL.0280.0022**]] [96].
1312 *Thompson v Minogue* [2021] VSCA 358 at [56].
1313 See, e.g. Actuary Report table 18 [[**YVL.0289.0045**]] (noting some of that property would be owned by corporations, who do not have human rights).
1314 *PJB v Melbourne Health* (2011) 39 VR 373 at [94].
1315 *PJB v Melbourne Health* (2011) 39 VR 373 at [95].

1452 **Second**, property rights can take on particular importance when considering rights of people with "strong, personal and continuing connection" to their homes.[1316] That special importance of property rights is clearly applicable where First Nations peoples are concerned. The Gutchen family and Jiritju Fourmile speak of the unique bereavement felt by First Nations peoples deprived of their ancestral homelands, that is distinct from and incomprehensible to Western proprietary culture.

1453 In the context of s 28 too, the importance of preserving property rights[1317] is bound up with the rights to maintain and control cultural heritage,[1318] and the rights of First Nations peoples to maintain and strengthen their relationship with the land and seas.[1319] While property rights are fundamental for all, for First Nations peoples they are linked to continuation of ancient and precious cultures.

1454 The limitation of property rights, particularly when considering the scale of the damage that will result from climate change harm and the depth of the damage where First Nations peoples are concerned, does not strike a 'fair balance' with the financial interests of Mr Palmer and a sum of royalties.

(x) Approval of the Proposed Project would unjustifiably limit the right to enjoy human rights without discrimination

(1) Nature and scope of the right to recognition and equality before the law

1455 Section 15(2) of the HR Act provides "Every person has the right to enjoy the person's human rights without discrimination."

1456 'Discrimination' is defined as follows.

> discrimination, in relation to a person, includes direct discrimination or indirect discrimination, within the meaning of the Anti-Discrimination Act 1991, on the basis of an attribute stated in section 7 of that Act.

1457 'Direct discrimination' and 'indirect discrimination' are then defined in the *Anti-Discrimination Act 1991* as follows.

> **10** meaning of direct discrimination
>
> (1) Direct discrimination on the basis of an attribute happens if a person treats, or proposes to treat, a person with an attribute less favourably than another person without the attribute is or would be treated in circumstances that are the same or not materially different.

1316 *PJB v Melbourne Health* (2011) 39 VR 373 at [273].
1317 *HR Act* s13(f).
1318 *HR Act* s 28(2)(a).
1319 *HR Act* s 28(2)(d).

Example—

R refuses to rent a flat to C because—

- C is English and R doesn't like English people
- C's friend, B, is English and R doesn't like English people
- R believes that English people are unreliable tenants.

In each case, R discriminates against C, whether or not R's belief about C's or B's nationality, or the characteristics of people of that nationality, is correct.

(2) It is not necessary that the person who discriminates considers the treatment is less favourable.

(3) The person's motive for discriminating is irrelevant.

Example—

R refuses to employ C, who is Chinese, not because R dislikes Chinese people, but because R knows that C would be treated badly by other staff, some of whom are prejudiced against Asian people. R's conduct amounts to discrimination against C.

(4) If there are 2 or more reasons why a person treats, or proposes to treat, another person with an attribute less favourably, the person treats the other person less favourably on the basis of the attribute if the attribute is a substantial reason for the treatment.

(5) In determining whether a person treats, or proposes to treat a person with an impairment less favourably than another person is or would be treated in circumstances that are the same or not materially different, the fact that the person with the impairment may require special services or facilities is irrelevant.

11 meaning of indirect discrimination

(1) Indirect discrimination on the basis of an attribute happens if

a person imposes, or proposes to impose, a term—

(a) with which a person with an attribute does not or is not able to comply; and

(b) with which a higher proportion of people without the attribute comply or are able to comply; and

(c) that is not reasonable.

(2) Whether a term is reasonable depends on all the relevant circumstances of the case, including, for example—

(a) the consequences of failure to comply with the term; and

(b) the cost of alternative terms; and

(c) the financial circumstances of the person who imposes, or proposes to impose, the term.

(3) It is not necessary that the person imposing, or proposing to impose, the term is aware of the indirect discrimination.

1458 'Term' is then defined:[1320]

> term includes condition, requirement or practice, whether or not written.
>
> Example 1—
>
> An employer decides to employ people who are over 190cm tall, although height is not pertinent to effective performance of the work. This disadvantages women and people of Asian origin, as there are more men of non-Asian origin who can comply. The discrimination is unlawful because the height requirement is unreasonable, there being no genuine occupational reason to justify it.
>
> Example 2—
>
> An employer requires employees to wear a uniform, including a cap, for appearance reasons, not for hygiene or safety reasons. The requirement is not directly discriminatory, but it has a discriminatory effect against people who are required by religious or cultural beliefs to wear particular headdress.

1459 Section 15(2) mirrors s 8(2) of the Victorian Charter, although the definitions of 'discrimination' differ, by reference to each jurisdiction's anti-discrimination law. And although s 15 is derived primarily from articles 16 and 26 of the ICCPR,[1321] s 15(2) appears to be drawn, at least loosely, also from article 2(1) of the ICCPR.

1460 Under the ICCPR, article 2(1) is known as an 'accessory' prohibition; it is not a standalone provision, but operates in conjunction with other, stand-alone rights to ensure that those rights are enjoyed without 'distinction.'

1461 The Explanatory Note to s 15 explains that the equality right is intended to be a stand-alone right.[1322]

1462 YV and TBA submit that s 15 (2) operates in this way: it has as its foundation the breach of another human right. However, if it can be established that a public act or decision has a disparate impact on human rights for different people, then there has been a breach not only of the underlying right, but also the equality right protected by s 15(2).

1463 This reflects the fundamental equality value underpinning the section, acknowledging the independent harm caused by the discriminatory aspect of the breach of the right.

1320 *Anti-Discrimination Act 199,* s 11(4).
1321 Explanatory Notes, Human Rights Bill 2018 (Qld) 3.
1322 Explanatory Note, Human Rights Bill 2018, 19.

1464 Such a breach will occur, it is submitted, whenever it can be established that the actions or decisions of public entities lead to the enjoyment of human rights being limited on a discriminatory basis.

1465 'Discrimination' should be construed broadly. Where the Victorian Charter ties the meaning of 'discrimination' for the purposes of the Charter to the meaning of the term in the *Equal Opportunity Act 2010* (Vic),[1323] the Queensland Parliament has chosen a different, inclusive approach. The text of the provision makes clear that although 'discrimination' for the purposes of the HR Act encompasses the concepts of direct and indirect discrimination under the Anti-Discrimination Act, it is not limited to them.

1466 At a Queensland level, the HR Act definition has not been considered in a context comparable to this one or using the full breadth of its definition. Rather, s 15(2) has, so far, been considered in cases adjacent to the *Anti-Discrimination Act 1991* (Qld).[1324]

1467 However, the Canadian courts' approach to their similar anti-discrimination provision in s 15(1) of the Canadian Charter provides comparative value.

1468 To establish a breach of s 15(1), the Canadian Supreme Court asks, first, whether government conduct imposes a burden or denies a benefit to a group in a way that has the effect of reinforcing, perpetuating, or exacerbating disadvantage, including historical disadvantage.[1325] This requires attention to the "full context" of the group in question, the "actual impact of the law" on their situation and to the "persistent systemic disadvantages that have operated to limit the opportunities available to that group's members."[1326] Seemingly neutral actions may have "built in headwinds" for members of certain groups.[1327]

1469 It can be seen from the text and context of s 15(2) that contravention of the right involves two elements.

1470 **First,** there must be a breach of another human right.

1471 **Second,** that breach must have a disparate impact on different people.

1472 It is submitted that, consistent with the text, context and purpose of the HR Act, this Court should examine the actual impact of an approval of the Proposed Project to determine whether it would reinforce, perpetuate or exacerbate disadvantage.

1323 *Charter of Human Rights and Responsibilities 2006* (Vic), s 8.

1324 See for example, *Gilbert v Metro North Hospital Health Service & Ors* [2020] QIRC 084; *SF v Department of Education* [2021] QCAT 10; *Taniela v Australia Christian College Moreton Ltd* [2020] QCAT 249; *Wildin v State of Queensland* [2020] QCAT 514.

1325 . *Fraser v Attorney-General of Canada* [2020] SCC 28, [27].

1326 *Fraser v Attorney-General of Canada* [2020] SCC 28. See also, *Kahkewistahaw First Nation v Taypotat* [2015] SCR 548, [17].

1327 *Fraser v Attorney-General of Canada* [2020] SCC 28, [27]. See also *Kahkewistahaw First Nation v Taypotat* [2015] SCR 548 [15], [22].

(2) Approval of the Proposed Project would limit the right to recognition and equality before the law

1473 It is explained elsewhere that approval of the Proposed Project would unreasonably limit the following human rights through the effects of climate change:[1328]

(1) right to life (s16);

(2) best interests of the child (s 26(2));

(3) property rights (s 24(2)); and

(4) cultural rights of Aboriginal and Torres Strait Islander peoples (s 28).

1474 It is agreed that the adverse impacts of climate change will disproportionately affect:[1329]

(1) children who are living now and are born in future, at an ever-increasing level into the future (in particular, present and future children will be at a disproportionately greater risk of poorer health outcomes and premature mortality); and

(2) older people, people living in poverty, other disadvantaged people and First Nations Aboriginal and Torres Strait Islander peoples.

1475 It should not be controversial then, that limitations from an approval of the Proposed Project on the rights to life, the best interests of the child, property and the cultural rights of Aboriginal and Torres Strait Islander people, will be felt disproportionately by sections of the Queensland community.

1476 Professor Bambrick's evidence specifies how these groups feel climate change disproportionately. For example:

(1) older people and children tend to be at greatest risk of ill-health and of dying during a heatwave;[1330]

(2) First Nations people are at heightened risk of illness and death related to extreme heat, due to higher likelihood of underlying chronic conditions such as high blood pressure, diabetes and kidney disease;[1331] and

(3) large parts of Queensland will be unliveable by the end of the century, when the young people of today are still alive to experience it.[1332]

1328 See D-II(vi); D-II(vii); D-II(viii); D-II(ix).
1329 Issues not in dispute [[**COM.0328.0002]]**, [5].
1330 Public Health Report [[**YVL.0280.0020**]] [85].
1331 Public Health Report [[**YVL.0280.0020**]] [89].
1332 Public Health Report [[**YVL.0280.0020**]] [96].

1477 It follows that the limitation of the right to life will be felt disproportionately by children, older people, Aboriginal and Torres Strait Islanders, and people with pre-existing health conditions, including disabilities.

1478 The limitation of the right to the best interests of the child will be disproportionately felt by Aboriginal and Torres Strait Islander children who have connection to impacted Countries.

1479 The limitation on the right to property will be felt disproportionately by Torres Strait Islander people who are both more likely than the rest of the Queensland community to be displaced from their homes and also who have unique cultural connection to those places.

1480 The limitation on the cultural rights of Aboriginal and Torres Strait Islander people will be felt disproportionately by Aboriginal and Torres Strait Islander children and those living in poverty.

1481 These are not exhaustive examples.

1482 There are then some people who sit at the intersection of several qualities which will make their experience of climate change harm particularly disparate. Take, for example, Maima, Katie and Jackie of the Gutchen family. These children are between the ages of 8 and 10 and are likely to be alive in, or near, 2100. They live remotely on Erub which experiences limited food and water security,[1333] and a high cost of living.[1334] They are children of the Meuram tribe[1335] and Gau tribe[1336] with parents and grandparents who are strong in culture and are struggling to teach them traditional gardening practice[1337] and Sea Country practice[1338] because of the changes in weather. They will see people's homes and their ancestors' gravestones in the villages be inundated by rising sea levels.[1339] They have already lived through the shrinking of their creation story island[1340] and heat-induced deaths of their totems.[1341]

1333 Affidavit of Lala Gutchen [[**YVL.0036.0032**]], [376]-[380].
1334 Affidavit of Lala Gutchen [[**YVL.0036.0020**]] [226].
1335 Affidavit of Kapua Gutchen [[**YVL.0044.0001**]] [3]-[4].
1336 Affidavit of Lala Gutchen [[**YVL.0036.0035**]] [417].
1337 Affidavit of Kapua Gutchen [[**YVL.0044.0018**]] [168].
1338 Affidavit of Lala Gutchen [[**YVL.0036.0035**]] [414].
1339 Affidavit of Kapua Gutchen [[**YVL.0026.0089**]] [249].
1340 Affidavit of Kapua Gutchen [[**YVL.0026.0008**]] [63]-[94].
1341 Affidavit of Lala Gutchen [[**YVL.0036.0003**]] [24].

1483 Below is a picture of Maima on her first visit to Maizab Kaur, the day they found dead Beuger, a Meuram totem bird.[1342]

1484 What follows is Maima's mother's words, Lala Gutchen, about her concerns for her daughter and her nieces, Jackie and Katie, as young Erubam kids.

> My daughter's experience of her culture, too, will be different to mine because of climate change. When I want to take Maima fishing or diving, my sister tells me that the sun is too hot and not to take her, so she stays home.
>
> When I was her age, I would go out diving in with my dad and not wear a shirt on the boat, it was normal. My daughter herself says, "Mummy, it's too hot."
>
> The little ones have fainted before because of the heat. It happened to my nieces about six years ago. We had to put cold water on Katie's brain for her to wake up. Maima has only seen me spearfish a few times when the weather was right.
>
> Maima and her children and grandchildren, my great grandchildren, they will probably ask where is Aka Duku's place (my mum's place), meaning Poruma. Maima will probably be like, I was once there on Maizab Kaur with my mum, but it's no longer there. Maima will probably pay to go overseas to see other people's reefs instead of her own backyard.
>
> I am sad that I can't absorb all of what my dad could teach me because there is not enough to learn on the land when it's all drought.
>
> Most of all, I am scared of losing the island entirely because of the threat of sea level rise. Then, the effect on my daughter's culture and her daughter's culture will be huge.[1343]

1342 Affidavit of Lala Gutchen [[**YVL.0036.0040**]].
1343 Affidavit of Lala Gutchen [[**YVL.0036.0035**]] [414]-[420].

1485 It is uncontroversial that everyone in Queensland will experience the adverse impacts of climate change. However, the unreasonable limitations to human rights caused by approval of this Project would compound for those at the intersection of climate discrimination, exacerbating and perpetuating disadvantage.

1486 This is plainly a limitation of the right to enjoy human rights without discrimination.

(3) The limitation cannot be demonstrably justified

1487 The principles of non-discrimination at the international level are said to be of a "basic and general character."[1344]

1488 It has already been demonstrated that the limitations on the relevant underlying rights cannot be demonstrably justified by reference s 13 of the HR Act.

1489 The discriminatory effect of those unreasonable limitations as envisioned by s 15(2) clearly runs counter to a society 'based on human dignity, equality and freedom.' The limitation cannot then meet the threshold demanded in s 13(1).

1490 With s 13(2) in mind, the limitation is also, at its core, imbalanced and unfair. The objective of the limitation is in its benefits, but those primarily accumulate to one person.

1491 YV and TBA restate, where it is elsewhere substantiated, that the objective of the limitation is not pressing or substantial. Conversely, the limitation is broad in that it reaches several sects of Queensland society, and deep in that it aggravates existing social inequalities that Queensland already faces. It cannot be justified.

(xi) Approval of the Proposed Project would unjustifiably limit the rights of the landholders of Bimblebox

(1) Approval of the Proposed Project would unjustifiably limit the right to property with respect to Bimblebox

1492 Approval of the EA would also unjustifiably limit the right to property of the landowners of Bimblebox in the following ways:

(1) The environmental values of Bimblebox would be so destroyed that Bimblebox Nature Refuge would cease to exist either:

(a) Directly, where the declaration of Bimblebox as a nature refuge was revoked;

(b) Indirectly, where the environmental degradation would be such that Bimblebox would be unable to comply with its obligations and functions as a nature refuge.

[1344] UN Human Rights Committee (HRC), CCPR General Comment No. 18: Non-discrimination, 10 November 1989, [2].

(2) The noise, dust, light, subsidence and environmental damage caused to Bimblebox would form such a nuisance that the landowners would be driven from Bimblebox.

1493 The physical location on which Bimblebox Nature Refuge resides contains two distinct and separate legal entities – the lot, 'Glen Innes', which existed prior to the declaration of Bimblebox and would continue to exist after, and the nature refuge declared by the Schedule 5 of the *Nature Conservation (Protected Areas) Regulation 1994* (Qld).

1494 Similarly, there are therefore two "properties" being interfered with for the purposes of s 24(2) of the HR Act — the declared nature refuge and the physical property itself. The landowners could be deprived of the nature refuge, but retain the real property, or they could be deprived of the real property.

1495 The cumulative impacts of noise, vibration, dust, subsidence and destruction of current surface water flows would, as discussed above, be ecologically catastrophic. Those impacts would, in all likelihood mean that Bimblebox would no longer be able to function as a nature refuge. The loss of the nature refuge, either directly or indirectly, would be a limitation of the landowners right to the property.

1496 Those cumulative impacts would also, in all likelihood, drive the landowners from the property in any event. The impacts would pose such a radical destructive change to the environment, and environment chosen and nurtured and protected by them for some twenty years, it would be unbearable, constructively depriving them of their property.

1497 Even before the impacts of the Applicant's mine are felt, Dr Rudd gave evidence of the harm caused by the comparatively minor incursion by the Applicant for exploration drilling in 2008, saying access tracks "almost looked like were intentionally done to maximise the amount of disturbance. They looked like BMX tracks–it was appalling."[1345] Dr Rudd describes his rage and indignation at what he felt was the betrayal of the exploration permit being granted, his depression, and his inability to face conservation work which had previously been his life's passion. [1346]

1498 The impacts of the Applicant's mine (as limited as the description of the impacts are in the Applicant's material) were described by Mr Hoch as follows:

1499 I have been asked to comment on the noise and light and dust pollution and this is my response. They are only some of the harms caused by coal mining. Besides, what the hell can anybody say. Continual intrusive noise, constant bright light, unsanitary air sounds like a torture chamber.[1347]

1345 Affidavit of C Rudd [[**YVL.0067.0007**]], [58].
1346 Affidavit of C Rudd [[**YVL.0067.0007**]], [84] – [89].
1347 Supplementary Affidavit of Ian Hoch [[**YVL.0324.0004**]], [19] – [20].

1500 The dearth of information from the Applicant about what harm they would propose to do has resulted in a Draft EA which largely permits whatever harm is projected by the Applicant after the approval is given. It is, functionally, a blank cheque.

1501 Deprivation of the landowners' rights under s 24(2) in those circumstances would be unjustifiable.

(2) Approval of the Proposed Project would unjustifiably limit the right to right to privacy, family, home and private life with respect to Bimblebox

1502 Section 25(a) of the HR Act provides:

1503 A person has the right —

> (a) Not to have the person's privacy, family, home or correspondence unlawfully or arbitrarily interfered with.

1504 The right is drawn from article 17 of the ICCPR.

1505 The right as articulated by the section contains three elements:

(1) **First**, privacy, family, home or correspondence must be at stake;

(2) **Second**, there must be an 'interference' with one or more of those; and

(3) **Third**, that interference must be unlawful or arbitrary.

1506 In relation to the first element, the meaning of 'home', the cognate provision in the Victorian Charter, has been described as follows:[1348]

> The rights to privacy, family, home and correspondence in section 13(a) are of fundamental importance to the scheme of the Charter. The purpose of the rights is to protect and enhance the liberty of the person - the existence, autonomy, security and wellbeing of every individual in their own private sphere. The rights ensure everybody can develop individually, socially and spiritually in that sphere, which provides the civil foundation for their effective participation in democratic society. The rights protect those attributes which are private to all individuals, that domain which may be called their home, the intimate relations which they have in their family and that capacity for communication (by whatever means) with others which is their correspondence, each of which is indispensable for their personal actuation, freedom of expression and social engagement.

[1348] *Director of Housing v Sudi* [2010] VCAT 328 at [29] per Justice Bell, citing Manfred Nowal, *UN Covenant on Civil and Political Rights: CCPR Commentary* (2nd revised ed. 2005) 377ff, characterisation undisturbed on appeal.

1507 More specifically, with respect to the meaning of 'home' it has been said:[1349]

> In human rights, identifying a person's 'home' is approached in a common-sense and pragmatic way. It depends on the person showing 'sufficient and continuous links with a place in order to establish that it is his home'. Manfred Nowak, speaking of article 17(1) of the ICCPR, says 'the home symbolises a place of refuge where one can develop and enjoy domestic peace, harmony and warmth without fear of disturbance.' If someone's links with the place where they live are 'close enough and continuous enough', that is their home. The general approach is 'to apply a simple, factual and untechnical test, taking full account of the factual circumstances but with very little of legal niceties.' The concept of 'home' in human rights is autonomous and is not based on 'domestic notions of title, legal and equitable rights, and interests.' In short, it is a question of fact, not law.

1508 The scope of the right — in particular, the meaning and importance of the home — should also be understood within its unique common law context, expressed recently by two members of the High Court as follows:

> In the Australian way of thinking, a home is a sanctuary. This sentiment is reflected in common expectations and common practices: "the habits of the country". Those habits are founded on an ingrained conception of the relationship between the citizen and the state that is rooted in the tradition of the common law. The conception can be traced to the Jacobean resolution of the Court of King's Bench that "the house of every one is to him as his castle ... as for his repose.[1350]

1509 In *Nolan v MBF investments Pty Ltd*, the 'home' was referred to as "an essential life-sustaining refuge" and "for most … also the focus of a life-time's endeavour. When stripped of the reward, the consequences are devastating."[1351] This has particular resonance here.

1510 Bimblebox is the focus of a life-time's endeavour for Carl Rudd, Paola Cassoni, and Ian Hoch. It is also a home to Ian Hoch and Paola Cassoni. The focus of their labours, energies, and finances for over 20 years; it is a space plainly contemplated by the section.

1511 Turning then to the closely connected question of interference, the ECtHR jurisprudence on article 8 of the ECHR. Article 8 provides:

(1) Everyone has the right to respect for his private and family life, his home and his correspondence.

(2) There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-

---

1349 *Director of Housing v Sudi* [2010] VCAT 328 at [32], cited by Hargrave J in *Director of Public Prosecutions v Ali (No. 2)* [2010] VSC 503 at [29], and by Justice Bell in *PBJ v Melbourne Health* [2011] VSC 327 at [57] and *Director of Public Prosecutions v Kaba* [2014] VSC 52 at [125].

1350 *Roy v O'Neill* [2020] HCA 45 at [31] per Justices Bell and Gageler, citing (inter alia) the King's Bench in Seymane's Case (1604) 5 CO Rep 91a at 91b [77 ER 194 at 195]. Bell and Gageler JJ were in dissent as to the outcome, but those foundational principles were not in dispute.

1351 [2009] VSC 244 at [149].

being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

1512 The ECtHR's jurisprudence makes clear that the concepts of home, family and private life are closely intertwined. The Court describes, for example, the notion of a 'private sphere.'[1352] And in several cases, the Court has found that severe environmental pollution can affect wellbeing and prevent people from enjoying their homes and 'private spheres' to such an extent that their rights under article 8 are violated. Breaches of the right have been held to result from sources such as noise, emissions, smells and other similar forms of interference.[1353]

1513 For example, in *Lopez Ostra v Spain*[1354], the applicant complained that the fumes and noise from a waste treatment plant situated near her house made her family's living conditions unbearable. After three years, the family moved to escape the nuisance. The Court found a violation of article 8.

1514 In the case of *Grimkovskaya v. Ukraine*[1355], the Court reaffirmed that the hazard at issue necessary to raise a claim under article 8 must attain a level of severity resulting in a "significant impartment of the applicant's ability to enjoy her home, private or family life" and that the assessment of all circumstances of the case, including the intensity and duration of the nuisance and its physical or mental effects, is needed to decide on the threat level.

1515 Clearly, not every environmental nuisance will amount to 'interference' for the purpose of the section, but international jurisprudence makes clear that actual physical exclusion from the place is not required; severe interference with the enjoyment of the home and private life can suffice.

1516 The third element is that the interference must be arbitrary. As explained above, this will be satisfied where the interference is "capricious, or has resulted from conduct which is unpredictable, unjust or unreasonable in the sense of not being proportionate to the legitimate aim sought."

1517 The limitation here plainly meets that description, and it cannot be justified by reference to s 13.

1352 *Fadeyeva v. Russia* ECtHR (Application No. 55723/00), judgment of 9 June 2005, [70], [82] and [86].

1353 *Moreno Gómez v. Spain* ECtHR (Application No. 4143/02), judgment of 16 November 2004, [53], concerning noise; *Giacomelli v. Italy* ECtHR (Application No. 59909/00), judgment of 2 November 2006, [76], concerning waste treatment plant; *Hatton and Others v. the United Kingdom* [GC] ECtHR (Application No. 36022/97), judgment of 8 July 2003, [96], concerning "direct and serious" noise from Heathrow airport; *Deés v. Hungary* ECtHR (Application No. 2345/06), judgment of 9 November 2010, [21], concerning noise, pollution and smell from heavy traffic.

1354 *Lopez,* ECtHR (Application No. 16798/90) judgment of 9 December 1994, 54-55, 51.

1355 *Grimkovskaya*, ECtHR (Application no. 38182/03) judgement of 21 July 2011, [58].

D-III MR Act

1518 As discussed earlier, the criteria in s 269(4) represent matters to be considered in an overall weighing or balancing exercise. It is a matter for the Court to decide what weight to be given to each or any criterion and it is well within the Court's jurisdiction to decide that one or a handful of criteria are determinative one way or the other. It is also useful to recall that the s 269(4) exercise operates in the context of the objectives of the MR Act which are, relevantly for these purposes, to encourage mining of minerals in an environmentally responsible way and in a way that ensures a financial return to the State.

1519 It is in the context of the MR Act recommendation that the financial viability of the Proposed Project has real work to do. This is because the MR Act is concerned with actual exploitation of resources and an actual financial return to the State. If, as has been shown, this mine will cease functioning once the coal price hits US$ 74 per tonne, and there is a high likelihood that the coal price will hit that level (and be unlikely then to to return above it) early in its life, then neither exploitation nor financial return will occur. But harm will be done.

(i) Compliance with provisions of the MR Act – s 269(4)(a)

1520 The Applicant has failed to comply with ss 245(1)(h) and 307(4) of the MR Act, requiring the applicant to define the boundary of any restricted land.

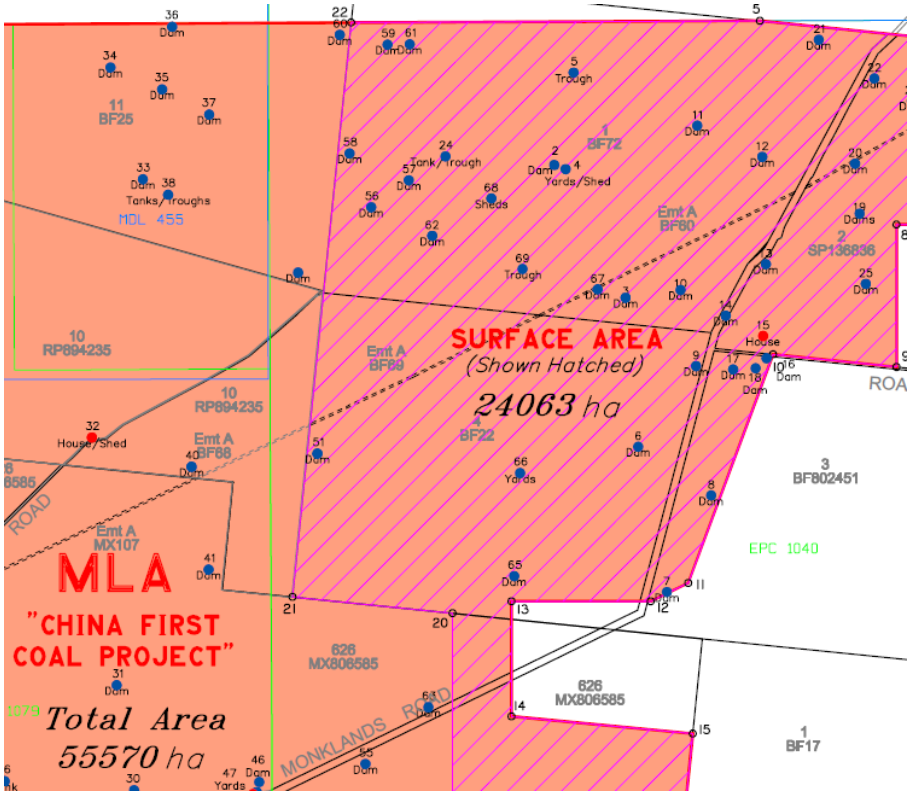
1521 Under s 245(1)(h) of the MR Act, the Applicant was required to include in its ML Application the defined boundary of "any surface area of land to be included in the proposed lease area" and "any restricted land for the proposed mining lease".

1522 This exercise is important because, in accordance with s 238 of the MR Act, a mining lease cannot be granted "over the surface of land that was restricted land when the application for the lease was lodged" without the written consent of the owner or occupier.

1523 Restricted land means, relevantly, land within 200m laterally of a permanent building used for residence, community, recreation or a business, and land within 50m of an area used for a bore, dam or principal stockyard.[1356]

[1356] *Mineral and Energy Resources (Common Provisions) Act 2014* (Qld) s 68.

1524 As part of its ML Application, the Applicant provided a map of the proposed surface area of the mining lease as well as restricted lands marked in blue: see **[[WAR.0018.0001]]**, cropped and extracted below:



1525 The map indicates that all of Bimblebox that is within the proposed mining lease area is proposed to be within the surface area. The Applicant has not indicated any intention to alter this boundary despite the removal of open-cut mining from Bimblebox.[1357]

1526 The map indicates five areas of restricted land on Bimblebox: four dams and one yard (presumably referring to the cattle yard which is in that approximate location).[1358]

1527 The Applicant provided three subsequent versions of restricted lands maps as part of its responses to the Statutory Party's requests for information about the mine plan change.[1359] The first and second of these included 'sensitive receptor' markers including the location of the dongas, although this was removed in the third version, dated 15 October 2021, without explanation.[1360] It was then suggested by the Applicant that the map be added to the draft EA.[1361]

1528 The Applicant has failed to define the restricted lands on Bimblebox.

1357 T 2-42, lns 12-26.
1358 Affidavit of Paola Cassoni [[**YVL.0057.0488**]].
1359 RFI - Figure 7 - Sensitive Receptors and Resticted lands [[**WAR.0298.0001**]]; Second RFI – Figure 7 [[**WAR.0325.0001**]]; Third RFI – Figure 7 [[**WAR.0433.0001**]].
1360 Third RFI [[**WAR.0426.0001**]].
1361 Second RFI [[**WAR.0310.0008**]].

1529 The Management Plan, prepared in 2003 (prior to the mining lease application), refers to three functioning bores, 'Donga Bore', 'Milky Bore' and 'Reids Bore'.[1362] In his affidavit, Mr Hoch refers to three bores which service the property (as well as the six exploration-related bores left intact by the Applicant), and marks up their location in the mid-west, centre and north-east of Bimblebox, with Milky Bore already indicated on the Bimblebox visitor map.[1363] The proximity of the other two to the dongas and Reids dam suggests that these are the same bores referred to in the Management Plan.

1530 In addition, the Management Plan recommends that no new dams are built. Per the Bimblebox visitor map,[1364] there are six dams on the property: Back Dam and Brolga Dam (visited during the Court's site inspection[1365]), Milky Dam, Centre Line Dam, Pebbly Dam and Reids Dam. Based on their mapped locations in the visitor map, it appears that Reids Dam, Pebbly Dam, Brolga Dam and Milky Dam are accounted for on the Applicant's maps.

1531 The Applicant has failed to identify Back Dam, Centre Line Dam, Donga Bore, Milky Bore and Reids Bore as restricted lands, as it was required to do at the time of application.[1366]

1532 The owners have not provided their written consent for inclusion of restricted lands within the surface area. Accordingly, the following areas would have to be excised from the surface area:

(1) 200m radius surrounding the dongas;

(2) 50m radius surrounding Back Dam, Brolga Dam, Milky Dam, Centre Line Dam, Pebbly Dam, Reids Dam, Donga Bore, Milky Bore and Reids Bore.

(ii) Whether there will be an acceptable level of development and utilisation – s 269(4)(c)

1533 There is a very high likelihood that this coal mine would, if approved, become a stranded asset. At [C-V(ii)(3)02 Coal price is inflated] we have explained why the Applicant's proposed coal price is over inflated and provided evidence as to what reasonable estimates of thermal coal prices are during the life of the Proposed Project. A very clear theme emerges. Demand for thermal coal is dropping dramatically and will continue to do so over the life of the Proposed Project. Prices will drop with it. The best estimates available suggest a high likelihood that the benchmark thermal coal price will drop below $US74 at some point early in the life of the Proposed Project. If that happens then the Applicant (through its CEO Mr Harris) has made clear that the mine would go into care and maintenance. The reality of the structural decline of thermal coal means that it is likely never to come out of such a status.

1362 Affidavit of Carl Rudd – Management Plan [[**YVL.0067.0085**]].
1363 Affidavit of Ian Hoch [[**YVL.0077.0001**]], [62]; Affidavit of Ian Hoch – Map [[**YVL.0077.0025**]].
1364 Affidavit of Ian Hoch – Map [[**YVL.0077.0025**]].
1365 Bimblebox Site Inspection Brief [[**YVL.0341.0012**]].
1366 *MR Act* s245(1)(h).

1534 If this high likelihood comes to pass then there would – from that point forwards – be no utilisation of the coal resource and therefore no royalties to the State of Queensland.

(iii) Whether the surface area of the land is an appropriate size and shape – s 269(4)(d)

1535 The surface area of the land is an entirely inappropriate size and shape because it includes the Bimblebox Nature Refuge. By so doing, the approval of the Proposed Project will result in the destruction of Bimblebox as a Nature Refuge. The values of Bimblebox and the harm risked to those values are set out at [C-III The values of and impacts to the Bimblebox Nature Refuge].

(iv) Whether the term of the lease applied for is appropriate – s 269(4)(e)

1536 The term of the lease applied for would see forty thousand tonnes of thermal coal being removed from the earth's crust annually well towards the middle of this century. This is wholly inconsistent with the intent of the Paris Agreement and with a future scenario of anything less than 2.5ºC warming. A world of 2.5ºC warming would be a catastrophe for Australia environmentally and economically.

(v) Whether the past performance of the Applicant has been satisfactory – section 269(4)(g)

1537 As is set out in detail at C-II above the Applicant's past performance has been wholly unsatisfactory. Indeed, given how little it has done on this Proposed Project over the last 12 years, it is remarkable that it has committed two criminal offences of breach of environmental authority and been the subject of an Environmental Protection Order. It has failed miserably at even the simplest of regulatory tasks like publicly notifying its applications. Its only incursion onto Bimblebox (to drill and remediate bore holes) caused significant harm.

1538 Finally, the Applicant's performance also includes its non-performance. It failed to progress this Proposed Project for years and years, all the while leaving landholders and the local community in limbo. As it turns out, that was only because Clive Palmer was directing resources to other projects over that period. This past performance is particularly concerning given that the neither the Applicant nor any entity within the Mineralogy group of companies has ever operated a coal mine.

1539 This is an inexperienced mining company, operating at the whim of its single shareholder. Its past performance reflects that reality.

(vi) Appropriate land use – ss 269(4)(h) and 269(4)(m)

1540 The highest and best use for this land is as a Nature Refuge, a place for conservation grazing, an art camp, a research facility, and a community. Creating an alien-planet-like network of subsidence trenches across it of unknown magnitude is well short of "appropriate land use". Further, and importantly, the Applicant has made very little effort to identify *how* the land would be used during mining. It is unclear whether it will

remain as a nature refuge or become something else. In no sense does this criterion favour approval.

(vii) Adverse environmental impacts – section 269(4)(i)

1541 There will be profound environmental impacts to Bimblebox from the Proposed Project. The values of Bimblebox and the harm to be caused to them are set out in detail at [C-III The values of and impacts to the Bimblebox Nature Refuge]. Particularly telling is the extent to which the Applicant has failed to make any reasonable or sensible prediction of those impacts. This criterion alone is a sound basis to recommend refusal.

(viii) Public right and interest – section 269(4)(j)

(ix) Good reason – section 269(4)(k)

1542 These two very broad criteria are addressed together because the "good reasons" for refusal are – in the main – the same things that here so profoundly prejudice the public right and interest. As noted above, the impacts of climate change from combustion emissions are relevant to both criteria.

1543 The reasons for refusing the mining lease have been laid bare throughout the evidence and in these submissions. They can be summarised in the following "good reasons" for refusal:

(1) The Proposed Project would almost certainly see the end of Bimblebox as a nature refuge and as part of the national reserve system;

(2) The Proposed Project would cause major physical deformation to Bimblebox with serious but unquantified environmental harm that would follow;

(3) The Applicant has done nothing like the work that it should have to seek to predict the harm that the Proposed Project will do;

(4) The Proposed Project would render for naught the massive and selfless investment of time, love, energy, money and goodwill that the owners of Bimblebox have put into it over 22 years;

(5) The Proposed Project would cause noise and dust impacts across Bimblebox which will make it unrecognisable as a quiet place of artistic creativity;

(6) The Proposed Project would represent the breaking of promises by the State made in the Conservation Agreement;

(7) The claimed benefits of the Proposed Project are unlikely to be realised because of the likelihood that coal prices will make the Proposed Project unviable during its life;

(8) The impacts of the Proposed Project on local communities will be profoundly negative for those not involved in mining (which is currently no-one) because costs will rise massively for those people but wages will not;

(9) Those negative impacts will be exacerbated if and when the mine goes into care and maintenance permanently or temporarily;

(10) Even if the benefits of the Proposed Project are realised, they are made up in large part of profits to Clive Palmer;

(11) Even if royalties flow from the Proposed Project, they are overwhelmed by the costs to the community of the scope 1 and 2 emissions alone;

(12) Combustion emissions (i.e. carbon dioxide from the burning of coal from this mine) would cause – on estimates of harm and scale led in this case – between $69 billion and $3 trillion worth of harm to the world;

(13) This coal mine is only consistent with a future with 2.5ºC of warming by the end of this century. In such a world, among other catastrophes, there is no Great Barrier Reef;

(14) The Proposed Project would release such a massive amount of currently safely stored carbon dioxide that it would – if released – represent 1% of the entire world's carbon budget to keep the world to 1.7ºC of warming;

(15) The Proposed Project is inconsistent with the IPCC's view that in order to achieve net zero emissions, 95% of Australia's coal reserves need to stay in the ground;

(16) The Proposed Project is inconsistent with the International Energy Agency's view that the most acceptable and feasible way to achieve net zero emissions is for no new coal mines to be approved;

(17) The Proposed Project is (as a matter of agreement between the climate science experts) inconsistent with the intent of the Paris Agreement;

(18) The Applicant should not be trusted with the privilege of mining the State's resources given its past performance and its failure to progress the project over the last 12 years.

1544 The reverse question must be asked: what good reasons are there to approve this coal mine? The answer – unusually – is none.

D-IV <u>The HR Act (in performance of the MR Act functions)</u>

1545 Just as this Court must properly consider and act compatibly with human rights in deciding whether to recommend approval of the EA, the same obligations apply with respect to the Court's function under the MR Act.

1546 The reality of the impacts that will be experienced by Queenslanders arise, of course, out of both decisions — it is the combination of the decisions that will allow the relevant harms to occur. In most respects, the Court's consideration of the HR Act in the performance of each of its functions will therefore be the same.

1547 For that reason, YV and TBA primarily rely on their submissions under the EP Act and the HR Act, and do not repeat them.

1548 However, there is one key difference to note.

1549 Just as the objects of the EP Act are relevant to the assessment of the nature and importance of the objective sought with respect to the EA, the purposes of the MR Act should similarly be considered when assessing the importance of the objects sought by the application for the ML.

1550 The objectives of the MR Act, as noted above, are set out in s 2. They include: encouraging mining of minerals, encouraging environmental responsibility in mining, and ensuring an appropriate financial return to the State.

1551 It might therefore be said that the importance of the economic benefit (and, royalties in particular) assumes a greater significance under the MR Act than it does under the EP Act.

1552 YV and TBA do not dispute that contention. However, there are two points to make.

1553 **First**, viewing s 13 of the HR Act through the lens of the MR Act serves to underscore the importance of cogency of the evidence as to economic benefits, outlined above.

1554 **Second,** and more importantly, recognition of that statutory nuance does not in any way affect the ultimate proportionality assessment under s 13. On any view of the World, including taking into account the objects of the MR Act, the sheer extent of the limitations on the relevant rights cannot be demonstrably justified by reference to the objective sought.

E. REJOINDER TO RESPONSIVE ARGUMENTS OF THE APPLICANT

E-I <u>The specific arguments of the Applicant</u>

1555 The Applicant seeks to answer the objections by reference to:

(1) offsets, for the local impacts; and

(2) the availability of carbon capture and storage, for GHG emission impacts; and

(3) substitution, for the GHG emission impacts.

1556 The approach the Court must take to assessing the evidence for those answers is set out in A-III above.

1557 Those answers give rise to specific issues, which are dealt with below.

E-II Offsets

(i) Expertise

1558 Professor Maron should properly be regarded as a leader in the field of expertise of biodiversity offsets, nationally, and globally.[1367] Dr Cousin also has substantial expertise, albeit his professional career has been focuses on assisting proponents under contract to successfully obtain approvals or comply with approval conditions so that they can continue to carry out their project.

1559 The Applicant included,[1368] as a topic for the concurrent evidence session, the "relative expertise" of Professor Maron and Dr Cousin. Senior Counsel for the Applicant asked Dr Cousin "could you speak about your strengths and how you perceive Professor Maron's strengths to be".[1369] The point appeared to be to paint Professor Maron as "theoretical" or "academic", and Dr Cousin as being more practical. This is an approach much-beloved of proponents, and deserves interrogation.

1560 In *Makita v Sprowles*, following a summary of the case law and uniform evidence law on the topic, a Judge of Appeal identified the first two requirements that must be satisfied for evidence of an opinion to be admissible:

> … it must be agreed or demonstrated that there is a field of "specialised knowledge"; there must be an identified aspect of that field in which the witness demonstrates that by reason of specified training, study or experience the witness has become an expert …[1370]

1561 Obtaining approvals, or assisting proponents to comply with conditions, is of course relevant experience on which a person may rely to establish specialised knowledge in a field of science; but obtaining approvals or compliance with conditions is not itself the field of science.

1562 Here, the field of science is biodiversity offsets. Professor Maron and Dr Cousin both have specialised knowledge in that field. In terms of relative expertise, Professor Maron is, by training, study and experience, a pre-eminent expert in that field. That Dr Cousin has more experience in working within that field to provide a commercial service to proponents does not relevantly qualify him in any field other than biodiversity offsets.

(ii) What they agreed

1563 The level of agreement in the Offsets JER was commendable and telling.

1564 The executive summary in the Offsets JER sets out their agreement, in [ES1] to [ES11]. It cannot be improved on by summary or paraphrase, so we set it out here in full:

1367 Professor Maron's CV, set out at Offsets JER [[**COM.0183.0055**]]ff, is truly remarkable. Dr Cousin properly accepted that Professor Maron is the leader, or one of the leaders in Australia in that field of science: T19-18, ln 35 to 19-19, ln 1.

1368 That topic 2 was the Applicant's topic is evident from T 19-2, 21-24, and 37.

1369 T 19-14, lns 35-36.

1370 *Makita (Aust) Pty Ltd v Sprowles* (2001) 52 NSWLR 705, [85].

Biodiversity offsets and how they work

ES1. Biodiversity offsets are the last step in the mitigation hierarchy, which guides decision-making about development projects that may impact biodiversity. The mitigation hierarchy requires that impacts on biodiversity are first avoided as far as possible, then minimised if full avoidance is not possible, and subject to rehabilitation or restoration where possible. Only once the full suite of approaches to avoid and repair impacts on biodiversity have been exhausted should biodiversity offsets be considered for any unavoidable impacts that remain. The reason for the strong emphasis on avoidance and minimisation, rather than offsets, is that adequate offsets are very challenging to achieve, and many types of impacts cannot feasibly be offset. For example, keystone habitat elements such as large old trees are irreplaceable within timeframes relevant to the threats faces by threatened species, as they often take hundreds of years to form. Because of this, offsets should only be relied upon to counterbalance impacts on biodiversity where the evidence of their feasibility and effectiveness for a particular biodiversity matter in question is robust.

ES2. A biodiversity offset aims to counterbalance a negative impact on one or more elements of biodiversity, so as to achieve at least a 'no net loss' outcome (sometimes rendered as 'improve or maintain'). An effective offset is one that delivers a benefit, or gain, for the same biodiversity features or matters that are impacted, that is at least as large as the loss from the impact, and that lasts for at least the duration of the impact. In order to achieve the object or purpose of a biodiversity offset, there are several technical requirements that must be met. Offsets that fail to meet these requirements increase the risk that impacts on biodiversity are not adequately compensated for (offset), contrary to their object and purpose, resulting in a net loss.

ES3. In Australia, biodiversity offsetting is one of the main responses in attempting to counterbalance significant residual impacts on important biodiversity that go through a formal approval process. The EPBC Act Environmental Offsets Policy (EPBCAOP – YVL.0100.0001) largely aligns with international best practice on offsetting, but its implementation often falls short of its own principles. It applies to residual significant impacts on Matters of National Environmental Significance (MNES), including nationally-listed threatened species and nationally-listed threatened ecological communities. The Queensland Environmental Offsets Policy (QEOP – YVL.0099.0001), which applies to Matters of State Environmental Significance (MSES), broadly aligns with best practice but contains some elements that depart from best practice, and that mitigates against its ability to achieve its objective of improving or maintaining affected biodiversity matters.

Our evaluation of the suitability and adequacy of the proposed offsets to address the impacts of the Applicant's mine plan (and revised mine plan)

ES4. There is inadequate information provided to support the contention that either or both properties presented in the Offset Plan [WAR.0280.0001] could provide an adequate offset for the loss of BNR and associated values in accordance with the EPBCAOP, QEOP and the Coordinator General's requirements. The information is also inadequate to support the contention that either or both properties could provide an offset that meets the object or purpose of offsetting in general.

ES5. The EPBCAOP Offsets Assessment Guide (OAG) provides a transparent, logical framework for estimating the benefit, or gain, from an offset action, and comparing it

with the loss from an impact. As such, it is an appropriate tool for evaluating offset proposals generally, not only in the context of the EPBCAOP.

ES6. The Ecofund OAG justifications document [WAR.0333.0001] contains the rationale for the values that have been input to the OAG calculator to support the offset proposal. The Ecofund OAG justifications document [WAR.0333.0001] shows that the OAG calculations are based on several errors and unsupported assumptions, all of which have the effect of reducing the size of the estimate of offset liability, and as such, reducing the estimated area over which offset actions would need to be done to achieve the requirement of fully counterbalancing the predicted significant impacts on MNES. We provide scenarios in which we correct errors and substitute more plausible assumptions, which suggest offset area requirements would be likely several times larger than proposed (assuming that other requirements relating to ecological similarity and minimum quality/condition could also be met).

ES7. The estimated minimum offset areas required for the Project are based on calculations that appear to have misrepresented gain, averted loss and risk inputs in the OAG calculator. Given that these calculations have been used in the EPBC approval [WAR.0029.0001] and the subsequent Offset Plan [WAR.0280.0001], it is our expert opinion that the estimates of offset benefit are overestimates due to the deficiencies noted in our JER.

ES8. Our concerns relating to the adequacy of how offset requirements were evidenced, are summarised below, with details on mutual support (or otherwise) between the experts on these specific concerns, detailed in the body of the JER:

- Likely substantial overestimation of habitat quality decline at the offset sites in the absence of the offset

- Double-counting of gain from averting risk of loss and averting habitat quality/vegetation condition declines

- Incorrect estimation of gain from averted risk of loss

- Implausible assumptions about the respective habitat quality scores of the impact and the offset sites for particular species, given the information provided

- Considerable uncertainty as to the ecological similarity of the BNR and proposed offset sites, particularly with respect to understorey, density of large old trees, and intactness of the ground layer

- Lack of specification of offset actions adequate to effectively control buffel grass invasion across large areas

ES9. Subject to re-evaluation of the OAG calculator or any equivalent sound approach for estimating offset gain, using more representative, contemporary inputs, it is our expert opinion that the two proposed offset sites presented in the Offset Plan [WAR.0280.0001] are unlikely to be able to fully compensate for the Project impact.

Our evaluation of the alignment of the proposed offsets with the requirements of the EPBCAOP and the QEOP

ES10. The offset proposal based around the two proposed offset properties outlined in the Offset Plan [WAR.0280.0001] do not appear to comply with numerous requirements

of both the EPBCAOP [YVL.0100.0001] and the QEOP [YVL.0099.0001]. Much of the apparent inconsistency stems primarily from inadequate demonstration that the offsets will achieve the overarching objective to "deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action" [YVL.0100.0006] or to "achieve a conservation outcome that counterbalances the significant residual impact for which the offset was required" [YVL.0099.0009]. As such, the inconsistency is not merely technical or administrative, but relates to the whether the offsets will achieve their central purpose: to deliver a benefit, or gain, for the same biodiversity features or matters that are impacted, that is at least as large as the loss from the impact.

ES11. In addition to the issues noted above with respect to lack of robust and reliable information and inappropriate and incorrect estimation of benefit, our concerns include:

- Size of proposed offsets inconsistent with requirements for offsets for the loss of Nature Refuges under QEOP

- Considerable uncertainty about whether the offset sites will achieve a quality score at least as high as the BNR, as is required under policy rules by both the EPBCAOP and the QEOP, on the basis of the information provided

(iii) What they did not agree

1565 Their disagreement arose in respect of the question whether, despite the 12-year process to date not having yielded an adequate offset plan, and not having been asked to propose, or having proposed, one themselves, it remained theoretically possible at some later point to devise and implement biodiversity offsets.

1566 That disagreement was summarised at [ES12] (Dr Cousin) and [ES13] (Professor Maron), but it is here worth setting out Question 7, together with their full responses, at [131]-[132]:

> **Q7. In your opinion, would it be possible to devise and implement biodiversity offsets for the Project that achieved the object or purpose of a biodiversity offset?**
>
> 131. JC – It is my expert opinion that it is possible to devise and implement biodiversity offsets for the Project that achieve the object and purpose of a biodiversity offset. As evidenced in the Ecology and Land Management JER [COM.0068.0001], while remnant vegetation within the project area, referring specifically to poplar box and silver-leaved ironbark REs mapped within BNR, represents a large patch of remnant vegetation [COM.0068.0027], these REs are common and widespread throughout the Jericho subregion and greater Desert Uplands bioregion, with areas of poplar box and silver-leaved ironbark Res in the immediate vicinity of Bimblebox Nature Refuge (namely Lambton Meadows to the south of BNR) considered in good ecological condition [COM.0068.0055]. Based on my observations in the field, I concur with these observations that much of the remnant vegetation to the west, south and east of BNR away from watering points or watercourses, were in good ecological condition, with limited weed incursion and intact vegetation structure. Ergo, I concur with the assertion by Adrian Caneris and Dr Andrew Daniel that if protected and appropriately managed, there are likely areas within the Desert Uplands bioregion that would provide similar native flora and fauna communities and associated habitat values to that contained within BNR [COM.0068.0067], particularly given the extent remaining of similar REs to the

> BNR (listed as least concern status under the VMA) in the bioregion. Any assertion of the appropriateness of such areas however would need to be confirmed, subject to the results of detailed assessments of vegetation mapping, fauna habitat values and habitat quality assessments as detailed with respect to the current Project's shortcomings (refer to paragraphs 57 to 68).
>
> 132. MM – I do not know if it is possible to devise and implement biodiversity offsets for the project that would achieve the object of a biodiversity offset. It would, however, be very challenging, as it would require a very large area of very high condition old-growth vegetation, with limited buffel grass incursion, but with enough potential to conduct actions that further improve the condition of the site from the perspective of each of the species impacted and for which offsets are required. I reiterate my understanding that no demonstrated method yet exists for the broad-scale removal of buffel grass and its replacement with a predominantly native ground layer over extensive areas. Nevertheless, sites that might meet these criteria were not evident during the visit to the region that I made, and are likely to be rare in the area due to the prevalence of land clearing and cattle grazing. More targeted searches, coupled with expert input on management actions and their benefit for the species impacted, would be required to identify whether offsetting the impacts on the BNR and associated fauna species, and ecological communities, is possible. Finally, I note that important elements of the BNR's natural and habitat values, such as very large old trees, are essentially irreplaceable, due to their great age.

1567 Professor Maron's opinion in this regard should be preferred, for one very simple reason. Professor Maron inspected Bimblebox "over three days in October 2020, traveling most vehicle tracks and observing and assessing its floristics and its habitat structure, including the condition of the ground layer and other relevant habitat values for fauna such as large hollow trees",[1371] whereas Dr Cousin only ever viewed it from the edge, and his opinion in [131] was not based on any actual observations by him of anything in the interior of Bimblebox Nature Refuge.[1372]

1568 In this regard, Professor Maron undoubtedly has specialised knowledge in the field of ecology,[1373] which (together with having read the Ecology JERher specialised knowledge about matters including the basis of opinions in the Offset JER[1374] where assessment of the biodiversity of the impact site was required.[1375] And those opinions formed by her were fundamental to answering the questions asked of her as an expert in biodiversity offsets, for the simple reason that the primary (and critical) step is to assess the biodiversity at the "impact site" – the site to which environmental harm is proposed – here, Bimblebox. And this included the opinion at [132].[1376] See also at [86].[1377]

1371 Offsets JER, p 2 [[**COM.0183.0002**]]; T 19-23, lns 6-13.
1372 T 19-20, ln 36 to 19-23, ln 2.
1373 Offsets JER [[**COM.0183.0055**]]ff; T 19-16, lns 29-38.
1374 Detailed at T 19-23, ln 33 to 19-25, ln 31.
1375 T 19-23, lns 15-31.
1376 Offsets JER [[**COM.0183.0047**]]; T 19-25, lns 17-23.
1377 Offsets JER [[**COM.0183.0025**]].

(iv) A high risk

1569 This also formed the basis of Professor Maron's assessments of the risk of offsets failing; for example, her opinion in Table 4, as to the requirement "[e]ffectively accounting for and managing the risks of the offset failing to achieve a conservation outcome", that "[t]his is a high-risk proposal, with the loss of the environmental values at a very high-quality site proposed to be exchanged for lower-quality sites on the basis of primarily desktop analyses. Risk of failure is high".[1378]

1570 As Professor Maron and Dr Cousin agreed at [52]:

> … sometimes the details of the requirement are determined post-approval, and the conditions of approval refer either to a requirement to develop and implement a suitable offset management plan, or only specify a maximum disturbance limit for each MNES and/or MSES with no offset requirements conditioned. These situations carry higher risk than when a suitable offset package is identified and committed to prior to approval, and the implementation of the package required as a condition of approval. Conditions of approval relating to offsets are also occasionally altered post-approval, often due to suitable offsets either not being found by proponents or not being secured within the relevant approval condition timeframe.[1379]

1571 The risk is that, if an approval be granted on the basis of deferring all that work till later that, in fact, an offset that has the effect of counterbalancing the harm may not ultimately be achieved.[1380]

1572 Here, that risk is acute. The Offset Plan [[**WAR.0280.0001**]] made a detailed assessment against two properties. Professor Maron and Dr Cousin agreed that this assessment was manifestly deficient.

1573 But another, more fundamental, point arises. There is no evidence before the Court that the landholders of either of those properties has any interest in selling their property, let alone in entering a conservation agreement in order to establish a nature refuge under the NC Act. It appears that the Applicant had some engagement with the managers of Property 1 in or prior to 2014.[1381] But there is no evidence that those persons actually owned the land. And in any event, the evidence before the Court, such as it is, suggests that the land was subject to lease, not freehold, and that the lease had recently changed hands.[1382]

1574 There is no evidence before the Court to provide any basis that either "Property 1" or "Property 2" is available for use as an offset. Over 12 years, these properties would appear to be the best the Applicant could present to the Court, and it has not produced <u>any</u> evidence to the Court that there is a parcel of land that: (a) the Applicant will, or

---

1378 Offsets JER [[**COM.0183.0041**]]; T 19-24, lns 24-31. See also T 19-24, lns 34-41 and [[**COM.0183.0044**]].

1379 Offsets JER [[**COM.0183.0017**]].

1380 T 19-72, lns 5-9.

1381 Offsets Plan [[**WAR.0280.0042**]]; T 19-74, lns 3-16.

1382 See [[**YVL.0525.0001**]]; T 19-75, lns 1-3; [[**YVL.526.0001**]].

even can, secure; (b) would, or even might, be able to counterbalance the environmental harm that will be caused to Bimblebox.

1575 Professor Maron explained why there was a similar risk in requiring a financial contribution in lieu of identifying an actual offset property, and indeed why the existing deficit in the financial contributions scheme meant that risk was even more acute.[1383]

(v) Offset conditions

1576 The answer is said to be to impose conditions that delegate the entire process of assessing the impact site, the identification of suitable offsets, and the requirement to secure suitable offsets, to persons contracted by the Applicant after approval is granted.

1577 Very shortly before the concurrent evidence session was due to commence, the Statutory Party provided a brand new set of proposed offset conditions. To allow a fair opportunity to the experts, the Court granted the parties leave to provide a supplementary brief, which would give them time to prepare a report on the new conditions. Consequently, they produced the Supplementary Offsets JER.

1578 Professor Maron's expertise in the risks and difficulties attending implementation of offsets in Queensland is superlative. This proposition is reinforced (if any such reinforcement were necessary) by the paper for the Commonwealth, on which she was the lead author, that is annexed to the SJER, which deals precisely with risks of the kind raised by the proposed conditions. In our submission, the opinions she provided in the Supplementary Offsets JER are terminal to the use of the conditions proposed by the Statutory Party.

1579 At [39], she (accurately) opined that "[t]he proposed conditions appear to have the effect of requiring that essentially all decisions about offsets and their appropriateness be made at a later stage in the process".

1580 We refer to our submission about the limits on the power to approve (or recommend approval) subject to conditions, at B-III(ix) above.

1581 It follows from Professor Maron's opinion, which the Court should accept, that the proposed conditions — in effect — invite the Court to abdicate or delegate the function of assessing environmental harm, determining whether such harm can be avoided or mitigated, determining whether the remains residual harm, determining whether such residual harm can be offset, preparing appropriate conditions to ensure such offsets occur, being satisfied that such offsets realistically will occur, and then approving the environmental harm on that basis. That exercise would, for the reasons there set out above, be beyond the power of the Court.

1582 A more practical reason why the exercise should be refused is given by Professor Maron at [40]: "it is not possible to know with any confidence whether the outcomes required

---

[1383] T 19-77, ln 24 to 19-79, ln 6.

of offsets in line with their intent would be achieved, or that the outcomes envisaged under particular policies would be achieved, were the proposed conditions to be imposed".

1583 The EO Act does not trespass on the function of the Court under s 222. It provides a statutory mechanism the Court can use to impose conditions to counterbalance residual environmental harm, if the Court has identified environmental harm, is satisfied it cannot be avoided or mitigated and is residual, and is satisfied — on evidence — that the harm can and will be counterbalanced by an effective offset condition.

1584 The EO Act does not relieve the Court of that function, or permit it to delegate that function to an appropriately qualified person contracted by the proponent after the approval has been given.

1585 Nor does the EO Act direct the Court to ignore environmental harm to matters other than matters of national or state environmental significance. (Although here, all environmental values should be taken to be subsumed within the nature refuge in any event.)

1586 To treat the existence of a condition as establishing that such a condition will be effective to counterbalance environmental harm is to subvert the Court's task; as Professor Maron so eloquently put it: "there is a lot of magical thinking involved in suggesting an offset can just be achieved".[1384]

1587 As Professor Maron explained at [33] and [34]:

> 33. MM – the proposed conditions involve pushing decision-making about impacts that are likely to be very substantial, and even unprecedented (such as, for example, the loss of a Nature Refuge) to after the approval of the project. This entails very high risk that required offsets might later found not to be feasible, and conditions of approval modified, or insufficient offset benefit generated either through proponent-driven approved offsets or through the financial settlement offsets pathway.
>
> 34. MM – further, the inability to determine whether and for which matters an adequate offset is likely to be able to be provided means that decision-makers are unable to consider whether the Mitigation Hierarchy is being followed and to weight that consideration in their decision (see further comment on this in response to Q3).

1588 There being no evidence (apart from speculation) before the Court to support a conclusion that the proposed offset conditions will actually result in a counterbalancing of the environmental harm caused by the Proposed Project, those conditions should not be imposed.

[1384] T 19-85, lns 34-37.

(vi) The identification of further work in the SJER does not solve the problem

1589 Professor Maron and Dr Cousin have provided a table called "Additional requirements proposed that ought to be met *prior* to the issuing of an environmental authority".[1385] The last few words are important. What is provided in the table are not proposed conditions of an environmental authority, rather they are a description of the work that would (and should) have been done before consideration could even be given to the issuing of an environmental authority.

1590 The work required is precisely that which should have been done already. Indeed, the requirements seek to remedy the deficiencies that the offsets experts have so clearly identified in the JER and SJER. It requires no less than actually assessing the values of Bimblebox and actually identifying and assessing proposed offset properties.

1591 There is no mechanism for such conditions to be imposed on an environmental authority because they are recommended to precede its issue. Including them as conditions of the Draft EA in this case would, again, amount to an improper deferral of responsibility to the Applicant. It would be, in effect, a reward for the Applicant's dismal efforts at offsets planning and assessment.

(vii) The destruction of a nature refuge cannot be offset

1592 Further to the absence of any real evidence capable of supporting a conclusion that the environmental harm caused by the Proposed Project could be counterbalanced, a nature refuge is in any event not capable of being offset within the framework of the EO Act.

1593 Paragraph 1.2 of the Offsets Policy[1386] relevantly provides that:

> An offset condition may only be imposed on an authority for a *significant residual impact* to a *prescribed environmental matter*, which includes:
>
> - a MSES listed in schedule 2 of the *Environmental Offset Regulation 2014*;
>
> …

1594 Bimblebox, as a declared nature refuge, is a "protected area"[1387] under the EO Act. Clause 7 of Sch 2 of the EO Regulations then provides that a protected area is a "matter of State environmental significance" (**MSES**).

1385 Offsets SJER at Table 1 (emphasis added).
1386 **[[YVL.0099.0008]]**.
1387 Schedule 2 EO Act, definition of protected area means a class mentioned in section 14 of the NC Act.

1595 Therefore, Bimblebox Nature Refuge as declared by the NC (Protected Areas) Regulation pursuant to section 46 of the NC Act, and as provided for by the Conservation Agreement[1388], the Management Plan[1389], and the Commonwealth Agreement securing it as part of the National Reserve System,[1390] is itself the relevant MSES.

1596 It is useful at this point to recall the scope of the declaration made under section 46, which provides that the regulation declaring the nature refuge "must specify the declared management intent" and the duration of the agreement. Section 8 of the NC (Protected Areas) Regulation provides that the management intent for each nature refuge be dealt with in the conservation agreement, stating:

> (1) For each nature refuge—
>
> (a) the significant cultural and natural resources and values of the nature refuge are stated in the conservation agreement for the refuge; and
>
> (b) the proposed management intent for, and use of, the refuge are to do the following only in accordance with the conservation agreement for the refuge—
>
> (i) manage and conserve the significant cultural and natural values of the refuge;
>
> (ii) permit or restrict, or require to be conducted, particular activities in or in relation to the refuge;
>
> (iii) permit or restrict the use of the land in the refuge for a particular purpose;
>
> (iv) permit or restrict access to the land in the refuge by particular persons or animals.

1597 As is plain from this, Bimblebox as MSES and prescribed environmental matter is not merely the constituent ecosystems and the land on which they stand. It also includes the "significant cultural and natural values of the refuge".

1598 A *significant residual impact* is not defined by the Offsets Policy, but is defined by section 8(1) of the EO Act, which reads:

> Generally, a ***significant residual impact*** is an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter that—
>
> (a) remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site mitigation measures for the prescribed activity; and
>
> (b) is, or will or is likely to be, significant.

1388 **[[YVL.0067.0041]] – [[YVL.0067.0056]].**
1389 **[[YVL.0067.0071]] – [[YVL.0067.0093]].**
1390 **[[YVL.0067.0015]] – [[YVL.0067.0040]].**

1599 Section 8(2), which addresses particular activities which can result in impacts on protected areas which are "significant" for the purposes of the EO Act, is not applicable here as section 8(5) provides that a "protected area" in section 8(2) does not include a nature refuge. This leaves section 8(1) to operate unaltered.

1600 In the event that an offset condition were imposed on the Proposed Project, section 18(4) requires that the offset delivery plan must, relevantly, "describe how an environmental offset will be undertaken and the conservation outcome will be achieved".

1601 Relevantly, the Offsets Policy states that "Offsets must achieve a conservation outcome that counterbalances the significant residual impact for which the offset was required".

1602 "Conservation outcome" is defined by section 11 of the EO Act, and reads:

> **11 Conservation outcome achieved by environmental offset**
>
> A ***conservation outcome*** is achieved by an environmental offset for a prescribed activity for a prescribed environmental matter if the offset is selected, designed and managed to maintain the viability of the matter.

1603 "The matter" here is Bimblebox as nature refuge. If Bimblebox is no longer a nature refuge, that matter ceases to exist. Legally speaking, this is the equivalent of a species that is an MSES ceasing to exist. There is no achievable conservation outcome. There may be compensation, but there can be no counterbalance that can maintain the viability of the matter.

1604 In any event, the Applicant has not put forth an offset delivery plan which is capable of delivering a conservation outcome even for the (comparatively simple) ecological values of Bimblebox. The Applicant has not even turned its mind to the other cultural values of Bimblebox as a prescribed environmental matter.

1605 Even if it had, it is plain that these values are not capable of being offset.

(viii) The Applicant's commitment

1606 We note, also, that the Applicant made a commitment to comply with an offset condition.

(1) In [1.1.1] of its purported draft EM Plan [[**WAR.0356.0015**]], immediately after summarising the changes to its mine plan, Waratah plainly stated:

> With reference to the aforementioned changes, the following should be noted:
>
> Waratah Coal has committed to offsetting all open cut areas, and does not propose to change their position on offsets, and hence will still provide offsets for all former open cut areas. This will ensure that the additional subsidence areas will have offsets provided for them, whether there are impacts or not.

(2) [8.8] set out "commitments", and finished at [[**WAR.0356.0128**]] with a section on biodiversity offsets.

(3) This "commitment" was reiterated by: Mr Harris[1391] and Ms McIntosh.[1392]

(4) [8.9] of the purported draft EMP stated that conditions would be set out in Schedule J of Appendix A.

(5) Schedule J reiterated conditions equivalent to those in the draft EA.[1393]

1607 While it is true that the Applicant's commitment does not constrain the Court or the administering authority in the conditions they consider appropriate to impose, that the Applicant conducted the hearing on the basis of that commitment, and there is no evidence on which the Court could conclude that any such condition would be effective, is a salient matter for the Court's consideration.

(ix) Conclusion

1608 Of course, not imposing an offset condition does not mean the Proposed Project cannot be approved.

1609 It just means that the Court cannot ameliorate the environmental harm to Bimblebox in the course of performing its function under s 222, as shaped by ss 3 and 5.

1610 In any event, the conditions contemplated are only in real terms directed to a tiny fraction of the environmental values encompassed by the nature refuge as a distinct matter of state environmental significance, and by s 9 of the EP Act.

1611 As Professor Maron and Dr Cousin said by agreement in the SJER:

> 21. Biodiversity offsets are only suitable for matters that are measurable, fungible, and not inherently place-based. This means that:
>
> 21.1. The loss of cultural and spiritual values associated with a place and its history cannot be counterbalanced with a biodiversity offset.
>
> 21.2. Values that cannot be replaced within reasonable time frames, such as large old trees, cannot be counterbalanced with a biodiversity offset.
>
> 21.3. In addition, the Queensland biodiversity offset framework only contemplates offsetting for a small subset of biodiversity values, as well as other values such as protected areas.
>
> 22. As such, the application of the biodiversity offsetting framework (including the proposed offset conditions [DES.0025.0001]) leaves many values uncompensated, even if best practice is followed and 'improve or maintain' outcomes are achieved for the subset of matters that biodiversity offsets address.
>
> 23. We understand that the BNR, as an entity, comprises cultural and spiritual values intrinsically connected to place, as well as values such as large old trees that are unable

1391 [[**WAR.0291.0044**]], [258].
1392 [[**WAR.0290.0008**]], [40].
1393 [[**WAR.0356.0324-5**]].

to be replaced within reasonable time frames. As such, BNR comprises many values that are essentially not able to be 'offset' were they to be lost.

E-III Carbon capture and storage

1612 The Applicant's reliance on carbon capture and storage as an answer to YV and TBA's objections as to the harm resulting from GHG emissions may best be explained by reference to the following quote from the Climate JER:

> Meeting the 1.7°C carbon budget (and certainly the 1.5°C carbon budget) could occur under two scenarios. One scenario is that currently operating mines, gas wells and fossil fuel power stations be closed before their economic lifetime is completed and that no approved or proposed fossil fuel projects be allowed to operate. Alternatively, all currently operating and approved extraction projects and all power stations and other facilities that burn the fossil fuel would need to implement abatement technology, such as carbon capture and storage, to prevent GHG releases to the atmosphere. The abatement technology would need to remove a substantial percentage of emissions (near 100%) to achieve global net-zero GHG emissions to the atmosphere.[1394]

1613 Put simply, if all GHG emissions resulting from the mining activity are captured and then again safely stored underground, then they do not enter the atmosphere, and the harm does not result.

1614 But this solution was kyboshed by Professor Church and Dr Warren in their following paragraph:

> Carbon abatement technology has been discussed for several decades with slow movement from pilot studies to commercial applications. There is currently only one coal power station to use carbon abatement technology (Boundary Dam Power Station– capturing about 90% of combustion released CO_2). Three existing power stations are in advanced development of use of carbon abatement technology, while one proposed power station includes carbon abatement technology. The technology is still new with limited commercial success and uptake (Global CCS Institute 2020). Currently, there are approximately 8,500 operating coal fired power station globally.[1395]

1615 The real point about carbon capture and storage, though, is that it is just one variable to be dealt with in scenarios. For example, Wood Mackenzie assume, for the WM ETO, that CCS will cover 10% of coal-fired generation in Asia Pacific by 2050.[1396]

1394 Climate JER [[**COM.0067.0039**]], [929]–[938].
1395 Climate JER [[**COM.0067.0039**]], [939]–[946].
1396 T 10-16, lns 11-17.

1616 If a scenario includes uptake of CCS too quickly, it may not be technologically feasible. Accordingly, WGIII applied feasibility rules for CCS uptake:[1397]

Table II.1. Feasibility dimensions, associated indicators and thresholds for the onset of medium and high concerns about feasibility (Chapter 3.8).

	Indicators	Computation	Medium	High	Source
New Technologies	**BECCS scale-up**	Amount of CO_2 captured in a given year	3 $GtCO_2/y$	7 $GtCO_2/y$	(Warszawski et al. 2021)
	Fossil CCS scale-up	Amount of CO_2 captured in a given year	3.8 $GtCO_2/y$	8.8 $GtCO_2/y$	(Budinis et al. 2018)
	Biofuels in transport scale-up	Decadal percentage point increase in the share of	5 pp	10 pp	(Nogueira et al. 2020)

1617 CCS is especially insignificant as a solution for seaborne thermal coal used for energy generation, because CCS will, of necessity be allocated first to hard-to-abate technologies. This is stated in Wood Mackenzie's own methodology document.[1398]

1618 As Ms Wilson explained (and with which explanation Mr Manley agreed):

> There are many sectors in which CO_2 will need to be abated in order to meet a net zero target which would get us to achieve a temperature limit of 1.5 degrees Celsius. Each of those sectors has a relative ease at which it can be abated, by which I mean it's easier and more cost-effective to abate CO_2 emissions in certain sectors, as compared to others. In general, the electric sector is widely considered to be one of the more easier to abate sectors because we have these technologies that can replace fossil fuels and can do so cost-effect – cost-effectively today. In fact, there are many scenarios in which the electric sector has negative emissions, in order to compensate for some of those other sectors that are harder to abate. And the – the carbon accounting in that is complicated, but it has to do with increased amounts of bioenergy which are considered to be carbon neutral, and then also capturing the emissions associated with those technologies. But you know, just in some, we expect that the … electric sector, excuse me, will decarbonise first as compared to other sectors.[1399]

1619 Because, on any feasible scenario, CCS will take time to be developed and reach a cost-effective operation, it will (even on the most ambitious scenarios) have little impact over the next 30 years. For example, in McGlade and Ekins' *Nature* paper, CCS reduced the percentage of coal in the OECD Pacific that had to remain unburned from 95% to 93%.[1400] Similarly, Welsby et al conducted sensitivity analysis on key model assumptions, including rate of CCS deployment, but found that these did not affect their unextractable estimates substantially.[1401]

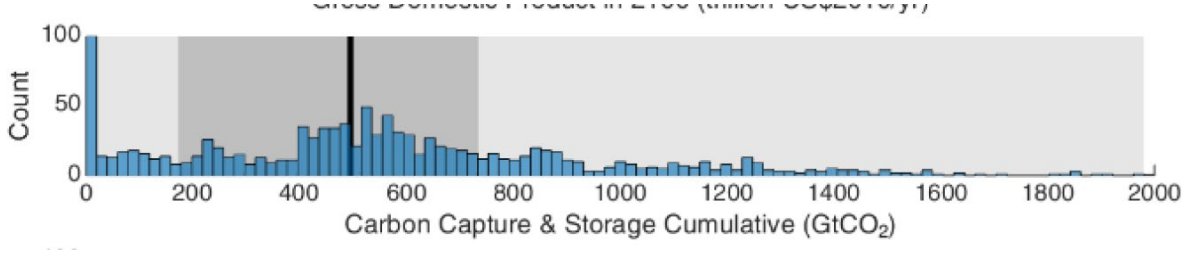
1397 AR6 WGIII, Annex III [[**YVL.0457.0059**]].
1398 T 10-17, lns 13-17.
1399 T 10-18, lns 4-17; Mr Manley agreeing at ln 21.
1400 McGlade and Ekins [[**YVL.0141.0003**]], Table 1.
1401 Welsby et. al [[**YVL.0150.0002**]].

1620 WGIII have observed that "[i]mplementation of CCS currently faces technological, economic, institutional, ecological-environmental and socio-cultural barriers. Currently, global rates of CCS deployment are far below those in modelled pathways limiting global warming to 1.5°C or 2°C", although "[e]nabling conditions such as policy instruments, greater public support and technological innovation could reduce these barriers".[1402]

1621 Similarly, Ms Wilson said in oral evidence:

> I think that it is highly uncertain as the technology comparatively, and I think that one of those uncertainties is about cost. In order to install CCS at a coal plant, it takes a substantial capital investment, and there is also an operational penalty that then gets applied to the coal plant as a result to provide energy to also operate the CCS equipment, and when you add that additional cost on top of the already substantial cost to operate a coal-fired power plant relative to other technologies, it simply becomes a not cost-effective option. It is not a least-cost option in many alternatives. The way that the IEA has looked at this is to apply CCS to those harder to abate sectors that we've talked about, which are primarily industrial, and while there is some coal generation that comes from coal-fired power plants that have been retrofitted with CCS in that scenario, it is relatively small comparatively.[1403]

1622 But returning to the key point, CCS is (as Mr Manley agreed[1404]) just a variable, which scenarios may take into account. That may be seen in the following histogram, showing the range of CCS as taken into account in the scenarios in the AR6 database:[1405]



1623 At best, all that can be said is that there are some scenarios in which some emissions from coal will be captured by CCS. It is not open on the evidence to conclude that, if the Proposed Project goes ahead, all the emissions from the Proposed Project will be captured. Even in the most coal-beneficial scenario presented by the Applicant — the WM ETO — CCS had only built up to 10% of coal emissions in the Asia Pacific by 2050. There is no evidence before the Court of a feasible scenario in which more than a tiny percentage of emissions from the coal in the mining lease is captured before ending up in the atmosphere. Presumably, that is why the Applicant agreed to the fact at [12], which does not accommodate CCS as an answer to YV and TBA's objections.

1402 AR6 WGIII, C.4.6 [[**YVL.0292.0038**]].
1403 T 10-63, lns 18-29.
1404 T 10-62, ln 1.
1405 AR6 WGIII, Figure 3.4 [[**YVL.0292.0458**]].

E-IV Substitution

(i) The statutory context in which those arguments arise

1624 Before we address the facts, it is important to identify with precision the way in which the substitution argument and reliance on carbon capture arise, under each statutory framework.

(1) EP Act

1625 Under the EP Act, the argument should be properly located within the following procedural structure of the matter before the Land Court:

(1) First, the Applicant made an application for an environmental authority, identifying the nature and extent of the activity, and the benefits said to flow from the activity, which application went through the statutory process, and was given a draft environmental authority.

(2) Second, YV and TBA made their objections to that application, and to that draft environmental authority, on the basis of the environmental harm and other relevant adverse effects that would result from the activity.

(3) Third, the Applicant then made two arguments by way of reply to those objections — substitution and carbon capture.

01. Application

1626 The Applicant has applied under the EP Act for an EA for an open cut and underground mining operation for the extraction of coal. An EA permits the Applicant to undertake the activity, despite that the activity will cause environmental harm. In other words, it can permit the environmental harm caused by the activity.

1627 The Parties agree that, "[i]f the Proposal is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting greenhouse gas (mostly CO_2) into the atmosphere".[1406]

1628 It is important to consider — for this part of the case — the essential nature of a coal mining project.

(1) It is not an exercise in beneficence, altruism or magnanimity.

(2) It is a commercial operation — a business; an activity undertaken to generate income.

(3) The income generating activity is extracting coal, owned by the State, from the crust of the Earth, for the purpose of emission. More precisely, it is extracting all

[1406] Issues not in Dispute [[**COM.0328.0001**]], [4]; read with TBA ML Objection [[**COM.0007.0001**]], YV ML Objection [[**COM.0028.0001**]], TBA EA objection [[**COM.0042.0001**]] and YV EA Objection [[**COM.0053.0001**]].

of the raw coal in the relevant seams from the Earth's crust, so that some of it (the saleable coal) may be burned.

(4) If the coal is not extracted from the Earth's crust, so that the saleable coal can be burned, there is no money.

(5) If the saleable coal will not be burned, the raw coal is not extracted.

1629 Here, the activity is mining 1.4Gt of raw coal (the coal in the mining lease area), for the combustion of 1Gt of saleable coal as 2.16Gt CO_2-e of emissions, or 761,828 Mt of saleable coal as 1.58Gt CO_2-e of emissions. It is the extraction and combustion of that coal which will create the economic benefit relied on by the Applicant to justify the grant of the environmental authority, and will create the environmental harm relied on by YV and TBA.

1630 So, that is the application, and that is the activity, for which the administering authority issued a draft environmental authority. It is that activity which the Land Court must assess. In other words, the Land Court must comply with the mandate in ss 3 and 5, and consider the environmental harm and other matters required by s 223, that would flow from that activity taking place. Under the EP Act, it is irrelevant to consider the extent to which the activity will take place. Among other things, that is because an environmental authority operates as a permission to undertake the entire activity, together with the material or significant environmental harm it will cause. It is a ticket to cause the full extent of environmental harm proposed. Therefore, the Land Court must ask itself "if the Applicant's project goes ahead in its entirety, what will happen?".

02. Objection

1631 YV and TBA objected, relevantly, on the following basis.

(1) The Land Court must recommend, or alternatively, should recommend, that the application for an environmental authority be refused because the development for which approval is sought does not improve the total quality of life, either now or in the future, in a way that maintains the ecological processes on which life depends: EP Act, ss 3 and 5.[1407]

(2) The application for an environmental authority should be refused on the basis of: (a) the considerations stated in section 223 of the EPA;[1408] and (b) other relevant considerations (having regard to the subject-matter, scope and purpose of the EP Act, including sections 3, 5, 7 and 8, and the definition of 'standard criteria' in Sch 4, and to s 48 of the HRA).[1409]

(3) The application for an environmental authority should be refused, having regard to the matters stated in (2), by reason of the matters in EA Objection, [4],

---

1407 YV EA objection [[**COM.0053.0001**]], [1]; TBA EA objection [[**COM.0042.0001**]], [1].
1408 YV EA objection [[**COM.0053.0001**]], [3.1]; TBA EA objection [[**COM.0042.0001**]], [3.1].
1409 YV EA objection [[**COM.0053.0001**]], [3.3]; TBA EA objection [[**COM.0042.0001**]], [3.3].

> including (relevantly) because: (a) the development for which approval is sought does not improve the total quality of life, either now or in the future, in a way that maintains the ecological processes on which life depends;[1410] (b) approval of the application is not consistent with: (i) the core objectives of ecologically sustainable development (considered as a package with the guiding principles);[1411] and (ii) the guiding principles of ecologically sustainable development;[1412] and (c) approval of the application would cause environmental harm.[1413]

1632 Critically, the Applicant admits only part of the facts in [46] (quoted in full, with admitted parts underlined, disputed parts no longer pressed ~~struck through~~ and disputed parts that are pressed in **bold**):

> If the [Proposed Project] is allowed to proceed, then the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting ~~approximately 3 billion tonnes of~~ greenhouse gas (mostly CO_2) into the atmosphere, **where its accretion with the greenhouse gases there will cause adverse impacts of the kind described above**.

1633 The struck-through quantity is not consistent with the Climate JER, and should be replaced with either "2.16 billion tonnes" or "1.58 billion tonnes".

1634 Importantly, the disputed part in bold should be accepted.

1635 For the reasons set out in B-III(viii) above, the Court has jurisdiction to consider the emissions that will result from the approval of the Proposed Project, as per the agreement underlined in the quote above.

1636 The consequences of the continued accretion of greenhouse gases in the atmosphere are established by the agreed facts in [11], and the additional evidence in C-IV above.

1637 As Margaret McMurdo P noticed in the *CCAQ Appeal*, s 14(2) of the EP Act provides:

> ***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.

1638 Here, the activity is the Proposed Project. The Applicant admits that a result of the activity is that the thermal coal in the mining lease area will be extracted, exported and burned, thereby emitting GHGs (mostly CO_2) into the atmosphere.

1410 YV EA objection [[**COM.0053.0001**]], [4.1]; TBA EA objection [[**COM.0042.0001**]], [4.1].
1411 YV EA objection [[**COM.0053.0001**]], [4.3]; TBA EA objection [[**COM.0042.0001**]], [4.3].
1412 YV EA objection [[**COM.0053.0001**]], [4.4]; TBA EA objection [[**COM.0042.0001**]], [4.4].
1413 YV EA objection [[**COM.0053.0001**]], [4.8]; TBA EA objection [[**COM.0042.0001**]], [4.8].

1639 This is properly characterised as a direct result. But it is not important to get caught up in arid debates about indeterminate categories, because s 14(2)(a) says that both are included.

1640 The combustion emissions, and the other substantial sources of GHG emissions from the Proposed Project, will therefore result in environmental harm of the kind the Applicant agrees will occur from future accretion of greenhouse gas emissions in the atmosphere.

03. Reply – substitution

1641 However, the Applicant then contends, in answer to the environmental harm that will result from accumulated GHGs including those from the Proposed Project, that the same or worse environmental harm will inevitably occur if the Proposed Project is not approved, because total future GHG emissions will inevitably be either the same or greater if the Proposed Project is not approved, than if the Proposed Project were approved.

(2) MR Act

1642 A similar point may be made about the MR Act, which has a similar structure.

1643 Two points of distinction are:

(1) under the MR Act, the Court does not need to assume the Proposed Project will proceed. Nevertheless, the fact agreed at [12], together with the Applicant's reliance on the economic benefits of extracting and burning all of the coal in the mining lease area, make it relevant for the Court to consider the issues in the same structure.

(2) under the MR Act, GHG emissions will not be considered under the rubric of "environmental harm" but, on the current state of authority, only as a form of harm relevant to the public interest. This may justify a less rigid application>objection>reply structure, but does not substantially detract from the arguments below applying equally to the MR Act.

(3) HR Act

1644 The HR Act provides an additional reason to reject the Applicant's substitution argument. Under the HR Act, this Court is required to act compatibly with human rights and to properly consider human rights when making decisions.

1645 The Applicant contends that the proposed project will do no relevant harm because absent this project, the same harm would occur — someone else would mine the equivalent amount of coal to be burned.

1646 The HR Act is unconcerned with hypothetical actions of actors outside of Queensland. It is, however, concerned with this Court's role in the approval process. As explained above,[1414] the main objects of the HR Act include protecting and promoting human rights and building a culture in the Queensland public sector that respects and promotes human rights. These objects are achieved in several ways, including by requiring public entities to act and make decisions in a way compatible with human rights.

1647 The question of whether a public entity has acted compatibly with human rights cannot, consistently with the structure, purpose, and text of the HR Act, be answered by reference to a hypothetical counterfactual involving other actors. The objects and operation of the HR Act are squarely directed at the decisions and acts of public entities.

1648 The failure of a public entity to act compatibly with human rights cannot, for the purposes of the HR Act, be 'cancelled out' or rendered irrelevant by alternative, counterfactual failures. Such an approach would frustrate the clear objects of the Act and undermine its efficacy. If the decision to recommend approval of the coalmine limits human rights, the HR Act obliges the Land Court (and the ultimate decision-makers it informs) to make that recommendation only if it the limits on human rights contributed to by its decision can be justified by reference to s 13.

1649 Equally, 'proper consideration' of human rights in decision-making leaves no role for a public entity to disregard the effects of its decisions on human rights by reference to the potential decisions or actions of others.

1650 In short, the recommendation for the approval of the Proposed Project (and the subsequent approval) would unlock limitations on human rights that would otherwise remain closed — but for the ultimate decision to approve the mine, the coal would remain in the ground.

1651 The HR Act demands focus on the consequences of the decision to unlock that coal. Arguments about substitution — projections about the unlocking of other, different mines— are fundamentally inconsistent with the framework and purposes of the HR Act.

1652 It could conceivably be argued that substitution is relevant to the proportionality analysis under s 13; that is, that although the recommendation and approval limits human rights (regardless of any substitution argument), the substitution argument is relevant to whether that limitation can be justified. The HR Act places a heavy burden on the party seeking to justify the limitation. The evidence adduced must be 'cogent and persuasive.' For reasons explained from C-V(iii), that bar has not been reached.

1653 Additionally, having regard to the text of s 13(1), little weight would be given to substitution in the proportionality analysis: it must be recalled that the justification is by reference to a 'free and democratic society based on human dignity, equality and

---

[1414] See from paragraph 1166.

freedom.' Such a society places weight on the normative conduct of its decision-makers.

(ii) What's the point?

1654 As demonstrated by the Wood Mackenzie database, there is well and truly more than sufficient coal already to meet scenarios up to and beyond the WM ETO (See paragraphs 763-765 above)

1655 In those circumstances, the first, and most obvious, answer to the "substitution argument" is that given by Ms Wilson in the following exchange:

> MR JACKSON: But there could within that demand curve as it decreases also be substitution within that curve of the demand that remains and also replacement – displacement. Sorry.
>
> MS WILSON: I am not trying to be glib, but I would ask what's the point? If you have 1000 – 1000 million tonnes of coal that's already in the market and you know that demand is such that not all of that coal is going to be burned, what's the point?[1415]

1656 That rhetorical question has powerful resonance under the EP Act. Adding additional coal supply will not improve the total quality of life by supplying a product for which there is a need. What is really being put is that there is an economic opportunity for Waratah's ultimate shareholder to make money, from which the State may benefit (assuming the displacement is not of other coal within the State) at the expense of a competitor in the market.

1657 Of course, the EP Act operates in a free and democratic society, where the development it is directed to allow takes place in the milieu of a competitive market. Ordinarily, if a product could be extracted and sold for a better price than the existing market can offer, bringing economic benefits to its proponent and the State, that would weigh heavily on the scale tipping in favour of the application, regardless of any displacement effect within the market. If there is no substantial environmental harm to place on the other scale, then adding new supply for new economic benefit is precisely the sort of thing that Parliament envisaged would warrant approval.

1658 But a proposal to open a new coal mine, unlocking 1.58Gt CO_2-e's worth of carbon dioxide for release into the atmosphere is not ordinary. Under the EP Act, with the precautionary principle and intergenerational equity and other standard criteria as mandatory considerations, it requires the Court to place on the other scale the threat of environmental harm to the entire "environment" of Queensland, including its people and communities.

1415 T 10-118, lns 28-34.

(iii) Understanding the substitution argument

1659 The Applicant, like coal miners before it, recognises the formidable mass of that object, and (with good reason) doubts the prospect of outweighing it purely by an economic benefit (as to which, see C-V(iii)(3) (the only benefit is royalties)). It therefore seeks to reduce the weight of the environmental harm that will (as a matter of admitted and unquestionable scientific fact) result from further GHG emissions by a number of mechanisms.

1660 The first is to use the law to allow the miner to place the full economic benefits of the coal being extracted and burned on the 'yes' scale, but ban the objectors from placing the correlate environmental harm on the 'no' scale.

(1) As to the EP Act, for the reasons given above in B-III(viii), that method of forcing imbalance should be rejected, as a matter of proper construction.

(2) As to the MR Act, it is well-established that the full mass is to be weighed at least in respect of the public right and interest, and it necessarily follows from this that that matter is a permissible consideration in the exercise of the Court's jurisdiction.

1661 The second is to rely on the "substitution" argument, to say that the object should be removed from the scale, because that object would inevitably have the same or greater mass if the Proposed Project is not approved.

1662 Before embarking on this second argument, we reiterate again our primary submission — that hypothesis about a counterfactual world without the Proposed Project is irrelevant to the statutory task, which concerns only the environmental harm that will result in a world in which the Proposed Project is approved. However, as also noted, it is arguable that (subject to the effect of s 48 of the HR Act), that argument is precluded in this Court by the *ratio decidendi* of Fraser JA, with whom Margaret McMurdo P and Morrison JA relevantly agreed, in the *CCAQ Appeal*: that substitution on the facts could be an answer to the case under the EP Act is inconsistent with primary argument set out in the first sentence of this paragraph.

1663 We turn, then, to consider the substitution argument as a factual argument.

1664 In *Xstrata*, the argument was put in the following terms (at [559]) — "the applicants say that stopping the project will have a negligible impact on climate change because other coal will be mined elsewhere which will in turn produce the same or higher amounts of emissions when burned" (underlining added).

1665 This passage was set out by President MacDonald immediately after citing the following observation by Dowsett J in an EPBC Act judicial review decision: "[t]he

relevant impact must be the difference between the position if the action occurs and the position if it does not".[1416]

1666 With respect, this is an accurate characterisation of the argument, if is to work as a complete reply to an objection concerning the environmental harm caused by accumulated GHG emissions, including those from the subject mine: there must be no difference between the two positions.

1667 The word 'will' is underlined twice in the quote from *Xstrata* in [1666]. The word was there used as a verb in the manner described in the Oxford English Dictionary as follows: "Expressing prediction of a contingent future event, or a result to be expected, in a supposed case or under particular conditions (with the condition expressed by a conditional, temporal, or imperative clause, or implied): must as a necessary consequence".[1417] In other words, the argument put in *Xstrata* was that the environmental harm resulting from GHG emissions would necessarily, certainly or inevitably be the same with or without the mine.

1668 In a different statutory context (sufficiently analogous for conducting an anatomy of the substitution argument as a factual argument, Preston CJ recorded the argument in *Gloucester Resources* (at [534]) as "the GHG emissions of the Project will occur regardless of whether the Project was approved or not, because of market substitution".

1669 That his Honour appreciated the use of the verb 'will' is evident from his use of the following expressions in [538] and [539] (underlining added):

(1) "there is no certainty that there will be market substitution".

(2) "there is no inevitability that developing countries such as India or Indonesia will instead approve a new coking coal mine".

(3) "there is no certainty that refusal of consent to the Project will cause a new coal mine in another country to substitute coking coal".

1670 The objectors rely on the environmental harm caused (as per s 14(2)) by the total emissions accreted in the atmosphere, which (in a world in which the Proposed Project is approved — see [54] above) will include 2.16Gt or 1.58Gt CO_2-e from carbon presently stored in the mining lease area. They rely on the harm caused by the accumulation of GHGs. That must be the correct approach, even if there is an attempt at a different place in the reasoning to apply a materiality or apportionment measure to that cumulated harm (for example, this was tried in various ways in the CBA).

1671 For the substitution argument to work in fact (assuming it is available in law), the Court must be satisfied that the total cumulated harm will (necessarily, certainly or inevitably)

[1416] *Xstrata* at [559], citing *Wildlife Preservation Society of Queensland Proserpine/Whitsunday Branch Inc v Minister for the Environment & Heritage* (2006) 232 ALR 510 at [55] (***Xstrata***).

[1417] "will, v.1.", meaning 15(a). *OED Online*. Oxford University Press, June 2022. Web. 12 June 2022. The most recent example given for meaning 15(a) is "2005 Sydney Morning Herald 7 July 11/4 Go to Canberra and you'll find a group of elected representatives who expect to be called Senator or Minister".

be the same or worse in a future world in which the Proposed Project does not exist. That this must be the case is obvious when one considers the carbon budget methodology (see C-IV(iii) above). If the world with the Proposed Project will have 1,000Gt of further CO_2-e emissions before net zero, then the substitution argument cannot work unless there will necessarily (certainly or inevitably) be ≥1,000Gt of further CO_2-e emissions before net zero in the world without the Proposed Project.

1672 This appears to have been the intended approach of the Court in *Xstrata* and *Hancock*, on the evidence available in those matters. However, it appears that in each case the evidence and argument was presented, and approached by the Court, on the basis of a premise or assumption — that it is possible to answer that question by first fixing total future demand for seaborne thermal coal, subject to the effect of approving or refusing the single mine under consideration.

1673 Thus, in *Xstrata*, President MacDonald summarised the evidence as follows:[1418]

> [The applicants] rely on the evidence of Mr Simes and Mr Stanford, who are experts on the economics of coal markets. In general terms, their opinion was that if the project does not proceed, there will be no impact on global demand for coal because that demand will be satisfied from another source. In other words, stopping the project will have no impact on climate change because it will have no impact on the global demand for coal and therefore no impact on global GHG emissions.
>
> (Underlining added.)

1674 While the overall question appears to have correctly remained whether the harm would inevitably be the same whether or not the project was approved, the way in which the evidence and argument were presented appears to have asked a somewhat different question: would the refusal of this coal mine, of itself, cause a reduction in the total global emissions that would otherwise occur without it?

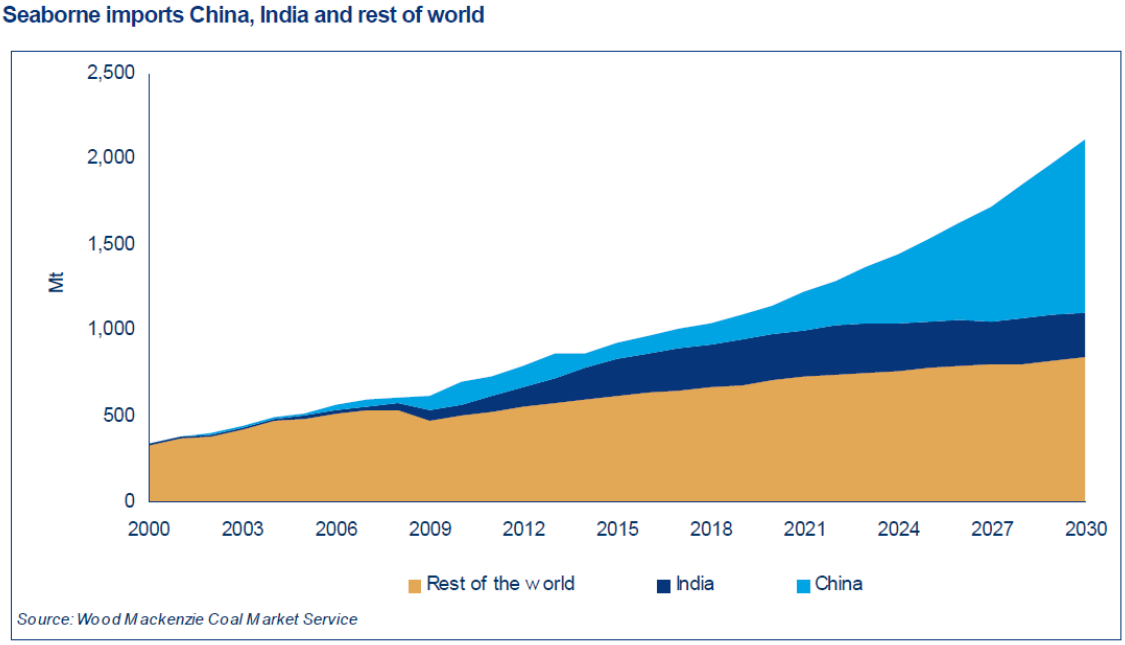
1675 There are two problems with this approach.

(1) **First**, it appears to start with an assumption that the mine will be approved, and then places an onus on the objector to establish that refusing it will, of itself, have a direct causal impact on reducing total future global emissions as compared to the total if the mine is approved. It is not at all clear why that approach, or the question in the previous paragraph, would be relevant having regard to the structural context set out in E-IV(i)(1) above.

(2) **Second**, it appears to assume that it is possible to fix future demand for seaborne thermal coal, in either or both of the future world with the mine, or the future world without the mine.

1418 *Xstrata,* [559].

1676 As to the second point, it is easy to understand why the Court might have assumed, on the evidence before it at that time, that there would inevitably be sufficient demand for thermal coal regardless of whether the subject mine existed. When Mr Simes, of Wood Mackenzie, provided his report in 2011, Wood Mackenzie's projection of global demand was as set out in *Coal Market Service – Thermal Trade June 2011*:



[[**YVL.0467.0003**]]

1677 While Mr Manley informed the Court when giving his evidence in this matter that he completely disagreed with his colleagues at that time in respect of the assumptions underpinning that forecast, President MacDonald of course had no way of knowing that at the time this projection was presented to her. Furthermore, the evidence was prepared and presented years before the Paris Agreement, such that Wood Mackenzie's modelling for this forecast simply did not take into account the prospect of global co-operation of the kind that might make much lower-emissions futures possible.[1419] It would be fair to say that, at this time, Wood Mackenzie was producing a conventional supply/demand model of the coal market, in a universe untouched by the need to grapple with the complexities of modelling already well underway in the universe of climate science (as described in AR WGIII 6 Ch 3 and Annex III).

1678 Now, those two universes have well and truly collided, as evidenced by Wood Mackenzie's attempts to present a range of scenarios to its clients.

1419 See T 10-31, lns 4-17; T 10-32, ln 46.

1679 But at that time, in a universe where the evidence presented by Mr Simes was based solely on supply/demand modelling, one can understand why the Court might have treated the future in respect of emissions as being entirely determined by supply and demand.

1680 A similar premise may be seen as underpinning the evidence led, and arguments made, by the miner in *Hancock*. For example (at [222]):

> As Hancock put in its submissions:
>
> > …The world has abundant coal resources. The amount of coal combusted in the world, including for the purposes of generating electricity, is driven by demand. That is to say, global supplies exceed demand such that preventing a particular mine from proceeding will not lead to demand not being met…

1681 One can see the beginnings of an appreciation that there may be scenarios in which there would be no demand for coal for the life of the project, but this was answered, in effect, by positing that there would be sufficient demand that the world would be the same with or without the supply from the instant mine.

1682 Hancock's reply submission relevantly included (*Hancock*, [228], reply submissions at [122]):

> … this proposition is not sensitive to CCAQ's claims that coal exports face an uncertain future. They make those claims based on speculation that events may occur which affect the demand for coal. As Professor Jones pointed out, a decrease in demand would only have the effect of making coal cheaper and (possibly) more attractive as a fuel source. But whatever events may impact on demand, the proposition remains true that export coal markets are driven by global demand and whatever the level of demand there is sufficient coal to supply it. <u>This leads inevitably to the conclusion that the fact that a particular mine does not proceed will have no effect on global demand for coal and therefore no effect on the amount of GHGs emitted globally</u>.
>
> (Underlining added.)

1683 Member Smith accepted this contention, thus concluding that "the evidence above would necessarily lead to the conclusion that global Scope 3 emissions will not fall if Alpha does not proceed as the coal will simply be sourced from somewhere else" (*Hancock*, [229]).

1684 The underlined words in Hancock's reply (almost) address the correct question for a substitution argument to succeed: will global emissions inevitably be the same or worse without the mine existing as they will be with the mine existing?

1685 But the evidence in the present case presents an existential threat to that argument.

1686 That argument can work only if a sufficient level of demand for seaborne thermal coal can be fixed for the duration of the project such as to support a market for the project coal. If the market for seaborne thermal coal were to end before the mine, or were to diminish to an extent that the market does not desire the coal from the mine, then the

total future global emissions will necessarily be less than the total emissions in any future with the mine.

1687 That would be the end of the substitution argument. It was therefore necessary for the Applicant to lead evidence proving that there will be sufficient demand for seaborne thermal coal out to 2051 that exceeds the minimum coal required for the Proposed Project to exist in the market. And to that end, they asked Mr Manley and Ms Wilson to describe the likely market for seaborne thermal coal for the Proposed Project, in order to provide an evidentiary foundation for a finding by the Court that there will be sufficient demand for seaborne thermal coal out to 2051, such that the Proposed Project can exist or not, without substantially affecting emissions from the burning of the coal for which there is demand in that market.

1688 In other words, they sought evidence on the basis of which they could invite the Court to fix demand for seaborne thermal coal, such that existence of the Proposed Project could then be made a variable, without affecting overall total future emissions.

1689 Hence, Mr Manley's evidence about the Wood Mackenzie base case. That this is an attempt to fix demand for seaborne thermal coal may clearly be seen throughout Annexure B of the Energy JER, perhaps nowhere more obviously than in the concluding sentence to paragraph [104]: "Therefore, should Waratah not be developed there are ample projects both within Australia and elsewhere that could satisfy projected seaborne thermal coal demand".[1420]

(iv) Mr Manley's evidence that the WM ETO is the most likely scenario should be rejected

1690 The fundamental point of disagreement in Annexure B of the Energy JER arises from Mr Manley's attempts to present the WM ETO / base case as being the most likely future, as opposed to one of an almost infinite variety of scenarios.

1691 Those attempts should be rejected for the following reasons.

1692 **First**, Mr Manley accepted that there is a field of climate science that "is concerned with identifying long-term climate mitigation scenarios based on feasible assumptions", but "is unable to make probabilistic assessments of likelihood due to deep uncertainty".[1421] His acceptance is consistent with the evidence of Professor Church and Dr Warren at [782] that climate science can provide technically feasible scenarios, but cannot say which is most likely (which depends in large part on what governments do), which is supported by AR6 WGIII, Annex III, [2.2] and [2.3].[1422]

1693 **Second**, Mr Manley accepted that Wood Mackenzie has now likewise prepared scenarios which fall within that field of science.[1423] The Court should conclude, on all the evidence, that the WM ETO is just another scenario, which (if it were able to survive

1420 Energy Markets JER [[**COM.0069.0079**]].
1421 T 9-31, lns 24-34.
1422 AR6 WIII Annex III [[**YVL.0457.0058**]].
1423 T 9-36, lns 3842.

vetting and feasibility checks) would most likely be categorised as C6 (or at best, C5), and would be similar in many respects to the IEA STEPS scenario.[1424] Whether it occurs or not will depend on future choices made by humanity, just as for any other scenario.

1694 **Third**, to the extent that Mr Manley proffered an opinion, based on Wood Mackenzie's modelling, that the WM ETO was more likely to occur than other scenarios, that opinion should be given no or very little weight, for the reasons set out in [[**YVL.0483.0001**]], having regard in addition to Mr Manley's oral evidence about his qualifications, training and experience,[1425] and about YV and TBA's attempts leading up to his giving evidence to obtain the basis for his opinions.[1426] For the avoidance of doubt, that objection is maintained only in respect of opinions given by Mr Manley to the effect that the WM ETO is more likely to occur than any other scenario. To the extent that Mr Manley otherwise gives evidence about the WM ETO, WM AET2.0 and WM AET1.5 scenarios as being scenarios prepared by Wood Mackenzie, YV and TBA consider that: (a) the hearing process, including the ability to seek and obtain the Supplementary Climate JER, has remedied any unfairness; and (b) it is within Mr Manley's expertise to use the outputs of these scenarios, as scenarios Wood Mackenzie has prepared, but not to opine about how they were modelled or the probability of the input assumptions on which they were modelled transpiring out to 2050.

1695 **Fourth**, in the field of science concerned, there is a range of complex variables and dynamics, which must be accounted for.[1427] These include future changes in policy. The WM ETO assumes there will be no future improvements in global policy settings, and even that countries such as India will not meet their present policy positions.[1428] Ms Wilson thought it "unreasonable to assume that no change will occur, which is what essentially the Wood Mackenzie base case does. The NDC countries are required to update their goals every five years – their announced pledges every five years, and those pledges cannot be made looser".[1429]

1696 **Fifth**, in considering the reliability of the WM ETO as a reliable predictor of the single most likely future (as opposed to, for example, just a scenario prepared on certain input assumptions), the Court should take into account the summary of Wood Mackenzie's historical projections in [[**YVL.0500.0001**]]. That historical review shows that the one consistent feature of those forecasts is that they are consistently revised downwards. Indeed, Mr Manley accepted that between 9 March 2022, when the Energy JER was filed, and 11 May 2022 when he gave his evidence, the amount of seaborne thermal coal in 2050 in WM ETO had dropped by 18% from 608 to 512Mt, and that the Court should now act on the premise that it is likely in 2050 that there will be 512 Mt of

---

1424 In the Energy JER, Mr Manley wrote "The ETO is broadly consistent with a 2.5-2.7 ˚C global warming view which is the equivalent of the IEA STEPS outlook": fn 85, [[**COM.0069.0047**]].
1425 T 9-19, ln 35 to 9-30, ln 15; 9-42, ln 30 to 9-44, ln 30.
1426 T 9-45, ln 42 to 9-53, ln 5.
1427 See C-IV(iv)(6) above, and T 10-18 to 10-19.
1428 See T 10-38, ln 37 to T 10-45, ln 43.
1429 T 10-46, lns 20-23.

thermal coal, now completely disregarding the 608Mt predicted only two months earlier.[1430]

1697 As Ms Wilson asked, "the Wood Mackenzie base case, though, is unique, in that the probability that coal demand will be lower than what is shown is almost certainly higher than the reverse in this case, and so the question becomes, understanding that this forecast is almost certainly wrong, how do we want to think about the future and the direction in which the future would go?" The exchange between the Court and Mr Manley at T 10-47 to 10-48 compellingly demonstrates why the WM ETO relied on in the Energy JER is unsound as evidence of the likely future, as opposed to simply a scenario that makes assumptions (including failure by foreign domestic governments to meet their existing commitments).

1698 As was put to Mr Manley in cross-examination, the input assumptions for the WM ETO can be realised only if, despite average temperature rising to and above 2ºC, with the consequent severe harm and disruption that will cause, the peoples of countries around the world accept their governments not improving their policy commitments in the early 2020s and, indeed, failing to even meet those.

1699 **Sixth**, the WM ETO was based on a number of assumptions which, although it is possible they will transpire, should not be accepted as likely. For example, the WM ETO makes assumptions that the Levelised Cost of Electricity (**LCOE**) of solar, despite having plummeted to date, will now commence to level out, thus giving coal more time in the market.[1431] That projection has a striking resonance with Figure 19 in the Energy JER and the point made by Ms Wilson at [145]–[146].[1432]

(v) Once coal demand is not fixed, substitution fails because less harmful scenarios cannot occur in a future with the Proposed Project

(1) The Proposed Project as an input assumption

1700 Asked whether, if one assumes that the agreed fact in [12] — "[t]hat is, if we assume that the coal from the mine will be extracted and burned, emitting carbon dioxide, between 2029 to 2051, does that assumption, if we input that, exclude a range of feasible future scenarios", Ms Wilson answered, "Yes, it does, because that has a specific carbon trajectory over time and so any scenarios that model lower carbon emissions over that time would then not be considered feasible".[1433]

1430 T 10-50, lns 3-21.
1431 See, for example, WM December 2021 Analysis 'battle for the future'[[**YVL.0471.0070**]].
1432 Energy Markets JER [[**COM.0069.0059-60**]] [185]–[187].
1433 T 10-67, lns 2-18.

(2) With the Proposed Project as an input assumption, scenarios below 2.5 degrees of warming are not possible

1701 In response to questions from the Court from T 10-68, ln 5, Mr Manley identified features relevant in assessing displacement — that is, factors by which desirability of coal by the market is determined. He listed, primarily, quality and cost, and referred also to price.[1434]

1702 Mr Manley (and Ms Wilson, in all relevant respects) then agreed to the following propositions:

(1) The Applicant is asking the Court to recommend approval of the Proposed Project under the EP Act and the MR Act on the basis of economic benefits of extracting and selling for combustion, the coal in row 145 of Table 1 of the Harris-King spreadsheet (the total saleable coal).[1435]

(2) As per row 145, that occurs over the period 2029 to 2051.[1436]

(3) The minimum assumptions necessary for that market to occur are as follows.

(a) There must be an energy market in which there is demand for coal in 2051.[1437]

(b) Within that coal market, there must be demand for seaborne thermal coal in 2051.[1438]

(c) Within that seaborne thermal coal market:

(A) there must be demand for the coal from the DL, DU and B-seams summarised in row 145, and particularised in rows 146, 147 and 148, out to 2051.[1439]

(B) as the seaborne market will choose coal based on desirability (on the criteria explained by Mr Manley to the Court),[1440] and more desirable coal will be bought and burned before less desirable coal,[1441] there must be sufficient demand for seaborne thermal coal generally such that all of the coal more desirable than the lowest quality coal in rows 146 to 148 is bought and burned as well,[1442] and this must occur out until 2051.[1443]

1434 T 10-67 to T 10-71.
1435 T 10-81, lns 37–47.
1436 T 10-82, ln 1.
1437 T 10-82, lns 9-16.
1438 T 10-82, lns 18-23.
1439 T 10-82, lns 25-29; 10-83, ln 44 to 10-84, ln 1; T 10-84, lns 20-31; 10-88, lns 12–16.
1440 T 10-84, lns 3–11.
1441 T 10-84, 13-16.
1442 T 10-84, ln 33 to 10-85, ln 31.
1443 T 10-85, lns 33-39. See also T 10-85, ln 41 to 10-86, ln 8.

(C) in order for all of the more desirable coal to be burned, in addition to the coal from the Proposed Project, out to 2051, at least the 608 Mt of seaborne thermal coal projected on the WM ETO (as per the Energy JER and WM Databook) would need to be burned in 2051.[1444]

(4) For that WM ETO, total temperature increase was 2.5 to 2.7ºC of warming.[1445]

(5) Therefore, if the Court were to fix as an input assumption the extraction, sale and combustion of all of the coal in row 145 in a market where that coal can be burned, that will exclude scenarios under 2.5ºC.[1446]

(3) Without the Proposed Project, as an input assumption, scenarios from 1.4 degrees presently remain possible

1703 By contrast, if the Proposed Project is not approved — i.e., if an input assumption is not the burning of the coal from the Proposed Project as per rows 145–148 in Table 1 of the Harris-King spreadsheet — there is a range of feasible scenarios, falling within categories C1 to C5.

1704 These include:

(1) SSP 1-1.9 (and SSP1-2.6), which Professor Church and Dr Warren have opined is still possible (see C-IV(iv)(2)). Mr Manley did not contest their opinion about that.[1447]

(2) IEA NZE, which the IEA considers the best feasible scenario for achieving 1.5 degrees and WGIII assessed as feasible, and Professor Church and Dr Warren opined that "The IEA Net Zero scenario is designed to be consistent with keeping global warming to 1.5°C. This is similar to the IPCC SSP1-1.9 scenario. Comments in the WGIII Chapter 3 would seem to support this but they note the scenario relies on rapid electrification".[1448] Mr Manley agreed IEA NZE was feasible.[1449]

1705 It also, presumably, would include the scenarios that passed vetting in categories C1–C5 (see Table II.7 below [779] above): 97 (C1) + 133 (C2) + 311 (C3) + 159 (C4) + 212 (C5) = 912 scenarios that passed vetting, which would be possible without the Proposed Project, but not with it.

1444 T 10-88, lns 18–29.
1445 T 10-88, lns 31–35.
1446 T 10-88, lns 37–43 (Ms Wilson answered "yes" — unfortunately, there is a further transcript error where that error was corrected. At T 11-180, ln 8, Mr Nekvapil asked that the error be corrected. Mr Jackson in fact responded that there was no contest, but T 11-180 incorrectly records him as saying "There's contest to that one".)
1447 T 10-75, ln 30 to T 10-76 ln 1.
1448 Supplementary Climate JER [[**COM.0343.0007**]], [185]–[187].
1449 T 10-21, lns 9-17.

(4) Conclusion: it is not open for the Court to find that total harm is inevitably the same without the Proposed Project

1706 In other words:

(1) with the Proposed Project, the accumulated harm will be the harm caused by the accumulated emissions in a world of at least 2.5 degrees, possibly up to 4.4 or more.

(2) without the Proposed Project, the harm will be from accumulated emissions of at least 1.4 degrees, possibly up to 4.4 or more.

1707 It is not open to the Court on that evidence to conclude that the harm in a world without the Proposed Project will necessarily, certainly or inevitably be the same or worse than in a world without it.

1708 It is possible, that the harm will be as bad, or worse, without the Proposed Project.

1709 But as a matter of logic, the Court cannot conclude it is inevitable. Such a conclusion is denied by the existence of feasible scenarios still achievable today that keep warming below 2.5ºC.

1710 Only by fixing demand in the seaborne coal market out to 2051 could one now produce substitution of the kind for which the Applicant contends. But that is equivalent to fixing warming to ≥2.5ºC, thereby excluding all better scenarios at the outset. Why would anyone want to do that?

1711 The final exchange in the energy concurrent session was:

> MR NEKVAPIL: All right. My final question for you, Ms Wilson – and I apologise if I get the terminology wrong, but if you were solving, using a model, for lowest carbon emissions, lowest total future carbon emissions, would you ever fix demand out to 2051 for seaborne thermal coal?
>
> MS WILSON: No.

(vi) Otherwise, Ms Wilson's opinions on substitution should be preferred to those of Mr Manley's

1712 Ms Wilson and Mr Manley had quite different fields of expertise.

1713 Mr Manley is a geologist by training and the Director, Metals and Mining Consulting at Wood Mackenzie. He has expertise in coal, and in coal markets. When it comes to modelling, the Court should conclude that, when Mr Manley needs modelling done, he uses experts working within Wood Mackenzie to do so. While he has expertise to know what modelling he needs, he is not an expert in the use of the models.[1450]

[1450] T 9-42, ln 30 to T 9-43 ln 46.

1714 By contrast, Ms Wilson — a Principal Associate at Synapse Energy Economics — is a true expert in energy modelling, which has been a core part of her work since she graduated from Yale in 2007 and commenced with Synapse.[1451] This placed her in a better position than Mr Manley to understand and explain the nuance of the variables in the energy market and the scenarios that different variables and input assumptions might produce.

1715 Her qualifications as an economist, and experience in working with a range of energy models not confined to coal mean that her expertise in terms of non-coal energy sources is stronger than that of Mr Manley, who agreed that his focus in terms of energy systems has mainly been coal.[1452]

1716 Ms Wilson's evidence was, in short, that the substitution argument does not work for two overarching reasons:

(1) demand for thermal coal is declining; and

(2) the arguments relies on a number of simplistic assumptions about the nature of the energy market, which do not hold true as a matter of economic theory and energy market reality.

1717 Her evidence should be accepted.

(1) Demand for thermal coal is declining

1718 Ms Wilson agreed that there is currently a market for coal. However, she disagreed with Mr Manley about the overall reduction in thermal coal market share within the broader energy market and, relatedly, the rate of uptake of renewable energy production.

1719 In her view, coal-for-coal substitution will be limited to the near-term because of other factors governing the energy market.[1453]

1720 Her evidence was that the substitution argument rests on coal forecasts that assume there will be a market for coal for the life of the project. However, the global energy market is dynamic and complex, and is made up of a number of closely intertwined factors that govern thermal coal supply, demand, and consumption. The direction of the change in any one of these factors could push coal consumption up or down.[1454]

1721 That is, there are many variables that will determine the market, and therefore the viability of the substitution argument. Ms Wilson gave evidence that the market is likely to decline, based on the following factors.

1451 Energy Markets JER [[**COM.0069.0086-87**]]; T 9-39, ln 37 to 9-42, ln 28.
1452 T 9-42, ln 41.
1453 Energy Markets JER [[**COM.0069.0018**]].
1454 Energy Markets JER [[**COM.0069.0027**]], [67].

01. Changing government policies regarding fossil fuels and emissions and the pace of that change

1722 These policies include emission-reduction policies, but also policies designed to protect domestic fossil fuel industries.[1455]

1723 The changing emission-reduction policies of target importing countries for this mine matter, of course. But globally, as other countries around the world increase their emission-reduction targets, adoption of renewable and storage technologies will drive the learning curves associated with those technologies and bring prices down. Countries that currently have lower rates of renewables will benefit from technology improvements and in turn lower prices.[1456],

1724 Ms Wilson's evidence was that Parties to the Paris agreement may update their NDCs at any time and these updates are likely to increase in ambition.[1457] In the future, it is likely that countries will increase the stringency of their emissions-reductions targets, move forward their timelines for emissions reductions, or both, further driving down demand for coal.[1458]

02. The availability and relative cost of renewable energy

1725 Ms Wilson's opinion was that over the medium and long term, the capacity mix in the energy market will likely shift toward generators that utilise low or zero carbon fuels. Recent history has shown that renewables and storage compete head-to-head with coal-fired generation, with coal-fired generation falling when zero carbon generation increases. That pattern is expected to continue, with increasing volumes of renewables and storage driving down a higher percentage of coal generation.[1459]

1726 For example, between 2010 and 2020 the International Renewable Energy Agency reports that the costs for utility-scale solar photovoltaics fell by 85%, concentrating solar power fell by 68%, onshore wind fell by 56% and offshore wind fell by 48%, putting each of these energy types within the cost range for new fossil fuel capacity.[1460]

1727 Research shows that battery storage costs have fallen 97% since 1991, with prices following a learning curve and falling by approximately 19% each time installed capacity is doubled. The rate of reduction does not yet appear to be slowing down.[1461] Indeed a press release from Wood Mackenzie in January 2021 found that battery storage

---

1455 Energy Markets JER [[**COM.0069.0085**]], [221]-[222].
1456 Energy Markets JER [[**COM.0069.0036**]], [98]; [[**COM.0069.0070**]], [177].
1457 Energy Markets JER [[**COM.0069.0020**]]-[[**COM.0069.0021**]], [52].
1458 Energy Markets JER [[**COM.0069.0071**]], [183].
1459 Energy Markets JER [[**COM.0069.0018**]], [49]; [[**COM.0069.0044**]]-[[**COM.0069.0045**]], [119]-[120]; [[**COM.0069.0056**]]-[[**COM.0069.0060**]], [138]-[146].
1460 Energy Markets JER [[**COM.0069.0058**]] [142].
1461 Energy Markets JER [[**COM.0069.0058**]], [143].

system costs in Asia Pacific markets specifically could decline by more than 30% by 2025 as a result of price reductions.[1462]

1728 In oral evidence, Ms Wilson expanded:[1463]

> there's no preference amongst consumers for the source from which they get their electricity. They just want the electricity to come on when they flip the light switch. So from a provider perspective, it comes down to which source of energy is going to be the least cost to procure over time. Coal costs have stayed relatively constant in terms of capital. Fuel, supply costs, have increased somewhat. And that is in contrast to renewable and battery storage costs, which have come down, and have come down quite dramatically, over the last decade. And so when you are comparing those two sources of energy on a levelized cost basis, you see that coal is actually losing market share as renewables at lower costs increasingly come online. And they must, when power demand is constant – meaning that increasing – when renewable projects come online, they naturally displace something else. And they displace the highest cost energy generator that's online at that particular time. So we call that the resource that's on the margin. And that has been coal. So coal has been losing, essentially, to renewable generation in the recent past. And it's expected to decline even further as additional renewable and battery storage projects come online

1729 Ms Wilson also explained that renewables have certain advantages over coal, that are relevant to the rate of transition:[1464]

> It doesn't make sense to build fossil fuel generation in a small number of megawatts. There are what's known as economies of scale and so as you add more megawatts, the cheaper it gets on a per-megawatt basis. So, unlike solar plants, which could be 50 megawatts, 100 megawatts, coal-fired power plants really don't start to make economic sense until you get to 500 megawatts or more, and that, too, requires a lot of space, and no one wants a coal-fired power plant burning coal right behind their house, so those locations tend to be farther away from population centres, and you also have to then transport power to the load centre, which requires a transmission line. So there are costs associated with building that plant further away. By contrast, solar and battery storage are what I would call more module, so you can build them in any size configuration, and while space is a concern, there is a tremendous built environment, meaning the rooftops of buildings and things like that that could be utilised for solar and storage. That would actually put them right in the load centre, and then you wouldn't need no transmission in order to interconnect them.

03. The price of alternative fuels

1730 For example, the increased availability of inexpensive shale gas has replaced a sizeable portion of the coal market in Europe and North America, and is expected to grow in Asia as well.[1465] That position was not contested by Mr Manley.

1462 Energy Markets JER [[**COM.0069.0058**]], [143].
1463 T9-98, lns 24-41.
1464 T 9-99 to T 9-100.
1465 Energy Markets JER [[**COM.0069.0035**]], [87].

04. Supply-side constraints

1731 The evidence is also agreed that over the last few years, funding for thermal coal projects has become increasingly challenging as various financial institutions have announced they will limit their exposure to carbon emissions.[1466]

1732 In oral evidence, Ms Wilson explained that this decrease in demand for coal is likely, even despite growing demand for electricity:[1467]

> [growing electricity demand is] certainly a consideration in the equation and when electricity providers are seeking to add the next resource to the grid, it is their duty to their customers to procure that resource which is lower cost. And so we see often currently that that is solar-plus-storage, wind. And so coal is not experiencing the same number of gains in terms of megawatts capacity that it has in the past. Renewable providers are often choosing – I'm sorry. Generation providers are often choosing renewable sources on that cost basis to meet that increasing demand

1733 In sum, Ms Wilson's evidence was that new coal is no longer a competitive resource in Australia and there is likely thus no domestic market for the Applicant's coal.[1468]

1734 With respect to the international market, Ms Wilson explained that domestic and regional policies in the Pacific region are aiming to both retire coal and promote development of renewables and storage, and opined that the global power sector trends will result in a lower demand for seaborne coal than is presented by Wood Mackenzie.[1469]

(2) <u>The substitution argument hinges on false assumptions</u>

1735 Ms Wilson also gave evidence that the substitution argument hinges on the false assumptions that:

(1) all types of coal, from different basins or countries, would be a substitute for the coal from this project. In fact, coal from different basins or countries is not the same in terms of quality or grade.[1470]

(2) there are other companies around the world that are both willing and capable of developing new coal mine projects. It assumes the companies view the forecasts of global demand for coal in the same way and have made the determination that it will be profitable to move forward with new coal mines, despite the increasing risk that new coal mines will become stranded assets.[1471]

1466 Energy Markets JER [[**COM.0069.0037**]], [99]. See also Ms Wilson's detailed opinions about financing from [[**COM.0069.0038**]]-[[**COM.0069.0041**]], [106]-[112].
1467 T9-99 lns [1]-[8].
1468 Energy Markets JER [[**COM.0069.0044**]], [119].
1469 Energy Markets JER [[**COM.0069.0046**]], [123].
1470 Energy Markets JER [[**COM.0069.0081**]], [209].
1471 Energy Markets JER [[**COM.0069.0082**]], [211].

(3) a new coal mine can be developed as easily in one place as it can in another. There are regulatory hurdles to mining and transporting coal that are not the same everywhere and will likely become more stringent over time, though not at the same pace. If a new mine project is rejected in one region, options in other regions may no longer exist due to new restrictions, increased costs in the other region, or both. If a new mine is being proposed in a particular region, it is likely that this region has lower costs of development, all else being equal, and that the next best region for new mine development would have costs that are higher than the preferred region.[1472]

1736 In oral evidence, Ms Wilson also explained that the substitution argument "doesn't take into account the behaviour of competing coal suppliers."[1473] That is:

> It assumes that the person who is displaced would not then lower their prices in response to that displacement in order to get back into the market. And economics would tell you that when you lower prices, additional consumption happens. And so in that scenario, overall emissions would increase because consumption of coal has then gone up …[1474]
>
> … they are arguably making a profit of a certain numbers of dollars on their tonnage now. And so they might be willing to make less of a profit in order to continue to sell that tonnage or not take as much of a loss….[1475]
>
> …And also, considerations of fixed cost and having to pay your investors all of these factors that do not make it as simple as saying, well, we are priced out of the market in this moment, we are not going to produce … Particularly because it takes time to slow and ramp production.[1476]

1737 Ms Wilson then went onto explain another false assumption of the substitution argument:[1477]

> not all coal is consumed in the spot market. Most coal is, in fact, contracted via long-term contracts and that is so that power plant operators have a known volume of coal in which they can burn over some period of time. They have to balance that quite carefully, because coal is stored onsite most of the time and you don't want your coal pile to get too large nor do you want it to be too small. So the increased spot prices that we have seen have been as a result of coal plant operators needing additional coal beyond what has been stored onsite to meet demand that has increased pretty rapidly following the decline due to COVID-19. And so when you are considering that much coal is under long-term contract, displacement then doesn't become quite as straightforward an issue.

1738 Mr Manley told the Court that although it varies over time, between 70-85% of the seaborne thermal coal market is long-term contracted.[1478]

1472 Energy Markets JER [[**COM.0069.0081**]], [210].
1473 T10-71 lns 38-39.
1474 T10-71 lns 39-44.
1475 T10-74 lns [39]-[43].
1476 T10-75 lns [1]-[8].
1477 T10-71-72.
1478 T10-72 ln [16].

1739 Finally, Ms Wilson explained that there was one more matter to add, essentially, that the lifetime of a coalmine will also affect the substitution, or displacement argument:[1479]

> The coal from Waratah might displace coal from another mine in a given year and emissions might be the same as a result of that, but that operating mine has been in operation for some number of years already and so we might say in 2029, it's been operational for 10 years and so then perhaps its end of life is assumed to be 2041. If Waratah comes online, it might be displacing coal from an alternate source in all of those years prior to the end of life of that additional source, but if that source have [sic] been operating, then its coal would be exhausted in 2041. If we have now Waratah, who's taking the place of that mine, it is also extending that coal production for an additional 10 years between 2041 and 2051, and that is adding more carbon emissions into the global system for an additional 10 years, and so there is another element that doesn't make this displacement argument quite as simple from a CO_2 perspective.

(3) Ms Wilson's summation of why substitution does not work

1740 Ms Wilson explained that:

> the substitution argument only works if one assumes that global coal markets are both fixed and isolated. The argument assumes the characteristics of new coal mines across regions are identical: the quality of the coal in the mine, the cost of coal production, the cost of transportation, the process of developing a new coal mine, and the cost of new mine development, among others. It also assumes that potential developers hold the same views on potential coal risk, given the global policy environment. The likelihood that all of these are true is extremely slim, and thus, new coal mine projects do not exhibit the characteristics necessary for substitution. If the Galilee Coal Project were to be rejected, it is unlikely that another new mine project would take its place and contribute the same volume of global greenhouse gas emissions. In my opinion, it is more likely that rejection of the Galilee Coal Project would increase the likelihood that other proposed coal mine projects would also be rejected, as it sends a signal to other potential project developers about the consideration given to Australia's climate commitments.[1480]

1741 In oral evidence, Ms Wilson elaborated what she meant by 'fixed' and 'isolated':[1481]

> I mean that demand is fixed in a market such that it exists and coal needs to come from some given source. The second part of that, isolated, means that coal couldn't be procured from it just anywhere. It has to be procured from one specific place. And in this instance, coal markets are global and if a supply were not to be found in one location, a buyer could go to another …

1742 In short: "displacement is complicated and to assume that a simple, one-for-one substitution happens is probably not realistic given the many variables that act upon the coal market."[1482]

1479 T10-81 lns [13]-24].
1480 Energy Markets JER[[**COM.0069.0082**]], [212].
1481 T9-98 lns [9]-[14].
1482 T10-117 lns [32]-[35].

(4) Mr Campbell agreed that the substitution argument does not work

1743 Mr Campbell essentially agreed with Ms Wilson's opinion. In the Economics JER, Mr Campbell opined, for reasons there set out, that Mr Manley's opinion in favour of 100% substitution contradicted basic economic theory.[1483]

1744 In oral evidence, Mr Campbell further explained:[1484]

> energy market experts have made different calculations around elasticities of coal supply and demand. I mean, we talked briefly about the ones that are included in the CGE model yesterday. I mean, it's quite surprising to me, actually, how few of those studies exist. You know, rigorous attempts to quantify supply and demand, elasticities of coal markets or energy markets more broadly. I've gone looking for these in the past. I haven't for a couple of years, but – but there's surprisingly few of them around. And, you know, I think it gets back to, you know, the – it gets back to the point that, you know, [the amount of displacement/ substitution is] unknowable, but it's clearly not zero and it's clearly not one, but, you know, we're talking about very significant emissions that carry very significant costs and impacts.

(5) Mr Manley's opinions in the Energy JER were based on flawed assumptions

1745 During the afternoon of 11 May 2022 (Day 10), Senior Counsel for the Applicant cross-examined Ms Wilson, presumably in order to put the factual foundation for the substitution argument on which he opened, on the basis of Mr Manley's opinions in Annexure B of the Energy JER. During the whole course of that cross-examination, he asked Mr Manley only one question (at T 10-143), and Mr Manley did not volunteer anything. When the Court asked Mr Manley, at the conclusion of that cross-examination, whether he had anything to add, the transcript records "[indistinct]", but our recollection is that he indicated he did not.

1746 A difficulty for the Applicant with this approach is that the opinions expressed by Mr Manley in Annexure B of the Energy JER about substitution appear to have been based, at least in part, on a number of flawed assumptions.

1747 **First**, Mr Manley assumed (contrary to the agreed fact at [12], and otherwise not required by any commitment or condition) that the B seam coal need not be considered as part of the substitution argument. He plainly had the "real" Harris-King spreadsheet, which he received (for some reason, still not explained) from Mr Tessler directly,[1485] by an undisclosed email, as Tables 1 and 2 in the Energy JER include reference to the B seam coal.

1748 **Second**, in Table 2, he used a weighted average for Indonesian coal, comparing this with the individual DL, DU and B seams for the Proposed Project.[1486] In cross-examination, he accepted that to have in Table 2 the weighted average of coal in every

---

1483 See [[**COM.0302.0045**]]-[[**COM.0302.0046**]].
1484 T14-243 lns [4]-[15].
1485 T 9-51 to 9-52.
1486 Energy Markets JER, Table 2 [[**COM.0069.0015**]].

mine in a whole country compared to particular seams in Australia was to compare two different things.[1487] The matters he stated in respect of 100% substitution at Energy Markets JER [198]–[204] focused heavily on coalmines in Indonesia. While [204] does refer to figures 30 and 31, which appear to separate out the coal quality in Indonesian mines, the data underpinning those figures was not provided, either in the form requested (including by subpoena) or even by providing the underlying data for those figures in the WM Databook.[1488]

1749 **Third**, more importantly, question 14 in the Energy Markets JER — "Is the Applicant's coal competitive based on Applicant's proposed production cost estimates set out in the reports included in your Brief and forecast market conditions?"[1489] — was plainly intended to elicit responses forming part of the foundation for the opinion on substitution.

1750 As to Figure 3 (total cash cost curve), the underpinning data were based on data from the Wood Mackenzie database about all other mines shown in the figure together with the cost information from the Harris-King spreadsheet. But the only data provided in the WM Databook were final cost figures "spat out" from a tool accessing the Wood Mackenzie database.[1490] When initially asked by correspondence to provide the following elements of total cash cost: (1) distance from coast $/t; (2) pre-onboard total costs $/t; (3) rail costs $/t; (4) loading cost at port $/t, the response given in the WM Databook, Sheet "Reconciliation to Request" for (1), (3) and (4) was "No - not provided - considered IP" (see B24, B26 and B27). When these were required by subpoena, a further version of the WM Databook ([[**YVL.0499.0001**]]) was provided, but instead of refusing to provide (1), (3) and (4) based on IP (for example, by making a claim of privilege), the Sheet, "Reconciliation to Request" this time said "See Row 23 - total cash cost provided" (D24, D26 and D27). Mr Manley confirmed in oral evidence that (1), (3) and (4) were in the Wood Mackenzie database,[1491] and agreed that YV and TBA had no way of knowing the numbers, because they had not been provided.[1492]

1751 As to Figure 4, Mr Manley had made a series of mistakes in calculating the margin for Waratah, the sum total of which was to reduce the margin from the US$35.42 provided in [60] of the Energy Markets JER to $20.76,[1493] even using as the basis for price the $85 inserted by Mr Harris into the Harris-King spreadsheet.[1494] That $20.76 was an aggregated margin, and Mr Manley agreed in cross-examination that, if the margin was disaggregated by DL, DU and B seam, the B seam would be looking worse.[1495]

1487 T 9-59, lns 23–32.
1488 T 9-65, lns 16–30.
1489 Energy Markets JER [[**COM.0069.0023**]].
1490 WM Databook [[**YVL.0410.0001**]], Sheet "F3 Waratah CC", column E; T 9-77, lns 2–34.
1491 T 9-78, ln 18.
1492 T 9-78, ln 39 to 9-79, ln 1.
1493 T 9-79 to
1494 T 9-90, lns 5-20.
1495 T 9-87, ln 19.

1752 Immediately under Question 14 was stated "We agree that, should the Applicant's coal enter the market, it has the potential to displace higher cost/lower margin supply that sits higher on the supply cost curve".[1496] The calculations in Figure 3 (which YV and TBA were unable to meaningfully interrogate) and Figure 4 (which was prepared using an aggregate margin for the DL, DU and B seams) was affected by mistakes which overinflated the margin (already calculated using the Harris $85 price) by more than 70%.

1753 **Fourth**, and perhaps most importantly, Mr Manley does not actually state anywhere an opinion that total GHG emissions will be the same, with or without the Proposed Project, or anything like it.

F. CONCLUSION

1754 If the EP Act, the MR Act and the HR Act mean what they say, then on the evidence before the Court, the Proposed Project cannot be approved.

1755 To destroy a nature refuge, embodying the sweat of human endeavour for more than 20 years based on a promise made by the State and a commitment given to the Commonwealth, with the biodiversity outcomes that could only result from such efforts, would be to perform the function in s 222 in a way that is contrary to the object of the EP Act, having regard to the considerations in s 223.

1756 For the State to approve a massive new coalmine which will emit at least 1.58 Gt CO_2-e out to 2051, lock in a minimum 2.5ºC future, and flirt with the risk of triggering tipping cascades that will take the Earth into a state not seen for millions of years, when a 1.5ºC world is still feasibly within reach, would be unreasonable in the oldest sense of the word.

1757 This Court should recommend against it.

Date: 14 June 2022

Saul Holt

Emrys Nekvapil

Kasey McAuliffe-Lake

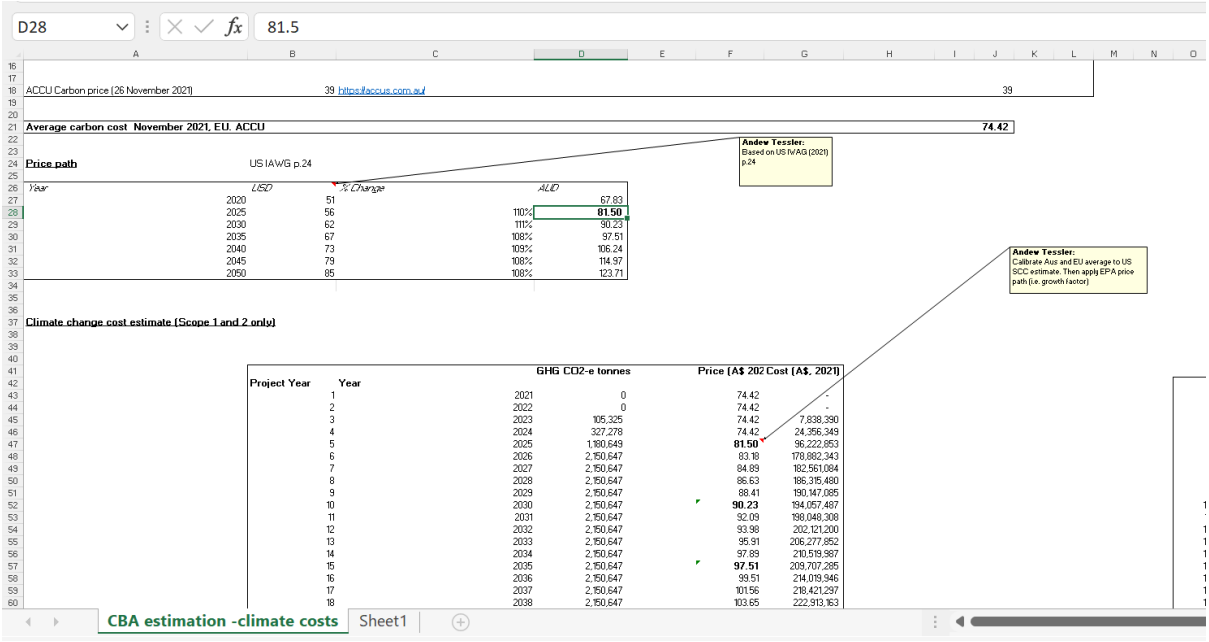
Katharine Brown

[1496] Energy Markets JER [[**COM.0069.0023**]].

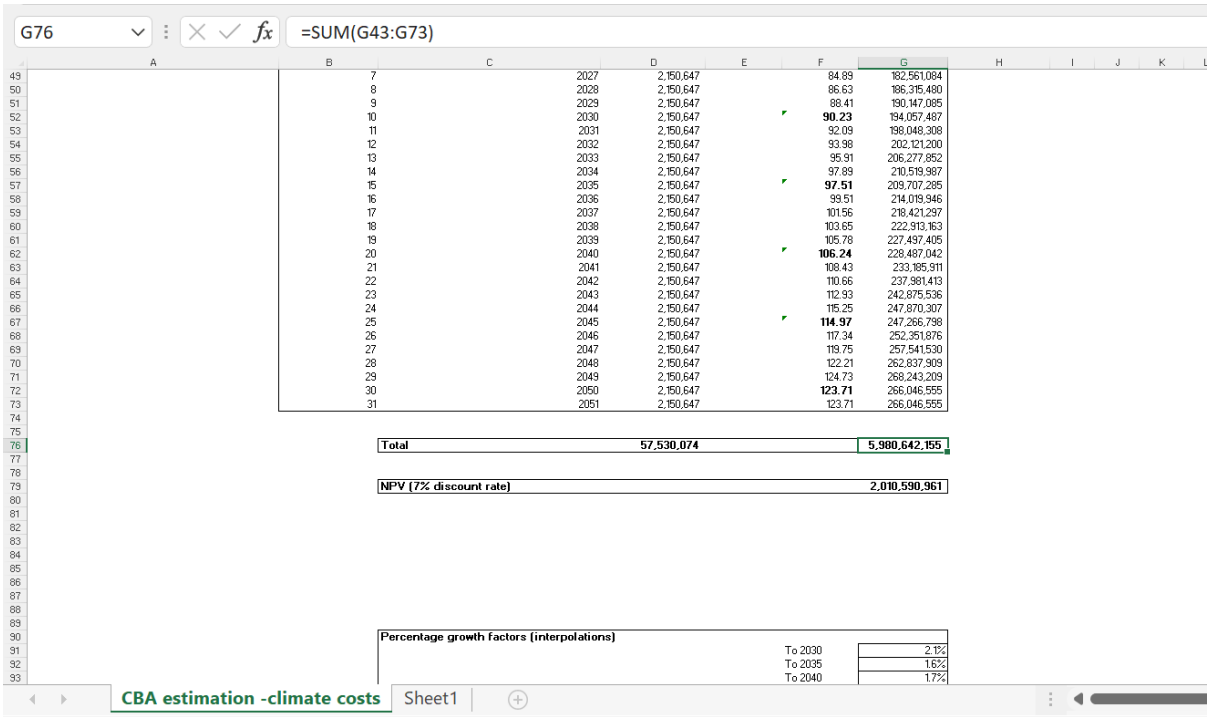
G. APPENDIX A – SCREENSHOTS OF YVL.0522.0001[1497]

G-I Scope 1 and 2 example for $81.5 at 4% discount, 100% apportionment

AA Fig. 1 - Cell D28 to desired price

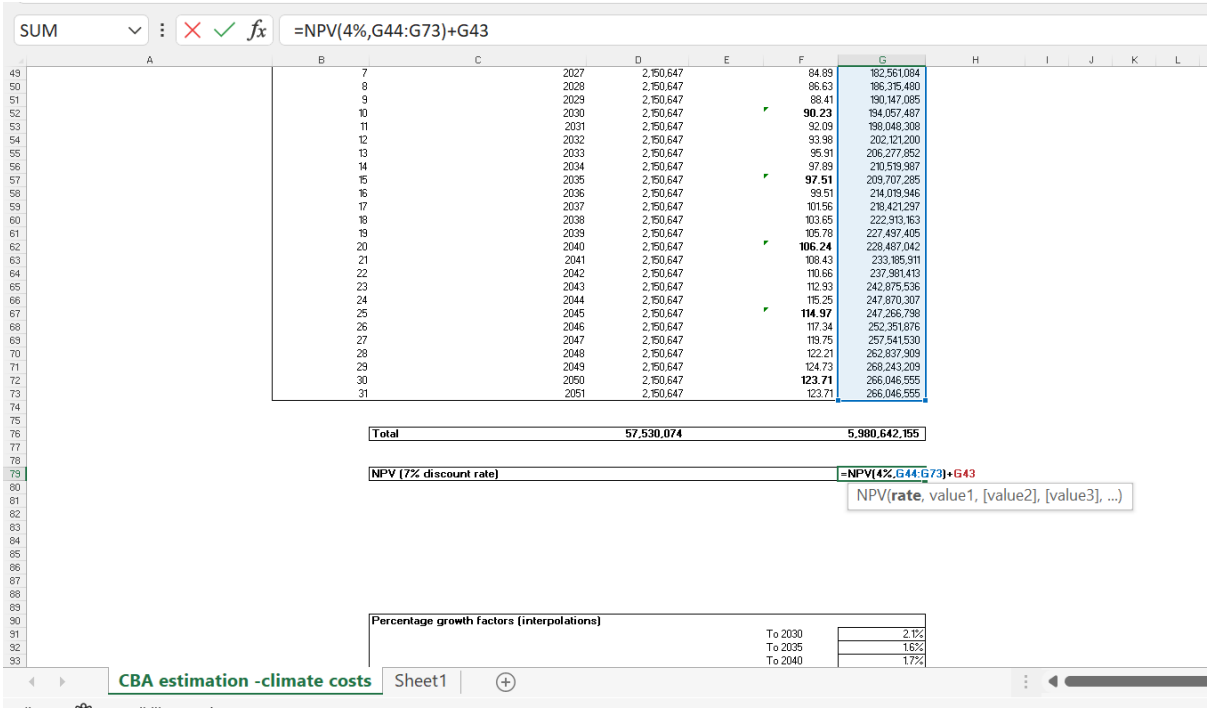


AA Fig. 2 - Cell G76 is the number before apportionment or discounting

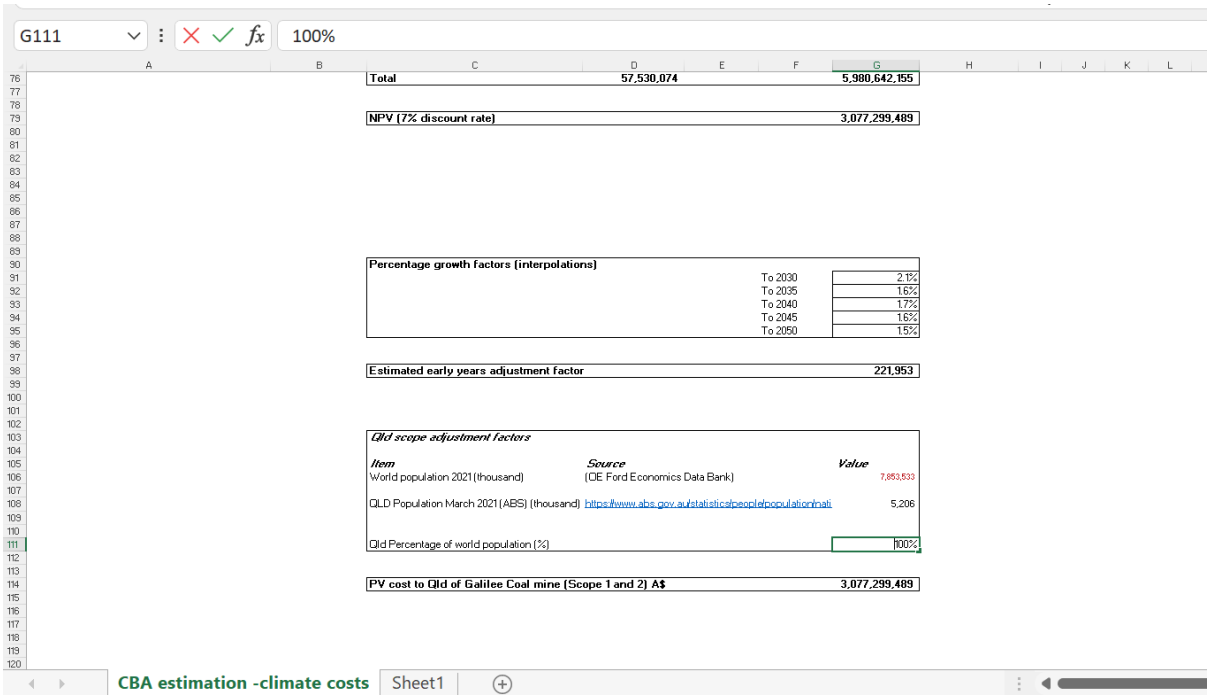


1497 Process as explained by Mr Tessler from T 18-228.

AA Fig. 3 - Cell G79 change 7% to desired percentage

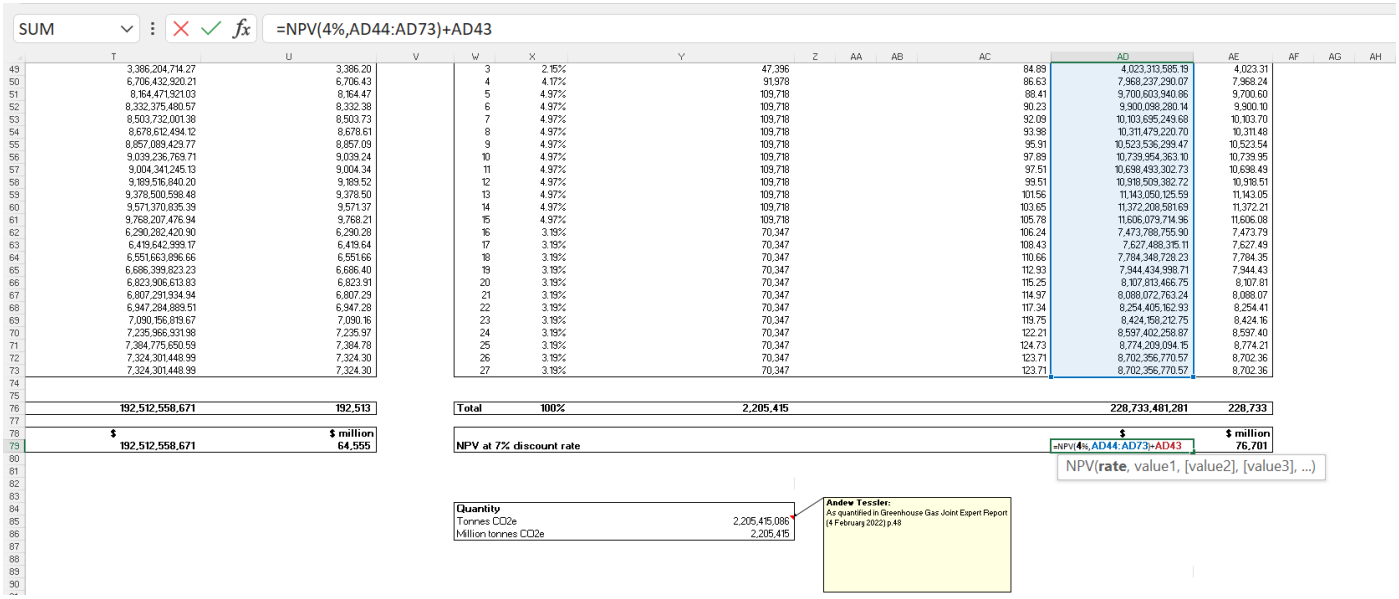


AA Fig. 4 - Cell G111 calculates apportionment



G-II Scope 3 example for $81.5 at 4% discount, 100% apportionment

AA Fig. 5 – Cell AD79 is cost unapportioned and discount rate changed from this cell[1498]



1498 Price is changed in same location as AA Fig. 1, i.e., cell D28

H. TABLE OF ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Term/Legislation/Case/Instrument
ºC	Degrees Celsius
1.58Gt CO_2-e	1,582,014,218 t CO_2-e
2.16Gt CO_2-e	2,159,666,995 t CO_2-e
ACCU	Australian Carbon Credit Unit
ACT	Australian Capital Territory
ACT HR Act	*Human Rights Act 2004* (ACT)
Actuarial Report	Independent Expert Report of Anthony Coleman filed 15 February 2022 [[**YVL.0280.0001**]]
AET	Australian Emissions Target
Affidavit of Carl Rudd	Affidavit of Carl Rudd, affirmed 21 June 2021 [[**YVL.0067.0001**]]
Affidavit of Eric Anderson	Affidavit of Eric Anderson affirmed 6 June 2021 [[**YVL.0063.0001**]]
Affidavit of Ian Hoch	Affidavit of Ian Hoch, affirmed 28 July 2021 [[**YVL.0077.0001**]]
Affidavit of Jill Sampson	Affidavit of Jill Sampson, affirmed 23 March 2021 [[**YVL.0001.0001**]]
Affidavit of Paola Cassoni	Affidavit of Paola Cassoni, affirmed 17 June 2021 [[**YVL.0057.0001**]]
Affidavit of Patricia Julien	Affidavit of Patricia Julien, affirmed 4 June 2021 [[**YVL.0064.0001**]]
Affidavit of Kapua Gutchen	Affidavit of Kapua Gutchen, sworn 7 May 2021 [[**YVL.0044.0001**]]
Affidavit of Lala Gutchen	Affidavit of Lala Gutchen, sworn 7 May 2021 [[**YVL.0036.0001**]]
Affidavit of Florence Gutchen	Affidavit of Florence Gutchen, sworn 7 May 2021 [[**YVL.0033.0001**]]
Affidavit of Jiritju Fourmile	Affidavit of Jiritju Fourmile, affirmed 21 June 2021 [[**YVL.0068.0001**]]

Affidavit of Harold Ludwick	Affidavit of Harold Ludwick, affirmed 2 June 2021 [[**YVL.0050.0001**]]
Air Quality Report	Statement of Simon Welchman on Air Quality, filed 16 November 2021 [[**WAR.0476.0001**]]
Applicant or Waratah	Waratah Coal Pty Ltd
APS	IEA Announced Pledges Scenario
AR6	Sixth Assessment Report of the Intergovernmental Panel on Climate Change
AR6 WGI	Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change
AR6 WGII	Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change
AR6 WGIII	Working Group III contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change
AUD	Australian Dollar
Bimblebox	Bimblebox Nature Refuge
Biodiversity Convention	*United Nations Convention on Biological Diversity* made 5 June 1992
BIS Oxford	BIS Oxford Economics
Canadian Charter	*Canadian Charter of Rights and Freedoms* in *Constitution Act* 1982 (Ca)
CBA	cost benefit analysis
the CBA	Galilee Coal Project Cost Benefit Analysis in [[**WAR.0531.0001**]]
CG	Coordinator-General
CG Report	The final report on the EIS and AEIS submitted by the CG dated August 2013
CGE / CGE Model	Computable General Equilibrium in Galilee Coal Project Cost Benefit Analysis [[**WAR.0531.0001**]]
Climate Convention	*United Nations Framework Convention on Climate Change*
climate experts	Emeritus Professor John Church and Dr Bethany Warren

Climate JER	Joint Expert Report of Emeritus Prof Steffen, Emeritus Prof Church and Dr Warren on Climate Change and Greenhouse Gas Emissions [[**COM.0067.0001**]]
CMSH Act	*Coal Mining Safety and Health Act 1999* (Qld)
coal and energy market experts	Ms Rachel Wilson and Mr Paul Manley
CO_2	Carbon dioxide
CO_2 e-	Carbon dioxide equivalent
combustion emissions	Emissions from the combustion of the Proposed Project's coal
CEO	Chief Executive Officer
CRC	Committee on the Rights of the Child
CROC	Convention on the Rights of the Child
CS	Consumer Surplus
Current EP Act	*Environmental Protection Act 1994* (Qld) as presently in force
DCF	Discounted cash flow model
Draft EA	The draft Environmental Authority issued by the Department on 4 December 2015
EA	environmental authority
EA Application	Application by the Applicant under the *Environmental Protection Act 1994* (Qld) for an environmental authority
ecologically sustainable development	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
Ecology JER	Joint Expert Report of Mr Adrian Caneris, Dr Andrew Daniel, Dr Rod Fensham and Mr Bill Thompson, filed 28 February 2022 [[**COM.0068.0001**]]
economics experts	Mr Roderick Campbell and Mr Andrew Tessler
Economics JER	Joint Expert Report of Mr Rod Campbell and Mr Andrew Tessler on Economics, filed 12 April 2022 [[**COM.0302.0001**]]
EIS	Environmental Impact Statement

Elkin Response to DES RFI	Statement of Evidence to the Land Court of Queensland in response to DES questions, filed 24 January 2022 [[**WAR.0500.0001**]]
Energy market experts or coal and energy market experts	Ms Rachel Wilson and Mr Paul Manley
Energy Markets JER	Joint Expert Report of Ms Rachel Wilson and Mr Paul Manley on Coal and Energy Markets, filed 9 March 2022 [[**COM.0069.0001**]]
EP Act	*Environmental Protection Act 1994* (Qld) as at 14 March 2013
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ETS	Emissions Trading Scheme
EU	European Union
Fifth Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 20 April 2022 [[**WAR.0706.0001**]]
First Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 21 June 2021 [[**WAR.0291.0001**]]
FOB	free-on-board
Fourth Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 2 February 2022 [[**WAR.0511.0001**]]
GHG	Greenhouse gas
GHG emissions	Greenhouse gas emissions
Groundwater Quality Report	Statement of Evidence to the Land Court of Queensland on Groundwater Quality, filed 12 November 2021 [[**WAR.0474.0001**]]
GSAT	global mean surface air temperature
ha	hectares
Harris-King Spreadsheet	J King Financial Model [[**YVL.0449.0001**]] or Attachment to email 3 Harris-King [[**YVL.0427.0001**]]
HR Act	*Human Rights Act 2019* (Qld)
HRC	United Nations Human Rights Committee
ICCPR	International Covenant on Civil and Political Rights

IEA	International Energy Agency
IEA NZES	International Energy Agency's Net Zero Emissions by 2050 scenario [[**YVL.0213.0001**]]
IGAE	Inter-Governmental Agreement on the Environment made on 1 May 1992
Intergovernmental Agreement	Intergovernmental Agreement on the Environment [[**COM.0348.0001**]]
IPCC	Intergovernmental Panel on Climate Change
kcal/kg	kilocalories per kilogram
King report	[[**WAR.0360.0001**]].
LC Act	*Land Court Act 2000* (Qld)
Mineralogy	Mineralogy Pty Ltd
Mineralogy Group	Company group structure in [[**YVL.0502.0001**]]
ML	Mining Lease
ML Application	Application by the Applicant under the *Mineral Resources Act 1989* (Qld) for a mining lease
MR Act	*Mineral Resources Act 1989* (Qld)
Mtpa	million tonnes per annum
National Strategy	National Strategy for Ecologically Sustainable Development [[YVL.0528.0001]]
NC Act	*Nature Conservation Act 1992* (Qld)
NDC	Nationally Determined Contribution
Noise Report	Statement of Evidence to the Land Court by Shane Elkin, filed 29 November 2021 [[**WAR.0481.0001**]]
NPS	Net producer surplus
NPV	Net Present Value
NSESD	*National Strategy for Ecologically Sustainable Development* endorsed by the Council of Australian Governments on 7 December 1992 [[**YVL.0295.0001**]]
NSW	New South Wales

NSW Guidelines	NSW Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals [[**YVL.0287.0001**]]
NZES	Net-zero emissions scenario
Offsets JER	Joint Expert Report of Professor Martine Maron and Dr Jarrad Cousin on Offsets, filed 4 April 2022 [[**COM.0183.0001**]]
Offsets JER	Joint expert report of Professor Maron and Dr Cousin on offsets [[COM.0183.0001]]
Pells Report	Independent Expert Report of Dr Philip Pells on Subsidence, dated 29 November 2021 [[**YVL.0280.0001**]]
PIN	Penalty Infringement Notice
ppm	parts per million
Proposed Project	Galilee Coal Project (Northern Export Facility) as proposed in this matter
Public Health Report	Independent Expert Report of Professor Hilary Bambrick on Public Health, filed 15 February 2022 [[**YVL.0280.0001**]]
RCP	Representative Concentration Pathway
RFC	Reasons For Concern
ROM	run-of-mine
SD Act	*State Development and Public Works Organisation Act 1971* (Qld)
SD Act	*State Development and Public Works Organisation Act 1971* (Qld)
Second Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 30 July 2021 [[**WAR.0311.0001**]]
Seedsman Report	Statement of Evidence to the Land Court of Queensland on Subsidence impacts, filed 5 November 2021 [[**WAR.0442.0001**]]
Seedsman Response to DES RFI	Statement of Evidence to the Land Court of Queensland in response to DES questions, dated 2 January 2022 [[**WAR.0491.0001**]]
SEIS	Supplementary Environmental Impact Statement
Sixth Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 2 May 2022 [[**WAR.0747.0001**]]

SSP	Shared Socioeconomic Pathways
STEPS	IEA Stated Policies Scenario
Subsidence JER	Joint Expert Report of Dr Ross Seedsman and Dr Philip Pells on Subsidence impacts, filed 12 January 2022 [[**COM.0065.0001**]]
Supplementary Affidavit of Ian Hoch	Supplementary Affidavit of Ian Hoch, affirmed 14 April 2022 [[**YVL.0324.0001**]]
Supplementary Affidavit of Patricia Julien	Supplementary Affidavit of Patricia Julien, affirmed 12 April 2022 [[**YVL.0293.0001**]]
Supplementary Climate JER	Supplementary Climate Joint Expert Report, 20 May 2022 [[**COM.0343.0001**]]
Supplementary Subsidence JER	Supplementary Joint Expert Report of Dr Ross Seedsman and Dr Philip Pells on Subsidence impacts, filed 20 January 2022 [[**COM.0066.0001**]]
Surface Water Report	Statement of Evidence to the Land Court of Queensland of Dr Andrew Vitale on Surface Water, dated 22 December 2021 [[**WAR.0486.0001**]]
T	Transcript
t	tonne
Tahmoor South	Tahmoor South Proposed Project
TBA	The Bimblebox Alliance Inc
Technical Notes	Technical Notes supporting the NSW Guidelines [[**WAR.0659.0001**]]
Third Harris Affidavit	Affidavit of Nui Bruce Harris, affirmed 6 August 2021 [[**WAR.0315.0001**]]
UDHR	United Nations Declaration on Human Rights
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
USD	United States Dollar
Victorian Charter	*Charter of Human Rights and Responsibilities Act 2006* (Vic)
Welchman Response to DES RFI	Statement of Simon Welchman on Air Quality in response to DES questions, dated 2 January 2022 [[**WAR.0490.0001**]]

WM	Wood Mackenzie
WM Databook	Wood Mackenzie Databook [[**YVL.0410.0001**]]
WM ETO	Wood Mackenzie base case scenario (“Energy transition outlook”)
YV	Youth Verdict Ltd
Zenadth Kes	Torres Strait Islands