DEPARTMENT OF AGRICULTURE, WATER AND THE ENVIRONMENT

MS21-006851

To: Minister for the Environment (for decision)

Approval Decision Brief (assessment report) – Mangoola Coal Continued Operations Project, Wybong, NSW, (EPBC 2018/8280)

Timing: 1 October 2021 - Statutory timeframe for final decision.

Recommendations:

1. That you consider the information provided in this brief and attachments, including:
   a. the proposed decision briefing package at **Attachment A**, the updated legal considerations report at **Attachment B** and the NSW assessment documentation at Attachment G of **Attachment A** of the proposed decision brief, and
   b. information concerning the impacts of the proposed action on human safety and your duty to take reasonable care, in the exercise of your own powers under ss 130 and 133 of the EPBC Act, to avoid causing personable injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere at **Attachment B**.

   Considered / please discuss

2. That you consider the responses to the invitation for comment on the proposed decision at **Attachment C**.

   Considered / please discuss

3. That you consider the impacts of the proposed action on human safety and give this consideration elevated weight in making the decision

   Considered / please discuss

4. That you agree that you have enough information to make the decision set out in the notice at **Attachment D**

   Agreed / Not agreed

5. That you agree to approve, for the purposes of each controlling provision, the action as summarised in the table below.

   Agreed / Not agreed

6. That you agree to attach the conditions of approval as set out in **Attachment D**

   Agreed / Not agreed

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7. If you agree with recommendations 4, 5, 6, that you accept the reasoning in the departmental briefing package (including the updated legal considerations report) as the reasons for your decision.

Accepted / Not Accepted

8. If you agree to recommendations 4, 5 and 6, that you sign the notice of your decision at **Attachment D**.

Signed / Not signed

9. If you agree to recommendations 4, 5 and 6, that you sign the letters at **Attachment E** advising the person proposing to take the action, relevant Commonwealth Ministers, and the NSW Government of your decision.

Signed / Not signed

10. If you agree with recommendations 4, 5 and 6, that you consider the draft statement of reasons (**Attachment F**) and make any modifications you consider necessary to ensure the statement reflects your reasons for your decision

Considered/ Please discuss

11. If you agree that the draft statement of reasons accurately reflects your reasoning for your decision, that you sign the draft statement of reasons at **Attachment F** after making any amendments that you consider appropriate.

Signed / Not signed

12. That you agree to the department's recommendation that the statement of reasons be published on the department's website.

Agreed / Not agreed

Controlling Provisions for the action	**Recommendation**	
	Approve	**Refuse to Approve**
Listed threatened species and communities (ss 18, 18A)	Approve	
A water resource, in relation to coal seam gas development and large coal mining development (ss 24D, 24E)	Approve	

The Hon Sussan Ley MP, Minister for the Environment Date:

Comments: Signed by 11/10/21

Clearing Officer: Sent 30/09/2021	Melissa Brown	First Assistant Secretary Environment Approvals Division	s. 22(1)(a)(ii)
Contact Officer:	s. 22(1)(a)(ii)	Director, Northern NSW Assessments	s. 22(1)(a)(ii)

Key Points:

13. The purpose of this submission is to seek your consideration of a final approval decision for the Mangoola Coal Continued Operations Project, under Part 9 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

14. Mangoola Coal Operations Pty Limited (the person proposing to take the action and the designated proponent), proposes to extend the existing Mangoola Coal Mine operation by establishing and operating a new Northern Extension Area and associated infrastructure, and extending the existing mine life until December 2030 (the proposed action). The proponent is a subsidiary of Glencore Coal Pty Limited.

15. On 15 September 2021, as recommended in the proposed approval decision brief (**Attachment A**) you proposed to approve the proposed action and you wrote to the proponent and relevant Commonwealth Ministers seeking comments on your proposed decision, as required under sections 131AA(1) and 131(1) of the EPBC Act. You also wrote to the NSW Minister for Planning and Public Spaces informing him of your proposed decision. The responses to your invitation to comment provided at **Attachment C** are summarised below.

16. Under section 130 of the EPBC Act, you are now required to decide whether or not to approve the proposed action, and if you decide to approve under section 133, what conditions you will attach to the approval under section 134 of the EPBC Act.

17. The mandatory considerations that you must have regard to when deciding whether or not to approve the proposed action, and the department's analysis of them, are in this brief, and the updated legal considerations report at **Attachment B** to this brief.

Background

18. The proposed action will result in clearance of:

    a. 148 ha of potential Swift Parrot (*Lathamus discolor*) foraging habitat,

    b. 148 ha of potential Regent Honeyeater *(Anthochaera phrygia)* habitat,

    c. 162.6 ha potential Grey-headed Flying Fox (*Pteropus poliocephalus*) foraging habitat

    d. 691 individuals of *Prasophyllum* sp. Wybong, and

    e. 24.3 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community.

19. Mining operations as part of the proposed action will result in the disturbance of surface water catchments. The proposed action is also likely to extend groundwater drawdown along Big Flat Creek and some private groundwater bores.

20. The proposed action has been assessed under the *Environmental Planning and Assessment Act 1979* (NSW) and was approved by the NSW Independent Planning Commission on 26 April 2021.

21. These impacts of the proposed action, and avoidance and mitigation measures, are discussed in more detail in the assessment report prepared by the NSW Department of Planning, Industry and the Environment at Attachment G3 of **Attachment A** to this brief.

22. The department considers that the conditions attached to the NSW development consent generally address the impacts on listed threatened species and ecological communities and water resources. The department recommends that you attach additional conditions to address a number of discrete outstanding issues. The additional conditions:

    a. Ensure the proposed action has minimal impacts on Groundwater Dependent Ecosystems.

    b. Provide additional protection of surface water through the identification of water quality monitoring parameters and a Stream Monitoring Program for the Hunter River discharge point, to be approved by you.

    c. Provide transparency in the retirement of biodiversity credits to achieve offsets requirements, as well as additional offset management plan requirements for the critically endangered *Prasophyllum* sp Wybong.

23. When you made the proposed decision, the department recommended and you agreed that the potential impacts of the proposed action on water resources and listed threatened species could be addressed through the recommended conditions of approval, and that the impacts would not be unacceptable, provided that the action is undertaken in accordance with the recommended conditions (**Attachment D**).

Consultation

24. As recommended in the proposed approval decision brief, you wrote to the proponent and relevant Commonwealth Ministers inviting comments on the proposed decision, as required under sections 131AA(1) and 131(1) of the EPBC Act. You also notified the NSW Minister for Planning and Public Spaces, the Hon Rob Stokes MP, of the proposed approval decision.

25. On 1 September 2021, you received a letter from Environmental Justice Australia on behalf of Lock the Gate Alliance opposing the approval of the proposed action. Lock the Gate requested that you seek public comments under s 131A of the EPBC Act in the event that your propose to approve the proposed action. The department considers that sufficient opportunity to comment on the proposed action had already been provided to the public, noting the NSW assessment process included a 90 day public exhibition period and the IPC process included a public hearing. As recommended in the proposed approval decision brief, you decided not to publish the proposed decision online for public comment under s 131A.

26. The outcome of the consultation is as follows and responses to your proposed decision are at **Attachment C**.

Comments from Mangoola Coal Operations Pty Ltd

27. On 23 September 2021, the department received comments from the proponent about the proposed conditions (**Attachment C1**). The comments only identified a few proposed grammatical changes and suggested that key terms be revised for consistency.

28. The proponent's suggested amendments have been incorporated into the final decision notice (**Attachment D**).

29. A revised copy of the proposed final conditions was provided to the proponent on 23 September 2021. On 24 September 2021, the proponent confirmed that they agreed to the conditions as amended (**Attachment C1**).

Comments from the Minister for Resources and Water

30. On 28 September 2021, the Department of Industry, Science, Energy and Resources provided comments from Geosciences Australia (**GA**) in response to the invitation to Minister Pitt (**Attachment C3**).

31. GA examined the draft approval conditions and considered the practicalities of their implementation, with a particular focus on conditions that may be difficult to monitor or enforce, for both the approval holder and regulators. GA identified the following points for further consideration and made recommendations to address those issues. These issues, and the department's response, are as follows:

    a. GA recommended removing the word 'approximately' in the wording of Condition 1 to increase clarity and enforceability. The department adopted the recommendation. Additionally, in relation to Condition 1, GA recommended including limits on the size and depth of the open cut pit and final void which would improve protection for water resources from mining impacts. The department notes that Condition 1 specifies a limit on coal extraction and restricts the location of the pit to the MCCO Additional Project area which is defined in Annexure 1 of the approval. The Department considers these limits to be sufficient. Further, from an administrative perspective, defining the amount of ROM coal to be extracted clarifies the scope of the activity for compliance purposes.

    b. GA recommended greater clarity around the definition of the GDE performance measure. The Department notes GA's comment. However, the term 'environmental consequences' has been used to align with the terminology used for other performance measures in the NSW development consent. The department is confident that the intent of the terminology 'environmental consequences' is clear and aligning the terminology with the NSW development consent provides greater consistency from an administrative perspective as well as clarity for the proponent.

    c. GA recommended that the Commonwealth should include requirements to monitor groundwater resources to improve protection for GDEs. The department notes that Condition B50 of the NSW development consent requires thorough groundwater monitoring, and compliance with this NSW condition is required by Condition 2.

    d. GA provided several comments in regard to the Condition 3(a). The comments largely relate to the trigger action response plan, as well as the repair, mitigate and

offset requirements. The department notes that the intent of Condition 3 is to include the GDE performance measure, as well as monitoring and management requirements, in the Groundwater Management Plan, which is required by Condition B50(v) of the NSW development consent. It is also noted that the trigger action response plan, repair, mitigate and offset (now Condition 3(b)) requirements of Condition 3(a) are consistent with the requirements of Condition B50(v) of the NSW development consent. The department is satisfied Condition 3(a) are sufficiently robust and provide consistency between Commonwealth and State conditions.

e. GA raised concerns regarding the timeframe set in Condition 3(b). GA stated the timeframe for notifying the department of a performance measure exceedance and the proposed repair works may be unrealistic. However, the department notes the timeframes for the actions required under the conditions have been reviewed and agreed to by the proponent. The department is confident that the final conditions enable robust monitoring and compliance, and set appropriate timeframes for the approval holder to undertake management actions.

f. GA sought clarification as to the scope of the matters condition 7 is intended to regulate. The department noted this comment and is satisfied that Condition 7 is sufficient to ensure the proponent keeps the department informed of key developments and will regularly provide up to date information for post approval and/or compliance matters.

g. GA noted that the Minister may need to approve the Groundwater Management Plan. The department does not recommend ministerial approval of plans and has revised Condition 17 accordingly. The department considers that approval by the NSW Planning Secretary is sufficiently rigorous, and it is not necessary for the proponent to seek additional endorsement from the department. Condition B50 of the NSW development consent requires the proponent to prepare a Water Management Plan to the satisfaction of the Planning Secretary.

Comments from the Minister for Indigenous Australians

32. Minister Wyatt responded on 29 September 2021, (**Attachment C2**). Minister Wyatt supported the measures proposed as part of the Commonwealth's approval to minimise potential impacts water resources, and listed threatened communities and ecological communities.

33. In acknowledging the proponent's commitment to biodiversity, Minister Wyatt stated that there is opportunity for the proponent to collaborate with relevant Indigenous stakeholders and Traditional Owners to develop protocols to protect and manage culturally significant flora, fauna (in particular, the Grey-headed Flying-fox), and sites within the project area.

34. Minister Wyatt encouraged you to work with NSW to ensure the preservation of Aboriginal cultural heritage materials by applying best practice standards to the oversight of the project. He specified the best practice standards are detailed in *Dhawura Ngilan: A Vision for Aboriginal and Torres Strait Islander Heritage in Australia and the Best Practice Standards in Indigenous Cultural Heritage Management and Legislation.*

35. Minister Wyatt noted that for privately funded projects, neither the Commonwealth nor NSW governments attach conditions requiring the engagement of Indigenous enterprise

or minimum employment outcomes. He encouraged the engagement of Indigenous employees to help realise the economic value of the project to local Indigenous people.

36. Minister Wyatt acknowledged the proponent's parent company, Glencore, has established an Indigenous Employment Pathways Program. Additionally, he recognised the proponent expressed in the EIS that they will consider establishing a traineeship or work experience program. Minister Wyatt strongly encouraged the proponent to work with Traditional Owners, Jobactive providers, and Vocational Training and Employment Centres to identify the most appropriate employment pathway. Additionally, he recommended the proponent liaise with Traditional Owners to identify suitable Indigenous businesses to support activities under the project. Minister Wyatt, noted that services such as Supply Nation, may also be useful to identify suitable Indigenous businesses.

37. Minister Wyatt recommended that ongoing, active engagement with all relevant Indigenous stakeholders and Traditional Owners throughout the project's lifespan would ensure best practice. He also expressed the commitments made by the proponent in the EIS were encouraging and suggested formalising the engagement, funding, and employment commitments through an Indigenous Land Use Agreement.

38. The letter to the proponent includes this advice and encourages ongoing Indigenous stakeholder consultation.

Comments from the Minister for Agriculture and Northern Australia

39. No response was received from the Minister for Agriculture and Northern Australia.

Comments from the Minister for Energy and Emissions Reduction

40. No response was received from the Minister for Energy and Emissions Reduction.

Matter for consideration

41. You are now required under sections 130 and 133 of the EPBC Act to decide whether to approve the action and, if you decide to approve, what conditions you will attach to the approval under section 134 of the EPBC Act. The department considers that you have enough information to make an informed decision on whether or not to approve the action.

42. Except for the matters discussed in this brief, the matters for consideration and factors to be taken into account in making your decision are as set out in the proposed approval decision brief and its attachments (**Attachment A**), and the updated legal considerations report (**Attachment B**).

43. The department confirms that all relevant conservation advices, recovery plans and threat abatement plans are still current and have not changed from the date of the proposed approval decision (**Attachment A**).

Changes to conditions

44. Since the proposed decision, the department has made a number of minor changes to the conditions it recommends be attached to your conditions. This includes grammatical changes, and clarifying key terms to improve clarity and consistency. The conditions as revised are set out in the Final Decision Notice at **Attachment D**.

45. The department considers that the recommended conditions of approval are necessary or convenient to protect, or repair or mitigate damage to, the matters protected by a provision of Part 3 of the EPBC Act which would be apply to this approval. The rationale for each of the conditions is set out in the updated legal considerations report (**Attachment B**).

46. As noted above, the proponent has advised that it agrees with the revised recommended conditions of approval.

47. Consistent with the requirements in subsection 134(4), in recommending the conditions of approval at **Attachment D**, the department has considered: relevant conditions that have been imposed under the NSW approval; the information provided by the proponent; and the desirability of ensuring that the conditions are a cost-effective means for the Commonwealth and the proponent to achieve the object of the conditions.

Human safety and your duty of care

48. On 8 July 2021, the Federal Court of Australia declared that you have a duty to take reasonable care, in the exercise of your powers under ss 130 and 133 of the EPBC Act in respect of the Vickery Extension Project (EPBC 2016/7649) (**Extension Project**), to avoid causing personal injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere: *Sharma v Minister for Environment (No 2)* [2021] FCA 774). On 27 May 2021, the Court published its reasons for making that declaration: *Sharma v Minister for Environment* [2021] FCA 560. These decisions are collectively referred to as ***Sharma***.

49. Notwithstanding that you are appealing the Federal Court's judgment in *Sharma*, the department has nonetheless applied the *Sharma* reasoning to this proposed action. In accordance with *Sharma*, in deciding whether or not to approve the taking of the proposed action, you must take into account human safety and you must take reasonable care to avoid causing death or personal injury to Australian children. Human safety should be given elevated weight in balancing the matters you must consider in exercising your discretion to approve or not approve the proposed action under ss 130 and 133 of the EPBC Act.

50. The department has considered matters pertaining to the risks to human safety posed by the proposed action and your duty to take reasonable care to avoid causing death or injury to Australian children in making your decision at **Attachment B** to this brief.

51. The department considers, based on advice from the Department of Industry, Science, Energy and Resources (DISER), that approval of the proposed action is not likely to cause harm to human safety because there is no reason to believe that a comparable amount of coal would not be consumed in substitution of the proposed action's coal. Therefore, the department does not consider that the approval of the proposed action will necessarily result in an increase to global GHG emissions.

52. The department has also considered the risk posed by the proposed action to human safety that could arise if this conclusion is incorrect. If the GHG emissions of the proposed action are 'additional', the proposed action may result in a very small increase in global GHG emissions and therefore cause a very small increase to global average surface temperatures. However, even if this is the case, the department recommends the approval of the proposed action because of the low risk of harm to human safety

resulting from this level of emissions, the global mechanisms in place to respond to climate change, together with the benefits of the approval, as well as the social and economic considerations as set out in **Attachment B**.

53. For the reasons outlined in **Attachment B**, the department recommends that you approve the proposed action, after giving elevated weight to human safety and your duty of care, while also having regard to all other mandatory considerations, including economic and social considerations.

Additional information

The following paragraph is commercially sensitive and must not be disclosed to or discussed with third parties.

54.

s. 47(1) / s. 47G(1)

Line area consultation

55. The following line areas were consulted in the preparation of the final decision briefing package and conditions:

    a. Water Resources Regulatory Support;

    b. Legal Division (and Australian Government Solicitor)

    c. Office of Water Science;

    d. Post Approvals;

    e. Environmental Audit; and

    f. Climate Adaption and Resilience Division.

Notification of decision

56. Under section 133(3) of the EPBC Act, you must give a copy of the approval to the person named in the approval. A letter to the proponent is at **Attachment E1** for your signature.

57. The department also recommends that you write to relevant Commonwealth Ministers, and the NSW Minister for Planning and Public Spaces, notifying them of your decision. The letters are at **Attachment E2-E6** for your signature.

Statement of Reasons

58. The draft statement of reasons (**Attachment F**) was prepared against this briefing package. The department notes you may make any modifications you consider necessary to ensure the statement reflects your reasoning.

59. Although it is not mandatory, we recommend you publish the statement of reasons on the department's website because:

a. There is a high level of public interest in this decision following the Federal Court's judgment in *Sharma v Minister for the Environment*.

b. Publishing the statement of reasons is consistent with the government's policies on transparency in decision making and the department's EPBC Act policy statement for statement of reasons.

ATTACHMENTS* (see Appendix for complete list)

A: Proposed decision briefing package (MS21-006021)

B: Updated legal considerations report

C: Responses to invitation for comment on proposed decision

D: Final Approval decision notice (which includes the conditions) (**for signature**)

E: Letters notifying the proponent, relevant Commonwealth Ministers and the NSW Government of the final approval decision (**for signature**)

F: Draft statement of reasons (**for signature**)

G: DISER supplementary information

H: Sharma Ors V Minister for the Environment Judgement

I: Expert reports considered in Sharma

J: The Greenhouse Gas Protocol 2004 (World Business Council for Sustainable Development and World Resources Institute)

K: Additional proponent information

L: School Strike 4 Climate (SS4C) Letter

Appendix - final decision attachment list

Document	Document Description
Attachment A	Proposed decision briefing package (MS21-006021)
Attachment B	Updated legal considerations report
Attachment C1	Proponent's response to invitation to comment and agreement to Final Conditions
Attachment C2	Response to invitation to comment - Minister for Indigenous Australians
Attachment C3	Response to invitation to comment - Minister for Resources and Water
Attachment D	Final decision notice - **FOR SIGNATURE**
Attachment E1	Letter to Proponent - **FOR SIGNATURE**
Attachment E2	Letter to Minister for Indigenous Australians - **FOR SIGNATURE**
Attachment E3	Letter to Minister for Resources and Water - **FOR SIGNATURE**
Attachment E4	Letter to Minister for Agriculture and Northern Australia - **FOR SIGNATURE**
Attachment E5	Letter to Minister for Energy and Emissions Reduction - **FOR SIGNATURE**
Attachment E6	Letter to NSW Government - **FOR SIGNATURE**
Attachment F	Draft statement of reasons - **FOR SIGNATURE**
Attachment G	DISER supplementary information
Attachment H1	Sharma v Minister for Environment [2021] FCA 560 (Sharma No 1)
Attachment H2	Sharma v Minister for Environment (No 2) [2021] FCA 774 (Sharma No 2)
Attachment I1	*Sharma* - Expert Report of Ramona Meyricke
Attachment I2	*Sharma* - Expert Report of Professor Anthony Capon
Attachment I3	*Sharma* - Expert Report of Dr Karl Mallon
Attachment I4	*Sharma* - Expert Report of Professor Steffen
Attachment I5	*Sharma* - Supplementary Report of Professor Steffen
Attachment J	The Greenhouse Gas Protocol 2004 (World Business Council for Sustainable Development and World Resources Institute)
Attachment K1	Additional information on export country coal markets – provided by the proponent on 20 September 2021
Attachment K2	Correspondence from Glencore to Minister Ley - 8 September 2021
Attachment L	School Strike 4 Climate (SS4C) Letter to Minister Ley

Australian Government
Department of Agriculture, Water and the Environment

PDR no. MS21-006851
Adviser

Ministerial Submission Coversheet

Subject	Final Approval Decision Brief – Mangoola Coal Continued Operations Project, Wybong, (EPBC 2018/8280)
Client (if applicable)	

Division	Environment Approvals Division (EAD) G4		
Contact officer	s. 22(1)(a)(ii)	Telephone	s. 22(1)(a)(ii)
Cleared by (SES)	Melissa Brown	Telephone	s. 22(1)(a)(ii)

Finance Division	Name of contact:	N/a	Date approved: / / 2021
No financial implications of this decision.			
Legal Division	Name of contact:	N/a	Date approved: / / 2021
Legal Division have reviewed this briefing package.			

FOR MO/AMO USE ONLY:	**Scheduled date**	**Actual date**
Date registered	01 October 2021	01 September 2021
Dept to Minister's Office		
DLO to Adviser(s)		
Adviser(s) to Chief of Staff		
Chief of Staff to Minister		

MO/AMO COMMENTS:

MANGOOLA COAL CONTINUED OPERATIONS PROJECT

(2018-8280)

EPBC ACT ASSESSMENT LEGAL CONSIDERATIONS REPORT

13 September 2021

TABLE OF CONTENTS

1 OVERVIEW

1.1 USING THIS REPORT

1. This legal considerations and assessment report (the Report) should be read in conjunction with the covering brief and other attachments. This Report adopts the terminology defined in the brief (for example, the proponent, proposed action, etc).

2. All attachments refer to attachments to the proposed decision brief unless otherwise specified.

3. The department has prepared this Report to guide the Minister for the Environment in making a proposed decision on whether or not to approve the Mangoola Continued Coal Operations (MCCO) Project (the proposed action) for the purposes of each controlling provision under sections 130 and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

4. The Report includes:

    a. the matters you must and may consider in making your proposed decision, including the impacts of the proposed action on the matters protected by each of the relevant controlling provisions

    b. the department's analysis and conclusions in respect of these matters and recommended proposed decision

    c. the department's assessment of how, in approving the proposed action and attaching the proposed conditions to the approval, you will not be acting inconsistently with any applicable recovery plans and threat abatement plans and relevant international obligations.

5. In preparing this Report, the department took into account the following information:

    a. NSW Government's assessment and decision documents, including:

    b. the NSW Department of Planning, Industry and Environment's (DPIE) assessment report (Attachment G3)

    c. the NSW Biodiversity Conservation Division (BCD) advice (BCD advice; Attachment G6)

    d. MCCO Project – Proponent response to BCD on MNES (Attachment I5)

    e. letter from DPIE advising of state approval and Commonwealth matters (Attachment G1)

    f. the Independent Planning Commission of NSW's (IPC) statement of reasons for their approval decision (IPC SOR; Attachment G5)

    g. the NSW State Development Consent (NSW conditions, Attachment G2)

h. proponent's Environmental Impact Statement and attachments (EIS; Attachment I1)

i. proponent's response to submissions report (RTS); (Attachment I2)

j. approved Conservation Advice, Recovery Plans and Threat Abatement Plans (Attachments H1-H12)

k. the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) advice (Attachment J1)

l. proponent's response to IESC advice (Attachment J2)

m. additional documentation cited and attached to the briefing package.

6. The NSW Government's assessment and decision documents (Attachments G1, G2, G3, G4, G5, and G6) are the 'assessment report' for the purposes of section 130(2) of the EPBC Act. They summarise impacts on the environment, including matters protected by the relevant controlling provisions.

1.2 RECOMMENDATION

7. The department concludes in this Report, and recommends you agree, the proposed action should be approved under sections 130 and 133 of the EPBC Act subject to the proposed conditions specified in Attachment B.

8. The department notes NSW's conclusions in relation to the acceptability of the impacts of the proposed action on listed threatened species and ecological communities and water resources, and the conditions attached to the NSW approval decision. The department considers there are some additional considerations in relation to approval under the EPBC Act and recommends additional conditions be attached to an approval under the EPBC Act to protect, and repair or mitigate damage to, matters of national environmental significance from the impacts of the proposed action.

1.3 CONSIDERATIONS RELATING TO DECISION-MAKING UNDER PART 9 OF THE EPBC ACT

9. We set out below a summary of the requirements under the EPBC Act that relate to your decision about whether or not to propose to approve the taking of the action. The Report addresses each of these considerations in turn.

10. Section 136(5) of the EPBC Act provides that, in deciding whether to approve the taking of an action, and what conditions to attach to an approval, you must not consider any matters you are not required or permitted to consider.

1.4 MANDATORY CONSIDERATIONS

11. Under subsection 136(1) of the EPBC Act, in deciding whether or not to approve an action and what conditions to attach to the approval, you must consider the following, so far as they are not inconsistent with any other requirement of Subdivision B, Division 1

of Part 9 the EPBC Act:

i. matters relevant to any matter protected by the controlling provisions for the action; and

ii. economic and social matters.

12. The controlling provisions for the proposed action are:

i. sections 18 and 18A (listed threatened species and communities)

ii. sections 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

13. The department's analysis of these considerations is in Sections 3, 4, 5 and 6, respectively, of this Report.

1.5 FACTORS TO BE TAKEN INTO ACCOUNT

14. In considering the above matters, you must take into account:

i. the principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(b) and 391(2) of the EPBC Act) (section 136(2)(a))

ii. the NSW assessment report (the AR), being the assessment report relating to the proposed action (section 136(2)(b))

iii. any other information you have on the relevant impacts of the proposed action (section 136(2)(e))

iv. any relevant comments given to you by another Minister in accordance with an invitation under section 131, 131AA or 131A ((section 136(2)(f) and section 131AA(6))

v. any relevant advice obtained by the Minister from the IESC in accordance with section 131AB (section 136(2)(fa))

vi. any information given to you in accordance with a notice under section 132A (section 136(2)(g)).

15. These factors are addressed in Section 8 below.

1.5.1 Human Safety and your Duty of Care

16. On 8 July 2021, the Federal Court of Australia declared that you have a duty to take reasonable care, in the exercise of your powers under sections 130 and 133 of the EPBC Act in respect of the proposed action, to avoid causing personal injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere (Attachment D of the Final Decision Brief).

17. The Court also held that human safety is a mandatory relevant consideration in relation to a controlled action that may endanger human safety, including through the emission of greenhouse gases.

18. Notwithstanding that you are appealing the Federal Court's judgement in *Sharma*, the Department has nonetheless applied the *Sharma* reasoning to this proposed action. The Department's analysis of these considerations are in Section 7 of this Report.

1.5.2 Environmental history

19. In deciding whether to approve the taking of an action, and what conditions to attach to the approval, you may, under section 136(4) of the EPBC Act, consider whether the person proposing to take the action is a suitable person to be granted an approval, having regard to:

    i. the person's history in relation to environmental matters; and

    ii. if the person is a body corporate – the history of its executive officers in relation to environmental matters; and

    iii. if the person is a body corporate is a subsidiary of another body or company (the parent body) – the history in relation to environmental matters of the parent body and its executive officers.

20. The proponent's environmental history is addressed in Section 9 below.

1.5.3 Bioregional Plan

21. In accordance with section 176(5), the Minister is required to have regard to a bioregional plan in making any decision under the EPBC Act to which the plan is relevant. The proposed action is not located within or near an area designated by a bioregional plan. The department considers there are no bioregional plans relevant to the proposed action.

1.5.4 Requirements for decisions about listed threatened species and communities

22. Under section 139 of the EPBC Act, in deciding whether or not to approve for the purposes of a subsection of sections 18 or 18A the taking of an action, and what conditions (if any) to attach to such an approval, you must not act inconsistently with:

    (a) Australia's obligations under:

    (b) the Biodiversity Convention; or

    (c) the Apia Convention; or

    (d) CITES; or

    (e) a recovery plan or threat abatement plan.

23. In addition, under section 139(2) of the EPBC Act, if:

(a) you are considering whether to approve, for the purposes of a subsection of sections 18 or 18A, the taking of an action; and

(b) the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community.

24. You must, in deciding whether to so approve the taking of the action, have regard to any approved conservation advice for the species or community.

25. These requirements are addressed in Part 10 below.

1.5.5 Considerations in deciding conditions

26. Under subsection 134(1) of the EPBC Act, you may attach a condition to the approval of an action if you are satisfied the condition is necessary or convenient for:

i. protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action), or

ii. repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage has been, will be or is likely to be caused by the action).

27. Under subsection 134(2) you may attach a condition to the approval of the action if you are satisfied the condition is necessary or convenient for:

i. protecting from the action any matter protected by a provision of Part 3 for which the approval has effect; or

ii. repairing or mitigating damage that may or will be, or has been, caused by the action to any matter protected by a provision of Part 3 for which the approval has effect.

2 BACKGROUND

2.1 DESCRIPTION OF THE PROPOSED ACTION

28. The proponent and the person proposing to take the action, Mangoola Coal Operations Pty Limited, is a wholly owned subsidiary of Glencore Coal Pty Limited (Glencore). In assessing the proposed action, the department has engaged directly with Glencore and Mangoola Coal Operations Pty Limited, which is referred to in this report as 'MCOPL' (the proponent).

29. The proposed action involves extending the life of the existing open cut mine known as the Mangoola Coal Mine (Approved Project) (EPBC 2018/8280) (Attachment D4) through the establishment of a new open cut coal pit to the north of the existing Mangoola Coal Mine operation; and related surface infrastructure and activities to process up to 52 million tonnes (Mt) of coal and to extend the existing mine life until December 2030 (representing 8 years of mining in the Northern Pit if mining

commences in 2022).

30. The Mangoola Coal Mine is located 20 km north of Muswellbrook and 10 km north of Denman, NSW, within the Muswellbrook local government area (LGA).

31. The proposed action includes:

- extracting an additional 52 Mt of coal by extending the footprint of the open cut mine to the north of the approved footprint, hereby referred to in this report as the 'Northern Extraction Area' (NEA).
- maintaining the extraction rate of run-of-mine (ROM) coal at 13.5 Mt per annum.
- construction of a haul road overpass across Big Flat Creek and Wybong Road in order to link the existing Mangoola Coal Mine to the proposed NEA.
- continuing use of the existing Mangoola Mine Coal Handling and Processing Plant (CHPP), train load out facility, rail loop and mining fleet.
- construction of additional water truck fill points and ongoing relocation of mining support infrastructure as mining progresses.
- establishment of an out-of-pit overburden emplacement area.
- distribution of overburden between the NEA and the existing mine in order to optimise the final landform design.
- realignment of a portion of Wybong Post Office Road.
- construction of a water management system (WMS) which will be connected to the existing mine.

32. In order to link the existing Mangoola Coal Mine infrastructure to the NEA, the proponent proposes to construct a haul road overpass across Big Flat Creek and Wybong Road. This will enable ROM coal to be transported to the CHPP as well as allowing some overburden to be hauled to the existing Mangoola Mine site to improve topographic relief and to reduce the size of the final void.

33. The proposed action is predicted to have a net benefit of $408.6 million in net present value (NPV) terms to the NSW economy, and will create approximately 145 construction jobs and an additional 80 full time equivalent (FTE) jobs (on top of the 400 FTE employees at Mangoola Mine).

2.2 Regional context and land use

34. The proposed action is located in the Hunter Coalfield, in the upper Hunter Valley, which has a long history of coal exploration and mining, including open cut and underground mining activities since the late 19th century. There are sixteen large coal mine complexes in the Hunter Coalfield, the majority of which are operated by both offshore and Australian mining companies. Five of these coal mine complexes are

located within 20 km of the Mangoola Mine (see Figure 2 at Attachment G3).

35. The closest towns to the proposed action area are Muswellbrook 20 km to the east and Denman 10 km to the south.

36. Land use surrounding Mangoola Mine is primarily pastoral agricultural enterprise, predominantly used for grazing purposes, but also viticulture to the south-west and east and small olive groves to the north-west. Several large coal mines operate to the east of Mangoola Mine.

37. The 3,758 ha Manobalai Nature Reserve is a large area of remnant vegetation located 5.5 km north-west of the proposed action area. This provides a significant link via other remnant patches of vegetation to the Great Eastern Ranges and Wollemi National Park to the south.

38. On a local scale, the existing operations at Mangoola Mine are located within the catchments of Sandy Creek to the south-east, Anvil Creek and Clark's Gully to the west and Big Flat Creek to the north.

39. The proposed action area is in the Wybong Creek catchment, an unregulated tributary of the Goulburn River which subsequently flows into the Hunter River. Wybong Creek has an estimated catchment area of 792 square kilometers (km^2). See Figure 1.6 at Attachment I1 for the regional catchment and drainage context.

40. The additional disturbance proposed as part of the proposed action area is located within the Big Flat Creek catchment, which covers an area of approximately 36.5 km^2 and runs parallel to Wybong Road (see Figure 1.6 at Attachment I1).

2.3 REFERRAL AND CONTROLLED ACTION DECISION UNDER THE EPBC ACT

41. On 17 August 2018, the proposed action was referred to the department under the EPBC Act by Mangoola Coal Operations Pty Limited.

42. The referral area has previously been subject to the following EPBC referral submissions prior to the current proposal:

    - Anvil Hill Coal Mine (EPBC 2007/3228)

    - Modifications to Mangoola Coal Mine Plans & relocation of electricity transmission line (EPBC 2010/5607).

43. The Anvil Hill Coal project was referred by the previous owners, Centennial Coal Pty Ltd (Centennial) for the establishment of a new open-cut coal mine and ancillary infrastructure. This project was determined not to be controlled action under the EPBC Act.

44. Glencore purchased the mine from Centennial in October 2007 and renamed it Mangoola Coal Mine. Mining operations at Mangoola commenced in September 2010. Since the granting of the original project approval, Mangoola has operated under a series of eight modifications.

45. The proposed action was published on the department's website on 31 August 2018 and comments from the public and Commonwealth Ministers were invited until 13 September 2018. No public submissions were received.

46. Comments were received from other Commonwealth Ministers/Agencies:

- The then Department of Agriculture and Water stated the proposed action may have a significant impact on water resources and recommended Geoscience Australia and the IESC undertake assessment of potential water impacts.

- The then Department of Industry, Innovation and Science noted Geoscience Australia agreed with the proponent's self-assessment that the proposed action be a controlled action with the water trigger as a controlling provision. Geoscience Australia recommended potential cumulative impacts should be accounted for in the Environmental Impact Statement (EIS).

47. On 20 September 2018, the delegate stopped the clock to seek further information on the following protected matters:

- Water Resources

- Listed Threatened Species and communities, including:

  - *Prasophyllum* sp. Wybong – critically endangered;

  - Painted Honeyeater (*Grantiella picta*) – vulnerable;

  - Corben's Long-eared Bat (*Nyctophilus corbeni*) – vulnerable;

  - Austral Toadflax (*Thesium austral)* – vulnerable;

  - Sandy Hollow Commersonia (*Androcalva rosea*) – endangered;

  - Lasiopetalum Longistamineum – vulnerable;

  - Ozothamnus tesselatus – vulnerable;

  - Denman Pomaderris (*Pomaderris reperta*) – vulnerable;

  - Wollemi Mint-bush (*Prostanthera cryptandroides* subsp. cryptandroides) – vulnerable; and

  - Central Hunter Valley Eucalypt Forest ecological community – critically endangered.

48. The department received the additional information on 19 December 2018. The department then undertook assessments of significance for each of the listed threatened species and communities that were the subject of the additional information request. With the exception of *Prasophyllum* sp. Wybong the department considered it was considered unlikely any of the above species or ecological communities would be significantly impacted.

49. On 21 January 2019, a delegate determined the proposed action a controlled action under the EPBC Act, and the controlling provisions for the action were section 18 and 18A (listed threatened species and communities) and sections 24D and 24E (water resources).

50. The decision noted the proposed action would be assessed under the assessment bilateral agreement with NSW. Under the bilateral agreement, upon completion of the NSW assessment process, the NSW Government provides a report on its assessment of Commonwealth matters to the Minister for the Environment's consideration prior to a final decision being made under the EPBC Act.

51. The referral decision package for EPBC 2018/8280 can be found at Attachment D6.

52. On 22 August 2019, the Minister's delegate jointly sought advice with the NSW Government from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) on the impacts of the proposed action on local water resources. On 4 October 2019, the IESC provided advice Attachment J1 which is discussed further below.

53. On 21 May 2021, the proponent requested a variation of the proposed action, and in June 2021, the delegate for the Minister accepted the variation, which included:

    - an increase in ROM coal extraction to 52 Mt over the life of the mine.
    - a one-year extension to the existing mine life until December 2030 (representing eight years of mining in the NEA).
    - minor changes to the project layout.

54. The approved variation to the proposed action is at Attachment D4.

2.4 NSW ASSESSMENT PROCESS

55. Following the controlled action decision, the NSW Government assessed the proposed action in accordance with the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). An overview of the key steps of the NSW Government's assessment is outlined in Table 1.

Table 1 Overview of key steps in the NSW Government's assessment

Date	Key step
May 2019	The proponent lodged the Application and supporting EIS with DPIE
18 July 2019 to 28 August 2019	DPIE publicly exhibited the EIS
18 December 2019	The proponent provided its Submissions Report to DPIE
14 February 2020	The proponent provided their response to IESC advice

3 December 2020	The Minister for Planning and Public Spaces requested the IPC conduct a public hearing and make a determination
29 January 2021	DPIE referred the draft Recommended Conditions to the IPC for determination
3-4 March 2021	The IPC conducted an Electronic Public Hearing over two days
20 May 2020	The IPC received the DPIE referral
26 April 2021	The IPC approved the action

56. Public exhibition of the Environmental Impact Statement (EIS) (Attachment I1) occurred for 90 days between 18 July 2019 and 28 August 2019. During this period 334 public submissions were received, comprised of 13 submissions from NSW agencies and councils, 17 submissions from special interest groups and 304 submissions from the general public. 69 per cent of submissions supported the project and 27 per cent of submissions objected to it. Key issues raised by the submissions included:

    - Cumulative air quality impacts and the potential adverse health impacts on the local community and amenity impacts from dust.
    - Noise impacts on residents in close proximity to the mine, specifically in relation to sleep disturbance, noise monitoring.
    - Social impacts – impacts on sense of community including its composition, cohesion, character, function and sense of place; impacts on social amenity, including the impact on surroundings and its aesthetic value and/or amenity, negative impact on community services and property value, economic impact.
    - Climate change – intergenerational equity, greenhouse gas (GHG) and scope 3 emissions, consideration of the Rock Hill decision, alternative energy transition.
    - Biodiversity – Impacts to flora and fauna, threatened species, offset adequacy.
    - Water – surface water resources, water quality impacts, groundwater impacts, impacts to private groundwater bores, water usage/extraction.
    - Final landform.

57. On 18 December 2019, the proponent provided an RTS report to DPIE which addressed the issues raised during public exhibition (Attachment I2).

58. DPIE prepared an assessment report for the proposed action (Attachment G3). DPIE obtained technical advice from government agencies and independent experts during its assessment due to significant community concerns about the potential impacts of the project on the environment.

59. The AR (page 148-149, Attachment G3) concluded that DPIE had:

- completed its whole-of-government assessment of the Project in accordance with the relevant requirements of the EP&A Act. The department had carefully considered the potential environmental, social and economic impacts on both the natural and built environments, and surrounding community.

- considered the development application, EIS, Submissions Report and additional information provided by Glencore, including peer reviews commissioned by Glencore to inform its technical assessment of noise, air quality, groundwater, flood modelling, economics, property value analysis and the final landform.

- paid careful consideration to all submissions received from the community during the exhibition period, obtained independent expert advice on the air quality aspects of the Project and considered the advice provided by NSW Government agencies, Muswellbrook Shire Council, DAWE and the IESC.

- recognised a number of local residents had concerns about the potential for the Project to impact their lifestyles, amenity or wellbeing. Equally, the department recognised a large proportion of the community had expressed its support for the Project and the potential economic, employment and social benefits it represents. The department has carefully considered these different viewpoints and the Project's social and environmental impacts throughout its assessment.

- concluded the impacts of the Project will generally comply with relevant assessment criteria, policies and guidelines, and the residual environmental and social impacts of the Project could be managed through Glencore's proposed mitigation measures, the department's recommended conditions and a detailed suite of management plans.

- considered the Project represents a logical 'brownfield' extension of the open cut mining operations at Mangoola Mine, consistent with the NSW Government's recently released Strategic Statement on Coal Exploration and Mining in NSW. The Project will allow for the efficient recovery of an additional 52 Mt of ROM, adjacent to an existing open cut operation, while making use of the existing Mangoola CHPP and rail infrastructure.

- concluded the mine plan has been designed to efficiently recover the coal resource while minimising impacts on immediate landholders and will help to better integrate the final landform of the Mangoola Mine with the surrounding landscape. The Project will facilitate ongoing mining operations to 2030, preventing the early closure of the existing mining operations and represents a 13 month extension to the approved life of the existing mine.

- concluded the Project will generate approximately 145 jobs during construction and will provide ongoing employment 400 existing employees and employment for a further 80 operational employees. Additionally, Glencore has offered to provide additional voluntary planning agreement contributions in the order of $5 million to Muswellbrook Shire Council, which includes funding for a community enhancement program and road maintenance. Glencore considers the Project will provide wide-

ranging economic benefits for the region and the State and is expected to generate net benefits to NSW in the order of $408 million net present value.

- considered the Project has been designed to minimise environmental and amenity impacts and the benefits of the Project outweigh its potential negative impacts. Consequently, the department considered the Project is in the public interest, and is approvable, subject to stringent conditions.

60. On 29 January 2021, DPIE referred the proposed action to the IPC for determination, recommending the proposed action be approved.

61. The IPC's review included a public hearing over two days on 3 and 4 March 2021. The public hearing was held electronically via telephone or video conference.

62. The IPC received a total of 895 written public submissions, 776 submissions were in support, 107 submissions objected to the proposed action (of which 935 used template wording), 12 submissions commented on the proposed action.

63. Submissions in support of the proposed action raised the local and regional socio-economic benefits of the proposed action, including employment opportunities.

64. Submissions opposed to the proposed action raised issues including impacts to groundwater, biodiversity, GHG emissions, and social impacts.

65. On 26 April 2021, the proposed action was granted development consent by the IPC under the EP&A Act subject to the NSW conditions (Attachment G2). The IPC's Statement of Reasons for their decision is supplied at Attachment G5.

2.5 EPBC APPROVAL PROCESS

66. The department was formally advised of the outcome of the NSW assessment process on 6 May 2021 (Attachment G1) and was provided with the State Development Consent (Attachment G2) for consideration.

67. The letter (Attachment G1) stated:

- The proposed action has been assessed in the manner specified in Schedule 1 of the Bilateral agreement made under section 45 of the EPBC Act relating to environmental assessment between the Commonwealth and the New South Wales Government (Bilateral Agreement).

- DPIE concluded the likely impacts of the proposed action on protected matters will be acceptable, provided the action was taken in a manner consistent with the avoidance, mitigation and offset measures proposed by the proponent, and in accordance with the NSW conditions.

- DPIE considers conditions B52, B53 and B55 to B58 in Schedule 2 of the development consent provide a suitable regulatory framework to manage potential impacts and risks to listed threatened species from the proposal. In addition,

conditions B35 to B37 and B45 to B51 provide a suitable regulatory regime to manage and mitigate water resource impacts.

- DPIE recommends the action should be approved by the Commonwealth Minister for the Environment.

68. The proponent paid its cost recovery fees for the project on 13 May 2021. The payment of the fees commenced the EPBC Act 30 business day assessment timeframe (section 131(1B)(a) of the EPBC Act).

69. On 15 July 2021, your delegate approved an extension of the approval decision timeframe to 10 September 2021, to allow sufficient time to include in the Proposed and Final Decision Briefing package material that addresses issues arising from the Federal Court's judgment in *Sharma and Ors v the Minister for the Environment*, concerning the exercise of your statutory powers.

70. On 8 September 2021, the department advised the proponent that the department would be extending the decision timeframe to 1 October 2021, to allow sufficient time to incorporate any matters from the *Sharma and Ors v the Minister for the Environment* judgment and associated orders from the Court.

71. On 10 September 2021, your delegate approved an extension of the approval decision timeframe to 1 October 2021.

3 WATER RESOURCE, IN RELATION TO COAL SEAM GAS (S24D AND S24E)

72. This section of the Report sets out the department's review of the assessment and analysis undertaken by the DPIE and the IPC of the proposed actions impacts to water resources. This section also provides the departments analysis and recommendation on the acceptability of the impacts to water resources.

73. The DPIE assessment of the proposed action included an investigation of the potential impacts of the proposed action on water resources, the environment and downstream water users. DPIE noted the key water resource issues are related to water licensing, flood modeling, water quality, groundwater drawdown, changes in catchment areas and impacts on tributaries.

74. Key concerns raised during the EIS public exhibition period, and addressed in the RTS Report, include impacts on surface water resources, private groundwater bores and Groundwater Dependent Ecosystems and water quality.

75. The IESC advice (Attachment J1) identified the key potential impacts from the proposed action as being:

    (a) Contribution to cumulative impacts on groundwater-dependent vegetation and associated biota in the vicinity of Big Flat Creek;

    (b) Presence of a final void in the rehabilitated landscape which will have impacts on water quantity and may also impact on groundwater quality;

(c) Potential ongoing water quality issues associated with sedimentation from both the proposed infrastructure and the unquantified impacts from uncontrolled discharges from sediment dams;

(d) Potential impacts from water discharges on erosion and water quality in Big Flat Creek; and

(e) Drawdown in four private bores of >2 m.

76. The proponent provided a range of additional information in response to the IESC comments in its Response to IESC Advice (see Attachment J2).

77. DPIE's consideration of the IESC advice is set out in sections 5, 6, 7 and table E3 of the AR.

78. The IPC SOR agreed with DPIE's assessment and was of the view that the IESC recommendations have been addressed by the proponent or are capable of being addressed through conditions of consent.

79. The department's consideration of the IESC advice and how it was addressed during the assessment process is at Attachment J3.

3.1 Water Balance, Water Licensing (Demand and Supply)

Public Comments

80. Written submissions were received during the EIS public exhibition and IPC public hearings regarding the impacts of the project on surface water resources, private groundwater bores. Specific concerns were raised regarding availability of water in relation to other sustainable industries in the area and contamination of the local water supply.

Proponent's Assessment

81. The proponents EIS states that MCOPL currently holds 861 megalitres (ML) in share components of Wybong Creek Unregulated water access licenses. The proponent's Surface Water Assessment estimates the proposed action will require a maximum of 317 ML/year (to account for the maximum take/reduction in flow volumes predicted due to a reduction in catchment area) and concludes that MCOPL holds sufficient licenses to account for the modelled water take.

82. The proponent's EIS states that MCOPL currently holds adequate licenses to extract groundwater as a result of the proposed action, including:

- Licensed under the *Water Sharing Plan for the North Coast Fractured and Porous Groundwater Sources* to take up to 700 ML/year. Based on modelling outputs, a maximum of 290 ML/year will be required from this water source.

- Licensed under the *Hunter Unregulated and Alluvial Water Sources Water Sharing Plan 2009* to extract up to 254 ML/year. Based on modelling outputs, a maximum of

33 ML/year for groundwater and 28 ML/year for surface water will be required from this water source.

83. The proponent's Surface Water Assessment included a detailed water balance assessment, integrating the proposed action with exiting mine operations. The proponent states that model outputs indicate a low risk of water balance shortfall.

84. Should a shortfall in required water occur, the proponent proposes to source additional water through the purchase of water access licenses (if available) and otherwise through reductions in water use in other operational activities (i.e. dust suppression or scaled back production).

85. Mangoola mine operations operate in accordance with a Water Management Plan prepared in consultation with and approved by NSW Government agencies. The Water Management Plan describes the environmental and community impacts and performance criteria relevant to the existing mine's water management system.

86. The proponent proposes to update the Water Management Plan for the proposed action in consultation with NSW agencies in accordance with any conditions of approval including those related to:

- a water balance model detailing water supply, use, management and transfer
- an Erosion and Sediment Management Plan; and
- Surface Water Management Plan.

DPIE Assessment

87. In relation to water balance and use, paragraph 6.8.3 and Table 1 of the AR states:

- The existing Mangoola mining operations water supply comprises of water collected in accordance with harvestable rights, groundwater inflows into mining areas, dirty water and mine water captured within the mining footprint as part of the existing surface WMS and supplementary water supplies pumped directly from the Hunter River in accordance with relevant water license provisions.
- The water management component of the proposed action will involve the continued use of existing approved water management infrastructure and Hunter River Salinity Trading Scheme discharge point but will also involve the construction of additional water management infrastructure, including mine water and sediment dams, flood protection from Big Flat Creek and mine water reticulation system.

88. In relation to private groundwater bores, paragraph 6.8.105 of the AR states six privately owned bores are located within 3 km of the proposed action area. Four of these bores are all predicted to have a drawdown of less than 1 m. Another bore is predicted to have a drawdown of 1.3 m.

89. DPIE noted the sixth groundwater bore located to the west of the project site is predicted to experience a drawdown of more than 2 m, these impacts are primarily

associated with the existing Mangoola operations. It is relevant to note, the owner of this bore is already afforded acquisition rights under the existing approval.

90. In order to mitigate the impacts to these landholders, the proponent committed to monitoring the six bores, and if project related impacts are detected, offer compensatory measures to ensure an alternative long-term supply of water is provided.

IPC Findings

91. The IPC noted the proponent holds three water licenses for the existing Mangoola Coal Mine under the *Water Management Act 2000* and *Water Act 1912* as set out in Table 5 of the IPC SOR (Attachment G5).

92. The IPC also noted the EIS included a detailed Site Water Balance which integrated the requirements of the existing operations with additional requirements associated with the proposed action. The Site Water Balance predicted the annual average inflows and outflows for the proposed action will be similar to of the existing operations, with the key change being the capture of additional rainfall runoff from the Project catchment area.

93. The IPC acknowledged paragraph 6.8.8 in AR states that under simulated worst-case scenario, there is a low risk of the project being subjected to a shortfall in water supply given the proponent's existing water license entitlements. If a shortfall should occur, the proponent has committed to alternative measures to source additional water, including to:

    - purchase additional WALs (if available);
    - reduce CHPP demand by increasing bypass coal;
    - reduce site water demand by scaling back production; and/or
    - investigate sourcing alternative water supplies.

94. The IPC agrees with DPIE and is satisfied the proponent has sufficient water to meet the operational requirements of the proposed action.

95. The IPC imposed NSW condition B36 which states the proponent must ensure it has sufficient water for all stages of the development, and if necessary, (must) reduce the scale of the development to match its available water supply.

96. The IPC also imposed NSW conditions B50 - B52, which require the proponent to prepare and implement a Water Management Plan (WMP) for the development. Condition B50(e)(i) requires the proponent to include a Site Water Balance as a part of the WMP.

97. The IPC noted there were concerns raised during EIS public exhibition and public hearing regarding the potential impacts to private groundwater bores.

98. The IPC agreed with the DPIE assessment that the proponent's proposed monitoring and mitigation measures are an appropriate response to the potential groundwater impacts of the project.

99. Additionally, the IPC imposed condition B38, which states the proponent must notify the owners of the six bores they may request monitoring of the listed bores to determine the level of drawdown from the project. In the event monitoring data records a drawdown of more than 2 meters as a result of the project, the proponent must provide compensatory water in accordance with conditions B40-B44 imposed by the IPC.

Department's consideration

100. The department agrees with the NSW DPIE and IPC assessments in relation to water supply, demand and water balance. The department considers the modelling carried out has been appropriate and the proponent has sufficient water to meet the operational requirements of the proposed action as well as options to manage their water demand and supply.

101. The department considers NSW conditions B36-38 are appropriate to manage water supply and conditions B39-44 provide compensatory water supply measures in the event of drawdown. It is recommended you reference these conditions in your approval. Additional Commonwealth conditions are not recommended as the department considers the State conditions are sufficient to address the matters raised above.

102. The department considers condition B50 (e)(i) is appropriate to manage on-site water balance and recommends you also reference this condition in your approval. Condition 2 of the Proposed Approval Decision Notice (Attachment B) addresses this recommendation and states the approval holder must comply with condition B50 of the State Development Consent for the protection of water resources. Additional Commonwealth conditions are not recommended as the department considers the State conditions are sufficient to address the matters raised above.

3.2 GROUNDWATER

Public Comments

103. Submissions were received during the EIS public exhibition regarding issues relating to potential groundwater impacts of the project relating to concerns about impacts to private groundwater bores.

Proponent's Assessment

104. The proponent's EIS included a Groundwater Impact Assessment (GIA) prepared by Australasian Groundwater and Environmental Consultants (AGE). The GIA was peer reviewed on behalf of the proponent by s. 47F(1) of HydroSimulations.

105. The GIA identified the extraction of the Northern Pit will create a localized area of depressurization, drawing water from the surrounding aquifers into the Northern Pit and resulting in a perimeter of localized drawdown around the project area (as shown in Figure 32 of the AR, page 21).

106. The GIA predicts the average groundwater inflow from the Permian coal measures over the life of mining will be 123 ML/year.

107. The proponent's assessment of impacts on groundwater bores is discussed above in

section 3.1.

108. The GDE Assessment identified ten plant community types (PCTs) within the Northern Extension Area that have the potential to be at least partially dependent on groundwater. These PCTs were shown to occur in areas of 1 m or greater predicted drawdown in the alluvium, colluvium and regolith as a result of the proposed mining operations.

109. Six of the PCTs were considered to have a low likelihood of groundwater dependence, while three are considered to be moderately dependent and one is considered highly dependent on groundwater.

110. The ten potential GDEs were not consistent with EPBC Act listed threatened ecological communities.

111. The proponent's Response to IESC Advice was prepared by Umwelt. In this response, the project's direct and indirect impacts to GDEs were outlined:

- Groundwater drawdown within the vicinity of the MCCO Project area, including in areas occupied by GDEs.
- Potential groundwater quality changes and interactions during active mining operations and post mining operations.
- Reduced long-term surface water catchment yield in Big Flat Creek and Wybong Creek which may result in a small reduction in surface flow and baseflow during operations of the MCCO Project.
- Potential surface water quality impacts to Wybong Creek and Big Flat Creek from the MCCO Project.
- Post mining changes in alluvial and surface water fluxes due to residual drawdown created by flow of groundwater to the final voids.

112. In the Response to IESC advice, the proponent noted that current mining operations have cause groundwater drawdown below the root zone for the identified potential GDEs. The proponent also noted that based on past annual ecosystem monitoring undertaken at a potential GDE location along Big Flat Creek, the drawdown is not having any observable adverse impacts on the flora.

113. The proponent concluded that the proposed action would not materially exacerbate the drawdown which has already occurred under the current mining operations.

DPIE Assessment

114. DPIE stated in the AR that the proposed action and existing operations would cumulatively result in sustained groundwater levels in the locality for a long period of time.

115. DPIE determined that the proposed action would be unlikely to cause significant impacts on GDEs in the short term. However, considered that comprehensive

monitoring and adaptive management measures would be required to manage potential and predicted indirect impacts over time. This included a recommendation to include trigger levels for remedial action and/ or offsetting, and performance measures requiring negligible environmental consequences on GDEs.

116. DPIE concluded that the proposed action will not substantially alter the scale of groundwater impacts associated with the existing mine operations, and that the likely impacts could be appropriately mitigated and managed through DPIE's recommended conditions.

IPC Findings

117. The IPC noted the groundwater model was peer reviewed on behalf of the proponent by s. 47F(1) of HydroSimulations who concluded the model was fit for purpose.

118. The IPC noted the existing operations at the Mangoola coal mine already result in a drawdown in excess of 1 m along a thin zone follows shallow alluvial and colluvium deposits of Wybong Creek, Sandy Creek and Big Flat Creek. The IPC noted the proposed action is expected to extend the envelope of drawdown in the Permian coal measures to the north.

119. The IPC noted the reduced groundwater flux into the Wybong Creek Alluvium will also reduce the rate of groundwater baseflow into the overlying Wybong Creek. The proponent's assessment predicts this reduction to be up to 2 ML/year as a result of the project. The IPC noted the annual mean flow of Wybong Creek is 28,287 ML/year and agrees with DPIE's conclusion that the predicted change in baseflow is likely to have a minimal impact on overall flow volumes.

120. The IPC also noted Big Flat Creek is likely to already be disconnected from the groundwater system as a result of the existing operations at Mangoola, and the proposed action is not expected to exacerbate the baseflow rate to Big Flat Creek.

121. The IPC imposed NSW conditions B50 – B52 that require the Proponent to:

- prepare a water management plan (including a groundwater management plan) for the project to the satisfaction of the Planning Secretary;
- describes measures to be implemented to ensure compliance with specified water management performance measures.

Department's consideration

122. The department agrees with the conclusions in the NSW DPIE and IPC groundwater assessments and agrees the groundwater modelling undertaken by the proponent is fit for purpose.

123. The department notes that one of the six privately-owned groundwater bores within 3 km of the project is predicted to experience drawdown of 2 m. The NSW conditions B39 to B45 provide measures to supply compensatory water in the event drawdown exceeds 2 m as a result of the proposed action.

124. The department agrees with the performance measures outlined in NSW condition B48 and the water management plan requirements of condition B50 and recommends you reference these NSW conditions in your approval.

125. The department considers generally the NSW conditions are sufficient to protect and manage impacts to groundwater. However, the department notes there is limited protection in the NSW conditions for impacts to Groundwater Dependent Ecosystems (GDE's) under condition B50 (e)(v).

126. Therefore, the department recommends you impose the following conditions included in the proposed decision notice (Attachment B), to improve the monitoring and evaluation of GDE's potentially impacted by the proposed action and to clarify the action to be taken if an exceedance of a performance measure occurs.

127. EPBC condition 3: The approval holder must ensure the action has negligible impacts to Groundwater Dependent Ecosystems (the GDE Performance Measure).

a) The approval holder must include in the Groundwater Management Plan required by condition B50(v) of the State development consent:

- a program to monitor the GDE Performance Measure
- a trigger action response plan to respond to any exceedances of the GDE Performance Measure
- a plan to repair and mitigate any exceedances

b) The approval holder must notify the department within 5 business days of finding an exceedance of a GDE Performance Measure and the proposed repairs and/or mitigation work to be undertaken. In the event an exceedance of an GDE Performance Measure cannot be repaired or mitigated, the approval holder must provide an offset. The offset must be approved by the Minister.

3.3 FINAL VOID

Public Comments

128. The IPC heard concerns from speakers at the Public Hearing and received written submissions regarding the final void, including concerns regarding the long-term impacts of the final void on groundwater.

Proponent's Assessment

129. In addition to the final void (already approved to be retained at the Mangoola Mine), the proponent proposed in the EIS to leave a second final void in the Northern Extension Area. The EIS included an assessment of the final void water and salt balance and modelled the indicative post mining changes in hydraulic properties, recharge, water levels and the long term effects on the groundwater system for a period of 500 years.

130. The EIS contained a Mine Plan Options Report that informed the preferred final landform plan that evaluates a range of alternative final landform and final void

configurations.

131. In the RTS the proponent committed to remove highwall sections at the margins of the final voids, which would improve the integration of the voids into the final landform and slightly decrease the overall void size.

132. Following the completion of its mine planning options analysis, the proponent concluded that retention of two final voids will improve landform topography, relief and drainage. The alternative of creating a final landform with either no or one final void in the landscape will require the use of overburden that would otherwise have been used to create an undulating free draining landform. Should this occur, the resulting landform would have a reduced capacity for drainage and increased potential for ponding, and would result in a flatter and less visually variable landscape

133. The proponent's analysis concluded that over time, the salinity levels in both pit lakes is predicted to increase as a result of evapo-concentration, reaching final electrical conductivities in the 'saline' range. The final void modelling indicates that the waterbodies within both voids will equilibrate more than 30 m below their respective spill levels, meaning that this water would be wholly contained within the voids with no chance of saline water overflowing into the surrounding environment and impacting surface water quality.

DPIE Assessment

134. DPIE recognized a second final void will be left in the proposed action area in addition to the final void that is already approved for retention at the Mangoola Mine. An assessment of the final void water and salt balance was provided to DPIE as part of the EIS, including a model of post mining changes in hydraulic properties, recharge, water levels and the long-term effects on the groundwater system (for 500 years).

135. According to the GIA, equilibrium levels in the pit lakes will be reached over more than 200 years, with long term water take estimated at approximately 23 ML/year over this period and comprising 10 ML/year from the existing Mangoola Mine void and 13 ML/year from the proposed Northern Pit void.

136. Paragraph 6.8.122 of the AR states that the modelling also predicts surrounding Permian aquifer groundwater levels will gradually recover to reach a final equilibrium level somewhat lower than was present pre-mining. DPIE noted that given the saline nature of groundwater, this is unlikely to significantly impact the availability of regional groundwater resources.

137. DPIE is satisfied the final voids (including associated catchment areas) have been designed in a manner to ensure saline water inflows are largely contained within the final voids and not present a risk of overflows to the surrounding environment.

IPC Findings

138. The IPC agreed with DPIE and was satisfied the final voids (including the associated catchment areas) have been designed in a manner to ensure saline water inflows are largely contained within the final voids and do not present a risk of overflows to the surrounding environment.

139. The IPC noted in addition to the approved final void, the proponent is proposing to leave a second final void in the proposed action area. The final voids will eventually form permanent pit lakes and act as localized groundwater sinks.

140. The IPC included a specific water management performance measure in condition B48 which requires the proponent to ensure adequate freeboards within all mine water storage dams and voids at all times to minimise the risk of discharge to surface waters. Condition B50 requires the proponent to prepare detailed plans, design objectives and performance criteria for the final voids and a program to monitor and evaluate water loss/seepage from water storages into the groundwater system, including from any final voids, as part of the WMP.

Department's consideration

141. The department agrees with the NSW DPIE and IPC assessments in relation to the final void.

142. The department agrees with the final void water management plan requirements of NSW condition B50 and final void rehabilitation requirements at NSW condition B85 and recommends you reference the above NSW conditions in your approval.

3.4 Surface Water and Flooding

Public Comments

143. Several submissions regarding the impacts of the project on surface water losses and subsequent impacts to the agricultural industry were received during the DPIE and IPC's exhibition periods. Additionally, some community and interest groups raised concerns that the proposed action would result in additional salt levels in Wybong Creek and the Hunter River.

Proponent's Consideration

144. The proponent's EIS included a Surface Water Assessment (SWA) and flood modelling assessment, prepared by Hydro Engineering and Consulting Pty Ltd (HEC) and dated May 2019.

145. The SWA states that the development of the Northern Pit would result in a number of changes to the existing catchment areas, and reduce catchment yields in Big Flat Creek and Wybong Creek. The SWA predicts that these changes to catchment yields would result in small reductions in surface flows within Big Flat Creek and the loss of a minor amount of surface flows in Wybong Creek.

146. The assessment also found that the proposed action could result in up to a 1.2% reduction in average annual flow within the Wybong Creek catchment. Additionally, it may increase the frequency of 'no-flow' days from 26.5% to 28.3% of days.

147. The SWA states that changes in groundwater-derived baseflow at Big Flat Creek are predicted to be negligible.

148. An assessment of impacts to flood regimes and levels found that inundation would likely

increase upstream of Big Flat Creek, but the affected area would remain within Mangoola owned land.

149. The SWA also states the proposed action is not predicted to materially increase flood levels at Wybong Road.

150. The SWA also stated a cumulative impact assessment was undertaken, accounting for the impacts of mines in the catchment of the Goulburn River. The assessment found that material cumulative impacts on surface water or flooding were unlikely.

DPIE Assessment

151. In regard to surface water impacts, the AR noted the project includes a WMS designed to separate clean water and dirty water, with the dirty water to be reused through the mining operations and to include controls to ensure any coal contact water is not discharged from the site.

152. In addition, the overburden emplacement will be designed and constructed to direct seepage toward the open cut and final void, and surface runoff will be directed to sediment detention basins for reuse in the mine's WMS. The sediment dams will be maintained until successful rehabilitation of the emplacement and the cessation of mining operations ensuring impacts to surface water quality during and after mining will be appropriately managed.

153. The AR concluded that whilst the Project will increase the total area of surface water runoff captured by the Mangoola Mine WMS, implementation of the proposed mitigation and monitoring measures should ensure the Project is not predicted to result in any significant water quality risks to downstream receiving environments or material reductions to flow volumes in downstream watercourses.

154. In regard to flooding impacts, the flood modelling predicts the project will result in some increase in inundation areas upstream of the Big Flat Creek overpass. Inundation up to and exceeding the 1:100 Annual Exceedance Probability (AEP) event will be limited to Glencore land.

155. The proponent committed to construct a flood levee between the project area and Big Flat Creek to a level equal to the 1:1,000 AEP flood level plus 0.5 m freeboard.

156. DPIE concluded that potential flooding impacts would be localized to Big Flat Creek and land owned by Glencore.

157. In relation to water discharges to the Hunter River, DPIE noted that to date, the mine water management system has been maintained as a closed system with no controlled releases being required. However, under existing State approvals the proponent is permitted to discharge water from the site to help mitigate periods of excess water which may constrain mining operations. These permitted water discharges are regulated under State Environment Protection Licence 12894 and in accordance with the provisions of the Hunter River Salinity Trading Scheme.

158. To facilitate these discharges, the Mangoola Mine is approved to operate a water pipeline and discharge facility located on the Hunter River. The AR notes that the timing of constructing this facility, and its associated infrastructure, is determined by a trigger

action response plan (TARP) to help mitigate periods of excess water which may constrain future mining operations. The criteria outlined in the TARP have not yet been triggered. Glencore sought to continue to have the option to utilise this discharge point for the life of the Project, in accordance with all existing discharge limits and licence provisions (see IPC Findings below).

159. The AR notes there is no proposed change to the existing water management discharge arrangements as a result of the MCCO Project. Water management structures (ie dams) have been constructed to allow sufficient capacity to ensure that all water would continue to be managed within the limits of the existing system, without the need for offsite discharges (except as already approved for operational reasons or from sediment dams during extreme weather events).

IPC Findings

160. The IPC acknowledged the concerns raised by the public regarding the potential for surface water losses and impacts on the agricultural industry.

161. The IPC agreed with DPIE that the proposed mitigation measures will not result in any significant increase in flow velocities in Big Flat Creek and the risk of increased erosion is negligible.

162. The IPC noted the project will not result in changes to existing water management discharge arrangements and that surface water monitoring at the existing Mangoola Mine is undertaken in accordance with the approved Surface Water Monitoring Program.

163. Relevant IPC approval conditions are discussed in section 1.3.7 in this report.

164. The department notes that in relation to surface water discharges the IPC imposed State condition B46 which requires the proponent to ensure all surface discharges from the site comply with discharge limits (both volume and quantity) set for the development in any EPL; or relevant provisions of the POEO Act and *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

165. The IPC also imposed State condition B47 which requires the proponent to implement all reasonable and feasible measures on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.

Department's consideration

166. The department agrees with the NSW DPIE and IPC assessments in relation to surface water, including the conclusion that the proponent's surface water modelling is fit for purpose.

167. In relation to water discharges to the Hunter River, condition 4c of the proposed EPBC approval conditions requires the proponent to prepare a Stream Monitoring Program for the Hunter River discharge point which includes:

a) a map showing the water discharge location on the Hunter River associated with the action. The map must also identify the receiving waters.

b) baseline water quality data of the approved water quality parameters for the receiving waters, upstream and downstream of any water discharge locations associated with the action and identified in condition 4c(i)

c) expected water quality, volume, timing (seasonal) and frequency of discharged water and the potential impacts to surface water quality

d) proposed mitigation measures to reduce impacts of the discharged water to the receiving environment

e) a program to monitor the approved water quality parameters against the performance criteria within the receiving waters. The monitoring program must be designed to detect impacts to water quality directly associated with the action and be able to distinguish from natural variability and upstream impacts

f) a program to monitor stream biota within the receiving waters. The program must include site-specific guideline values and mitigation strategies following sampling events.

168. Proposed EPBC condition 4c states that coal extraction in the MCCO Additional Project Area cannot commence until you have approved the Stream Monitoring Program.

169. The department is satisfied impacts to surface water can be effectively managed through the NSW conditions and recommends you require the proponent to comply with conditions B36-B52 of the NSW conditions, as specified in Condition 2 of Attachment B.

3.5 Conclusion about the impacts on water resources (s24D & s24E)

170. Following consideration of the information discussed above, the department is satisfied the proposed action will not have unacceptable impacts on water resources, provided it is taken in accordance with the proposed conditions discussed in this report.

171. On this basis, the department recommends approving the proposed action for the purposes of sections 24D and 24E of the EPBC Act.

3.5.1 Recommended conditions of approval – water resources

Relevant state conditions

172. To ensure the impacts of the proposed action are acceptable for EPBC Act approval purposes, the department recommends you attach conditions to your approval which require the approval holder to comply with relevant state water resource conditions (Attachment B). Below is a summary of those conditions.

173. The department recommends you impose a condition requiring the proponent to comply with State condition B36 that requires the proponent to ensure the company has sufficient water for all stages of the development, and if necessary, adjust the scale of

the development to match its available water supply.

174. The department recommends you impose a condition requiring the proponent to comply with State condition B37 which states the proponent must not use any licensable water from the Wybong Creek Water Source for mining purposes.

175. The department recommends you impose a condition requiring the proponent to comply with State condition B38 which requires the proponent to report on water extracted from the site each year (direct and indirect) in the Annual Review, including water taken under each water license.

176. The department recommends you impose a condition requiring the proponent to comply with State condition B39 which requires the proponent to notify the owners of bores listed in the accompanying table that they may request monitoring of the listed bore to determine the level of drawdown from the development, prior to commencing construction. In the event monitoring data records drawdown of more than 2 meters as a result of the development, the proponent must provide compensatory water in accordance with conditions B41 to B45.

177. The department recommends you impose a condition requiring the proponent to comply with State condition B40 which requires the proponent to notify owners of licensed privately-owned groundwater bores are predicted to have a drawdown of greater than 2 meters as a result of the development they may be eligible for compensatory water under conditions B41 to B45, prior to the commencement of mining operations north of Wybong Road.

178. The department recommends you impose a condition requiring the proponent to comply with State condition B41 which requires the proponent to provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than an impact is minor or negligible) as a result if the development, in consultation with DPIE Water, and to the satisfaction of the Planning Secretary.

179. The department recommends you impose a condition requiring the proponent to comply with State condition B42 which requires the proponent to ensure the compensatory water supply measures must provide an alternative long-term water supply of water is equivalent in quantity and volume, to the loss attributable to the development. The burden of proof the impact on water supply is not due to mining, rests with the proponent. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.

180. The department recommends you impose a condition requiring the proponent to comply with State condition B43 which states if the proponent and the landowner cannot agree on whether the impact on water supply is attributed to the development or the measures to be implemented, or there is a dispute between the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.

181. The department recommends you impose a condition requiring the proponent to comply with State condition B44 which requires the proponent to provide compensation, to the satisfaction of the Planning Secretary, if they are unable to provide an alternative long-

term supply of water.

182. The department recommends you impose a condition requiring the proponent to comply with State condition B45 which requires the proponent to facilitate the provision of a temporary water supply, pending the outcome of any groundwater investigation and/or the provision of an alternative long-term supply of water as required under condition B41 and B42.

183. The department recommends you impose a condition requiring the proponent to comply with State condition B46 which requires the proponent to ensure all surface discharges from the site comply with discharge limits (both volume and quantity) set for the development in any EPL; or relevant provisions of the POEO Act and *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

184. The department recommends you impose a condition requiring the proponent to comply with State condition B47 which requires the proponent to implement all reasonable and feasible measures on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.

185. The department recommends you impose a condition requiring the proponent to comply with State condition B48 which requires the proponent to ensure the development complies with water management performance measures in Table 6 of the development consent.

186. The department recommends you impose a condition requiring the proponent to comply with State condition B49 which states that the performance measures in Table 6 apply to the entire site, including all landforms constructed under previous development consents. However, these performance measures do not require any additional earthmoving works to be undertaken for landforms that have been approved and constructed under previous consents, except where those earthworks are required for the establishment of a stable and non-polluting landform. This condition clarifies the scope of the performance measures in Table 6.

187. The department recommends you impose a condition requiring the proponent to comply with State condition B50 which requires the proponent to prepare a Water Management Plan for the development, to the satisfaction of the Planning Secretary.

188. The department recommends you impose a condition requiring the proponent to comply with State condition B51 which states the proponent must not commence mining operations north of Wybong Road until the Water Management Plan is approved by the Planning Secretary.

189. The department recommends you impose a condition requiring the proponent to comply with State condition B52 which states the proponent must implement the Water Management Plan as approved by the Planning Secretary.

Additional EPBC conditions

190. To address the outstanding issues raised by the IESC, the department recommends you attach the following additional conditions (beyond those outlined in the State conditions).

191. Condition 1, which states the approval holder must not extract or process more than 52 million tonnes of run-of-mine coal over the life of the mine.

192. Condition 2, which requires compliance with State conditions B36, B37, B38, B39, B40, B41, B42, B43, B44, B44, B45, B46, B47, B48, B49, B50, B51, B52, B85-91 of Part B of the State development consent.

193. Condition 3, which requires the approval holder to ensure the action has negligible impacts to Groundwater Dependent Ecosystems (the GDE Performance Measure) through a GDE Performance Measuring program, a trigger action response plan for any exceedance, and a repair/mitigation plan. In the event an exceedance cannot be repaired or mitigated, the proponent must provide an offset which must be approved by the Minister. This ensures GDE's within the proposed action area are given protection and ensure the department is aware of any exceedances.

194. Condition 4 which for the protection of surface water quality requires the approval holder to:

    a. Ensure the action has negligible impacts to surface water quality.

    b. Submit a list of water quality monitoring parameters and performance criteria for the Ministers approval. The approved water quality parameters and performance criteria are to be included in the Surface water management plan (condition B50(iv) of the State development consent). The water quality parameters must include (but not limited to) key metals (total and dissolved) and nutrients. Coal extraction from the MCCO additional project area cannot commence until the water quality monitoring parameters and performance criteria have been approved by the Minister (the approved water quality parameters and performance criteria).

        i. The approved water quality parameters and performance criteria are subject to the same requirements as the performance measures listed in Table 6, condition B48 of the State development consent.

    c. Prepare a Stream Monitoring Program for the Hunter River discharge point which includes:

        ii. a map showing the water discharge location on the Hunter River associated with the action. The map must also identify the receiving waters.

        iii. baseline water quality data of the approved water quality parameters for the receiving waters, upstream and downstream of any water discharge locations associated with the action and identified in condition 4c(i)

        iv. expected water quality, volume, timing (seasonal) and frequency of discharged water

        v. proposed mitigation measures to reduce impacts of the discharged water to the receiving environment

        vi. a program to monitor the approved water quality parameters against the

performance criteria within the receiving waters. The monitoring program must be designed to detect impacts to water quality directly associated with the action and be able to distinguish from natural variability and upstream impacts

vii. a program to monitor stream biota within the receiving waters. The program must include site-specific guideline values and mitigation strategies following sampling events.

viii. Coal extraction in the MCCO Additional Project Area cannot commence until the Stream Monitoring Program has been approved by the Minister.

This condition will ensure the proposed action has negligible impacts on surface water quality

195. Condition 5 requires the approval holder to provide the department with the version of the Water Management Plan approved by the NSW Planning Secretary as required by condition B50 of the State development consent within 5 business days of its approval by the NSW Planning Secretary. This ensures the department will have the approved version of the Water Management Plan for post approval and/or compliance matters.

196. Condition 6 requires the approval holder to notify the department within 5 business day of submitting a request to change an approved Water Management Plan approved by the NSW Planning Secretary. If the revised version of the Water Management Plan is approved by the NSW Planning Secretary, the approval holder must provide the department with the approved revised Water Management Plan within 5 business days of its approval and outline what changes have been made and any implications for protected matters. This ensures the department will have an updated version of the Water Management Plan for post approval and/or compliance matters.

197. This condition will ensure the department is aware of any exceedances and potential non-compliance incidents.

198. Condition 7 states that, if, at any time during the period for which this approval has effect, the approval holder detects or predicts an exceedance of any trigger levels which are specified in the approved Groundwater Management Plan or Surface Water Management Plan required by condition B50 of the State development consent, the approval holder must notify the department of the exceedance in writing within 5 business days of detecting or predicting the exceedance. This condition will ensure the department is aware of any exceedances and potential non-compliance incidents.

4 LISTED THREATENED SPECIES AND ECOLOGICAL COMMUNITIES (SECTIONS 18 & 18A)

199. The department's Environmental Reporting Tool (ERT) identifies 37 threatened species and 5 ecological communities that may occur within 5 km of the proposed action area (see ERT Report at Attachment D5 (if original ERT) D2 (if current ERT)).??

200. Based on the location of the action, the likely habitat present in the area of the project

and the findings of the NSW assessment process, the department considers the proposed action is likely to have a significant impact on the following four listed threatened species and one listed ecological community:

- Regent Honeyeater (*Anthochaera phrygia*) – critically endangered
- *Prasophyllum* sp. Wybong – critically endangered
- Swift Parrot (*Lathamus discolor*) – critically endangered
- Grey-headed flying fox (*Pteropus poliocephalus*) - vulnerable
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community

201. The department does not consider the proposed action is likely to have a significant impact on any other listed threatened species. This is addressed further below in part 4.4 of this report.

202. In assessing the impact of the proposed action on listed threatened species, the department has considered the impacts of the 2019/2020 bushfires at a local, regional, and national scale for relevant species. The Swift Parrot and Regent Honeyeater have both been identified as requiring urgent management intervention to support their protection and recovery following the 2019/20 bushfires.

203. The department's analysis of relevant threatened species and communities is discussed in more detail below and relies predominantly on the AR (Attachment G3) and proponent's assessment material (Attachment I1-I4).

4.1 2019/2020 Bushfire Impacts

204. Whilst the proposed action site was not burnt during the 2019/2020 fire season, substantial areas of habitat for EPBC listed species and ecological communities were significantly impacted by these large-scale bushfires nationwide. The department has taken a precautionary approach and considered the impacts of the 2019/2020 bushfires on relevant protected matters.

205. Based on the preliminary information released by the department on 20 January 2020 (Analysis of species listed under the Environment Protection and Biodiversity Conservation Act 1999 which occur in areas affected by bushfires between 1 August 2019 and 13 January 2020 in southern and eastern Australia), the department is aware nationally:

- 10 to <30 per cent of the national modelled likely or known distribution of the listed population of the Regent Honeyeater is within the area burnt by the fires.
- 10 to <30 per cent of the national modelled likely or known distribution of the listed population of the Swift Parrot is within the area burnt by the fires.

206. The department examined the impacts of the recent bushfires in relation to the distribution and habitat of listed threatened species and ecological communities present

within the proposed action and surrounding areas against the department's revised provisional list of animals, ecological communities and plants requiring urgent management intervention as a result of the summer bushfires.

207. The proposed action site lies within the Sydney Basin IBRA region and the Hunter IBRA Subregion. The Sydney Basin region experienced significant bushfire impacts, and approximately 30 per cent of its area was burnt. The department found 0.25 per cent of the Hunter subregion was affected by the bushfires.

208. The Regent Honeyeater is included in the department's Revised provisional list of animals requiring urgent management intervention as a result of the 2019/2020 bushfires.

209. The department used the Bushfire Recovery Environmental Analysis Decision Support (BREADS) tool to ascertain the impact of the bushfires on these species.

210. Within the Sydney Basin IBRA region approximately 27 per cent of the total area of Regent Honeyeater habitat was burnt and approximately 0.25 per cent (1,143 ha) of this species habitat was burnt within the Hunter IBRA Subregion (or 0.04 per cent of the total 3,258,545 ha of Regent Honeyeater habitat burnt in the 2019/2020 bushfires).

211. However, the Wollemi and Yengo IBRA subregions immediately south of the Hunter subregion, were significantly affected, and the burnt Regent Honeyeater habitat in the Sydney Basin region makes up for 43 per cent of the species' total fire affected habitat.

212. Figure 2 at the end of this report shows Regent Honeyeater habitat largely remained unaffected in the Hunter subregion. The 2019/2020 bushfires have therefore not resulted in the 148 ha of habitat that will be cleared being more important to this species than was the case prior to the fires occurring.

213. As indicated in figure 3 at the end of this report, the 2019/2020 fires impacted a very broad area of habitat classified as likely Swift Parrot habitat in the Sydney Basin region. Figure 3 shows this species' habitat largely remained unaffected in the Hunter subregion. The 2019/2020 bushfires have therefore not resulted in the 27.4 ha of habitat will be cleared being more important to this species than was the case prior to the fires occurring.

214. As indicated in Figure 4 at the end of this report, the 2019/2020 fires impacted a very broad area of habitat classified as likely Grey-headed flying fox habitat in the Sydney Basin region. Figure 4 shows this species' habitat largely remained unaffected in the Hunter subregion. The 2019/2020 bushfires have therefore not resulted in the 162.6 ha of habitat will be cleared being more important to this species than was the case prior to the fires occurring.

215. As indicated in Figure 1 minor areas of likely White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland habitat ecological community habitat were affected by the fires in the Sydney and Hunter regions. The 2019/2020 bushfires have therefore not resulted in the 24.3 ha of Box Gum CEEC will be cleared being more important than was the case prior to the fires occurring.

Conclusion

216. The department analysed the impact of the 2019/2020 bushfires on Box Gum CEEC, Regent Honeyeater, Swift Parrot, and Grey-headed flying fox habitat in the Sydney Basin IBRA region and the Hunter IBRA sub-region. The department concludes the fires did not impact Box Gum CEEC community and only very small amounts of habitat for the species discussed above were burnt in the Hunter IBRA sub-region.

217. The department is satisfied the impact of the bushfires is not sufficient to justify additional avoidance, mitigation, or offset measures beyond those required in the State approval. The department considers the proponent's outline of management measures for the offset areas, including fire management will adequately ensure the rehabilitation and improvement of the vegetation and habitat for the relevant MNES.

218. The department considers the impacts on listed threatened species and ecological communities has been adequately addressed in the NSW assessment and approval process and their findings remain unchanged in the context of the bushfires.

4.2 SPECIES AND ECOLOGICAL COMMUNITIES

4.2.1 Regent Honeyeater – (*Anthochaera phrygia*) – critically endangered

Species information

219. The Regent Honeyeater is a striking black and yellow bird with a patchy distribution between south-east Queensland and central Victoria. It primarily occurs in box-ironbark woodland, but also occurs in other forest types. The species primarily feeds on nectar, and to a lesser extent, insects. It mainly feeds on nectar from eucalypt species and mistletoes, and it prefers taller and larger diameter trees for foraging[1].

220. The conservation advice states that the species is thought to have undergone a population decline of greater than 80 percent in 24 years. The main cause of the decline is thought to be clearance of the species habitat[2].

221. Key identified threats to the species include the clearing, fragmentation and degradation of suitable habitat, and competition for habitat with other nectarivorous and non-nectarivorous bird. The rapid decline of the once large population also means a severe loss of genetic variability is also a threat[3].

222. Habitat for the species experienced further decline as a result of the 2019-20 bushfires throughout the east coast of Australia. Figure 2 in the Appendix shows the extent of the species' distribution impacted by those fires. The species was included on the department's provisional list of 119 species requiring urgent management intervention[4].

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[1] Department of Agriculture, Water and the Environment, 2020, Anthochaera phrygia – *Regent Honeyeater SPRAT profile* [website], http://apps.internal.environment.gov.au/cgi-bin/sprat/intranet/showspecies.pl?taxon_id=82338

[2] Department of Agriculture, Water and the Environment, 2015, *Conservation Advice* Anthochaera phrygia *Regent Honeyeater*, Canberra

[3] Department of Agriculture, Water and the Environment, 2016, *National Recovery Plan for the Regent Honeyeater (*Anthochaera phrygia*),* Canberra

The department has considered of the scale of these impacts at a local, regional and national level, and has taken these into account in the assessment of the impacts of the project to Regent Honeyeater.

223. The department considered the aims and management actions outlined in the department's technical report on the bushfires[5], and notes the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of habitat. The department considers management actions discussed below such as the management of feral predators, will contribute to identified priority actions in the report.

224. The department considers at a local level the closest impacts of the main fires are approximately 31 km south of the proposed action area, 40 km from the Wybong Heights offset area, and 30 km from the Mangoola Offset Sites. The department notes regionally and nationally the fires were more severe in other areas of eastern Australia, and, as a result, has reduced overall habitat for the Regent Honeyeater as a whole.

225. Having examined the likely impact of the proposed action in addition to the impacts of the 2019-2020 bushfires, the department considers it is not necessary to impose any additional avoidance, mitigation or offset measures beyond those proposed, even in light of the decline of Regent Honeyeater habitat following the bushfires.

Impacts

226. The AR (Attachment G3) states the Regent Honeyeater was not recorded within the proposed action area, with the nearest recorded sighting of the species being approximately 16 km to the north-east in 1996.

227. The AR states 148 ha of Regent Honeyeater habitat will be directly impacted by the proposed action (Attachment G3) through the removal of potential narrow-leaved ironbark dominated habitat.

228. The AR states the proposed action is unlikely to have a significant residual impact on the Regent Honeyeater because: no breeding or nesting habitat has been identified within the proposed disturbance area, and the species has not been recorded within the Northern Extension Area in contemporary or historical surveys.

229. DPIE concluded there will be no residual significant impacts on the Regent Honeyeater as the impacts will be isolated to 148 ha of foraging habitat (i.e., no impact on breeding habitat) and the impacts on vegetation of importance to the Regent Honeyeater within the development footprint do not extend beyond the site.

230. The department considers the Regent Honeyeater is a semi-nomadic species, and it may be many years between foraging visits to a particular site depending on flowering events at the site. Therefore, the foraging habitat that will be cleared is likely to be important habitat for this species.

231. The department considers the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of the species, in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.*

Avoidance and Mitigation

232. The proponent's Assessment of Commonwealth Matters Report (ACM) contains a range of avoidance and mitigation measures to mitigate impacts on Regent Honeyeater, both for the existing Mangoola operations and the current Mangoola Continued Coal Operations Project (Appendix 24 of Attachment I1). The measures described in the ACM includes delivering an adequate Biodiversity Offset Strategy (BOS) appropriately compensates for the residual loss of ecological values, re-instating landscape connectivity at local and regional scales as a part of post-mine rehabilitation, and mitigating the impacts of light, noise and blasting by implementing management plans and best practice measures.

233. The NSW conditions require the proponent to prepare and implement:

- A Biodiversity Management Plan which will describe the measures to be implemented to minimise the amount of clearing and enhance the quality of vegetation and vegetation connectivity within the project area (conditions B57-B59 of the Development Consent)

- a Rehabilitation Management plan addresses all aspects of rehabilitation including closure and will be prepared to the satisfaction of the Planning Secretary (condition B91 of NSW development consent).

234. The department notes the above avoidance and mitigation measures that apply to the Regent Honeyeater, as stated in both the AR and EIS documentation.

235. The department considers these measures are suitable and necessary to reduce impacts to the Regent Honeyeater and remaining habitat, and recommends you adopt the relevant NSW conditions relating to these measures in your EPBC Act approval.

236. The department also recommends an upper clearance limit of 148 ha of habitat for the Regent Honeyeater is applied, based on the description of the proposed action in the EIS and the AR. This is reflected in Condition 8(b) of the Proposed Approval Decision Notice (Attachment B).

Offsets and compensatory measures

237. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of up to 148 ha of habitat for the Regent Honeyeater will need to be offset to ensure the project does not have an unacceptable impact to the species.

238. The total offset liability for the Regent Honeyeater is 369 ecosystem credits. The NSW conditions require the proponent to retire:

i. 369 ecosystem credits for HU816 Spotted Gum – Narrow-leaved ironbark shrub – grass open forest of the central and lower Hunter.

239. The AR states that residual impacts of habitat loss associated with the Regent Honeyeater will be adequately met through the retirement of the proposed Mangoola Offset Site and Wybong Heights Offset Site. These offset sites will protect approximately 184.7 ha of this PCT, which equates to the generation of 2,784 ecosystem credits.

240. The department recommends NSW conditions B54, B55, B56, B57, B58, B59 and B85 of Part B be attached to the EPBC Act approval (see condition 12 of the Proposed Approval Decision Notice at Attachment B; and Schedule 2, of Attachment G2).

241. Proposed EPBC Condition 9 states that prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust. Table 1 specifies the area of each PCT containing Regent Honeyeater habitat that will be cleared and the number of credits required.

242. This condition will ensure the proponent provides sufficient offsets for the loss of Regent Honeyeater habitat.

Conclusion

243. The department considers the proposed action, if approved subject to the recommended NSW conditions B54, B55, B56, B57, B58, B59 and B85, and EPBC conditions 9, 10 and 11, will not have an unacceptable impact on the Regent Honeyeater.

4.2.2 Swift Parrot (*Lathamus discolor*) – endangered

Species information

244. The Swift Parrot is a slim, medium-sized parrot is mostly bright green in colour, with dark-blue patches on the crown, a prominent red face and yellow bordered chin and throat[4].

245. The species breeds in Tasmania during the summer and the entire population migrates to mainland Australian for the winter. Whilst on the mainland the Swift Parrot disperses widely to forage on eucalypt species, with the majority being found in Victoria and NSW. The area of occupancy has declined significantly since European settlement. 70 per cent of the principal wintering habitat for the species has been cleared in NSW[5].

246. Key foraging habitat for the species within the proposed action area includes the following PCTs: 1598 - Forest Red Gum Grassy Open Forest on Floodplains of the Lower Hunter (*Eucalyptus tereticornis* dominant in the canopy), 1602 Spotted Gum - Narrow-leaved Ironbark Shrub - Grass Open Forest of the Central and Lower Hunter (*Corymbia maculata* dominant in the canopy), and 1607 Blakely's Red Gum - Narrow-leaved Ironbark - Rough-barked Apple shrubby woodland of the upper Hunter (*Eucalyptus tereticornis x Eucalyptus blakelyi* intergrades dominant in the canopy).

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[4] Threatened Species Scientific Committee, 2016, *Conservation Advice* Lathamus discolor *Swift Parrot,* Canberra

[5] Department of the Environment, 2016, *Lathamus discolor (Swift Parrot) Consultation Document*, Canberra

247. Key threats to the species include habitat loss and alteration, predation by sugar gliders, competition, disease, and illegal wildlife capture[6].

248. The species recovery plan states that the majority of Swift Parrot foraging in NSW occurs outside of conservation reserves, and therefore those areas continue to be vulnerable to loss, fragmentation or disturbance[3].

Impacts

249. The proponent's Assessment of Commonwealth Matters Document (Appendix 24 of Attachment I1) states that no Swift Parrots were recorded within the proposed action area or immediate locality. The nearest Swift Parrot sighting being 28 km to the east, near Muswellbrook in 2012.

250. The AR (Attachment G3) states the proposed action will impact 27.4 ha of potential Swift Parrot habitat, based on the presence of spotted gum (*Corymbia maculata*) and forest red gum (*Eucalyptus tereticornis*) which are key foraging resources for the Swift Parrot in the Hunter Valley.

251. Additional vegetation survey data and habitat assessment results indicated supplementary key foraging species identified in the recovery plan were not recorded in the proposed action area.

252. The proponent's assessment of significance states the proposed action is unlikely to have a significant residual impact on the Swift Parrot despite the presence of the presence of low to medium quality foraging habitat because: the species does not breed on within the proposed action area, and no records of the species have been recorded within the project area.

253. DPIE concluded there will be no significant impacts on the Swift Parrot given the species is highly mobile and wide-ranging.

254. The department analysed the PCTs that will be cleared and identified 148 ha of PCTs containing winter flowering eucalypt species that provide foraging habitat for the Swift Parrot.

255. The proponent agrees with the department's analysis and has committed to provide 148 ha of Swift Parrot foraging habitat offsets.

256. The department considers the proposed action is likely to have a significant impact on the species as it is likely to adversely affect habitat critical to the survival of the species, in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*.

Avoidance and Mitigation

257. The EIS contains a range of avoidance and mitigation measures to mitigate impacts on

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[6] Saunders, D.L & C.L. Tzaros, 2011, *National Recovery Plan for the Swift Parrot* (Lathamus discolor), Melbourne

MNES, both for the existing Mangoola Mine and the proposed action. The measures described in the EIS include tailoring project design to reduce physical impacts to biodiversity, vegetation and habitat clearing protocols, and weed control.

258. The NSW conditions require the proponent to prepare and implement:

- A Biodiversity Management Plan which will describe the measures to be implemented to minimise the amount of clearing and enhance the quality of vegetation and vegetation connectivity within the project area (conditions B57-B59 of the Development Consent)

- a Rehabilitation Management plan addresses all aspects of rehabilitation including closure and would be prepared to the satisfaction of the Planning Secretary (condition B91 of NSW development consent).

259. The department considers these measures are both necessary and convenient to protect, and to mitigate and repair damage to, the Swift Parrot, and recommends you attach the NSW conditions referred to above to approval under the EPBC Act.

260. The department also recommends a clearance limit of up to 148 ha of habitat for Swift Parrot is applied, based on the description of the proposed action in the EIS and the AR. This is reflected in condition 8c of the Proposed Approval Decision Notice.

Offsets and compensatory measures

261. The EIS states the Swift Parrot is not expected to be significantly impacted and therefore does not require to be offset through species specific credits. The EIS notes the Swift Parrot is identified as an ecosystem credit species under the NSW FBA and any loss of potential habitat will be offset on a like-for-like basis in accordance with the FBA.

262. The department considers that despite the proposed avoidance and mitigation measures, the direct clearance of 148 ha of potential habitat for the Swift Parrot will likely result in a residual significant impact for the species and offsets are required to ensure the proposed action does not have an unacceptable impact on the species.

263. Proposed EPBC Condition 9 states that prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust. Table 1 specifies the area of each PCT containing Swift Parrot foraging habitat that will be cleared and the number of credits required.

264. This condition will ensure the proponent provides sufficient offsets for the loss of Swift Parrot habitat.

Conclusion

265. The NSW assessment concluded there will be no significant impacts on the Swift Parrot given the species is highly mobile and wide-ranging. However, the department analysed the PCTs that will be cleared and identified 148 ha of PCTs containing winter flowering

eucalypt species that provide foraging habitat for the Swift Parrot.

266. The proponent agrees with the department's analysis and has committed to provide 148 ha of Swift Parrot foraging habitat offsets.

4.2.3 Wybong Leek-orchid (*Prasophyllum* sp. Wybong) – critically endangered

Species information

267. *Prasophyllum* sp. Wybong is a terrestrial orchid with a single, tubular, fleshy, dull-green lead and a single flower spike with numerous flowers, grows approximately 30 cm high[7].

268. The species is endemic to NSW and is known from seven populations in open eucalypt forest and woodland. It's area of occupancy is estimated to be 1.5 km^2 and its distribution overlaps with Box Gum Woodland CEEC.

269. There is some taxonomic uncertainty surrounding the listing of this species under Federal and State legislation. While *Prasophyllum* sp. Wybong is listed as critically endangered under the EPBC Act, the same species is considered to be *Prasophyllum petilum* and is listed as endangered under the NSW *Biodiversity Conservation Act 1995* (BC Act). *Prasophyllum petilum* (endangered) has a separate listing under the EPBC Act.

Impacts

270. The proposed action will involve the clearance of approximately 691 *Prasophyllum* sp Wybong individuals.

Avoidance and Mitigation

271. Glencore have committed to implement a range of measures to avoid and mitigate the impacts to *Prasophyllum* sp Wybong.

272. The reduction to the MCCO Additional Disturbance Area presented in the Preliminary Environmental Assessment (Umwelt 2017) has resulted in the avoidance of impacts upon 34 Prasophyllum sp. Wybong individuals.

273. The proponent has an adaptive weed management strategy. Weed infestations are monitored as part of annual walkover inspections and ecological monitoring programs and a response is required for significant infestations.

Offsets and compensatory measures

274. On 22 July 2020, the proponent provided a briefing note to the department (Attachment I4) outlining their proposed biodiversity offset strategy to address impacts

[7] *Approved Conservation Advice for* Prasophyllum *sp. Wybong (C. Phelps ORG 5269) (a leek-orchid*). Canberra, ACT: Department of the Environment, Water, Heritage, and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/81964-conservation-advice.pdf

of the Project on *Prasophyllum* sp. Wybong (to meet offset requirements identified by the department).

275. The department advised the proponent that due to the different listings, its approach to biodiversity offsetting for *Prasophyllum* sp. Wybong is different to the NSW Biodiversity Conservation Division (BCD). BCD had confirmed adequate offsets had been provided for *Prasophyllum petilum* under the NSW Framework for Biodiversity Assessment (FBA) and the *NSW Biodiversity Offsets Policy for Major Projects* for the MCCO Project.

276. The following offset requirements were identified by the department:

- offset areas to be based on known habitat (habitat associated with known records) of the species
- impact areas and offset areas to be calculated using the same methodology
- offsets to meet a 1:1.9 (impact/offset) ratio using 100 per cent land-based offsets. The required impact/offset ratio is an outcome of the NSW FBA assessment process as advised by BCD, to provide an adequate offset for the impact of the MCCO Project on this species
- the methodology to calculate the 1:1.9 (impact/offset) ratio to be agreed on by the department.

277. On 3 September 2020, the department wrote to the proponent stating it was satisfied the report *Mangoola Coal Continued Operations Project (MCCO Project) Offset Analysis for* Prasophyllum *sp. Wybong,* dated and received by the department on 22 July 2020 (P. Wybong Report), provided an adequate assessment of the habitat within the impact and offset area, and the proposed offset area will meet the department's offsetting requirements. The department noted the P. Wybong Report provided a robust methodology and sufficient evidence to demonstrate why the offset area will provide suitable habitat for the species.

278. The provision of 193.1 ha of offsets for the loss of 101.6 ha of Prasophyllum *sp.* Wybong habitat will be staged as described in the P. Wybong Report.

279. The department is satisfied with the quantum and nature of the proposed offsets for *Prasophyllum* sp Wybong in that the offsets strategy is consistent with the department's offsetting requirements and the NSW FBA process and provides land based offsets containing known populations of this species.

280. Proposed EPBC Condition 10 states: For the protection of the *Prasophyllum* sp Wybong, prior to the commencement of mining in the MCCO Additional Project Area, or other timeframe agreed to by the Minister, the approval holder must provide the Minister:

a. evidence that 193.1 ha of *Prasophyllum* sp Wybong offset habitat has been secured under a Biodiversity Stewardship Agreement.

b. a *Prasophyllum* sp Wybong offset management plan (this can be provided separately or as part of the Biodiversity Management Plan). This plan must be prepared by a suitably qualified *Prasophyllum* sp Wybong expert and include, but not

be limited to:

i. identification of potential direct and indirect impacts to the *Prasophyllum* sp Wybong individuals and/or habitat in the offset area

ii. management actions proposed to minimise impacts to the *Prasophyllum* sp Wybong individuals and/or habitat

iii. performance indicators and trigger thresholds for the population size and habitat condition. Both short and long term performance indicators and trigger thresholds should be included to account for seasonal variations.

iv. a program to monitor and evaluate the population size and habitat condition against the performance indicators and trigger thresholds

v. an action plan to respond to exceedances of the performance indicators and thresholds.

281. Proposed EPBC Condition 11 states, the approval holder must provide the Minister with a report outlining the results of the *Prasophyllum* sp Wybong offset management plan annual monitoring and management actions undertaken over the previous 12 months , within 60 business days of the end of the calendar year.

Conclusion

282. The department recommends an upper clearance limit of 101.2 ha of land containing *Prasophyllum wybong* is applied based on the description of the proposed action and P Wybong Report *(*Attachment I4). This is reflected in Condition 8e of the Proposed Approval Decision Notice (Attachment B).

283. The department considers the proposed action, if approved subject to the recommended conditions, will not have an unacceptable impact on *Prasophyllum sp. Wybong*.

4.2.4 Grey-headed Flying- fox (*Pteropus poliocephalus*) – vulnerable

Species information

284. The Grey-headed flying fox (GHFF) is one of the largest bats in the world and feeds primarily on blossoms and fruit in canopy vegetation and supplements this diet with leaves. Major food plants include the fruit and blossom of rainforest species, especially Ficus spp., and blossoms of myrtaceous species such as Eucalyptus, Corymbia and Angophora, melaleucas and banksias

285. Important winter or spring foraging habitat has been identified in the Draft Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus (2017) as vegetation communities containing *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora, C. eximia,* and *C. maculata.* The recovery plan states the recovery of the GHFF is primarily dependent on the protection and rehabilitation of foraging habitat and the expansion of forested areas are productive during winter and spring.

286. The GHFF has historically occupied forests and woodlands in the coastal lowlands, tablelands and slopes of south-eastern Australia, from Bundaberg in Queensland to Geelong in Victoria, with rare sightings outside its range. The primary known threat to the survival of the GHFF is loss and degradation of foraging and roosting habitat. Conflict with people, including disturbance in camps and mortality from actions to manage commercial fruit crops, is considered to be a moderate threat, but is increasing in urban areas.

287. Due to its role as a pollen and seed disperser, the GHFF contributes to sustaining ecological processes within vegetation communities along the east coast, including three of Australia's World Heritage Areas: Fraser Island, the Gondwana Rainforests and the Greater Blue Mountains, which are adjacent to the proposed action area.

Impacts

288. The AR states the GHFF was not recorded within the proposed action area and no breeding habitat was identified within the disturbance area. It notes a GHFF camp is located 17 km east of the project area at Muswellbrook, while the closest individual record is 10 km south of the proposed action area.

289. The AR (Attachment G3) states the proposed action will have a direct impact on 162.6 ha of potential foraging habitat for the Grey-headed flying fox.

290. The proponent's assessment of significance states the clearance of 162. 6 ha of potential GHFF habitat is unlikely to result in a significant impact to the species because: the proposed action area is unlikely to contain an important population, and the habitat within the proposed action area is highly fragmented and will not further impact connectivity to the wider landscape.

291. DPIE agreed with the conclusion the project is unlikely to have a significant impact on the GHFF.

292. The department considers the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of the species, in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.*

Avoidance and Mitigation

293. The ACM report (Appendix 24 to Attachment I1) contains some measures to mitigate impacts on MNES for the proposed action. The measures described in the report include tailoring project design to avoid and minimise impacts where possible and habitat enhancement measures to supplement mine rehabilitation areas.

294. The NSW conditions require the proponent to prepare and implement:

- a Biodiversity Management Plan will detail management actions to minimise the amount of clearing and maximise the salvage of resources within the project area (Condition B57 of Development Consent).

295. The department notes the above avoidance and mitigation measures apply to the GHFF, as stated in both the EIS and the AR.

296. The department considers these measures are suitable and necessary to reduce impacts to the GHFF and remaining habitat, and recommends you adopt the relevant NSW conditions relating to these measures in your EPBC Act approval.

297. The department also recommends an upper clearance of 162.6 ha of habitat for the GHFF be applied based on the description of the proposed action in the EIS and the AR. This is reflected in Condition 8d of the Proposed Approval Decision Notice (Attachment B).

Offsets and compensatory measures

298. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of up to 162.6 ha of habitat for the GHFF will need to be offset to ensure the project does not have an unacceptable impact to the species.

299. Proposed EPBC Condition 9 states that prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust. Table 1 specifies the area of each PCT containing GHFF habitat that will be cleared and the number of credits required.

300. This condition will ensure the proponent provides sufficient offsets for the loss of GHFF habitat.

Conclusion

301. The department recommends an upper clearance limit of 162.6 ha of habitat for the GHFF is applied based on the description of the proposed action in the EIS and AR. This is reflected in Condition 8(d) of the Proposed Approval Decision Notice (Attachment B).

302. The department considers the proposed action, if approved subject to the recommended conditions, will not have an unacceptable impact on the GHFF.

4.2.5 White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community (Box Gum CEEC)–critically endangered

Species information

303. The EPBC listed critically endangered White Box, Yellow Box, Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum CEEC) is present on the site. Information on this ecological community has been sourced from the department's Species Profile and Threats Database report (SPRAT), the Conservation Advice for this ecological community, the EPBC policy statement for this species, the species list for this policy statement and the *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, department of Environment, Climate Change and Water NSW, Sydney, (May 2011).

304. Less than 1% of Box Gum CEEC remains in good condition and much occurs in small,

fragmented, isolated patches. According to the SPRAT database only 0.1% remains in near-intact condition.

305. Box Gum CEEC is characterized by a species rich understory of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of white box, yellow box, or Blakely's red gum trees. Box Gum CEEC tree-cover is generally discontinuous and consists of widely spaced trees of medium height in which the canopies are clearly separated (SPRAT).

Impacts

306. The proposed action involves the clearance of 24.3 ha of Box Gum CEEC.

307. While the BDAR states the project is likely to have a significant impact on Box Gum CEEC, the BDAR also concludes the proposed action is unlikely to lead to a substantial reduction in the quality or integrity of remaining Box Gum CEEC habitat in the locality or modify natural processes or systems necessary for the survival of the community.

Avoidance and Mitigation

308. The proponent has committed to a range of measures to manage indirect 'edge effects' of Box Gum CEEC, including the delineation of clearance areas to avoid unnecessary impacts and clearance of surrounding vegetation, development of a Vegetation Clearance Protocol and Bushfire Management Plan, and the ongoing management of dust, weeds, erosion and sedimentation.

Offsets and compensatory measures

309. The proponent has committed to offset the residual impacts of the Project on Box Gum Woodland on a like-for-like basis, in accordance with the NSW Biodiversity Offsets Scheme, including though the provision of local land-based biodiversity offsets which include habitat regeneration areas.

310. Proposed EPBC Condition 9 states that prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust. Table 1 specifies the area of each PCT that comprises Box Gum Woodland that will be cleared and the number of credits required.

311. This condition will ensure the proponent provides sufficient offsets for the loss of Box Gum Woodland.

312. The proponent has also proposed to rehabilitate the proposed action area as part of the post-mining final landform. The State conditions require the proponent to secure the required biodiversity offsets, rehabilitate the project's disturbance areas and prepare a Biodiversity Management Plan, which must include a focus on the regeneration, enhancement and re-establishment of the EECs impacted by the Project, including Box Gum CEEC.

Conclusion

313. The department recommends the relevant NSW conditions relating to mitigation and offsets for Box Gum CEEC are applied for the purposes of the EPBC Act.

314. The proposed conditions include an upper clearance limit of 24.3 ha based on the estimate of impacts provided in the EIS and AR. The proposed conditions also require credits are retired in accordance with the NSW Biodiversity Offsets Scheme, which has been endorsed by the Commonwealth.

4.3 RECOMMENDED CONDITIONS OF APPROVAL – LISTED THREATENED SPECIES AND ECOLOGICAL COMMUNITIES

Relevant state conditions

315. The department recommends you impose a condition requiring the proponent to comply with State condition B54 which requires the proponent to implement the Biodiversity Offset Strategy for the development as described in the documents listed in condition A2(c) and shown conceptually in Appendix 6 of the development consent.

316. The department recommends you impose a condition requiring the proponent to comply with State condition B55 which requires the proponent to continue to implement the mitigation and management measures described in the approved Translocation Plan for Orchids and Other Threatened Flora, dated September 2012 and prepared by Umwelt for the Mangoola Coal Project disturbance area, to the satisfaction of the Planning Secretary.

317. The department recommends you impose a condition requiring the proponent to comply with State condition B56 which states within 10 years of the cessation of mining operations, or other timeframe agreed to by the Planning Secretary, the proponent must make suitable arrangements for the long-term protection of the ecological mine rehabilitation and offset areas described in the document/s listed in condition A2(c), including appropriate covenants to the satisfaction of the BCT. If the rehabilitation area does not meet the listing criteria of the targeted Plant Community Type or the completion criteria, then the Applicant must retire the relevant deficient biodiversity credits in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

318. The department recommends you impose a condition requiring the proponent to comply with State condition B57 which requires the proponent to prepare a Biodiversity Management Plan, to the satisfaction of the Planning Secretary.

319. The department recommends you impose a condition requiring the proponent to comply with State condition B58 which states the proponent must not commence mining operations north of Wybong Road until the Biodiversity Management Plan is approved by the Planning Secretary.

320. The department recommends you impose a condition requiring the proponent to comply with State condition B59 which requires the proponent implement the Biodiversity Management Plan as approved by the Planning Secretary.

321. The department recommends you impose a condition requiring the proponent to comply with State condition B85 which requires the proponent to rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*. This rehabilitation must be consistent with the proposed rehabilitation strategy described in the documents listed in condition A2(c) and shown in Appendix 9 and must comply with the objectives in Table 9 of the Development Consent.

322. The department recommends you impose a condition requiring the proponent to comply with State condition B86 which states the rehabilitation and mine closure objectives in Table 9 apply to the entire site, including all landforms constructed under either this consent or previous consents. However, the proponent is not required to undertake any additional earthmoving works on landforms have been approved and constructed under previous consents, except where those earthworks are required for the establishment of a stable, non-polluting and free-draining landform.

323. The department recommends you impose a condition requiring the proponent to comply with State condition B87 requiring the proponent to rehabilitate the site progressively, is, as soon as practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilization and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion, and weed incursion cannot be permanently rehabilitated.

324. The department recommends you impose a condition requiring the proponent to comply with State condition B88 which requires the proponent to prepare a Rehabilitation Strategy for all land disturbed by the development to the satisfaction of the Planning Secretary.

325. The department recommends you impose a condition requiring the proponent to comply with State condition B89 which states the proponent must not commence mining operations north of Wybong Road until the Rehabilitation Strategy is approve by the Planning Secretary.

326. The department recommends you impose a condition requiring the proponent to comply with State condition B90 which requires the proponent to implement the Rehabilitation Strategy approved by the Planning Secretary.

327. The department recommends you impose a condition requiring the proponent to comply with State condition B91 which requires the proponent to prepare a Rehabilitation Management Plan for the development, in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*.

Additional EPBC Act conditions

328. The department recommends you impose the following condition to the approval to minimise the impacts of the proposed action on listed threatened species.

329. The department recommends you impose condition 8 stating that the action must not result in clearing of threatened species habitat or ecological communities other than the clearing limits specified below and shown in Annexure 2:

    a. 24.3 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy

Woodland and Derived Native Grassland EPBC Act listed ecological community.

b. 148 hectares of Regent Honeyeater (*Anthochaera phrygia*) habitat.

c. 148 hectares of Swift Parrot (*Lathamus discolor*) habitat.

d. 162.6 hectares of Grey-headed flying fox (*Pteropus poliocephalus*) habitat.

e. 101.6 hectares of land containing *Prasophyllum* sp Wybong**.**

330. This condition draws on the outcome of the State assessment. This condition will ensure the areas of impact remain as specified in the State assessment.

331. Condition 9 states that prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust.

332. This condition ensures that adequate offsets are provide for impacts on EPBC listed threatened species and communities.

333. Condition 10 requires the proponent to provide the Minister with evidence that 193.1 ha of *Prasophyllum* sp Wybong habitat has been secured under a Biodiversity Stewardship Agreement, as well as a *Prasophyllum* sp Wybong Offset Management Plan.

334. Condition 11 states, the approval holder must provide the Minister with a report outlining the results of the *Prasophyllum* sp Wybong offset management plan annual monitoring and management actions undertaken over the previous 12 months , within 60 business days of the end of the calendar year.

335. These conditions ensures adequate offsets are provided, secured, managed and monitored for impacts on *Prasophyllum sp* Wybong.

336. Condition 12 requires the approval holder to comply with condition B57 of the State Development consent to prepare and implement the Biodiversity Management Plan. The approval holder must comply with conditions B54, B55, B56, B57, B58, B59 and B85 of Part B of the State development consent (to the extent the conditions in Part B relate to EPBC Act threatened species and ecological communities).

337. This condition ensures that adequate offsets and protection are provided for EPBC listed threatened species and communities through implementation of the Biodiversity Offsets Strategy, a Translocation Plan, Biodiversity Management Plan and mine site rehabilitation.

4.4 OTHER LISTED THREATENED SPECIES AND ECOLOGICAL COMMUNITIES RELEVANT TO THE PROPOSED ACTION

338. The department considered at the referral stage there was a real chance or possibility the proposed action will result in significant impacts to the listed threatened species

discussed below. Therefore, on 20 September 2018, the delegate stopped the clock to seek further information on the following listed threatened species and communities:

- *Prasophyllum* sp. Wybong – critically endangered
- Painted Honeyeater (*Grantiella picta*) – vulnerable
- Corben's Long-eared Bat (*Nyctophilus corbeni*) – vulnerable
- Austral Toadflax (*Thesium austral)* – vulnerable
- Sandy Hollow Commersonia (*Androcalva rosea*) – endangered
- *Lasiopetalum longistamineum* – vulnerable
- *Ozothamnus tesselatus* – vulnerable
- Denman Pomaderris (*Pomaderris reperta*) – vulnerable
- Wollemi Mint-bush (*Prostanthera cryptandroides* subsp. cryptandroides) – vulnerable
- Central Hunter Valley Eucalypt forest ecological community – critically endangered.

339. The department received the additional information on 19 December 2018. The department then undertook assessments of significance for each of the listed threatened species and communities that were the subject of the additional information request. With the exception of *Prasophyllum* sp. Wybong the department considered it unlikely any of these species or ecological communities will be significantly impacted.

340. In addition, based on the information provided in the assessment documentation and AR, the department remains of the view that the project is unlikely to significantly impact these species and ecological communities.

4.5 Conclusion on Threatened Species and Communities (s18 and s18A)

341. Following consideration of the State assessment, the State conditions and the information set out above, the department considers that the proposed action will not have an unacceptable impact on the relevant listed threatened species and ecological communities provided it is taken in accordance with the recommended conditions of approval.

342. On this basis, the department recommends approving the proposed action for the purposes of sections 18 and 18A of the EPBC Act.

5 GREENHOUSE GAS EMISSIONS FOR MNES PURPOSES

343. The proposed action will produce 52 million tonnes (Mt) of run of mine coal through to 2030. The coal produced by the proposed action will be 100% thermal coal.

344. DPIE states in the AR that Mining, Exploration and Geoscience within Regional NSW advised that the existing Mangoola Mine currently sells product coal to domestic (27%) and export markets 73%), and that Glencore has indicated that it will continue to supply product coal to both domestic and international markets until 2026, and to exports markets alone beyond 2026.

345. Greenhouse Gas (GHG) emissions are categorized into three different types:

- Scope 1: direct emissions from owned or controlled sources of an organisation/development;
- Scope 2: indirect emissions from the, generation of purchased energy electricity, heat and steam used by an organisation/development; and
- Scope 3: all other upstream and downstream emissions related to an organization/development

346. Under GHG emissions reporting and accounting frameworks[8], the scope 2 and 3 emissions estimated for the Project are the scope 1 emissions of other organisations/developments. For example, the scope 3 emissions from combustion of coal here or in an overseas country will form part of the scope 1 emissions of the organisation combusting the coal for electricity generation and will also be the scope 1 emissions of the country where the coal is combusted under applicable national accounting frameworks (page 121, Attachment G3).

347. Over the life of the proposed action, the maximum estimated total greenhouse gas emissions are predicted to total 107,940,192 t CO_2-e, made up of:

- 3,251,000 t CO_2-e of scope 1 primarily from fugitive emissions and diesel use during its operational phase;
- 402,192 t CO_2-e scope 2 emissions, associated with the production of electricity used by the proposed action including underground mining equipment, conveyor belts, ancillary equipment, and administration facilities; and
- 104,287,000 t CO_2-e of scope 3, which would be generated by third parties who transport and consume the extracted coal.

Proponent Assessment

348. The proponent's EIS included a Greenhouse Gas and Energy Assessment (GHGEA) prepared by Umwelt (Australia) Pty Ltd and dated May 2019.

349. The GHGEA proposes a range of management and mitigation measures to minimise

[8] The *Greenhouse Gas Protocol* (GHG Protocol) (World Business Council for Sustainable Development [WBCSD] and World Resources Institute [WRI], 2004 was applied for the Project.

scope 1 and scope 2 GHG emissions as far as possible, particularly by reducing electricity consumption and diesel usage, including:

- limiting the length of material haulage routes, thereby minimizing transport distances and associated fuel consumption;
- optimising haul road ramp gradients and payload to reduce diesel consumption;
- selecting equipment and vehicles that have high energy efficiency;
- scheduling activities so equipment and vehicle operation is optimised (e.g. minimizing idle times and in-pit servicing);
- improving extraction and processing energy use through implementation of through seam blasting;
- energy efficiency initiatives to reduce indirect electricity consumption i.e. scope 2 emissions;
- implementation of the existing emissions cap for the Mangoola Mine in accordance with the Safeguard Mechanism under the Australian national greenhouse gas mitigation policy framework; and
- participation, monitoring and reporting within the Commonwealth Government's National Greenhouse Energy and Reporting Scheme (NGERS), which includes ongoing review of technologies and measures to further minimise GHG emissions.

Public Comments

350. Public submissions on the EIS raised concerns about the potential air quality impacts of the project and the effect on human health, as well as the broader issue of cumulative air quality impacts.

351. Public submissions during the IPC process raised similar concerns to those raised on the EIS. Submissions also raised concerns regarding inter-generational equity, as well as the Government's commitment to reducing GHG emissions.

DPIE Assessment

352. The NSW assessment report (Attachment G3) considered the GHG and energy assessment (GHGEA) provided as part of the environmental impact statement, noting that the proposed action is projected to generate approximately 108Mt $CO_{2\text{-}e}$ over its lifespan (8 years).

Source of emissions and amount of emissions

353. The AR states the main sources of scope 1 and scope 2 GHG emission estimates from the proposed action will be associated with fugitive emissions due to exposure of coal seams during mining operations, and on-site electricity and diesel consumption. DPIE notes that the vast majority of scope 3 emissions from coal mined by this project will be

generated by combusting the coal in power stations to generate electricity.

354. The AR states the proposed action is expected to generate approximately 108 Mt carbon dioxide equivalent (CO_2-e) over the life of the mine (8 years), comprising of 3.6 Mt CO_2-e of scope 1 and 2 emissions, and 104 Mt CO_2-e of scope 3 emissions (see Table 2) below).

GHGEs	Sources	Annual Average	Total
Scope 1	Fugitive emissions from exposed coal seams and on-site diesel consumption	0.41	3.25
Scope 2	On-site electricity consumption	0.05	0.40
Scope 3	Purchase of diesel and electricity and the transport and consumption of product coal (predominantly thermal)	13.04	104.29
Total		**13.50**	**107.94**

Note: Mt CO_2-e = million tonnes carbon dioxide equivalent.

Table 2: Direct and indirect GHG emissions of the proposed action (source NSW assessment report)

Scope 1 & 2 emissions

355. DPIE considered that the likely GHG emissions associated with the proposed action, including:

- 407,000 t CO2-e of scope 1 emissions per annum (3,251,000 t CO2-e total); and
- 51,000 t CO2-e of scope 2 emissions per annum (402,192 t CO_2-e total). The GHGEA notes that the proposed action will utilise the existing Coal Handling Preparation Plant (CHPP) at the Mangoola Mine which is the main source of electricity usage.

356. DPIE noted that scope 1 and 2 emissions represent a very small proportion of the proposed action's emissions (approximately 3.5%), should be considered relative to the global impacts that would arise from the recovery of alternative coal resources for power generation, and weighed against the potential economic and social benefits of the Project.

357. DPIE states in the AR that Glencore has applied reasonable and feasible measures to reduce its scope 1 and 2 emissions through the design and operation of the proposed action. The majority (approximately 70%) of residual scope 1 and 2 GHG emissions would be associated with fugitive gas emissions due to exposure of the seams during open cut mining operations and only 30% of the predicted scope 1 and 2 GHG emissions would be due to on site fuel and electricity consumption required to operate the mine.

358. DPIE recommended conditions to manage GHG emissions of the proposed action to the greatest extent practicable, including requiring the proponent to:

- take all reasonable steps to improve energy efficiency;
- manage 'non-road' mobile diesel equipment to comply with any exhaust emission standards specified under an EPL for the site; and
- prepare a detailed Air Quality and Greenhouse Gas Management Plan for the project.

359. DPIE assessment of direct energy use and associated greenhouse gas emissions has found that the scope 1 and scope 2 emissions generated by the proposed action would be low and comprise a very small contribution towards climate change at both the national and global scale.

360. The AR considers air quality impacts as a result of the proposed action can be effectively managed through the recommended conditions and the implementation of comprehensive monitoring and management measures.

Scope 3 emissions

361. As identified in Table 2, approximately 104 Mt CO2-e of predicted total emissions from the proposed action comprise of scope 3 emissions, equating to approximately 13 Mt CO2-e per year.

362. The GHGEA states that approximately 96% of the MCCO Project's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries or jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan. No further breakdown of the domestic and export market share has been provided.

363. DPIE noted the proposed action's scope 3 emissions will not contribute to Australia's NDC, where product coal will be exported for combustion overseas. These scope 3 emissions become the consumer countries' scope 1 and 2 emissions and will be accounted for in their respective national inventories.

364. The NSW AR notes that majority of key consumer countries identified by Glencore are signatories to the Paris Agreement.

365. The AR further notes that while Taiwan is not a signatory to the Paris Agreement but has developed its own GHG emission reduction targets (enforced under its *Greenhouse Gas Reduction and Management Act*) comparable to those of countries who are signatories.

366. DPIE stated in the AR that the NSW Government's *Strategic Statement on Coal Exploration and Mining in NSW* (2020) identifies that in the medium term there will still be a strong global demand for thermal coal for power generation for at least the duration of the proposed action.

367. The GHGEA indicated that the forecast scope 1 emissions would contribute to 0.00073 per cent of global emission estimates per annum. Based on this estimate, the proponent considered that the proposed action, in isolation, is unlikely to influence global

emissions and climate change trajectories.

368. The GHGEA states that under current policy settings, global greenhouse gas emissions are forecast to reach 56,200,000,000 t CO2-e per annum by 2025 (the United Nations Environment Programme Emissions Gap Report 2016 2016). Based on this forecast, the GHGEA estimates that during operation, the proposed action's scope 1 emissions will contribute approximately 0.00073 per cent to global emissions per annum. Based on this estimate, the proponent considered that the proposed action, in isolation, is unlikely to influence global emissions and climate change trajectories.

369. The GHGEA also noted that for Australia to achieve its commitment under the Paris Agreement, it would need to achieve a 28% (i.e.762,000,000 t CO2-e) reduction in GHG emissions by 2030. The forecast project-related scope 1 emissions would increase the required national mitigation effort by approximately 0.43%. The NSW AR stated that the increase is unlikely to affect Australia achieving its national mitigation targets in any material way.

370. Further to this, NSW DPIE notes that the proponent recently announced it will limit coal production to 150 Mt per annum across its global operations in order to limit its total GHG emissions and that the proposed action fits within the coal production cap commitment. DPIE also notes that the proponent has reviewed the feasibility of pre-draining coal seam gas to reduce scope 1 and 2 emissions, however it considered this option is economically unviable due to capital and operational costs.

371. DPIE recommended that the proponent be required to prepare and implement a detailed Air Quality and Greenhouse Gas Management Plan to detail measures to minimise GHG emissions during both the construction and operational phases of the proposed action.

372. Overall, DPIE considers the GHG emissions for the proposed action have been adequately considered and that, if the proposed action is undertaken in accordance with the NSW conditions, are acceptable when weighed against the relevant climate change policy framework, objects of the EP&A Act (including the principles of Ecologically Sustainable Development) and the socio-economic benefits of the proposed action.

IPC decisions and conditions

373. Clause 14(1)(c) of the *Mining State Environmental Planning Policy (SEPP)* requires the IPC to "consider whether or not the consent should be issued subject to conditions aimed at ensuring the development is undertaken in an environmentally responsible manner, including conditions to ensure…greenhouse gases are minimised to the greatest extent practicable"

374. Clause 14(2) of the Mining SEPP requires the IPC to "consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions".

375. In considering the matters specified in clauses 14(1)(c) and 14(2) of the Mining SEPP, the IPC finds the Project's scope 1 and 2 GHG emissions have been estimated using the recommended methodologies consistent with current national and NSW policy settings and commitments.

376. The IPC (Attachment G5 – Statement of Reasons) agreed with the DPIE assessment and also noted:

- under the Paris Agreement, the Australian Government committed to a nationally determined contribution to reduce GHG emissions by 26% to 28% below 2005 levels by 2030. The IPC noted that scope 3 emissions occurring overseas become the consumer country's scope 1 and 2 emissions and would be accounted for under the Paris Agreement in their respective national inventories;
- the proposed action is not inconsistent with the CCPF, the net zero plan or Australia's obligations in respect to the nationally determined contributions;
- The proposed action includes appropriate measures for minimising and managing scope 1 and scope 2 emissions to the greatest extent practicable.

377. The IPC was of the view that GHG emissions for the proposed action have been adequately estimated and are permissible when weighed against the Mining SEPP, relevant climate change policy framework, objects of the EP&A Act, ESD principles and the proposed action's socio-economic benefits.

378. The IPC noted there are uncertainties surround the largest component of the project's scope 1 emissions – fugitive emissions from coal seams, and the mitigation measures for these emissions with specific reference to the high methane content of the Upper Pilot Seam.

379. In response to this uncertainty, the IPC has included a specific objective in Table 9 of condition B85 which requires the proponent to minimise post-mining fugitive emissions.

380. The IPC imposed conditions for air quality and GHG regulation (B30, B31, B32, B33, B34 and B85), including the approval holder must:

- take all reasonable steps to improve energy efficiency and reduce scope 1 and scope 2 GHG emissions;
- ensure that major mobile diesel mining equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;
- prepare and implement an Air Quality and Greenhouse Gas Management Plan; and
- minimise post-mining fugitive emissions from exposed coal seams (discussed above).

Conclusion

381. The department notes the State approval conditions relevant to greenhouse gas emissions and that additional conditions were added by the IPC to minimise fugitive emissions. The department does not consider that further conditions are necessary to protect listed threatened species and ecological communities and water resources.

6 ECONOMIC AND SOCIAL MATTERS (SECTION

136(1)(B))

382. In deciding whether or not to approve the proposed action and what conditions to attach to the approval, you must consider economic and social matters, so far as they are not inconsistent with any other requirement of Subdivision B, Division 1 of Part 9 of the EPBC Act.

383. Information on economic and social matters was primarily obtained from the AR (Attachment G3), EIS (Attachment I1), response to submissions report (Attachment I2) and the IPC statement of reasons (Attachment G5). The key issues are discussed below.

6.1 Economic matters

384. The AR (Attachment G3) states the proposed action will provide major economic benefits for the region and NSW as whole, including:

a) a predicted net benefit to the community of $408 million, including $129.5 million to the NSW Government

b) on-going employment of up to 480 operational workers

c) temporary employment of 145 workers during construction

d) providing significant funding for local infrastructure and community service projects over the life of the mine in the order of $5 million, including a Voluntary Planning Agreement with Muswellbrook Council for community enhancement program and road maintenance.

385. An Economic Impact Assessment (EIA) was prepared by Cadence Economics (Cadence) in 2019 as a part of the EIS. The EIA was peer reviewed on behalf of Glencore by Emeritus Professor Jeff Bennet.

386. The independent economic expert concluded the EIA was consistent with the EA Guideline and Technical Notes and provided sound findings regarding the likely economic impacts associated with the project.

387. Public submissions to the IPC (Attachment G4) cited both positive and negative economic impacts of the proposed action. Issues raised include:

i. the contribution to the local economy through employment and support for local business.

ii. the scale of economic impacts and benefits has been overstated.

iii. the economic future for coal mining is uncertain.

388. DPIE considered a range of economic issues in the AR (Attachment G3) including amenity and health impacts, impacts on water and agriculture, biodiversity and heritage, traffic and visual impacts.

389. The IPC imposed a number of conditions to mitigate and manage residual social impacts, including requiring the proponent to:

    i. comply with strict noise, blasting and air criteria and operating conditions, and prepare noise, blasting and air quality management plans;

    ii. comply with water quality objectives, discharge requirements and compensatory water requirements for any loss of water supply due to mining operations;

    iii. independent review of potential exceedances of applicable environmental criteria, at the request of landowners.

390. State condition B108 requires the proponent to prepare and implement a Social Impact Management Plan for the project in consultation with Muswellbrook Council, the Community Consultative Committee, the local community and other interested stakeholders.

391. DPIE acknowledged that Council and community members raised genuine concerns about potential impacts of the project on the lifestyle, amenity or wellbeing of the community.

392. DPIE noted in the AR (Attachment G3) that it carefully weighed the impacts of the project against the significance of the resources and the socio-economic benefits. On balance, DPIE believes the proposed action's benefits to the local, regional and State economies outweigh its potential costs, is in the public interest and is approvable, subject to stringent conditions.

393. In making its final decision to approve the project the IPC considered that the project will generate net positive social and economic benefits for the local area, Hunter region and greater NSW through continued employment opportunities (Attachment G5).

6.2 SOCIAL MATTERS

394. The EIS includes a Social Impact Assessment (SIA) prepared by Umwelt Pty Ltd, which considers the negative and positive social impacts of the project on adjacent landowners as well as local and regional communities.

395. The SIA was prepared in accordance with DPIE's Social Impact Assessment Guidelines for State Significant Mining, Petroleum Production and Extractive Industry Development (2017).

396. The AR states the proposed action will generate a range of social benefits for the local and regional community through direct and indirect employment opportunities and economic growth in the regional economy. It will also generate benefits for the State through royalties and tax revenues.

397. The SIA recognised potential adverse social impacts in the local community, particularly to rural residents close to the mine where there will be increased impacts. DPIE acknowledged while the potential impacts are predicted to remain within relevant assessment criteria or could be appropriately addressed in accordance with NSW policies and guidelines, local residents are still likely to have concerns about the potential impacts to their lifestyle, amenity or wellbeing.

398. The IPC considered the potential social impacts of the project, and the likely social benefits (Attachment G5), and concluded the benefits include:

    a. Generation of additional jobs.

    b. Employment opportunities for the Indigenous community.

    c. Growth in indirect employment in upstream and downstream industries.

    d. Diversification from a predominantly agricultural economy.

    e. Increase in local procurement.

399. The IPC statement of reasons (Attachment G5) acknowledged the potential for negative social impacts on the local community and region through increased pressure on local services, facilities, social dynamics and other land users.

400. Issues raised in public submissions to the IPC included: employment, job certainty, flow-on benefits to local business, local community benefits, social impacts, community enhancement, visual impacts, air quality, noise, vibration, proximity to dwellings, lighting, transport, traffic, biodiversity, sustainability, water resources, climate change, flooding, bushfire, rehabilitation, final landform and mine closure.

401. The IPC noted the project will result in a range of positive and negative social risks and/or impacts, but concluded that the negative social risks associated with the proposed action can be appropriately monitored, managed and mitigated through the State conditions.

6.3 INDIGENOUS AND CULTURAL MATTERS

402. The EIS dealt with the impact of the proposed action on two areas of heritage; Aboriginal Cultural Heritage and Values, and Historical Heritage.

403. An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared by Australian Cultural Heritage Management in consultation with 37 Registered Aboriginal Parties (RAPs) as part of the EIS process (Attachment I1, Appendix 16).

404. An Aboriginal Archaeological Impact Assessment (AAIA) was also prepared by OzArk Environmental & Heritage Management (OzArk) to assess the scientific value of sites and artefacts identified within the project area (Attachment I1, Appendix 11.6 of Appendix 16).

405. The ACHAR identified a total of 71 Aboriginal sites within the Northern Extension area, of which 26 are within the proposed disturbance area. These sites include 15 artefact scatters and 11 isolated finds. DPIE noted the 26 sites located within the proposed disturbance area will be impacted if the project goes ahead.

406. The AR states two sites near Big Flat Creek occur within the footprint of the proposed haul road overpass and have low-moderate to moderate scientific significance. The remaining sites have low scientific significance.

407. An Historic Heritage Assessment (HHA) was prepared by Umwelt as part of the EIS

process. The AR states no items of historic heritage were identified within the Northern Extension Area. DPIE also noted the nearest historic heritage items are located between 1,680 m and 3,049 m from the Northern Extension Area.

408. DPIE noted the only potential impacts to these sites will be from blasting operations and the vibration predicted to be generated by the project is predicted to be well below the relevant impact criteria.

Conclusion

409. The department notes the conclusions in the NSW Assessment Report and the IPC Statement of Reasons as they relate to Indigenous and cultural matters.

7 MANDATORY CONSIDERATION - DUTY OF CARE AND HUMAN SAFETY

410. On 8 July 2021, the Federal Court of Australia declared that you have a duty to take reasonable care, in the exercise of your powers under ss 130 and 133 of the EPBC Act in respect of the Vickery Extension Project (EPBC 2016/7649) (**Extension Project**), to avoid causing personal injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere: *Sharma v Minister for Environment (No 2)* [2021] FCA 774 (***Sharma No 2***). On 27 May 2021, the Court published its reasons for making that declaration: *Sharma v Minister for Environment* [2021] FCA 560 (***Sharma No 1***). These decisions are collectively referred to as ***Sharma***.

411. The Court also found that human safety is a mandatory relevant consideration in relation to a controlled action that may endanger human safety, including through the emission of greenhouse gases (**GHG**). The Court said at [404] of *Sharma No 1*:

> 'In relation to a controlled action of that kind, the lives and safety of the Children are not optional considerations but have to be taken into account by the Minister when determining whether to approve or not approve the controlled action. That implication is found in the 'subject-matter, scope and purpose' of EPBC Act…'

412. The Court found that you owed the applicants and other Australian children a duty to take reasonable care to avoid causing them personal injury when deciding whether to approve the Extension Project. The relevant risk of personal injury was the real risk of harm to Australian children arising from heatwaves and bushfires, brought about by increases to global average surface temperatures: see *Sharma No 1* at [247]. The Court found that the Extension Project would lead to the emission of 100MT of CO_2, which the Court found would cause a small but measurable increase to global average temperatures and that the proposed action's emissions would increase the risk of harm to Australian children arising from climate change. While the Court accepted that the contribution of the Extension Project to the increase in global average surface temperature might be characterised as "tiny", there was a "real risk that even an infinitesimal increase in global average surface temperature may trigger a 4°C Future World" and, in that context, "the Minister's prospective contribution is not so insignificant as to deny a real risk of harm to the Children": *Sharma No 1* at [253].

413. The department notes that you are appealing the whole of the Federal Court's judgment in *Sharma*, except for that part concerning the dismissal of the application for an injunction. The grounds for the appeal are set out in the notice of appeal that has been filed with the Federal Court. The basis of the appeal is generally that the trial judge made an error at law.

414. Notwithstanding that you are currently appealing the Federal Court's judgment in *Sharma*, the department has applied the *Sharma* reasoning to this decision.

7.1 Application of Sharma reasoning to this decision

415. In deciding whether or not to approve the taking of the proposed action, you must take into account human safety and you must take reasonable care to avoid causing death or personal injury to Australian children. Human safety should be given 'elevated weight' in balancing the matters you must consider in exercising your discretion to approve or not approve the proposed action under ss 130 and 133 of the EPBC Act. The Court in *Sharma* stated at [407]:

> 'Faced with a controlled action which poses a real risk to the safety of members of the Australian community, the Minister may be expected to give at least elevated weight to the need to take reasonable care to avoid that risk of harm. To do so would be consonant with the policy of the EPBC Act. In such circumstances, the imposition of a duty of care which may, as a practical matter, impose a requirement upon the Minister to consider and give elevated weight to the need for reasonable care to be taken to avoid death or personal injury will not distort the Minister's discretion or skew the intended statutory balance.'

416. This part of the legal considerations report addresses the risks to human safety posed by the proposed action, your duty to take reasonable care to avoid causing death or injury to Australian children in making your decision and the department's recommendation, taking into account these matters and weighing them against other considerations including economic and social considerations. This section is structured as follows:

- Global coal markets and the likelihood of the proposed action's emissions increasing global GHG emissions;
- How GHG emissions are managed under international and national frameworks;
- Summary of GHG emissions for the proposed action, measures being undertaken by the company to manage the proposed action and Independent Planning Commission (**IPC**) Assessment;
- Risks of a warming climate;
- Social and economic considerations; and
- Conclusion.

7.2 Global coal markets and the likelihood of the proposed action's emissions increasing global GHG emissions

417. To assist you in making your decision, the department has reviewed publications of the International Energy Agency that analyse trends in global markets including 'World Energy Outlook 2020'[9] (**WEO 2020**), IEA Electricity Market Report – July 2021 (**Electricity Markets Report**) and 2021 IEA 'Net Zero by 2050' (**Net Zero by 2050**). The department has taken into account the report of Professor Will Steffen submitted to the IPC on 30 June 2020 and referenced in a letter to you from School Strike 4 Climate dated 24 August 2021 (**Steffen Report**) (Attachment L5). The department has also taken into account the letter from Environmental Justice Australia on behalf of Lock the Gate Alliance in relation to the proposed action (Attachment L6).

418. The department has also sought the advice of the Department of Industry, Science, Energy and Resources (**DISER**) in relation to the extent to which, if at all, the approval of certain coal projects would affect the global level of consumption of coal in possible future scenarios (Attachment L4) (**DISER Advice**).

7.2.1 Global Demand for Coal

419. The DISER Advice explains that the two primary uses of coal are for energy and steelmaking. Coal used for steelmaking is referred to as metallurgical or coking coal. Coal used for energy is referred to as thermal coal.

420. The WEO 2020 identifies a number of scenarios for future global energy demand and supply to 2040. These scenarios include the:

- Sustainable Development Scenario (SDS): which assumes that global coal consumption will be constrained to a level consistent with the aims of the Paris Agreement and energy-related sustainable development goals (SDG) (these are: affordable and clean energy (SDG 7), to reduce the severe health impacts of air pollution (part of SDG 3) and climate action (SDG 13)); and

- Stated Policies Scenarios (STEPS): which assumes that global coal consumption will not be constrained to a level consistent with the aims of the Paris Agreement or address sustainable development goals. This scenario takes into account the policies and implementing measures affecting energy markets that have been adopted as of mid-2020, together with relevant policy proposals which have not been fully implemented.

421. The DISER Advice notes that global demand for coal will gradually decrease to 2040 in either SDS or STEPS scenario. Global demand for coal is estimated to be 1850 Mt CO_2-e (million tonnes CO_2 equivalent) in 2040 in the SDS scenario and 4735 Mt CO_2-e in 2040 in the STEPS scenario. However, demand for coal varies by region.

422. Table 1 of the DISER Advice details predicted coal demand in the STEPS scenario and demonstrates that demand for coal in the Asia Pacific region (including India and China) will remain relatively steady up to 2040. The DISER Advice states:

[9] https://www.iea.org/reports/world-energy-outlook-2020

> Coal consumption in India is expected to grow over the next 20 years by 182 Mt CO_2-e. Coal consumption in South East Asia is also expected to grow rapidly over the same period, increasing by 157 Mt CO_2-e. Coal use rebounds in China in the near term, peaking around 2025, before declining to 2040. Japan is expected to see the largest reduction in coal consumption over the period, declining by 55 Mt CO_2-e. By 2040, the Asia Pacific region will account for 85 per cent of global coal consumption (Table 1).

423. Table 2 of the DISER Advice details predicted coal demand in the SDS scenario and demonstrates that demand for coal in India will decrease from 590 Mt CO_2-e in 2019 to 516 Mt CO_2-e in 2025, 454 Mt CO_2-e in 2030 and 298 Mt CO_2-e in 2040. In China, demand will decrease from 2864 Mt CO_2-e in 2019 to 2539 Mt CO_2-e in 2025, 1952 Mt CO_2-e in 2030 and 1045 Mt CO_2-e in 2040. Although in this scenario there is a decline in overall demand, this decline is much less significant for the life of the proposed action which is 8 years.

424. The DISER Advice notes that, in either the SDS or STEPS scenario, the global demand for coal up to 2040 can be met by alternative sources of coal. Alternative sources of coal include all currently approved Australian coal mines, as well as all known or likely coal mines and coal deposits outside Australia but excludes the Mangoola Coal Continued Operations project and other unapproved Australian coal mining developments.

425. The IEA Electricity Information: Overview (Statistics Report August 2021)[10] states that in 2019, generation from combustible fuels (e.g. coal, oil, natural gas, biofuels and industrial and municipal waste) accounted for 65.3% of global gross electricity production. Electricity generation from combustible fuels accounted for 57.1% of total OECD gross electricity production (compared with 71.1% for non-OECD). The IEA report[11] found that coal accounted for 36.7% of global electricity production in 2019, natural gas 23.5%, hydro 16%, nuclear 10.3%, wind 5.3%, solar 2.6% and biofuels and waste 2.4%.

426. The IEA Statistics Report August 2021 states that provisional data for 2020 show that gross electricity generation fell 2.4% across the OECD. Compared with 2019, the electricity mix shifted towards renewables, with lower generation from coal (-15.9%) offset in part by higher output from wind (+12.3%) and solar (+20.8%). This shift to renewables was driven in part by depressed electricity demand during Covid-19 lockdowns, low operating costs and priority access to the grid. In the OECD, combined output from wind, solar, and geothermal is now approaching that of hydro.

427. The IEA[12] forecasts that increases in electricity generation from all renewable sources should push the share of renewables in the electricity generation mix to an all-time high of 30% in 2021. The IEA's Electricity Market Report[13] states that despite record

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[10] https://www.iea.org/reports/electricity-information-overview/electricity-production

[11] https://www.iea.org/data-and-statistics/charts/world-gross-electricity-production-by-source-2019

[12] https://www.iea.org/reports/global-energy-review-2021/renewables

[13] https://iea.blob.core.windows.net/assets/01e1e998-8611-45d7-acab-5564bc22575a/ElectricityMarketReportJuly2021.pdf

additions of renewable generation capacity, fossil fuel-based generation and associated emissions are rising along with electricity demand and in the short-term renewable electricity generation cannot keep up with increasing demand.

428. The IEA's Net Zero by 2050 (2021) [14] points out that countries pledging net zero emissions has grown rapidly to cover 70% of global emissions of CO2e; but many of these pledges are not yet underpinned by near term policies and measures. The IEA provides 'a' pathway of 400 milestones across energy generation and energy using sectors to reach what it calls an "extremely ambitious transformation" of the global energy system.

7.2.2 NSW Strategic Statement on Coal

429. The NSW Government has developed a *Strategic Statement on Coal Exploration and Mining in NSW*[15]. The statement identifies that coal mining in NSW is anticipated to continue for the next few decades. Although recognising that emissions reduction measures will be required, the statement notes that ending or reducing NSW thermal coal exports while there is still strong global demand for coal is likely to have little to no impact on global carbon emissions.

7.2.3 Alternative Sources of Coal and Related GHG Emissions

430. The DISER advice notes the long term demand for thermal coal depends primarily on its price and demand for energy (including the cost of alternative energy products and consumer preferences for energy types). Supply of thermal coal depends on availability in nature, the technology used for extraction, the labour and capital costs associated with production, the cost of transporting the coal to the demand source (normally by rail and ship) and the regulatory costs associated with environmental protection and worker health and safety.

431. The DISER Advice states that with the exception of the high ash content thermal coal from the Mangoola project, the coal from the Coal Mining Projects is of relatively high calorific value. The department notes that while individual power plants perform optimally with a specific type of coal, they can perform satisfactorily with a wide range of coal types, thus allowing operators more flexibility to incorporate cost considerations into coal input choices.

432. The DISER Advice states that your decision to approve the proposed action does not affect any of the demand factors identified. The DISER Advice notes that recent trade disruptions have demonstrated the substitutability of coal, where coal destined for China has been resold or redirected to various countries and China has managed to source its coal needs in the absence of previously substantial Australian supply. The DISER Advice concludes:

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[14] https://www.iea.org/reports/net-zero-by-2050

[15] https://www.resourcesandgeoscience.nsw.gov.au/__data/assets/pdf_file/0004/1236973/Strategic-Statement-on-Coal-Exploration-and-Mining-in-NSW.pdf

Regardless of any feasible scenario of future global demand, the small fraction of current global coal supply that these projects represent, combined with the relatively flat global seaborne coal cost curves indicates that the Decision will not have any discernible impact on global coal prices. The alternative sources of coal identified in sub-question 1 are readily substitutable for any coal that might be produced by the Coal Mining Projects.

7.2.4 Impact of a Decision to Approve or Refuse the Proposed Action on Global GHG Emissions And Climate Change

433. The department considers that the available evidence indicates that a decision to approve the proposed action would be unlikely to lead to an increase in global average surface temperatures. This is because the action consequent upon the approval of the project is not likely to cause more coal to be consumed globally (and therefore more GHG emissions) than if the proposed action was not approved.

434. The DISER Advice states that 'any decision of the Minister to approve one or more of the Coal Mining Projects (Decision) is not expected to materially impact on the total amount of coal consumed globally'. The department agrees with this conclusion. DISER notes that the approval or refusal of the proposed action will not affect global demand for coal (see DISER Advice Question 2) and there are sufficient alternative sources of coal to supply future demand for coal in projected future scenarios. In those circumstances, the rejection of the proposed action is unlikely to have an impact on total global coal consumption, or to impact the price of coal.

7.2.5 Conclusion on Coal Markets and Substitution

435. As found by the Court in *Sharma*, an increase to total global GHG emissions poses a risk to human safety by increasing total global average surface temperatures. The relevant risk to human safety found to exist in *Sharma* was the risk of death or personal injury from heatwaves or bushfires.

436. The department considers that the approval of the proposed action is not likely to cause harm to human safety because, if the proposed action is not approved, it is likely that a comparable amount of coal will be consumed in substitution of the proposed action's coal. Therefore, the proposed action will not result in an increase to global GHG emissions.

7.3 How GHG Emissions are managed under international and national frameworks

437. In the event that the small amount of emissions from the proposed action are *additional* and are not substituted by emissions from other coal production, the department has considered the national and international frameworks within which those emissions will be managed and measures to mitigate their impacts. These matters further inform your consideration of your duty of care and your consideration of the impact of the proposed action on human safety.

7.3.1 International framework for climate change

438. The international climate treaties, the Paris Agreement, done at Paris on 12 December 2015, the Kyoto Protocol, done at Kyoto on 11 December 1997, and the United Nations Framework Convention on Climate Change (**UNFCCC**), done at New York on 9 May

1992, are the primary multilateral mechanisms governing the international response to climate change.

439. The Paris Agreement entered into force on 4 November 2016. 191 countries are Party to the Paris Agreement, including Australia.

440. The temperature goal of the Paris Agreement is to limit the increase in global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. All parties must prepare, communicate and maintain successive nationally determined contributions (**NDCs**) and pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions. In Australia, our emissions reduction targets and national climate mitigation policies are the responsibility of the Minister for Energy and Emissions Reduction, supported by DISER.

441. Projections in the IPCC Special Report, 'Global Warming of 1.5°C'[16] (8 October 2018) indicate that, if NDCs in place in 2018 were implemented successfully, the world would reach 2.7-3.2 degrees Celsius above pre-industrial levels by 2100. Under the Paris Agreement successive NDCs are required to represent a progression beyond the current NDC and reflecting its highest possible ambition (Article 4.3).

442. Under Article 4 of the Paris Agreement, parties aim to reach global peaking of GHG emissions as soon as possible, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removal by sinks of GHG in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty. 137 governments around the world including Australia have announced intentions to reach net zero emissions which better align with the Paris Agreement temperature goal to limit the increase in global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

443. To respond to climate change, industry, legal and financial fiduciary bodies have also called on business to recognise, understand and respond appropriately to the risks and consequences posed by climate change, potentially independent of government policy. Many companies and businesses have also established net zero by 2030 – 2050 targets. Industry is increasingly acknowledging that effort across the whole supply chain is required to enable sectors to decarbonise.

7.3.2 Climate change framework in anticipated coal markets for the proposed action

444. Glencore have provided an indicative list of countries that are most likely to be export destinations for the project's coal. The GHGEA states that approximately 96% of the MCCO Project's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries or jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan.

445. The department notes that all coal products from the proposed action will be sold to counties that are signatories to the Paris Agreement or with equivalent domestic policies for emissions reductions. The national commitments of each identified country

[16] https://www.ipcc.ch/sr15/

are summarised in Table 3 below.

Table 3 summarises the emission reduction commitments of the countries or jurisdictions importing Glencore coal.

Expected Coal market	NDC[17]	Net zero commitment	Strategy under the Paris Agreement[18]
China	Reduce emissions per unit of GDP by 60-65% of 2005 levels by when	Net Zero by 2060-	-
India	reducing the emissions intensity of its GDP by 33% to 35% by 2030 from 2005 levels	-	-
Japan	46 per cent below 2013 by 2030. (NDC: 26 per cent below 2013 by 2030)	Japan net zero by 2050 (in law)	Yes
Malaysia	Economy wide reduction (against GDP) – 46% below 2005 levels by 2030	-	-
Philippines	Projected reduction and avoidance of 75%, of which 2.71% is unconditional and 72.29% is conditional, referenced against a projected business-as-usual cumulative economy-wide emission of 3,340.3 MtCO2e	-	-
South Korea	24.4 per cent below 2017 by 2030	Strives to become carbon neutral by 2050	yes
Taiwan[19]	Intended Nationally Determined Contribution of 50 per cent from the BAU level by 2030	-	No
Vietnam	Unconditional target – 9% below BAU by 2030	-	-

[17] NDC registry : https://www4.unfccc.int/sites/NDCStaging/Pages/LatestSubmissions.aspx

[18] Long-term low greenhouse gas emission development strategies, submitted in accordance with Article 4, paragraph 19, of the Paris Agreement - https://unfccc.int/process/the-paris-agreement/long-term-strategies

[19] Taiwan is not a party to the UNFCCC or the Paris Agreement. Taiwan's Cabinet put forward an Intended Nationally Determined Contribution on 17 September 2015 (enforced under its *Greenhouse Gas Reduction and Management Act*).

Conditional target (with international support) – 27% below BAU by 2030

7.3.3 Domestic measures

446. Under the UNFCCC, Kyoto Protocol and Paris Agreement, the Australian Government has committed to reduce national GHG emissions, track progress towards those commitments, and report annually on Australia's GHG emissions.[20] Australia first communicated its NDC under the Paris Agreement in 2015, committing to an economy-wide target to reduce GHG emissions by 26 to 28% below 2005 levels by 2030.

447. In preparing this brief, the department consulted with DISER who advised:

> Australia has a strong record of overachieving on its emissions reduction targets – we overachieved on our two previous targets, under the Kyoto Protocol and UNFCCC.
>
> Australia has in place a comprehensive suite of emissions reduction policies, which are working to reduce emissions in all sectors of the economy. Building on these policies, the government is currently focused on low emissions technologies globally scalable, commercial, and achievable.
>
> Australia's Technology Investment Roadmap[21] will drive down the cost of low emissions technologies and accelerate their deployment, both in Australia and overseas. The Roadmap brings a strategic and system-wide view to future investments in low emissions technologies, in partnership with the private sector, states and territories, and key international partners.
>
> The Roadmap's first annual Low Emissions Technology Statement[22] articulates five priority technologies (clean hydrogen, carbon capture and storage, low carbon materials like steel and aluminium, energy storage and soil carbon) and accompanying stretch goals – ambitious but realistic goals to bring priority low emissions technologies to economic parity with existing mature technologies.
>
> These technologies are expected to avoid in the order of 250 million tonnes of emission per year by 2040, through deployment in Australia and low emission exports. The Roadmap will guide the deployment of an estimated $20 billion of Government investment between now and 2030, including through the CEFC, ARENA, the Climate Solutions Fund, and the Clean Energy Regulator. The Government's investments through the Roadmap will help to secure around $80 billion in total investment from the private sector and governments over the next 10 years.

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20 https://www.industry.gov.au/policies-and-initiatives/australias-climate-change-strategies/tracking-and-reporting-greenhouse-gas-emissions.

21 https://www.industry.gov.au/data-and-publications/technology-investment-roadmap-first-low-emissions-technology-statement-2020

22 https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf

448. Commonwealth legislation relating to the Australian Government's policies and programs to reduce emissions and fulfil its emissions reporting and target tracking obligations are regulated by the Clean Energy Regulator (**CER**). The CER is responsible for administering the *National Greenhouse and Energy Reporting Act 2007* (**NGER Act**), the *Carbon Credits (Carbon Farming Initiative) Act 2011*, the *Greenhouse and Energy Minimum Standard Act 2012*, and the *Australian National Registry of Emission Units Act 2011.*

449. GHG emissions are categorised into three different types:

- scope 1: direct emissions from owned or controlled sources of an organisation/ development;
- scope 2: indirect emissions from the generation of purchased energy electricity, heat and steam used by an organisation/ development; and
- scope 3: all other upstream and downstream emissions related to an organisation/ development.

450. Australia's National Inventory System (**NIS**) estimates and reports Australia's GHG emissions in accordance with Intergovernmental Panel on Climate Change (**IPCC**) guidelines and rules adopted by the Parties to the Paris Agreement. The NIS comprises an independent national monitoring system to compile Australia's national GHG inventory. The scheme established under the NGER Act is a primary data collection tool for the NIS, with high quality facility level NGER data used where possible for the energy, industrial processes and waste sectors. The UN climate treaties, including the Paris Agreement, specify that Parties are responsible for the emissions occurring within their jurisdictions.

451. This means that emissions across each jurisdiction, conceptually equivalent to scope 1 emissions, are aggregated to fulfil Paris Agreement emission reporting and target accounting obligations. Scope 2 and scope 3 emissions that occur within the same jurisdiction are not added to this calculation as it would result in double counting of emissions: one facility's scope 2 and 3 emissions are another facility's scope 1 emissions. Scope 3 emissions associated with Australian facilities that occur outside Australia's jurisdiction (eg emissions from the combustion of Australia's coal in an export destination) are accounted for in the countries where those emissions occur.

452. In January 2021, the Prime Minister announced that 'our goal is to reach net zero emissions as soon as possible, preferably by 2050'[23].

7.3.4 NSW Climate Change Policy

453. The NSW government has developed the NSW climate change policy framework

[23] https://www.pm.gov.au/media/address-national-press-club-barton-act.

(**CCPF**)[24] and Net Zero Plan Stage 1: 2020-2030[25] which provides guidance and measures to achieving net zero emissions in NSW by 2050.

454. The aim of the CCPF is to maximise the economic, social and environmental wellbeing of NSW in the context of changing national and international policy, with the aim to achieve net-zero emissions by 2050. The CCPF does not set prescriptive emission reduction targets, but sets policy directions for government action, for example, to improve opportunities for private sector investment in low emissions technology in the energy industry, which is needed for a transition to a net-zero emissions inventory.

455. The Net Zero Plan builds on the CCPF and sets out a number of initiatives to deliver a 35% cut in emissions by 2030, compared to 2005 levels.

456. In addition to the above policies, the NSW *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*[26] (Mining SEPP) requires the NSW consent authority to consider, in approving a development application:

- whether conditions should be attached to consents to ensure that the development is undertaken in an environmentally responsible manner, including conditions to ensure that greenhouse gas emissions are minimised to the greatest extent possible (clause 14(1) of the Mining SEPP); and
- an assessment of greenhouse gas emissions (including downstream emissions) from the development and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions (clause 14(2) of the Mining SEPP).

7.4 Summary of GHG emissions for the proposed action, measures to manage the proposed action, and IPC assessment

457. Over the life of the proposed action, the maximum estimated total greenhouse gas emissions are predicted to total 107,940,192 t CO_2-e, made up of:

- 3,251,000 t CO_2-e of scope 1 primarily from fugitive emissions and diesel use during its operational phase;
- 402,192 t CO_2-e scope 2 emissions, associated with the production of electricity used by the proposed action including underground mining equipment, conveyor belts, ancillary equipment, and administration facilities; and

[24] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf

[25] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/net-zero-plan-2020-2030-200057.pdf

[26] https://legislation.nsw.gov.au/view/html/inforce/current/epi-2007-0065

- 104,287,000 t CO_2-e of scope 3, which would be generated by third parties who transport and consume the extracted coal.

7.4.1 MCOPL/Glencore commitments

458. The Mangoola coal mine is operated by Glencore Coal Pty ltd, one of the world's largest and diversified resource companies. The proponent (MCOPL) is a subsidiary of Glencore Coal.

459. In December 2020, Glencore announced its target to reduce its global total emissions (scope 1, 2 and 3) by 40% by 2035; as well as its long-term goal to become a net-zero company by 2050[27]. In August 2021, Glencore provided a presentation to the department and stated that their global emissions reduction target has been increased to a 50% reduction in Scope 1,2 & 3 emissions by 2035 (Attachment L2 – in confidence).

460. In addition to the GHG reduction measures specified in earlier paragraphs, Glencore has committed to a range of company-wide initiatives and targets to reduce GHG emissions and assist in transitioning to a net zero mining company.

461. In December 2020, Glencore released their climate report, *Pathway to net zero* (Attachment L1). This report outlines seven core actions that Glencore will take to achieve their GHG reduction targets. The core actions include:

Managing operational footprint

462. A key action that Glencore has identified to achieve a pathway to net-zero has been to manage scope 1 and 2 emissions across their global assets. This approach has led to the implementation of initiatives that reduce these emissions.

463. Glencore's ferroalloys business, which is its highest scope 1 and 2 emitting industrial business has set a specific target to reduce these emissions by 10% on 2016 baseline levels by 2025, as well as feasibility studies to install and supply 400 MW of renewable power with the potential to reduce scope 2 emissions by approximately 1.17 Mt per annum.

Reducing scope 3 emissions

464. Glencore aim to reduce their global emissions by 50% by 2035 and net zero by 2050 primarily by managing their existing coal mines to depletion and shifting investment into transition metals and resources needed for low emissions future. Sequestration of emissions and offsets will then complement depletion of coal mines in the 2035-2050 period to enable the company to achieve its net zero by 2050 goal.

465. Shifting investment into transition metals and resources business means that Glencore's thermal coal business share of their Earnings Before Interest, Taxes, Depreciation, and Authorization is currently between 10-15%, down from 25-30% in the recent past.

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[27] https://www.glencore.com/media-and-insights/news/Climate-Report-2020--Pathway-to-Net-Zero

466. Glencore have recognised that while there is a steady decline in global demand for fossil fuels (oil, gas and coal), they will continue to operate their coal assets while there is still demand and it is economically viable. Coal assets in Colombia and South Africa will come to the end of their life prior to coal assets in Australia.

Supporting uptake/integration of abatement and investing in carbon capture technology

467. Glencore are using small scale investment initiatives to explore opportunities to abate the company's residual carbon footprint. For example, investing in a tree-planting project at a copper mine asset in Peru, which will aim to contribute 12,000 tonnes CO_2 savings per year.

468. One of Glencore's subsidiary companies, Carbon Transport and Storage Company Pty Ltd (CTSCo) was established to demonstrate the suitability of carbon capture, utilisation and storage (CCUS) technology as a viable way to store CO_2 deep underground in the Surat Basin in Queensland.

469. The Surat Basin project is Australia's most advanced on-shore CCUS project and focuses on:

- Capturing CO_2 from a coal fired power station; and
- Permanently storing the CO_2 underground in the southern Surat Basin.

470. CTSCo has the potential to store a significant amount of CO_2 and deliver critical infrastructure to reduce and mitigate existing and future industrial emissions.

471. In a presentation to you on 1 September 2021, Glencore also outlined that while it is early days, the company is investigating the production and export blue hydrogen from its Wandoan mine in the Surat basin, Queensland. Blue Hydrogen is hydrogen produced using fossil fuels with carbon capture of storage.

7.4.2 Department recommendation on proponent's voluntary commitments

472. The department notes that Glencore has published statements and plans to the market on their net zero by 2050 pathway and notes that Glencore is one of the first global coal mining companies to produce such an overarching pathway. Achieving net zero and remaining a profitable global company requires a multipronged, responsible and timely transition. For the purposes of Mangoola, the department notes that Glencore's plan to deplete coal mines over time, investigate CCUS and other sequestration opportunities is unlikely to impact on the emissions generated by the Mangoola mine. The department recommends that you note the proponent's voluntary commitments would be beneficial to reducing GHG emissions of the global company over the medium to long term, but that, in deciding whether or not to approve the proposed action, you take into account that only those measures required by the NSW conditions are required by the NSW development consent.

7.4.3 State assessment

473. As discussed above in section 5 of this Report, NSW DPIE and the IPC assessed the GHG emissions of the proposed action and the IPC imposed conditions relating to air quality and GHG regulation (B30, B31, B32, B33, B34 and B85), including that the approval holder must:

- take all reasonable steps to improve energy efficiency and reduce scope 1 and scope 2 GHG emissions;
- ensure that major mobile diesel mining equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;
- prepare and implement an Air Quality and Greenhouse Gas Management Plan; and
- minimise post-mining fugitive emissions from exposed coal seams.

474. While the IPC requested that Mangoola give greater priority to investigating and minimising fugitive emissions from exposed coal seams, the IPC concluded that the GHG emissions of the proposed action were adequately estimated and that the impacts associated with the GHG emissions of the proposed action were acceptable and in the public interest.

475. The department has considered the greenhouse gas emissions and NSW assessment of the emissions from the proposed action.

7.5 Risks of a warming climate

476. The department sought internal advice from Climate Adaptation and Resilience Division regarding the current state of climate change and, in particular, the outcomes from the most recent IPCC Report 'Climate Change 2021: The Physical Science Basis'[28] (**IPCC Report**). The Climate Adaptation and Resilience Division advised that the Government receives its primary advice on climate science from the Bureau of Meteorology (**BoM**) and the CSIRO. This advice aligns with information provided by the IPCC and other national and international organisations.

477. The IPCC Report provides an update on the latest climate science, including the rates, causes and likely future trajectories of global warming and other changes to the climate system.

478. The Climate Adaptation and Resilience Division advised that the key findings in IPCC Report are consistent with the findings of the *State of the Climate 2020* report, produced by BoM and the CSIRO.

479. The IPCC report finds that increasing global GHG emissions will increase total global average surface temperatures with the consequences described. These consequences pose risks to human safety.

7.5.1 Contribution of the proposed action to climate change

480. It is acknowledged that the Court in *Sharma No 1* found that, even though the emissions of the Extension Project (100MT) were 'tiny' on a global scale, there was a real risk that even an infinitesimal increase in global average surface temperature may trigger a tipping point or a 4°C Future World: [253].

[28] https://www.ipcc.ch/report/ar6/wg1/

481. Thus, if, contrary to the DISER Advice, the proposed action were to cause additional coal to be consumed, the department considers that the proposed action risks a very small increase in global GHG emissions (see below), and therefore, a small increased risk to human safety.

482. This risk is low given the total emissions from the proposed action are equivalent to those associated with the Extension Project. The total GHG emissions of the proposed action would be approximately 107.94 Mt of CO_2 equivalent (3,250,870 Mt CO_2-e (scope 1), 402,192 tonnes CO_2-e (scope 2) and 104,286,583 tonnes CO_2-e (scope 3)). The emissions of the proposed action are discussed above at [526] – [535].

7.5.2 Reasonable measures to mitigate climate change

483. As outlined above, climate change is a global problem that the international community has responded to through the UNFCCC and now the Paris Agreement. Parties to the Paris Agreement have committed to prepare, communicate and maintain their NDCs that they aim to achieve, with the goal of limiting the increase in global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

484. The proponent stated in EIS documentation that approximately 96% of the proposed action's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries and jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan, depending on future commercial agreements.

485. The department notes expected end customer base for the proposed action is located in countries that are signatories to the Paris Agreement or countries with equivalent domestic policies for reducing GHG emissions.

486. Further, scope 3 emissions occurring overseas will become the consumer country's scope 1 and 2 emissions and be accounted for under the Paris Agreement in their respective national inventories. The Paris Agreement does not require parties to take particular measures to achieve their NDCs; rather, parties may determine which domestic mitigation measures to pursue, with the aim of achieving the objective of their NDC.

487. The department has also taken into account the report of Professor Will Steffen submitted to the NSW IPC and dated 30 June 2020 (**Steffen Report**) (Attachment L5). This report was submitted to the department in relation to a different proposed action but contains information which may be relevant to the Mangoola Coal Continued Operations Project.

488. The department has taken into account the report of Professor Steffen in considering the impact of the proposed action on climate change. Professor Steffen uses a carbon budget approach to determine the limited cumulative amount of additional CO2 emissions that can be emitted consistent with limiting global temperature rise to 2°C, consistent with the Paris Agreement.

489. The department disagrees with Professor Steffen's conclusion that, because the majority of the world's existing fossil fuel reserves cannot be burned in the 'carbon budget', this means that no new fossil fuel developments or extensions can be

approved consistent with limiting warming to 2°C. The department notes the following:

a) First, consistent with the Paris Agreement, national governments have a discretion to determine what measures will be employed to reduce GHG emissions. There is no government policy requiring approval of coal mines to be refused in order to meet Australia's commitments under the Paris Agreement, or to prevent coal being available to other countries to reduce other countries' emissions.

b) Second, the scope 3 emissions from the burning of the coal are taken into account in the country where they are emitted, consistent with the Paris Agreement. The majority of the proposed action's emissions are scope 3 emissions, and the proposed consumers of the coal will be parties to the Paris Agreement.

c) Third, evidence as discussed above indicates that there is an ongoing demand for coal. A decision to refuse the proposed action is likely to have no reduction of total GHG emissions.

d) Fourth, while GHG emissions result from the burning of coal, there are many other sources. The department disagrees that the use of coal in particular cannot continue as a source of such emissions. The fact that *most* fossil fuels must remain unburned accepts that *some* fossil fuels can be exploited (see *Gloucester Resources v Minister for Planning* [2019] NSWLEC 9 at [551]), and does not take into account other measures that may be taken to reduce or offset emissions.

490. The department acknowledges that parties' current NDCs under the Paris Agreement are insufficient to limit global average temperatures to below 2°C. However, there are mechanisms under the UNFCCC and Paris Agreement (Article 4 to increase the commitments made for future NDCs) to achieve the Paris goal of well below 2 degrees.

491. On 1 September 2021, Environmental Justice Australia wrote to you on behalf of Lock the Gate citing the *Sharma* decision, the IEA Net Zero 2050 Roadmap and the most recent IPCC report. The Sharma decision, IEA Net Zero 2050 Roadmap and IPCC report and have been discussed at sections 7.1, 7.2 and 7.5 respectively.

492. The submission also requests an opportunity for public comment on the proposed decision brief under s 131A of the EPBC Act. The department considers sufficient opportunity to comment on the proposed action has already been provided to the public, noting the NSW assessment process included a 90 day public exhibition period and the IPC process included a public hearing.

7.5.3 Reasonable measures to mitigate human safety impacts posed by climate change

493. The NSW IPC has imposed a number of conditions directed at the reduction and

mitigation of GHG emissions from the proposed action. Those measures are outlined above in [554] – [564].

494. The department has considered all completed assessments and NSW development consent conditions relating to GHG emissions. The IPC concluded that the proposed action included appropriate measures for minimising and managing the scope 1 and scope 2 emissions of the proposed action 'to the greatest extent possible'.

495. The department agrees that these conditions address the proposed action's GHG emissions and mitigate the risk to human safety caused by the proposed action to the greatest extent possible. The department also recommends that you take into account the social and economic benefits of the proposed action which are discussed further below.

7.6 SOCIAL AND ECONOMIC CONSIDERATIONS

496. The department has outlined the relevant economic and social matters in this legal considerations report (paragraphs 384 - 401). In summary, the department agrees with the NSW DPIE and considers that the proposed action would result in a range of benefits for the local and regional economies and would allow for the continued and valuable production of coal from the region. The refusal of the proposed action would prevent the opportunity for positive economic and social impacts.

497. The AR states that the proposed action would enable the continuous employment of the 400 employees currently working at the existing Mangoola Mine, provide for an additional 80 on-going operational jobs, and generate 145 short term jobs during the construction phase.

498. The proponent's analysis of economic effects of the project on the local area found that the project would generate a NPV (net present value) benefit of $14.1 million to local suppliers and $76.8 million to employees.

499. NSW DPIE concludes in the AR (Attachment G3) that the proposed action's benefits to the local, regional and State economies would outweigh its potential costs. As such, NSW DPIE considers the project justified from an economic efficiency perspective.

7.7 CONCLUSION ON HUMAN SAFETY RISKS

500. Even if, contrary to the DISER advice, the coal from the proposed action would *not* be substituted by other coal if the proposed action is not approved, the department still recommends approval, taking into account and balancing the other relevant considerations as detailed in this legal considerations report.

501. For the reasons identified throughout this report, the department recommends that you find, after giving elevated weight to human safety, that approval of the proposed action is not likely to cause harm to human safety and should be approved.

502. The department further considers that approval is appropriate having regard to the social and economic benefits of the proposed action. The department has formed this view after taking into account the matters referred to in this report and, in particular, that any contribution of the proposed action to global GHG emissions will be extremely

small.

7.7.1 Conclusion

503. The AR and IPC concluded that with appropriate management and mitigation, negative social impacts can be managed to achieve the benefits of the proposed action. The department agrees with the DPIE and the IPC's assessment of social and economic impacts.

8 FACTORS TO BE TAKEN INTO ACCOUNT

504. In considering the relevant environmental matters and economic and social matters under s 136(1), you must take into account:

i. the principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(b) and 391(2) of the EPBC Act) (section 136(2)(a))

ii. the NSW assessment report, being the assessment report relating to the proposed action (section 136(2)(b))

iii. any other information you have on the relevant impacts of the proposed action (section 136(2)(e))

iv. any relevant comments given to you by another Minister in accordance with an invitation under section 131, 131AA or 131A ((section 136(2)(f) and section 131AA(6))

v. any relevant advice obtained from the IESC in accordance with section 131AB (section 136(2)(fa))

vi. any information given to you in accordance with a notice under section 132A (section 136(2)(g)).

8.1 THE PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT (SET OUT IN SECTION 3A OF THE EPBC ACT), INCLUDING THE PRECAUTIONARY PRINCIPLE (SET OUT IN SECTIONS 3A(9B) AND 391(2) OF THE EPBC ACT) (EPBC ACT, S.136(2)(A))

505. In recommending you approve the proposed action subject to conditions, the department has taken into account the principles of ecologically sustainable development, including the precautionary principle, in the following ways:

Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

506. In recommending the approval of this proposed action, the department is satisfied the NSW assessment process has involved consideration of the long and short-term economic, environmental, social and equitable impacts in accordance with section 3A(a) of the EPBC Act. The department notes the proposed action has been assessed

by NSW in accordance with the New South Wales Assessment Bilateral Agreement. The assessment included analysis of economic, environmental, social and equitable considerations, and included a public consultation process.

507. This report, the IPC Statement of Reasons (Attachment G5) and the AR (Attachment G3) provide sufficient information to allow you to conclude the decision-making processes have effectively integrated both short and long term social, economic and environmental considerations.

508. The department considers the likely impacts on the environment as a result of the proposed action are satisfactory in terms of the long-term and short-term economic, environmental, social and equitable impacts.

509. The department considers all short-term and long-term impacts on protected matters will be managed through the proposed conditions for approval under the EPBC Act.

510. The department considers the proposed action, if undertaken in accordance with the NSW conditions (Attachment G2) and the department's Proposed Approval Conditions (Attachment B), this will be consistent with the principle of ecologically sustainable development.

If 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 (also the precautionary principle - section 391(2))

511. The department considers there are threats of serious or irreversible environmental damage generally to the matters protected by the controlling provisions of the proposed action. In recommending approval of the proposed action, the department concluded there is sufficient scientific information to know of, and understand, the likely impacts of the proposed action on matters protected by the controlling provisions of the proposed action.

512. Further, where there is a lack of certainty regarding the risk or severity of impacts, conditions have been recommended to ensure monitoring is undertaken and response mechanisms are in place to manage those impacts.

513. The IPC Statement of Reasons (Attachment G5) concluded that the precautionary principle has been appropriately applied through the application of mitigation and management measures set out in Mangoola Coal's EIS and supporting documents, the AR and the recommended conditions of consent.

514. NSW Development Consent Conditions B57-B59 require the proponent to prepare and implement an ecological management plan, within which are specifications for monitoring and reporting on the condition of the site. These conditions are supported by Condition 12 of the Proposed Approval Decision Notice.

515. NSW Development Consent Conditions B50-B52 require the proponent to prepare and implement a water management plan, within which are specifications for monitoring and reporting on the condition of the site. These conditions are supported by Conditions 2-7

of the Proposed Approval Decision Notice (Attachment B).

The principle of intergenerational equity – the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

516. The department has taken the intergenerational principle into consideration when recommending the proposed action be approved.

517. In its SOR the IPC states that it considered inter-generational equity in its assessment of the potential environmental, social, and economic impacts of the Project, including by imposing conditions seeking to mitigate the potential long-term environmental impacts of the Project and providing for appropriate post-closure rehabilitation of the Site.

518. The department agrees with this conclusion and considers the recommended conditions of approval (Attachment B) will ensure the protection and management of listed threatened species and ecological communities and water resources. Those conditions ensure the proposed action must be implemented in a sustainable way and the environment will be protected for future generations.

519. On this basis, the department considers approving the proposed action subject to the recommended approval conditions will not be inconsistent with the principle of intergenerational equity.

The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

520. The department has considered the conservation of biodiversity and ecological integrity in relation to relevant threatened species and communities and in recommending the proposed action be approved. In addition, the department considers the AR (Attachment G3) and the EIS (Attachment I1) also took the conservation of biological diversity and ecological integrity into account as a fundamental consideration in assessing the proposed action.

521. The department considers the proponent's commitments to avoid, mitigate and manage the impacts of the proposed action, including through the implementation of management plan objectives, and the recommended proposed conditions of approval, allow for the proposed action to not have serious or irreversible impacts on biological diversity and ecological integrity.

Improved valuation, pricing and incentive mechanisms should be promoted.

522. The department considers the costs of avoidance, mitigation and management measures for any relevant impacts provide appropriate pricing and incentive mechanisms for the protection of matters of environmental significance and the environment.

523. The NSW Development Consent implements performance-based conditions, where possible, to provide incentive to the proponent to achieve environmental outcomes and objectives in the most cost-effective way.

8.2 The NSW assessment report, being the assessment report relating to the proposed action (EPBC Act, s. 136(2)(b))

524. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account the assessment report relating to the proposed action. The AR relating to the proposed action is at Attachment G3.

8.3 Any other information the Minister has on the relevant impacts of the proposed action (EPBC Act, s. 136(2)(e))

525. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account any other information you have on the relevant impacts of the proposed action (including information in a report on the impacts of actions taken under a policy, plan or program under which the action is to be taken was given to you under an agreement under Part 10 (about strategic assessments)).

526. There are no strategic assessment reports relevant to the proposed action. The department notes that, on 20 September 2012, the Australian Government entered into an agreement with the NSW Government to undertake a strategic assessment of a biodiversity plan for coal mining in the Upper Hunter Valley, NSW. Currently, there has been no report given to the Minister on the impacts of actions taken under the policy, plan or program, subject to the 20 September 2012 agreement under Part 10 of the EPBC Act, relevant to the Upper Hunter Strategic Assessment.

527. In addition to the attachments cited in this document, the department has also considered documents relevant to the State assessment process, available on the NSW DPIE Major Projects website. These are available at: Mangoola Coal Continued Operations Project | Major Projects - Department of Planning and Environment (nsw.gov.au)

528. The department has also considered information from Office of Water Science (Attachment E2) and the IESC advice (Attachment J1) on the potential impacts of the proposed action on water resources.

529. The Bioregional Assessment for the Hunter Region available at Attachment K and: https://www.bioregionalassessments.gov.au/assessments/hunter-subregion.

530. In May 2018, the Bioregional Assessment for the Hunter Region (the BA) was released with potentially relevant information on water resources. The BA considered the potential cumulative impacts on water and water-dependent assets in the Hunter subregion in NSW. The BA is a regional overview of potential impacts on, and risks to, water-dependent ecological, economic and sociocultural assets. The BA provides contextual information for Governments, industry and the community to further focus on the areas are potentially impacted, so local-scale modelling can then be applied when

making regulatory, water management and planning decisions.

531. The BA focused on the potential cumulative impact between 2013 and 2102 of additional coal resource developments.

532. The department notes the BA was a regional scale water modelling assessment with the specific objective of focusing on areas for further local scale modelling. The department considers the site specific water impact assessments undertaken during the State assessment of the proposed action and the IESC advice (Attachment J1), provides a finer scale assessment of the proposed action's impacts on water resources and therefore can provide greater certainty with regard to decision making in respect to impacts on water resources. As outlined in the department's conclusions in this Legal Considerations report, the department is satisfied the proposed action will not have an unacceptable impact on water resources, provided it is undertaken in accordance with the recommended conditions of approval.

533. There are no bioregional plans relevant to this proposed action, as these relate to marine regions (see section 10).

534. The Australian Government's Bioregional Assessment Program (completed in 2018) assessed the potential impacts of coal seam gas and large coal mining developments on surface water and groundwater, and ecosystems or assets depend on them. Six bioregions across Queensland, New South Wales, Victoria and South Australia were assessed.

535. As outlined in the department's conclusions in this Legal Considerations Report, the department is satisfied the proposed action will not have an unacceptable impact on water resources, provided it is undertaken in accordance with the recommended conditions of approval.

8.4 Any relevant comments given to the Minister by another Minister in accordance with an invitation under section 131, 131AA or 131A (EPBC Act, s. 136(2)(f) and s. 131AA(6))

536. Before you make your decision on whether or not to approve the proposed action you are required under sections 131(1) and 131AA(1) of the EPBC Act to:

- inform the proponent and any other Commonwealth Minister(s) whom you believe has administrative responsibilities relating to the proposed action, of the decision you propose to make; and
- invite the proponent and the Commonwealth Minister(s) to comment on your proposed decision within 10 business days.

537. If you propose to approve the action, the department will provide a copy of the Proposed Approval Decision Notice at Attachment B and an invitation to comment to the proponent, and the following Ministers (Attachments C1-C6):

- The Minister for Indigenous Australians, the Hon Ken Wyatt AM MP;
- The Minister for Resources and Water, the Hon Keith Pitt MP;

- The Minister for Agriculture and Northern Australia, the Hon David Littleproud MP; and

- The Minister for Energy and Emissions Reduction, the Hon Angus Taylor MP.

538. A letter notifying the NSW Minister for Planning and Public Spaces, the Hon Rob Stokes MP, of your proposed decision will also be sent (see Attachment C6).

539. The department will then brief you to make a final decision, which will take any comments received into consideration.

540. Under section 131A of the EPBC Act, you may invite public comments on your proposed decision and any conditions you are proposing to attach to the approval. The department considers the public has already had sufficient opportunity to comment on the proposed action, noting the extensive consultation undertaken through the NSW assessment process (including both exhibition of the EIS and the IPC's public hearing). The department considers publishing your proposed decision for a further round for public comment is unlikely to elicit views or information have not already been thoroughly considered.

8.5 Any relevant advice obtained by the Minister from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development in accordance with section 131AB (section 136(2)(fa))

541. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account any relevant advice obtained from the IESC.

542. On 23 August 2019, the Minister's delegate sought advice from the IESC. A summary of how the IESC advice was addressed during the NSW assessment and the department's conclusions is provided at Attachment J3 and a copy of the IESC advice is at Attachment J1.

543. The department is satisfied the IESC advice has been adequately addressed during the NSW assessment process and in the NSW conditions of consent and proposed conditions of EPBC Act approval.

8.6 Any information given to the Minister in a notice requested under section 132A (EPBC Act, s. 136(2)(g))

544. Section 132A of the EPBC Act provides that, for certain actions, before you decide whether or not to approve the taking of the action for the purposes of a controlling provision, and what conditions (if any) to attach to an approval, you may request the appropriate Minister of the State or Territory to give you a notice stating the method has been used to assess the certain and likely impacts of the action on things other than matters protected by the controlling provisions for the action.

545. Section 132A of the EPBC Act does not apply to the proposed action as the action does

not meet the criteria in s 132A(1).

9 PERSON'S ENVIRONMENTAL HISTORY – SECTION 136(4)

546. In deciding whether to approve a proposed action, and what conditions to attach to any approval, the Minister may, under section 136(4) of the EPBC Act, consider whether the person proposing to take the action is a suitable person to be granted and approval.

547. On 17 May 2021, the department sought line area advice regarding the proponent's environmental history from the Compliance Section in the Department's Office of Compliance (Attachment E3).

548. On 17 May 2021, the Compliance Section advised a search of the department's Compliance and Enforcement Management Systems database and records held by Mangoola Coal Operations Pty Ltd (the proponent) and Glencore Coal Pty Ltd indicated there was one recorded contravention of the EPBC Act (Attachment E3). The Compliance Section further stated in its advice "*The Compliance Section is not aware of any contraventions of state laws associated with this entity*".

549. On 28 May 2021, the department wrote to the proponent (Mangoola Coal Operations Pty Ltd) and requested information (from the last ten years) on the following matters:

- the environmental history of the proponent and its executive officers;
- the environmental history of the proponent's parent body or parent bodies; is; any body or bodies of which the proponent is a subsidiary; and
- the environmental history of the executive officers of the proponent's parent body or parent bodies.

550. On 25 June 2021, the proponent responded to the letter of 28 May 2021 and provided the department with a table of its environmental history within the past ten years (Attachment F).

551. The response stated none of the current directors, secretaries, or officers of Glencore Holdings Pty Ltd and its subsidiaries have been convicted of an environmental offence in the last ten years. Additionally, none of the executive officers identified in Table 1 of Attachment F have been convicted of any environmental offence in the last ten years.

9.1 MINISTER NOT TO CONSIDER OTHER MATTERS (EPBC ACT, S. 136(5))

552. Under Subsection 136(5) of the EPBC Act, in deciding whether or not to approve the taking of a proposed action, and what conditions to attach to an approval, you must not consider any matters you are not required or permitted, by Division 1, Part 9 of the EPBC Act, to consider.

553. The department has based its recommendation to approve the proposed action with conditions on matters you are required or permitted by Division 2, Part 9 of the EPBC Act to consider.

10 REQUIREMENTS FOR DECISION ABOUT THREATENED SPECIES AND ENDANGERED COMMUNITIES (EPBC ACT, S. 139)

554. Under section 139(1) of the EPBC Act, in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, you must not act inconsistently with:

    a. Australia's obligations under:

        i. the Convention on Biological Diversity (Biodiversity Convention), or

        ii. the Convention on the Conservation of Nature in the South Pacific (Apia Convention), or

        iii. the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), or

    b. a recovery plan or threat abatement plan.

555. Section 139(2) states, if:

    i. the Minister is considering whether to approve, for the purposes of a section of section 18 or section 18A, the taking of an action; and

    ii. the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community;

    iii. the Minister must, in deciding whether to approve the taking of the action, have regard to any approved conservation advice for the species or community.

10.1 THE BIODIVERSITY CONVENTION

556. The Biodiversity Convention is available at: http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1993/32.html

557. The Biodiversity Convention requires Contracting Parties, as far as possible and as appropriate, to introduce procedures requiring environmental impact assessments of projects are likely to have significant adverse effects on biological diversity to avoid and minimise such impacts, and requires Parties to introduce appropriate arrangements to ensure the environmental consequences of their programs and policies are likely to have significant adverse impacts on biological diversity are duly taken into account.

558. The proposed action was subject to an environmental impact assessment process under the EP&A Act. The AR identifies the likely impacts of the proposed action on listed threatened species and communities, and recommends measures to avoid, mitigate and offset those impacts. These measures are reflected in the NSW conditions at Attachment G2, and the conditions which the department recommends be attached to an approval. The department notes that approval of the proposed action was carried

out following an EIS, and there are arrangements in place to ensure the significant adverse impacts of the proposed action on biological diversity are taken into account.

559. The department considers the proposed action will not have unacceptable impacts on biodiversity, including Commonwealth-listed threatened species and communities, if it is taken in accordance with the recommended conditions.

560. The department therefore considers you should be satisfied approving the proposed action, subject to the proposed conditions which will avoid, mitigate and offset impacts to biodiversity, is not inconsistent with Australia's obligations under the Biodiversity Convention.

10.2 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

561. CITES is available at: http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1976/29.html

562. The aim of CITES is to ensure international trade in specimens of wild animals and plants does not threaten their survival.

563. The department considers you should be satisfied approving the proposed action, subject to conditions, is not inconsistent with Australia's obligations under CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

10.3 Convention on the Conservation of Nature in the South Pacific (APIA Convention)

564. The APIA Convention is available at: http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1990/41.html

565. The APIA Convention encourages the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations, and regions and objects of aesthetic interest or historic, cultural or scientific value.

566. The APIA Convention was suspended with effect from 13 September 2006. While this Convention has been suspended, Australia's obligations under the Convention have been taken into consideration.

567. The proposed action has undergone an environmental assessment which concluded the proposed action will not have an unacceptable impact on biodiversity, geological formations and objects of aesthetic interest or historic, cultural or scientific value, subject to the proposed conditions.

568. The proposed conditions of approval address and mitigate the impacts the proposed action will have on biodiversity and water assets, and how these impacts are managed in the long-term. The proposed conditions also require ongoing monitoring of potential impacts, implementation of mitigation and corrective actions, and offsetting of significant

residual impacts. As such, the department considers you can be satisfied approving the proposed action, subject to conditions, is not inconsistent with Australia's obligations under the APIA Convention.

10.4 Recovery Plans and Threat Abatement Plans

569. The recovery plans relevant to the proposed action are:

- Department of the Environment (2016). *National Recovery Plan for the Regent Honeyeater* (Anthochaera phrygia). Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-regent-honeyeater-anthochaera-phrygia-2016. In effect under the EPBC Act from 04-May-2016 as *Anthochaera phrygia.*

- Saunders, D.L. & C.L. Tzaros (2011). *National Recovery Plan for the Swift Parrot* (Lathamus discolor). Birds Australia, Melbourne. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-swift-parrot-lathamus-discolor. In effect under the EPBC Act from 10-Feb-2012.

- DAWE 2021, *National Recovery Plan for the Grey-headed Flying-fox 'Pteropus poliocephalus'*, Department of Agriculture, Water and the Environment, Canberra, March. CC BY 4.0. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/recovery/grey-headed-flying-fox . In effect under the EPBC Act from 19-Mar-2021.

- Department of Environment, Climate Change and Water NSW. 2010. *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Department of Environment, Climate Change and Water NSW, Sydney. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/white-box-yellow-box-blakelys-red-gum-grassy-woodland-and-derived-native-grassland-national

570. NSW considered these recovery plans in its assessment, as summarised in Attachments G3 and is of the view approval of the proposed action will not be inconsistent with those recovery plans.

571. The recovery plans are provided at Attachments H4-H7 and discussed below.

National Recovery Plan for the Regent Honeyeater

572. The recovery plan for the Regent Honeyeater (Attachment H4) commenced in 2016 and identifies major threats to the species as:

i. small population size

ii. habitat loss, fragmentation and degradation

iii. competition.

573. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

    i. improve the extent and quality of regent honeyeater habitat

    ii. bolster the wild population with captive-bred birds until the wild population becomes self-sustaining

    iii. increase understanding of the size, structure, trajectory and viability of the wild population

    iv. maintain and increase community awareness, understanding and involvement in the recovery program.

574. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of the habitat of the Regent Honeyeater, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, ensure the proposed action is not inconsistent with the recovery plan for Regent Honeyeater. A detailed discussion of impacts to the Regent Honeyeater is provided in section 4.2.1 of this report.

National Recovery Plan for the Swift Parrot

575. The recovery plan for Swift Parrot (Attachment H5) commenced in 2011 and identifies major threats to the species as:

    i. habitat loss and alteration

    ii. climate change

    iii. collision mortality

    iv. competition

    v. disease

    vi. illegal wildlife capture and trade

    vii. cumulative impacts.

576. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

    i. identify the extent and quality of habitat

    ii. manage and protect Swift Parrot habitat at the landscape scale

    iii. monitor and manage the impact of collisions, competition and disease

    iv. monitor population and habitat.

577. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes while the proposed action will result in loss and alteration of the habitat of the Swift Parrot, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for Swift Parrot. A detailed discussion of impacts to the Swift Parrot is provided in section 4.2.2 of this report.

National Recovery Plan for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum CEEC)

578. This ecological community can occur either as woodland or derived native grassland (i.e., grassy woodland where the tree overstorey has been removed). Box-Gum Grassy Woodland occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through New South Wales and the Australian Capital Territory to Victoria. Due to the ecological community's occurrence on fertile soils, it has been extensively cleared for agriculture and intact remnants, including both trees and unmodified understorey, are now extremely rare. Very few high-quality remnants remain anywhere across its former range. Current estimates indicate only 405,000 ha of the ecological community in various condition states remain.

579. Clearing and fragmentation for urban, rural residential, agricultural and infrastructure development remain on-going threats to this ecological community, while degradation resulting from inappropriate management and weed invasion by introduced perennial grasses continues to erode the conservation value of remnant areas.

580. The overall objective of this recovery plan is to promote the recovery and prevent the extinction of this critically endangered ecological community.

- The specific objective to be achieved within the lifespan of this recovery plan is to minimise the risk of extinction of the ecological community through:

    i. achieving no net loss in extent and condition of the ecological community throughout its geographic distribution.

    ii. increasing protection of sites with high recovery potential.

    iii. increasing landscape functionality of the ecological community through management and restoration of degraded sites;

    iv. increasing transitional areas around remnants and linkages between remnants; and

    v. bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Grassy Woodland.

581. The department considers habitat loss and alteration, and cumulative impacts are relevant threats to the proposed action. The department considers increasing landscape functionality of the ecological community through management and restoration of degraded sites and achieving no net loss are relevant recovery actions to the proposed

action.

582. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of Box Gum CEEC, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for Box Gum CEEC. A detailed discussion of impacts to the Box Gum CEEC is provided in section 4.2.5 of this report.

National Recovery Plan for the Grey-headed flying Fox

583. The overall objective of the recovery plan is to set out the management and research actions necessary to stop the decline of and support the recovery of the Grey-headed Flying-fox over the next ten years.

584. According to the recovery plan, the main threats to the survival of the GHFF population include roosting and foraging habitat loss, camp disturbance, mortality in commercial fruit crops, heat stress and bushfires.

585. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

- Identify, protect and increase native foraging habitat critical to the survival of the species
- Identify, protect and increase roosting habitat of GHFF camps
- Determine trends in the Grey-headed Flying-fox population so as to monitor the species' national distribution, habitat use and conservation status.
- Build community capacity to coexist with flying-foxes and minimise the impacts on urban settlements from new and existing camps while avoiding interventions to move on or relocate entire camps
- Increase public awareness and understanding of Grey-headed Flying-foxes and the recovery program, and involve the community in the recovery program where appropriate
- Improve the management of Grey-headed Flying-fox camps in areas where interaction with humans is likely
- Significantly reduce levels of licenced harm to Grey-headed Flying-foxes associated with commercial horticulture
- Support research activities will improve the conservation status and management of Grey-headed Flying-foxes

586. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of the habitat of the GHFF, the proposed avoidance and mitigation measures will be required under the proposed conditions,

including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for GHFF. A detailed discussion of impacts to the GHFF is provided in section 4.2.4 of this report.

Threat Abatement Plans

The threat abatement plans relevant to the proposed action are:

- Department of Sustainability, Environment, Water, Population and Communities (2011). *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads*. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/resource/threat-abatement-plan-biological-effects-including-lethal-toxic-ingestion-caused-cane-toads. In effect under the EPBC Act from 06-Jul-2011. (Attachment H8).

- Department of the Environment and Energy (2017). Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017). Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017. In effect under the EPBC Act from 18-Mar-2017. (Attachment H9).

- Department of the Environment (2014). *Threat abatement plan for disease in natural ecosystems caused by* Phytophthora cinnamomi. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/resource/threat-abatement-plan-disease-natural-ecosystems-caused-phytophthora-cinnamomi.
In effect under the EPBC Act from 22-Feb-2019. (Attachment H10).

- Department of the Environment and Energy (2016). *Threat abatement plan for competition and land degradation by rabbits*. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/competition-and-land-degradation-rabbits-2016. In effect under the EPBC Act from 07-Jan-2017 (Attachment H11).

- Department of the Environment (2015). *Threat abatement plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats. In effect under the EPBC Act from 23-Jul-2015. (Attachment H12).

587. NSW considered these threat abatement plans in its assessment, as summarised in Appendix E of Attachment G3, and is of the view that approval of the proposed action will not be inconsistent with these threat abatement plans.

588. These threat abatement plans are provided at Attachments H8-H12.

589. The department notes:

- The threat abatement plan for predation, habitat degradation, competition and

disease by feral pigs is relevant to the proposed action due to threats posed to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC.

- The threat abatement plan for competition and land degradation by rabbits is relevant to the proposed action due to threats to the Regent Honeyeater.
- The threat abatement plan for predation by feral cats is relevant to the proposed action due to threats to Swift Parrot.
- The threat abatement plan for the biological effects, including lethal toxic ingestion, cause by cane toads is relevant to species that occur in White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. However, the department notes that NSW concluded cane toads are not a threat to this CEEC in the Muswellbrook region.
- The threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* is relevant to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. However, the department notes that NSW concluded *Phytophthora cinnamomi* is unlikely to occur in the region, due to its relatively dry climate.

590. The department considers the proposed action is unlikely to contribute to increased feral animal activity within the proposed action area and, instead, is likely to assist with the management of these species through the proposed mitigation measures incorporated in the proposed conditions.

591. The department considers cane toads and *Phytophthora cinnamomi* are unlikely to occur in the region and, therefore no specific or additional management measures are required.

592. The department considers the proposed conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. On this basis, the department considers approval of the proposed action subject to the proposed conditions will not be inconsistent with any of the relevant threat abatement plans.

10.5 Conservation Advices

593. The approved conservation advices relevant to the proposed action are:

- Department of the Environment, Water, Heritage and the Arts (2009). *Approved Conservation Advice for Prasophyllum sp. Wybong (C. Phelps ORG 5269) (a leek-orchid).* Canberra, ACT: Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/81964-conservation-advice.pdf. In effect under the EPBC Act from 13-Nov-2009. (Attachment H1)

- Department of the Environment (2015). *Conservation Advice Anthochaera phrygia regent honeyeater*. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/82338-conservation-advice.pdf. In effect under the EPBC Act from 08-Jul-2015. (Attachment H2)

- Threatened Species Scientific Committee (2016). *Conservation Advice Lathamus discolor swift parrot*. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/744-conservation-advice-05052016.pdf. In effect under the EPBC Act from 05-May-2016 (Attachment H3)

594. The department notes there is no approved Conservation Advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community or Grey-headed flying fox (*Pteropus poliocephalus*).

595. The Consideration of Commonwealth Matters in the AR (Attachment G3, Appendix E), and advice from BCD (Attachment G6) includes consideration of these approved conservation advices. DPIE is of the view approval of the proposed action will not be inconsistent with those conservation advices.

596. The department's Protected Species and Communities Branch was consulted on any upcoming listings in preparing this Report. On 6 September 2021, an email was received stating that they are not anticipating any changes to the documents relating to the threatened species and ecological communities identified by the department as being relevant to this project. The department therefore understands that, at the time of writing, the above list includes all conservation advices currently relevant to the project.

597. The approved conservation advices are provided at Attachments H1-H3 and are discussed below.

Approved Conservation Advice for Swift Parrot

598. The conservation advice for Swift Parrot (Attachment H3) came into force in 2016 and identified major threats to the species as:

i. predation by sugar gliders

ii. habitat loss and alteration

iii. collision mortality

iv. competition

v. disease

vi. illegal wildlife capture and trading.

599. The conservation advice states that the priority conservation and management actions are to:

i. review and update management prescriptions for Swift Parrots for use in the

Forest Practices System and Local Government land use planning and approvals processes across the breeding and non-breeding range of Swift Parrots

ii. revise and update forestry prescriptions to reflect the most recent habitat information available in Victoria and New South Wales

iii. develop and implement strategies to reduce predation from sugar gliders when circumstances require

iv. consider installing nesting boxes suitable for Swift Parrots in areas of low sugar glider predation to enhance swift parrot breeding success

v. continue to raise public awareness of the risks of collisions and how these can be minimised, targeting known high risk areas such as the greater Hobart, Melbourne and Western Sydney areas, and the central coast region of New South Wales (Wyong, Gosford, Lake Macquarie and Penrith Local Government areas)

vi. encourage and support the protection, conservation management and restoration of swift parrot nesting and foraging habitat through agreements with landowners, incentive programs and community projects

vii. develop and implement a Disease Risk Assessment for Swift Parrots.

600. The department has considered the conservation advice for the Swift Parrot in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures in accordance with the conservation advice. The proposed conditions also require an offset be provided for residual significant impacts to the Swift Parrot, which will provide for conservation actions in accordance with the conservation advice.

Approved Conservation Advice for Regent Honeyeater

601. The conservation advice for Regent Honeyeater (Attachment H2) came into force in 2015 and identifies major threats to the species as:

i. clearing, degradation and fragmentation of habitat

ii. removal of trees for timber and firewood, invasive weeds and inappropriate fire regimes

iii. competition with other birds

iv. severe loss of genetic variability.

602. The approved conservation advice states the priority conservation and management actions to assist in the recovery of the species are to:

i. reverse the long-term population trend of decline and increase the numbers of Regent Honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years

ii. maintain key Regent Honeyeater habitat in a condition maximises survival and reproductive success, and provides refugia during periods of extreme environmental fluctuation

iii. improve the extent and quality of Regent Honeyeater habitat

iv. bolster the wild population with captive-bred birds until the wild population becomes self-sustaining

v. maintain and increase community awareness, understanding and involvement in the recovery program.

603. The department has considered the conservation advice for the Regent Honeyeater in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures address major threats to the species identified in the conservation advice. The proposed conditions also require provision of an offset for residual significant impacts to the Regent Honeyeater, which will provide for conservation actions in accordance with the conservation advice. The requirement to offset will contribute to the objective to improve the extent and quality of Regent Honeyeater habitat.

Approved Conservation Advice for Prasophyllum sp. Wybong

604. The conservation advice for Prasophyllum sp. Wybong (Attachment H1) came into effect in 2009 and identifies major threats to the species as being:

- Habitat clearance.
- Weed invasion.
- Vehicle traffic.
- Inappropriate disturbance regimes.

605. The approved conservation advice states the priority conservation and management actions to assist in the recovery of the species are to:

- Ensure mining, road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where Prasophyllum sp. Wybong (C. Phelps ORG 5269) occurs does not adversely impact on known populations.
- Manage any other known, potential or emerging threats including inappropriate disturbance, loss of pollinators and effects of climate change.
- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Protect populations of the listed species through the development of conservation agreements and/or covenants.

606. The department has considered the conservation advice for *Prasophyllum* sp. Wybong in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures address major threats to the species identified in the conservation advice. The proposed conditions also require provision of an offset for residual significant impacts to the *Prasophyllum* sp. Wybong, which will provide for conservation actions in accordance with the conservation advice. The requirement to offset will contribute to the objective to improve the extent and quality of *Prasophyllum* sp. Wybong habitat.

11 CONDITIONS OF APPROVAL

607. The department recommends you attach the specified NSW conditions of consent to the approval of the proposed action under the EPBC Act, as they are necessary to protect matters protected by a provision of Part 3 of the EPBC Act for which the proposed approval has effect. As discussed in Sections 3 and 4 of this Report, the department has recommended additional conditions that strengthen the NSW conditions to protect or mitigate damage to protected matters. These conditions are provided in the Proposed Approval Decision Notice (Attachment B, Annexure A, Part A).

608. Subsection 134(3A) states certain conditions cannot be attached to the approval of an action unless the holder of the approval has consented to the attachment of the condition. The department has consulted with Mangoola Coal Operations, as the proposed approval holder, on the intent of the proposed approval conditions. A letter to the proponent seeking consent to these conditions is at Attachment C1.

609. Subsection 134(3)(c) states the conditions may be attached to an approval include conditions requiring a person taking the action to comply with conditions specified in an instrument made or granted under a State law, such as conditions imposed on the proposed action through the State assessment process. The department has recommended conditions of this nature.

11.1 CONSIDERATIONS IN DECIDING ON CONDITIONS

610. In accordance with subsection 134(4), in deciding whether to attach a condition to an approval, you must consider the following:

    i. any relevant conditions have been imposed, or you consider are likely to be imposed, under a law of a State or self-governing Territory or another law of the Commonwealth on the taking of the action, and

    ii. information provided by the person proposing to take the action or by the designated proponent of the action, and

    iii. the desirability of ensuring as far as practicable the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.

611. The NSW conditions are at Attachment G2. The department has paid close attention to the NSW conditions that are relevant to EPBC Act protected matters and has recommended conditions requiring the proponent to comply with these NSW conditions, where necessary or convenient for the protection of relevant matters. The NSW

conditions relevant to the protection of water resources and listed threatened species and communities are discussed in the respective sections above.

612. Information provided by the proponent includes the EIS, the response to submissions report, the amended response to submissions report, and additional information (at Attachments I1, I2 and F, respectively). The department has considered this information in forming its conclusions and recommending the proposed conditions.

613. The department considers the conditions proposed are a cost-effective means of achieving their purpose. The proposed conditions are largely based on the NSW conditions, which in turn were informed by assessment material provided by the proponent. As far as possible, the department has recommended conditions that rely on the commitments made by the proponent and/or on measures already required under the NSW conditions.

614. The department recommends you attach approval conditions that will require the proponent to comply with applicable NSW conditions that are relevant to the EPBC Act protected matters. This approach will avoid unnecessary duplication of the NSW conditions (which the department considers are largely adequate to protect relevant matters of national environmental significance) but will still allow the department to retain an ongoing compliance role for the proposed action.

615. The department has included standard administrative conditions as part of the Proposed Approval Decision Notice (Attachment B, Annexure A, Part B). These conditions specify requirements for:

- the approval holder to notify the department of commencement of the action
- the approval holder to maintain and supply upon request accurate and complete compliance records
- the submission and publication of plans by the approval holder
- annual compliance reporting and relevant timeframes
- the reporting of instances of non-compliance and the relevant procedures and timeframes
- independent audits of compliance with the proposed conditions and the relevant procedures and timeframes
- completion of action protocols
- the approval holder to notify the department of any change or proposed change to the NSW Development Consent.

616. In addition to the standard administrative conditions required for an approval under the EPBC Act, the department recommends you attach additional conditions relating to:

i. the protection of water resources

ii. the timely reporting of incidences of non-compliance

iii. the development and implementation of management plans relating to water resources are consistent with the conditions of the NSW development consent

iv. specific habitat clearance limits for protected matters

v. ensuring management plans include objectives and outcomes are consistent with relevant Commonwealth statutory documents

617. As discussed in this Report, the department considers these conditions are necessary or convenient for protecting the matters protected by the provisions of Part 3 for which the approval will have effect.

618. The department considers the conditions proposed are a cost-effective means of achieving their purpose.

11.2 Consideration of Condition-setting Policy

619. In preparing this Report, the department has had regard to the EPBC Act Condition-setting Policy (the Policy). The Policy outlines the Australian Government's approach to considering state and territory approval conditions when approving a project under the EPBC Act. The NSW Biodiversity Offsets Policy for Major Projects is listed in the Policy as an endorsed state policy which is consistent with the standards of a non-statutory Australian Government policy.

620. In accordance with the Policy, the department considers it is necessary and convenient to propose conditions require the proponent to comply with relevant NSW conditions where they relate to mitigating and offsetting impacts for EPBC Act protected matters. These conditions will avoid unnecessary duplication of State and Australian Government conditions and allow the department to retain an ongoing compliance role to ensure the outcomes for the significantly impacted EPBC Act matters are delivered.

11.3 Approval timeframe

621. The department recommends an approval timeframe of 19 years to account for the construction period, proposed operational lifespan of 8 years, and site rehabilitation. This approval has effect until 31 December 2040.

12 CONCLUSION

622. Having considered all relevant matters under the EPBC Act, the department considers the impacts of the proposed action on the matters protected by the relevant controlling provisions will not be unacceptable, provided the proposed action is undertaken in accordance with the proposed conditions.

623. The department recommends you approve the proposed action, subject to the proposed conditions.

13 ATTACHMENTS

624. The attachments cited in this Report are attachments to this briefing package and are identified in the proposed decision brief.

14 APPENDIX

Figure 1: The map shows the modelled distribution of the Box Gum Grassy Woodland, and the extent of the 2019-2020 bushfires. This map shows a broad amount of likely and potential habitat was impacted by the bushfires. The map also shows the bushfires impacted a small amount of potential and likely habitat within the Hunter IBRA subregion.

This map is for illustrative purposes only.

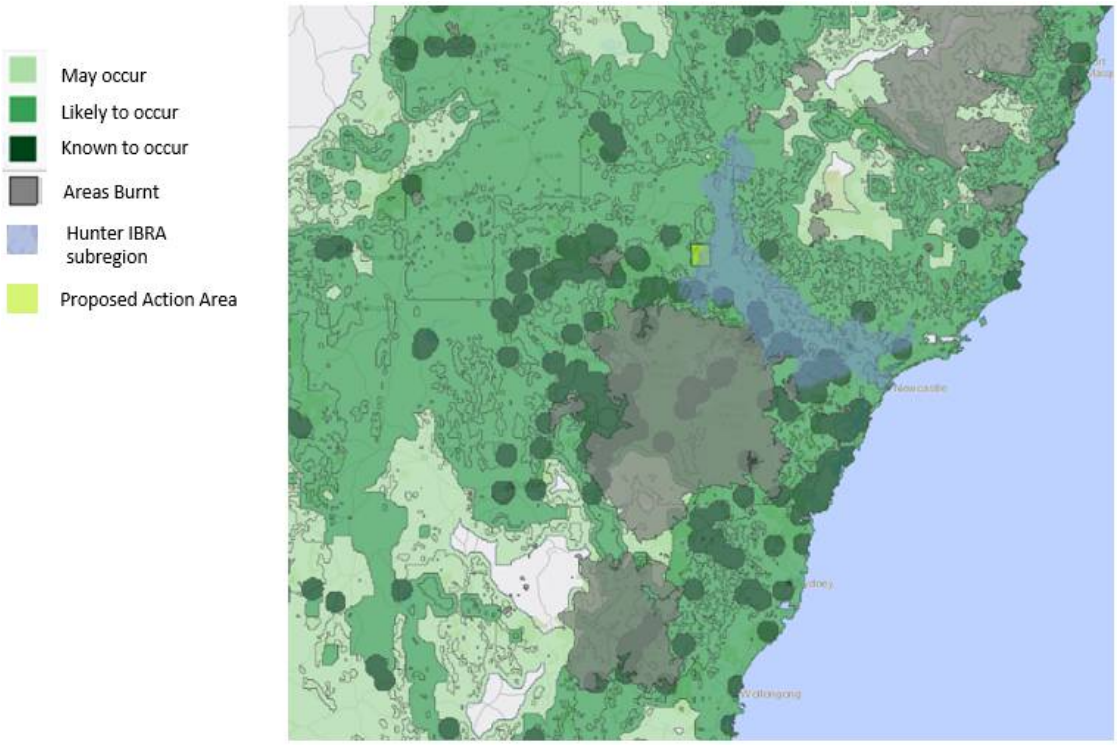


Figure 2: The modelled distribution of the Regent Honeyeater, and the extent of the 2019-2020 bushfires. This map shows a significant amount of Regent Honeyeater habitat was impacted by the bushfires. However, the map also shows only a small amount of this species habitat within the Hunter IBRA subregion was impacted by the bushfires.

The map is for illustrative purposes only.

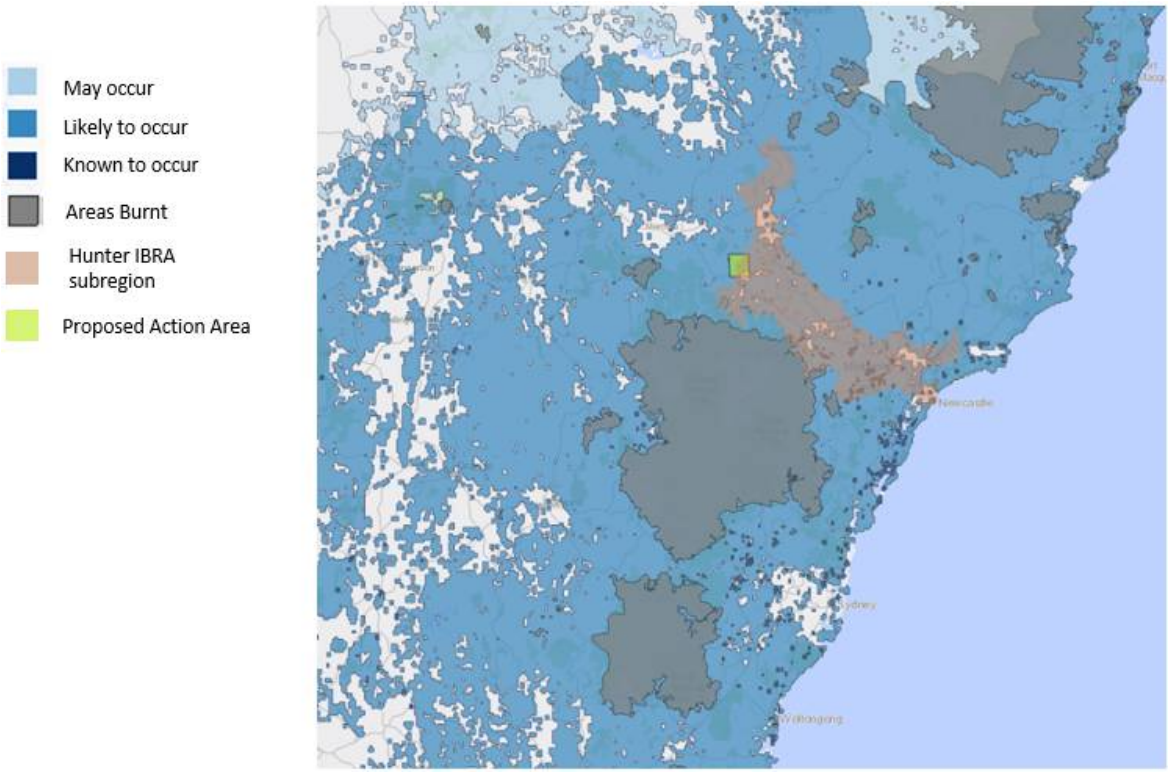


Figure 3: The modelled distribution of the Swift Parrot, and the extent of the 2019-2020 bushfires. This map shows a large amount of likely Swift Parrot habitat was impacted by the bushfires. The map also shows a small amount of likely habitat within the Hunter IBRA subregion was impacted by the bushfires.

This map is for illustrative purposes only.

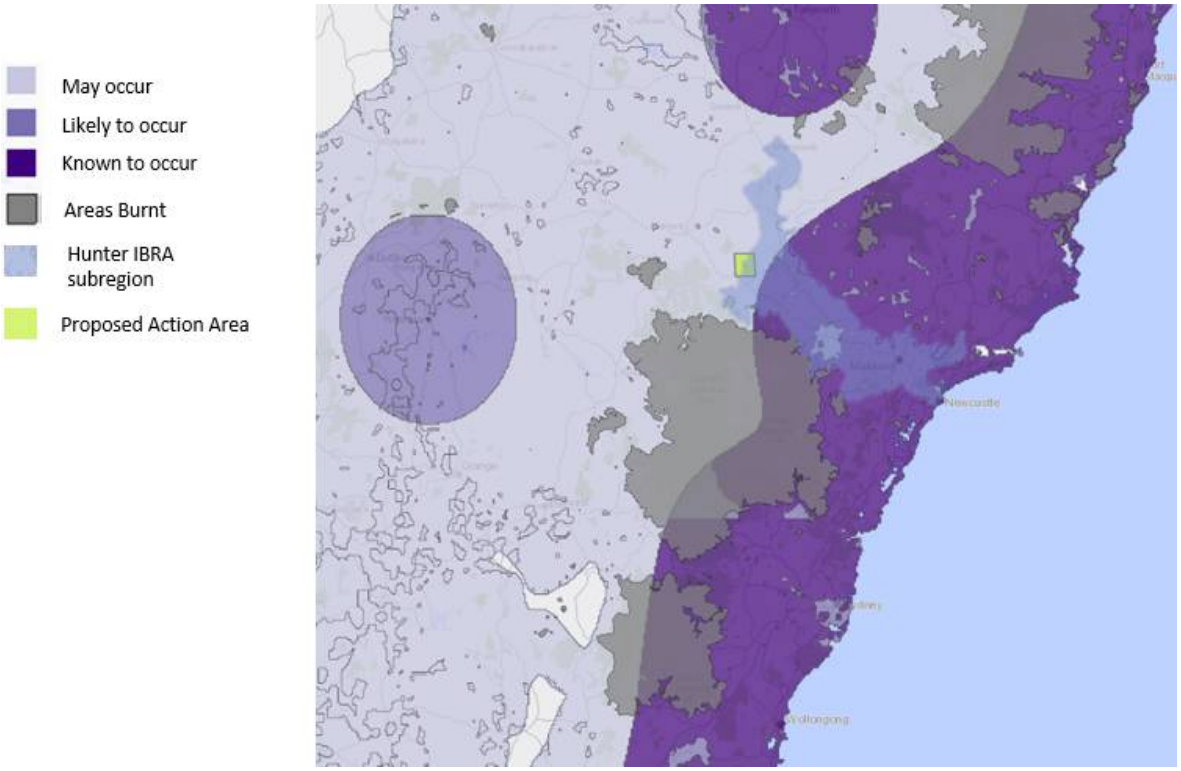


Figure 4: The modelled distribution of the Grey-headed Flying-fox, and the extent of the 2019-2020 bushfires. This map shows a large amount of known Grey-headed Flying-fox habitat was impacted by the bushfires. The map also shows a small amount of likely habitat within the Hunter IBRA subregion was impacted by the bushfires.

This map is for illustrative purposes only.

Figure 5: The modelled distribution of the Wybong Leek-orchid, and the extent of the 2019-2020 bushfires. This map shows a small amount of possible Wybong Leek-orchid habitat was impacted by the bushfires.

This map is for illustrative purposes only.

From: Lauren Evans
To: s. 22(1)(a)(ii) @awe.gov.au
Cc: s. 22(1)(a)(ii) Matthew Sprott
Subject: EPBC 2018/8280 - Determination of Mangoola Coal Continued Operations Project
Date: Thursday, 6 May 2021 11:28:32 AM
Attachments: image002.jpg
EPBC 2018_8280_Mangoola Coal Continued Operations Project - DPIE Referral to Cth.pdf
Mangoola Coal COP (SSD 8642) - Development Consent.pdf

Dear Louise

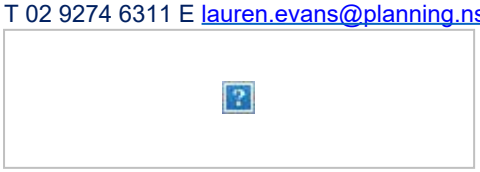
Please refer to the Department's attached correspondence regarding the determination of the Mangoola Coal Continued Operations Project.

A copy of the development consent is attached for your information. The Department's Assessment Report and the Independent Planning Commission's Statement of Reasons are available on the Department's website using the link below:
https://www.planningportal.nsw.gov.au/major-projects/project/10131

If you have any questions regarding this matter, please do not hesitate to contact Matthew Sprott or myself.

Regards

Lauren Evans
Team Leader
Energy, Industry & Compliance | Planning and Assessment
4 Parramatta Square, 12 Darcy St, Parramatta, NSW 2150
T 02 9274 6311 E lauren.evans@planning.nsw.gov.au



The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Planning, Industry & Environment

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Mangoola Coal Continued Operations Project (SSD 8642)
Statement to the Commonwealth Minister

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Director
Resource Assessments

Coal Mining Projects – Technical Analysis

Introduction

The following coal mining projects (hereinafter collectively referred to as **the Coal Mining Projects**) are currently pending possible approval from the Minister under the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act):

- (EPBC 2020/8702) Russell Vale Colliery in NSW (Wollongong Coal Limited);
- (EPBC 2016/7649) Vickery Coal Mine Extension Project in NSW (Whitehaven Coal limited);
- (EPBC 2017/8084) Tahmoor South Project in NSW (Tahmoor Coal Pty Ltd);
- (EPBC 2018/8280) Mangoola Coal Continued Operations Project in NSW (Mangoola Coal Operations Pty Ltd).

(See attached for further information on each of these coal projects)

The Department of Agriculture, Water and the Environment (DAWE) is considering the extent to which, if at all, the approval of the Coal Mining Projects would affect the global level of consumption of coal in certain possible future scenarios, with particular attention being paid to the contribution of coal mining and coal consumption to the generation of greenhouse gases.

This analysis is based on the following scenarios

- the **sustainable development scenario (SDS)**, based on the International Energy Agency's Sustainable Development Scenario, assumes that global coal consumption will be constrained so that the energy-related United Nations Sustainable Development Goals are achieved: universal access to affordable, reliable and modern energy services by 2030; a substantial reduction in air pollution, and effective action to combat climate change[1]
- the **stated policies scenario (STEPS)**, based on the International Energy Agency's Stated Policies Scenario, assumes that global coal consumption is determined by the IEA's assessment of stated policy ambitions, including the energy components of announced

[1] In the SDS, annual energy sector and industrial process CO_2 emissions fall continuously over the period to 2050 from around 33 gigatonnes (Gt) in 2020 to 26.7 Gt in 2030 and 10 Gt in 2050, on course towards global net-zero CO_2 emissions by 2070. If emissions were to remain at zero from this date, the SDS would provide a 50% probability of limiting the temperature rise to less than 1.65 ° C, in line with the Paris Agreement to limit global warming to well below 2 ° C, preferably 1.5° C, compared to pre-industrial levels. (If negative emissions technologies are deployed after 2070 in the SDS, the temperature rise in 2100 could be limited to 1.5 ° C with a 50% probability.)

economic stimulus or recovery packages (as of mid-2020) and the Nationally Determined Contributions under the Paris Agreement .[2]

Having regard to:

- the known and likely coal resources in the world (including those currently being mined and those available for development) but excluding the Coal Mining Projects (and also excluding any other unapproved Australian coal mining developments), and
- the current and reasonably anticipated coal demand arising in the two scenarios outlined above, and
- the nature and manner of operation of the global market for coal,

DAWE is considering the prospects that the approval of one or more of the Coal Mining Projects would affect the total amount of coal consumed globally or affect the amount of greenhouse gas emissions generated in the process of mining and conveying coal from mine to consumer prior to the year 2100, or, if not possible to answer this question up to the year 2100 using the available modelling, by reference to the point in time to which reasonable inferences can be drawn on the available modelling.

In answering this question, consideration is being given to:

- whether there are sufficient known alternative sources of coal, Australian or otherwise, (alternative coal sources) that could supply the global demand for coal in either or both of the scenarios outlined above (alternative coal sources should include all currently approved Australian coal mines, as well as all known or likely coal mines and coal deposits outside Australia, and should exclude the Coal Mining Projects and any other unapproved Australian coal mining developments);
- whether the level of global coal consumption would be unaffected by the approval or commencement of supply associated with the Coal Mining Projects, recognising that the approval might affect the composition of global coal consumption;
- whether the amount of CO2 emissions likely to be generated by the coal extracted from the Coal Mining Projects would be greater or less than, or the same as, the amount of CO2 emissions likely to be generated from alternative coal sources that would be likely to be exploited if the Coal Mining Projects were not approved (this might, for example, be the case if the quality or characteristics of alternative coals sources were materially different from coal available from the Coal Mining Projects in generating the same power or in achieving the same production objects of coal use);

[2] In the STEPS, broad energy and environmental objectives (including country net-zero targets) are not automatically assumed to be met. They are implemented in this scenario to the extent that they are backed up by specific policies, funding and measures. The STEPS also reflects progress with the implementation of corporate sustainability commitments. In the STEPS, emissions from new and existing energy infrastructure lead to a long-term temperature rise of around 2.7 ° C in 2100.

- whether the amount of CO2 emissions likely to be associated with the mining undertaken at the Coal Mining Projects and the amount of CO2 emissions likely to be associated with transporting the coal from the Coal Mining Projects to coal consumers is likely to be materially different than the amount of CO2 emissions likely to be associated with the mining and transport of coal to the same consumers from alternative coal sources (insofar as the alternative sources would replace the supply that might have been met by the Coal Mining Projects);

- whether, apart from CO2 emissions, the consumption of coal from alternative coal sources would be likely to create dangers to human safety that are different to any such dangers that would be likely to be associated with the consumption of the coal from the Coal Mining Projects (for example, because of the different grades of coal that might be used in substitution).

[Note that references to "approved" means approved under the EPBC Act.]

The Department of Industry, Science, Energy and Resources (DISER) provides the following report to aid DAWE in consideration of this question.

Primary question:

Having regard to the known and likely coal resources in the world (including those currently being mined and those available for development) but excluding the Coal Mining Projects (and also excluding any other unapproved Australian coal mining developments), and

- *the current and reasonably anticipated coal demand arising in the two scenarios outlined above, and*
- *the nature and manner of operation of the global market for coal,*

the Department of Agriculture, Water and the Environment (DAWE) is considering the prospects that the approval of one or more of the Coal Mining Projects would affect the total amount of coal consumed globally or affect the amount of greenhouse gas emissions generated in the process of mining and conveying coal from mine to consumer prior to the year 2100, or, if not possible to answer this question up to the year 2100 using the available modelling, by reference to the point in time to which reasonable inferences can be drawn on the available modelling.

Response

DISER notes that this response is provided in conjunction with the advice and limitations identified in the responses to the sub-questions that follow this response.

For the reasons explained below, any decision of the Minister to approve one or more of the Coal Mining Projects (Decision) is not expected to materially impact on the total amount of coal consumed globally.

Demand for metallurgical coal is determined primarily by the demand for steel. Steel demand is driven by construction and infrastructure development, which is dependent on population and economic growth as well as government policies that support these industries. The demand for thermal coal is determined primarily by its price, and the demand for energy, which again, depends in part on population and economic growth, the cost of alternative energy products, such as oil, gas and renewables, as well as consumer preferences for different types of energy. The Decision affects none of these factors.

There are many alternative sources of coal both within Australia and overseas - both metallurgical and thermal. There is enough known coal reserves to last for 200 years at current production levels (see sub-question 1).

These sources of supply are varied. No one country or company dominates the market for seaborne coal supply. The speed at which trade has recently realigned in response to trade disruptions shows that regional coal markets are highly integrated. Over the last 10 years, competition has increased in the seaborne market for both thermal and metallurgical coal, as lower-cost supply has entered the market and production costs at existing mines have declined.

Regardless of any feasible scenario of future global demand, the small fraction of global supply that the annual output the Coal Mining Projects represent, combined with the competitiveness of global coal markets, indicate that alternative sources of coal are readily substitutable for any coal that might be produced by the Coal Mining Projects (see sub-question 2).

It is not possible to identify specific mine sources that would be the alternative sources of coal in the event the Coal Mining Projects were not approved. This makes it not possible to conclude that any Decision to approve the Coal Mining Project will necessarily increase greenhouse gas emissions associated with coal consumption.

s. 47(1) / s. 47G(1) the coal from the Coal Mining Projects is of relatively high calorific value. Other things being equal, where coal from these projects is replaced by coal of lower calorific value, emissions from consumption of this alternative source of coal will tend to be higher (see sub-question 3).

Emissions from mining and transport of coal depend on a large range of factors including mining method, transportation method and distance, making it not possible to conclude that the Coal Mining Projects will necessarily increase emissions. As a proportion of total emissions associated with the projects, transport emissions are significantly less than from the combustion of the coal (see sub-question 4).

Sulphur dioxide emissions are another potential danger to human health from the consumption of coal, contributing to acid rain and respiratory illnesses.[3] These emissions depend on the sulphur content of the coal and any sulphur emission controls used in conjunction with the coal consumption. The lack of information on the sulphur characteristics of the alternative coal and the use of any sulphur emission controls means that it is not possible assess the impacts of the Decision on this danger.

[3] https://www.eia.gov/energyexplained/coal/coal-and-the-environment.php

Sub-question 1

*Whether there are sufficient known alternative sources of coal, Australian or otherwise, (**alternative coal sources**) that could supply the global demand for coal in either or both of the scenarios outlined above (**alternative coal sources** should include all currently approved Australian coal mines, as well as all known or likely coal mines and coal deposits outside Australia, and should exclude the Coal Mining Projects and any other unapproved Australian coal mining developments);*

Under the IEA scenario of greatest coal demand (STEPS), there are sufficient known alternative coal sources to supply global demand for coal beyond 2040. It logically follows that there are also sufficient known alternative coal sources to supply global demand in any scenario in which demand is expected to be lower than in STEPS.

In the IEA's STEPS, it is estimated that aggregate annual global coal consumption gradually declines to 2040, reaching 4,735 million tonnes of coal equivalent (Mtce) with an associated 12.4 gigatonnes (Gt) of CO2 emissions. In the Asia-Pacific, annual coal consumption is also expected to experience a small decline of 101 Mtce by 2040.

This conceals stark regional variations in the outlook for coal. Coal consumption in India is expected to grow over the next 20 years by 182 Mtce. Coal consumption in South East Asia is also expected to grow rapidly over the same period, increasing by 157 Mtce. Coal use rebounds in China in the near term, peaking around 2025, before declining to 2040. Japan is expected to see the largest reduction in coal consumption over the period, declining by 55 Mtce. By 2040, the Asia Pacific region will account for 85 per cent of global coal consumption (Table 1).

Under the IEA's Sustainable Development Scenario, the world is projected to consume 1,850 Mtce in 2040 (Table 2) with an associated 3.3 Gt of CO2 emissions. Aggregate global consumption falls more rapidly and more consistently across different regions. All of Australia's major coal export destinations experience substantial falls in coal consumption: China by 340 Mtce; India by 292 Mtce; Japan by 116 Mtce; and Southeast Asia by 167 Mtce.

It is not possible to explicitly identify from these projections the individual demands for thermal and metallurgical coal. The IEA does distinguish between power use of coal and industrial use of coal (see the last two rows of Tables 1 and 2). The coal used in power generation is thermal coal. However, industrial use of coal includes both thermal coal used to generate energy and metallurgical coal used for steel making. As noted by the IEA, steel and cement production accounted for around 70 per cent of industrial coal end use in 2019 (IEA World Energy Outlook 2020, page 196). However, DISER has no additional information as to how this demand is split between steel and cement uses or how this proportion is projected to evolve over the next twenty years.

Coal reserves are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. Publically available coal reserves with global geographic coverage normally classify coal by its level of coalification – anthracite, bituminous, sub-bituminous and lignite - rather than its anticipated end-use.

As shown in Table 3, in 2020, there were 923,881 million tonnes of proved coal reserves in known alternative coal sources outside of Australia. These reserves are 113 times greater than global coal production in 2019[4]. There were also substantial proved coal reserves within Australia (Table 4), although the share of these reserves that would require additional approvals by the Minister under the EPBC Act has not been identified.

The share of anthracite and bituminous coal is approximately three quarters of total coal reserves. Given this abundance of coal and the projected gradual decline in coal demand in all of the IEA's scenarios, it is highly unlikely that coal used for the production of steel or energy might be in short supply over the coming decades, even excluding the approval of the Coal Mining Projects.

Coal exploration and development is likely to add to these reserves over time. Exploration and development gives a more complete picture of a particular coal resource, and often results in sufficient confidence that a coal resource is economically mineable, i.e., a resource becomes a reserve. For example, in 2019, total coal reserves were 1,054,782 million tonnes. In 2020, despite approximately 7,741 million tonnes of production, coal reserves grew to 1,074,108 million tonnes (BP Statistical Review of World Energy 2021).

[4] While coal is stored at various times and places, these stocks are not large and the difference between global consumption and production of coal in any one year is normally a few percentage points.

Table 1 – IEA Stated Policy Scenario coal demand

	Stated Policies Scenario						Shares (%)			CAAGR (%)	
	2010	2018	2019	2025	2030	2040	2019	2030	2040	2019-30	2019-40
Coal demand (Mtce)											
North America	770	497	431	266	204	125	8	4	3	-6.6	-5.7
United States	718	458	393	247	188	113	7	4	2	-6.5	-5.8
Central and South America	35	43	43	38	38	42	1	1	1	-1.1	-0.1
Brazil	19	21	22	21	22	24	0	0	1	0.1	0.4
Europe	538	450	387	250	202	163	7	4	3	-5.7	-4.0
European Union	360	309	251	155	106	60	5	2	1	-7.5	-6.6
Africa	155	142	167	165	164	161	3	3	3	-0.1	-0.2
South Africa	144	120	142	134	121	96	3	2	2	-1.5	-1.9
Middle East	3	5	5	8	9	12	0	0	0	5.0	3.8
Eurasia	197	231	225	208	206	198	4	4	4	-0.8	-0.6
Russia	145	171	164	147	141	132	3	3	3	-1.4	-1.0
Asia Pacific	3 512	4 092	4 135	4 176	4 182	4 034	77	84	85	0.1	-0.1
China	2 567	2 837	2 864	2 877	2 779	2 524	53	56	53	-0.3	-0.6
India	399	592	590	631	712	772	11	14	16	1.7	1.3
Japan	165	163	157	139	119	102	3	2	2	-2.5	-2.0
Southeast Asia	122	220	246	273	314	383	5	6	8	2.2	2.1
OECD	1 559	1 219	1 079	733	602	445	20	12	9	-5.2	-4.1
Non-OECD	3 652	4 241	4 313	4 379	4 403	4 290	80	88	91	0.2	-0.0
Advanced economies	1 580	1 235	1 094	746	609	450	20	12	10	-5.2	-4.1
Emerging market & developing economies	3 631	4 225	4 299	4 366	4 395	4 285	80	88	90	0.2	-0.0
World	**5 211**	**5 460**	**5 392**	**5 112**	**5 004**	**4 735**	**100**	**100**	**100**	**-0.7**	**-0.6**
Power	3 099	3 509	3 449	3 218	3 148	2 974	64	63	63	-0.8	-0.7
Industrial use	1 239	1 138	1 151	1 135	1 128	1 107	21	23	23	-0.2	-0.2

Source: IEA World Energy Outlook 2020, all rights reserved.

Table 2 – IEA Sustainable Development Scenario coal demand

	Sustainable Development Scenario						Shares (%)			CAAGR (%)	
	2010	2018	2019	2025	2030	2040	2019	2030	2040	2019-30	2019-40
Coal demand (Mtce)											
North America	770	497	431	101	59	42	8	2	2	-16.5	-10.5
United States	718	458	393	84	48	32	7	2	2	-17.3	-11.3
Central and South America	35	43	43	28	22	18	1	1	1	-6.1	-4.0
Brazil	19	21	22	16	14	12	0	0	1	-4.2	-2.8
Europe	538	450	387	180	116	73	7	4	4	-10.3	-7.6
European Union	360	309	251	104	60	39	5	2	2	-12.1	-8.5
Africa	155	142	167	137	115	80	3	4	4	-3.3	-3.5
South Africa	144	120	142	117	94	51	3	3	3	-3.7	-4.8
Middle East	3	5	5	7	6	5	0	0	0	1.3	-0.5
Eurasia	197	231	225	165	124	68	4	4	4	-5.3	-5.5
Russia	145	171	164	120	90	55	3	3	3	-5.3	-5.1
Asia Pacific	3 512	4 092	4 135	3 581	2 762	1 564	77	86	85	-3.6	-4.5
China	2 567	2 837	2 864	2 539	1 952	1 045	53	61	57	-3.4	-4.7
India	399	592	590	516	454	298	11	14	16	-2.4	-3.2
Japan	165	163	157	104	57	41	3	2	2	-8.8	-6.2
Southeast Asia	122	220	246	234	170	79	5	5	4	-3.3	-5.3
OECD	1 559	1 219	1 079	432	240	165	20	7	9	-12.8	-8.5
Non-OECD	3 652	4 241	4 313	3 767	2 965	1 685	80	93	91	-3.4	-4.4
Advanced economies	1 580	1 235	1 094	439	242	166	20	8	9	-12.8	-8.6
Emerging market & developing economies	3 631	4 225	4 299	3 760	2 962	1 684	80	92	91	-3.3	-4.4
World	**5 211**	**5 460**	**5 392**	**4 199**	**3 204**	**1 850**	**100**	**100**	**100**	**-4.6**	**-5.0**
Power	3 099	3 509	3 449	2 448	1 686	706	64	53	38	-6.3	-7.3
Industrial use	1 239	1 138	1 151	1 035	903	697	21	28	38	-2.2	-2.4

Source: IEA World Energy Outlook 2020, all rights reserved.

Table 3 - Key 2020 coal statistics (physical units)

		Australia	OECD	World
Resources				
Proved reserves (at end of year)	Mt	150,227[b]	508,433	1,074,108
of which: Black coal (anthracite and bituminous)	Mt	73,719[b]	331,303	753,639
of which: Brown coal (sub-bituminous[a] and lignite)	Mt	76,508[b]	177,130	320,469
Share of world coal reserves	%	14.0[b]	47.3[b]	100
World ranking	no.	3[b]	na	na
Production				
Annual production	Mt	477	1,422	7,742
Share of world annual production	%	6.2	18.4	100
CAGR from 2009-2019	%	1.8	-2.1	1.4
World ranking	no.	5	na	na

Notes:
a Sub-bituminous coal has properties that range from those of brown coal to those of black coal—there is therefore some variation in this terminology across countries.
OECD - Organisation for Economic Co-operation and Development countries; CAGR - compound annual growth rate; Mt - million tonnes; na - not applicable.

Source: BP Statistical Review of World Energy 2021.

Table 4 - Australia's coal reserves at operating mines in 2019

No. of operating mines[a]	Ore Reserves[b] (Mt)	Measured and Indicated Mineral Resources[c,e] (Mt)	Inferred Mineral Resources[d,e] (Mt)	Mine Production[f] (Mt)	Reserve Life[g] (years)	Reserve Life 1[h] (years)	Reserve Life 2[i] (years)
96	11,670	30,586	14,227	588	20	52	76

Notes:
a The number of operating mines counts individual mines that operated during 2019 and thus contributed to production. Some of these mines may belong to larger, multi-mine operations and some may have closed during or since 2019.
b The majority of Australian Ore Reserves and Mineral Resources are reported in compliance with the JORC Code, however there are a number of companies that report to foreign stock exchanges using other reporting codes, which are largely equivalent. In addition, Geoscience Australia may hold confidential information for some commodities. Not all operating mines report Ore Reserves. Ore Reserves are as at 31 December 2019.
c Measured and Indicated Mineral Resources are inclusive of the Ore Reserves. Not all operating mines report Mineral Resources. Mineral Resources are as at 31 December 2019.
d Inferred Mineral Resources are as
e Measured, Indicated and Inferred Mineral Resources for black coal are presented on a recoverable basis (these are Geoscience Australia estimates unless provided by the company).
at 31 December 2019. Not all operating mines report Mineral Resources.
f Mine production refers to raw coal.
g Reserve Life = Ore Reserves ÷ Production.
h Resource Life 1 = Measured and Indicated Resources ÷ Production.
i Resource Life 2 = Measured, Indicated and Inferred Resources ÷ Production.
Source: a-d - Geoscience Australia; e - Resources and Energy Quarterly, September 2020, Department of Industry, Science, Energy and Resources.

Sub-question 2

Whether the level of global coal consumption would be unaffected by the approval or commencement of supply associated with the Coal Mining Projects, recognising that the approval might affect the composition of global coal consumption;

As established in sub-question 1, there are many alternative sources of coal outside of Australia - both metallurgical and thermal. There are enough coal reserves to last for approximately 200 years at current production levels (see sub-question 1). This is in addition to any coal reserves in Australia that do not require approval by the Minister under the EPBC Act to mine.

As already noted above, coal is primarily used in two ways; for producing steel and for producing energy. Coal used in the production of steel is referred to as metallurgical (or coking) coal. Coal used for producing energy is referred to as thermal (or steaming) coal.

The long-term demand for metallurgical coal depends primarily on its price, and the demand for steel, which in turn depends on demand for steel uses, including construction and infrastructure, which, in part, depends on population and economic growth as well as government policies that support these industries.

The long-term demand for thermal coal depends primarily on its price, the demand for energy, which, again, depends in part on population and economic growth, the cost of alternative energy products, such as oil, gas and renewables, as well as consumer preferences for different types of energy.

In additional to its price, the long-term supply of metallurgical and thermal coal depend on the availability of the resource in nature, the technology used for extraction (the two main methods are open-cut or underground), the labour and capital costs associated with production, the cost of transporting the coal to the demand source (normally by rail and ship) and the regulatory costs associated with environmental protection and worker health and safety.

The characteristics required for coal to be suitable for steel making means that metallurgical coals are rarer in nature, which makes metallurgical coal more expensive than thermal coal. In the last ten years, the average price of exported Australian metallurgical coal was approximately double the average price of exported Australian thermal coal (IHS Markit, 2021).

However, the prices of metallurgical and thermal coal are linked because there is a degree to which the different coal types can be used in the alternative market. When the price differential is small, the cost of beneficiation of low-grade bituminous coal that makes the coal suitable for steel-making is less than the return from beneficiation. When the price differential is large, steel-makers will find it profitable to substitute some metallurgical coal with high-end thermal coal, where the reduction in blast efficiency is more than offset by the reduced input cost.

Putting aside prices of metallurgical and thermal coal, the decision by the Minister under the EPBC Act to approve one or more of the Coal Mining Projects effects none of the demand factors listed above.

In consideration of price, the feasibility of alternative sources of coal substituting for coal supplied by the Coal Mining Projects as a result of a decision by the Minister under the EPBC Act must be considered. Limiting supply of a product will, in standard markets, lead to higher prices and lower demand if there are no readily available substitutes to replace this supply. If on the other hand, there are readily available substitutes to replace that supply, i.e. if markets are competitive, then there is not expected to be any meaningful impact of reduced supply on price or demand. The coal markets, both metallurgical and thermal are highly competitive global markets.

The coal that is expected to be produced by the Coal Mining Projects is a mix of thermal and metallurgical coal primarily for sale into the seaborne coal trade. The supply of each of these coal types will now be considered separately.

China dominates the global production of metallurgical coal, accounting for over half of all production in 2020. Despite this, China's demand for coal makes it a net importer (its imports of metallurgical coal, exceeds its exports). Imports accounted for approximately 10 per cent of metallurgical coal consumption in China in 2020 (Table 5).

Australia dominates the global supply of seaborne metallurgical coal. Australia accounted for over half of all seaborne coal trade in 2020. Other major suppliers include United States, Canada, Russia and Mongolia.

Table 5 – Production and Export of metallurgical coal in 2020, million tonnes

Region	Production		Region	Exports
Asia Pacific	**812**		Australia	167
China	605		United States	38
India	6		Canada	33
Australia	170		Russia	30
Indonesia	6		Mongolia	26
North America	**88**		Mozambique	4
United States	51		Rest of world	13
Central and South America	**4**		**World**	**309**
Europe	**12**			
European Union	11			
Middle East	**1**			
Eurasia	**105**			
Russia	98			
World	**1029**			

Source: IEA Coal 2020 Report

China also dominates the global production of thermal coal and lignite, accounting for almost half of all production in 2020. Also similar to the seaborne metallurgical coal market, China is a net importer of thermal coal (it imports more than it exports). Imports accounted for almost 10 per cent of thermal coal consumption in China in 2020 (Table 6).

The supply of seaborne thermal coal is less concentrated than for seaborne metallurgical coal. No individual country dominates supply. Indonesia is the largest supplier of seaborne thermal coal and lignite, accounting for 31 per cent of global supply in 2020. Australia and Russia are other important suppliers, accounting for 29 per cent and 16 per cent of global supply, respectively.

Table 6 – Production and Export of thermal coal in 2020, million tonnes

Region	Production		Region/country	Exports
Asia Pacific	**4780**		Australia	366
China	3086		Canada	36
India	737		Colombia	58
Australia	290		Indonesia	404
Indonesia	523		Russia	207
North America	**469**		South Africa	75
United States	439		United States	59
Central and South America	**61**		Rest of world	88
Europe	**439**		**World**	**1292**
European Union	286			
Middle East	**0**			
Eurasia	**419**			
Russia	297			
Africa	**241**			
World	**6409**			

Source: IEA Coal 2020 Report

Substitutability of coal

The recent experience of trade disruptions associated with COVID-19 and China's informal trade restrictions in the metallurgical and thermal coal markets has shown that geography is not a key consideration for coal end-users. Coal that was destined for China has been resold or redirected to an array of countries. These countries include Japan, South Korea and India. Similarly, China has managed to source its coal needs from other countries, including United States, Canada and Russia in the absence of previously substantial Australian supply. That is to say, companies that supply seaborne metallurgical and thermal coal compete in the one marketplace.

Over the last 10 years competition has increased in the seaborne market for coal, as lower-cost supply has entered the market and production costs at existing mines have declined (Figure 1). Reflecting this, globally over the past decade, unit production costs have become more uniform over a wider range of production levels; any increase in coal price is expected to be met with a greater increase in supply.

Table 7 shows the anticipated volume of metallurgical and thermal coal that each of the Coal Mining Projects will produce and how much that represents as a share of global production and exports. The Vickery Coal project's annual metallurgical coal production represents 0.4 per cent of global metallurgical coal production and 1.3 percent of global metallurgical coal exports in 2020. The share of global coal represented by the annual coal production of the other projects are all smaller than that of the Vickery Coal project.

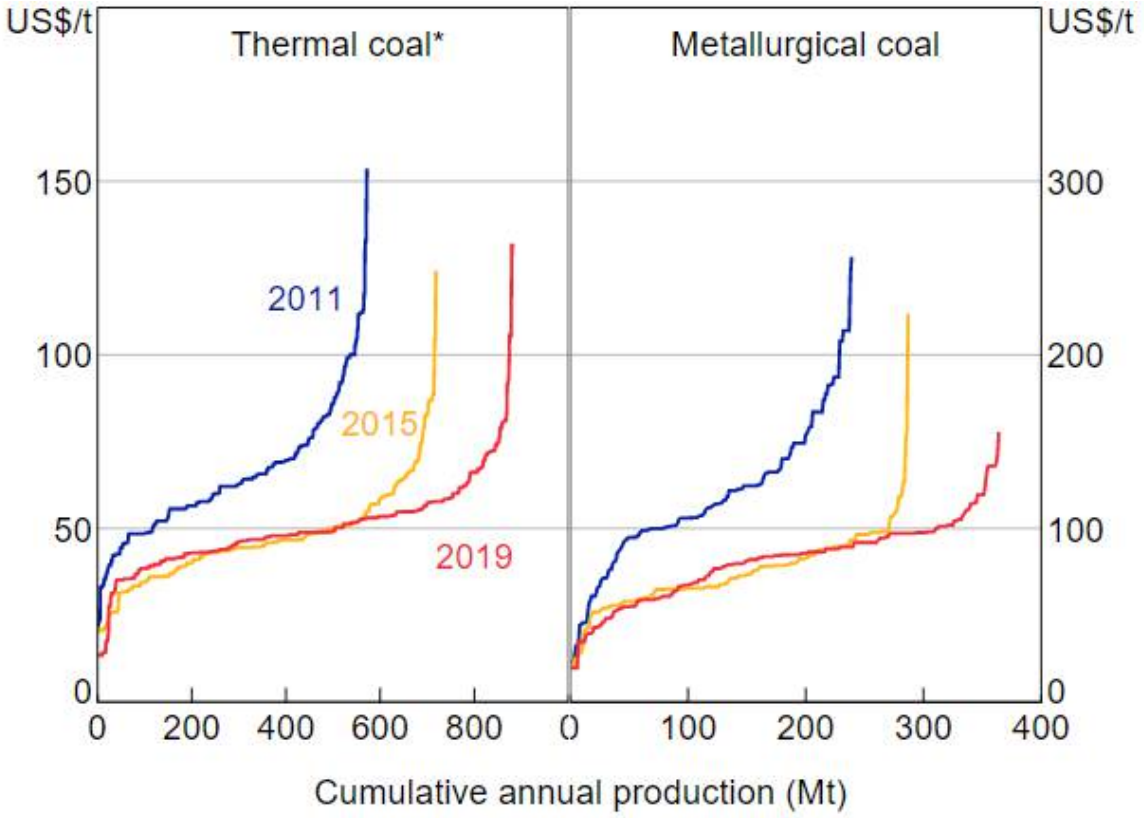
Table 7 – Coal Mining Project production as a share of global coal production and exports in 2020

	Units	Russell Vale	Tahmoor South	Mangoola	Vickery
Total volume	Mt	3.7	33	52	168
Duration of project	Years	5	10	8	25
Project share of metallurgical coal	%	100	90-95	0	60
Project's annual metallurgical production	Mt	0.74	2.97-3.14	0	4.03
Share of global metallurgical coal production	%	0.07	0.29-0.3	-	0.39
Share of metallurgical coal exports	%	0.24	0.96-1.01	0	1.30
Project share of thermal coal	%	0	5-10	100	40
Project's annual thermal coal production	Mt		0.17-0.33	s. 47(1) / s. 47G(1)	2.69
Share of global thermal coal production	%	0	0.003-0.005	0.10	0.04
Share of thermal coal exports	%	0	0.017-0.034	0.66	0.27

Source: DAWE and IEA Coal 2020 Report

Regardless of any feasible scenario of future global demand, the small fraction of current global coal supply that these projects represent, combined with the relatively flat global seaborne coal cost curves indicates that the Decision will not have any discernible impact on global coal prices. The alternative sources of coal identified in sub-question 1 are readily substitutable for any coal that might be produced by the Coal Mining Projects.

Figure 1: Seaborne Coal Production Costs (FOB basis)



*Notes: * Costs are quality adjusted*

Sources: AME Research; Reserve Bank of Australia

Sub-question 3

Whether the amount of CO_2 emissions likely to be generated by the coal extracted from the Coal Mining Projects would be greater or less than, or the same as, the amount of CO_2 emissions likely to be generated from alternative coal sources that would be likely to be exploited if the Coal Mining Projects were not approved (this might, for example, be the case if the quality or characteristics of alternative coals sources were materially different from coal available from the Coal Mining Projects in generating the same power or in achieving the same production objects of coal use);

Mine development decisions by both governments and industry are generally linked to broader considerations, including future global coal demand, the coal mine construction pipeline, capital availability and social licence. It is not possible to identify specific mine sources that would be the alternative sources of coal in the event the Coal Mining Projects were not approved.

Industry estimates that if Australian coking coals were not available and had to be replaced by coking coal from alternative sources, which would be of inferior quality, it is estimated that the amount of CO2 produced from blast furnaces that currently use the Australian products may increase by 7-25 million tonnes per annum or 0.8-2.8 per cent.[5]

While technically possible to replace coking coal in the steel making process through the combination of a Direct-Reduced Iron (DRI) facility and an Electric Arc Furnace (EAF) using either zero-emission electricity or green hydrogen, such a process currently presents technical challenges, and is not yet available at the scale needed to meet global demand for steel particularly in developing economies.

The CO2 emissions intensity of electricity generated from coal is dependent on a number of factors including the energy, moisture, ash content and sulphur content of the coal, how the coal is stored and treated, and the technology and operation of the coal generation unit. One of the most important factors for emissions intensity is the energy content or calorific value, which represents the energy contained in the coal. High energy content coal can be combusted more efficiently resulting in less emissions per unit of electricity generated (i.e., improved thermal efficiency). Table 8 shows that, based on industry estimates, Australia's exported thermal coal has a high calorific value compared with other major coal exporters (noting the United States is on par with Australia).

In particular, Australian coal has a much higher calorific value than Indonesia, which would tend to result in slightly lower emissions per unit of electricity generated from the use of Australian coal compared to Indonesian coal, based on the data in Table 8. As a consequence, it could be concluded that consumption of thermal coal from Indonesia rather than thermal coal from the Coal Mining Projects, s. 47(1) / s. 47G(1) could be expected to result in slightly more CO2 emissions, based on DAWE estimates of calorific value contained in Table 10.

[5] Minerals Council of Australia, 2020. *Best In Class: Australia's Bulk Commodity Giants. Australian Metallurgical Coal: Quality Sought Around the World.*

Sub-question 4

Whether the amount of CO_2 emissions likely to be associated with the mining undertaken at the Coal Mining Projects and the amount of CO_2 emissions likely to be associated with transporting the coal from the Coal Mining Projects to coal consumers is likely to be materially different than the amount of CO_2 emissions likely to be associated with the mining and transport of coal to the same consumers from alternative coal sources (insofar as the alternative sources would replace the supply that might have been met by the Coal Mining Projects);

It is not possible to readily determine whether CO2 emissions from the Coal Mining Projects' extraction and transport activities would be materially different to emissions from such activities undertaken by alternative overseas coal sources. It can be stated however that, transport emissions associated with any coal mining project would represent a relatively small percentage of emissions from the combustion of the final product (ie coal). To illustrate using the data provided by the Coal Mining Projects with the highest (Russel Vale) s. 47(1) / s. 47G(1) calorific value coal: estimated transport emissions would represent approximately 4-5 per cent of estimated emissions from the combustion of coal (source: *Russell Vale Colliery Air Quality and Greenhouse Gas Management Plan*, table 7.3; *EIS Appendix 22 – Greenhouse Gas and Energy Assessment Appendix B*, page 2).

International coal supply chains normally involve some combination of conveyor, truck, rail, cargo vessel to transport coal. The inability to identify specific mine sources that would be the alternative sources of coal in the event the Coal Mining Projects were not approved in addition to the varied mining environments, transportation choices and distances make any estimation of the impact of the Decision on mining and transportation emissions infeasible.

Such a comparison would require, for example, a level of detail in emissions data reporting by Australia's developing country competitors which is not currently available. Difficulties in attributing transport sector emissions to specific coal mines presents a further obstacle to preparing a reliable comparison. As a consequence, it is not possible to determine whether global CO2 emissions from the extraction and transport of coal to consumers would increase or decrease if the coal mining projects were not approved.

It is noted, however, that the calorific value of coal has implications for related transport emissions. That is, the lower the calorific value (energy content) of coal, the greater mass of coal required to produce a given level of electricity. It follows that – for a given electricity requirement – supplying coal with lower thermal efficiency would result in higher transport related emissions per kilometre travelled compared to supplying coal with higher thermal efficiency (such as coal from the Coal Mining Projects, s. 47(1) / s. 47G(1) due to the greater mass of coal to be transported.

Sub-question 5

Whether, apart from CO2 emissions, the consumption of coal from alternative coal sources would be likely to create dangers to human safety that are different to any such dangers that would be likely to be associated with the consumption of the coal from the Coal Mining Projects (for example, because of the different grades of coal that might be used in substitution).

Apart from CO2 emissions, consumption of coal from alternative coal sources may create dangers to human safety that are different from the dangers associated with the consumption of coal from the Coal Mining Projects. For example, combustion of coal from alternative sources may result in greater sulphur dioxide emissions, a contributor to acid rain and respiratory illnesses.[6]

Australian export coals have comparable levels of sulphur to our major export competitors (see Tables 7 and 8).

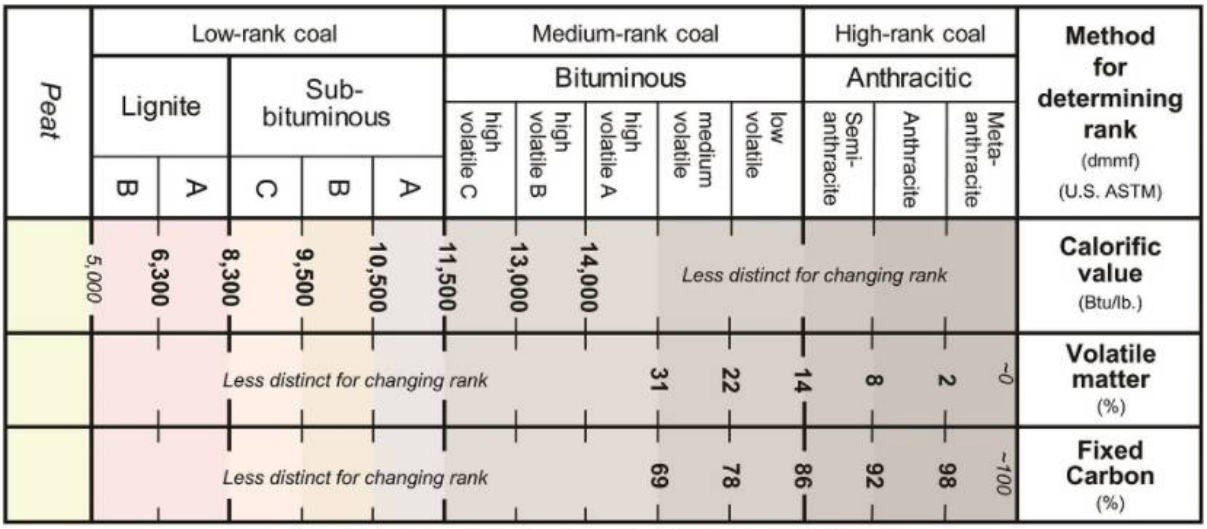
It is not possible to readily determine whether sulphur dioxide emissions from the consumption of coal from alternative sources would be materially different to sulphur dioxide emissions from the consumption of coal from the Coal Mining Projects as it is not possible to identify specific mine sources that would be the alternative sources of coal in the event the Coal Mining Projects were not approved. This determination would also be informed by any sulphur emission controls used in conjunction with the coal consumption such as the flue-gas desulphurization technologies that can be used to remove sulphur dioxide from exhaust flue gases of fossil-fuel power plants.

[6] https://www.eia.gov/energyexplained/coal/coal-and-the-environment.php

Annex A: Background

Coal is formed from the physical and chemical alteration of peat. Peat is composed of plant materials that accumulate in wetlands. When peats are buried, the weight of the overlying sediments squeezes out much of the water from the peat and reduces its volume (called compaction). Continued burial deeper into the earth also exposes the material to higher temperatures. Heating, and to a lesser extent, time and pressure act on the buried peat to change it into coal. The stages of coalification proceed through different ranks of coal (lignite, sub-bituminous coal, bituminous coal, anthracite coal). The more advanced the stage of coalification, the higher the calorific value (energy content) of the coal, the lower the volatile matter (the amount of non-water gases formed from a coal sample during heating) and the higher the fixed carbon (the amount of non-volatile carbon remaining in a coal sample) (Figure 2).

Figure 2: US coal rank system



U.S. coal rank system showing the parameters used to define ranks.

Source: University of Kentucky, https://www.uky.edu/KGS/coal/coal-rank.php

The production and consumption of coal, like most commodities is determined by the interactions between numerous producers and consumers trading a relatively homogeneous good.

Demand factors for coal depend on the value of the end use of the product – this varies from producing steam to drive turbines to produce electricity, to producing gaseous and liquid fuels, through coal gasification and liquefaction, to using coal as a chemical source from which numerous synthetic compounds (e.g., dyes, oils, waxes, pharmaceuticals, and pesticides) can be derived, or in the production of coke for metallurgical processes.

The two primary uses of coal (energy and steel making) have led to the development of two major coal markets, reflecting the specific characteristic requirements associated with these uses.

Coal used for steel making is referred to as metallurgical (or coking) coal. It is used as a fuel and reductant (in the form of coke) in a blast furnace to produce iron. Blast furnace operators greatly value consistent coal quality as variable quality can create furnace instability. It is rare for coke makers to charge a single coal into a blast furnace as a single coal will not possess all of the properties required to produce coke suitable to meet blast furnace specifications for ash, sulphur, phosphorus, size and coke strength. Coke makers use multiple coals when formulating a coking coal blend in order to meet these specifications.

Metallurgical Coal

Metallurgical coals are primarily bituminous coals. As shown in figure 2, these coals are categorised primarily by their volatile matter rather than their calorific content. This feature of metallurgical coal markets is also demonstrated by metallurgical coal indexes such as those constructed by S&P Global Platts[7], which include coke strength reaction, volatile matter, total moisture, ash and sulphur as measures of quality. While all metallurgical coals have relatively high calorific value, this is not one of the measures that determines metallurgical coal value.

Table / outlines the important commercial properties of coking coal and compares Australian coking coal to international alternatives.

Table 8: Properties of Australian Coking Coals and Comparison to International Alternatives

COKING COAL PROPERTY	SIGNIFICANCE	TYPICAL AUSTRALIAN QUALITY	COMPARISON TO INTERNATIONAL ALTERNATIVES
Ash	Increases slag volume in the blast furnace and reduces blast furnace productivity. Lower ash is preferred.	6.0–10.5 per cent (air-dried basis)	Comparable
Sulphur (S)	S is deleterious to steel quality and costly to remove in the steelmaking process. Lower S is	0.3–1.3 per cent (air-dried basis)	Comparable
Phosphorus (P)	P is deleterious to steel quality and costly to remove in the steelmaking process. Lower P is	0.01–0.12 per cent (air-dried basis)	Comparable
Alkalis (K_2O + Na_2O)	Alkalis condense in the blast furnace shaft and build-up or form accretions on the furnace wall which can detach suddenly causing operational problems. Lower alkali content is preferred.	1.5 per cent in ash (dry basis)	Comparable
Rheology	Fluidity – viscosity of plastic phase during heating. Dilatation – expansion and contraction during heating. Both assist coke makers in formulating coal blends that produce strong	Broad range	US coals superior but Australian comparable to others
Coke cold strength	Abrasion and breakage resistance for optimisation of blast furnace permeability.	Broad range	Superior
Coke hot strength (Coke Strength after Reaction -	Hot strength for optimization of BF permeability. Preferred coke CSR for large BF 65-70 per cent.	55-74 per cent	Superior

Source: Adapted from MCA Best in Class: Australia's Bulk Commodity Giants – Metallurgical Coal

Thermal Coal

[7] https://www.spglobal.com/platts/plattscontent/_assets/_files/en/our-methodology/methodology-specifications/metcoalmethod.pdf

Coal used to produce steam to run turbines to generate electricity is referred to as thermal (or steaming) coal. Thermal coal (like metallurgical coal) is mainly composed of carbon, hydrogen and oxygen, however it also contains variable quantities of other elements that can impact the value of the coal as a fuel source. Important elements that can impact this value are the moisture content, sulphur content, ash content and other pollutants, as well as the coal's calorific value.

Thermal coals are primarily sub-bituminous coals. These coals are characterised primarily by their calorific value (or energy density). The calorific value of coal is also the most important determinant of a coal's ability to create steam and generate power, representing the amount of energy produced from burning a given quantity. A greater quantity of low calorific value coals are needed in order to produce the same amount of electricity that can be obtained from higher calorific value coals.

Thermal coal also contains variable quantities of other elements that can impact the quality and efficiency of the coal as a fuel source. In addition to calorific value, important elements that can impact the quality and emissions from coal are the moisture content, sulphur content and ash content.

Total moisture is the total amount of water in the coal including inherent and surface moisture. Moisture is measured as a percentage of the "air dried" coal (that is, the moisture in the coal after achieving equilibrium with the atmosphere around it). As the moisture uses heat to be evaporated on combustion, the lower the level the better. Higher moisture coals have lower boiler efficiencies.

Ash remains after the complete combustion of all organic matter and the oxidation of the mineral matter present in the coal – it is therefore the incombustible material present in the coal. Ash in coal acts as a diluent, which needs to be disposed of after combustion as fly ash or bottom ash. Lower levels are therefore preferred.

Volatile matter in coal is the proportion of the air-dried coal released as gas or vapour during a standardised heating test. Higher volatile matter content indicates coal that is easier to ignite and which will burn with a large, steady flame However, if volatile content is too high (exceeding 30 per cent of the air dried coal), it increases the potential risk of spontaneous combustion.

Table 9 outlines the important properties of thermal coal and compares Australian export thermal coal to international alternatives.

Table 9: International Comparison of Export Thermal Coal Quality

Country	Australia	Indonesia	Russia	Colombia	South Africa	USA
Total Moisture (per cent ar)	10.6	24.9	10.2	11.8	8.3	11.7
Ash (per cent ad)	13.7	5.5	12.2	7.1	13.8	7.9
Volatile Matter (per cent ad)	31.2	38.9	30.8	35.9	25.8	37.5
Calorific value (Kcal/Kg nar)	5980	4640	5590	5860	5780	5980
Sulphur (per cent ad)	0.57	0.49	0.40	0.62	0.80	1.40

Notes: ar – as received; ad – air dried; nar – kilocalories per kilogram net as received
Source: Adapted from MCA Best in Class: Australia's Bulk Commodity Giants – Thermal Coal

Table 10 outlines the coal characteristics of the Coal Mining Projects from two sources: DAWE and AME Research.

Table 10 – Coal characteristics of the Coal Mining Projects

Project	Source	Ash (% adb)	Total Sulphur (% adb)	Calorific Value NAR (kcal/kg)
Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	AME Research	13	0.39	7,025[a]
	DAWE	26-32	0.42-0.45	6,300-7,400
Tahmoor South Coal Project (2017/8084)	AME Research	13	0.4	6,640
	DAWE	12	0.3	6,300
Mangoola Continued Coal Operations Project (2018/8280)	AME Research	15-27	0.35-0.40	5,014
	DAWE	Na	Na	4775-5800
Vickery Extension Project (EPBC 2016/7649)	AME Research	10	0.55	6,521
	DAWE	8	0.4	6,420

Notes: adb – air-dried basis; NAR – net as received;
a Russell Vale coal is not expected to produce thermal coal.
b – gross as received

Source: AME Research (April 2021) and DAWE

Lignite is also used to produce energy. However, because of its low energy density and typically high moisture content, lignite is inefficient to transport and is not traded extensively on the world market compared with higher coal grades. As a result it is not a focus of this report.

Coal Mine Investment Factors

Coal supply is associated with capital intensive investments and long lead times. In the short-term, the response of an operating coal mine to changes in market prices will be small. The operational costs of a coal mine represent a relatively small portion of the mines costs, making production at capacity most profitable over a wide range of prices. Even at price extremes, there is a limit to any potential supply response related to price changes. Putting a mine into care and maintenance is a costly exercise as many costs associated with mining are incurred regardless of the sale of coal. Similarly, there are production capacity constraints above which mines cannot operate regardless of prices. Of course, coal supply may fluctuate in the short-term as a result of unanticipated events such as weather disruptions or mining accidents.

Longer-term, these features mean that the decision to invest in additional coal mine capacity, either as a greenfield site, as an expansion to an existing operation or as a replacement for an expiring mine is taken with a long-term view of coal markets and coal prices. Time horizons can differ depending on the resource being considered for development, but investment horizons normally range from 5 to 25 years. While time horizons can extend beyond this point, the net present value of revenue streams thirty or more years into the future are insignificant at standard rates of return. That is to say, projections of future coal supply and coal demand more than 30 years into the future are irrelevant for most economic decision making purposes, and, as such, are not readily available publicly or privately.

The absence of economic modelling of coal markets beyond 30 years limits the ability of DISER to inform DAWE as to the operation of coal markets out to 2100. The most comprehensive long-term modelling of global energy systems that can inform the questions under consideration by DAWE is the International Energy Agency's (IEA's) annual World Energy Outlook report as the basis for drawing inferences on future global energy demand and supply.

The IEA's World Energy Outlook publications assess medium to long-term energy projections using the IEA's World Energy Model (WEM). The WEM is a large-scale simulation model designed to replicate how energy markets function and is the principal tool used to generate detailed sector-by-sector and region-by-region projections for the WEO scenarios. Updated every year, outputs from the model include energy flows by fuel, investment needs and costs, CO2 emissions and end-user prices.

The World Energy Outlook makes use of a scenario approach to examine future energy trends relying on the WEM. For the World Energy Outlook 2020, detailed projections for scenarios out to 2040 were modelled and presented.

At one end of the spectrum, the IEA's Sustainable Development Scenario (SDS) assumes that global coal consumption will be constrained to a level consistent with the aims of the Paris Agreement and the sustainable development goals (SDG 3, 7 and 13).

At the other end of the spectrum, the IEA's Stated Policies Scenario (STEPS) assumes that global coal consumption will not be constrained to a level consistent with the aims of the Paris Agreement or address the sustainable development goals (SDG 3, 7 and 13). The STEPS takes into account the policies and implementing measures affecting energy markets that had been adopted as of mid-2020, together with relevant policy proposals, even though specific measures needed to put them into effect have yet to be fully developed.

In addition to the above scenarios, projections for a Net Zero Emissions by 2050 Scenario (NZE) are also presented at a more aggregated regional level out to 2030. The NZE shows what is needed for the global energy sector to achieve net-zero CO2 emissions by 2050. Alongside corresponding reductions in GHG emissions from outside the energy sector, this is consistent with limiting the global temperature rise to 1.5 °C without a temperature overshoot (with a 50 per cent probability).

Projections for the STEPS and NZE scenarios are also presented at this more aggregated level, over a longer time frame in its *Net Zero by 2050* report. However, the level of regional aggregation associated with the scenario projections that are reported out to 2050 gives insufficient information to inform the questions posed by DAWE.

Annex C: Technical Expertise

The above advice was developed by Officers within areas of DISER:

- The Onshore Minerals and Energy Branch within the Resources Division utilised publicly available information including market intelligence subscription services, publicly available reports and documentation provided by the Coal Mining Projects. The analysis was compiled by employees with technical qualifications in geology, economics and law. The analysis was also reviewed by the Resources and Energy Insights Branch within DISER's Analysis and Insights Division.

- The National Inventory Systems and International Reporting Branch of the Climate Change Division. The Branch comprises employees with technical qualifications including science, engineering, economics and law, who are responsible for fulfilling the Australian Government's international emissions reporting obligations under the UN climate treaties, including the Paris Agreement. The advice provided in this response relating to emissions was prepared by, and in consultation with, employees with international accreditation in the review of countries' greenhouse gas inventories for consistency and compliance with UN climate treaty rules and guidance for the estimation and reporting of greenhouse gas emissions.

Annex D: Glossary

Tonnes of coal equivalent - one tonne of coal equivalent is the energy content of 1 tonne of 7,000 kilocalories per kilogram coal. One tonne of coal equivalent is equal to 29.3076 gigajoules (GJ). As reported under The National Greenhouse and Energy Reporting (Measurement) Determination 2008, Australian bituminous coal has an energy content of 27.0 GJ/tonne and Australian sub-bituminous coal has an energy content of 21.0 GJ/tonne.

Alternative coal sources - known and likely coal resources in the world (including those currently being mined and those available for development) but excluding the Coal Mining Projects (and also excluding any other unapproved Australian coal mining developments).

Mineral Resource - a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

Inferred Mineral Resource - that part of a Mineral Resource for which quantity and quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and quality continuity. Geological evidence is based on exploration, sampling and testing information. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Indicated Mineral Resource - that part of a Mineral Resource for which quantity, quality, densities, shape and physical characteristics are estimated with sufficient confidence to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing, and is sufficient to assume geological and quality continuity between points of observation where data and samples are gathered.

Measured Mineral Resource - that part of a Mineral Resource for which quantity, quality, densities, shape, and physical characteristics are estimated with confidence sufficient to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing, and is sufficient to confirm geological and quality continuity between points of observation where data and samples are gathered.

Proved Reserve - the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of certainty in the factors that influence the economic viability of the resource.

Stated Policy Scenario (STEPS) – an IEA World Energy Outlook scenario in which broad energy and environmental objectives (including country net-zero targets) are not automatically assumed to be met. They are implemented in this scenario to the extent that they are backed up by specific policies, funding and measures. The STEPS also reflects progress with the implementation of corporate sustainability commitments. In the STEPS, emissions from new and existing energy infrastructure lead to a long-term temperature rise of around 2.7 °C in 2100.

Sustainable Policy Scenario (SDS) - an IEA World Energy Outlook scenario in which energy sector and industrial process CO_2 emissions fall continuously over the period to 2050 from around 33 gigatonnes (Gt) in 2020 to 26.7 Gt in 2030 and 10 Gt in 2050, on course towards global net-zero CO_2 emissions by 2070. If emissions were to remain at zero from this date, the SDS would provide a 50% probability of limiting the temperature rise to less than 1.65 °C, in line with the Paris Agreement to limit global warming to well below 2 °C, preferably 1.5°C, compared to pre-industrial levels.

Coal types - coal is classified into four main types, or ranks: anthracite, bituminous, sub-bituminous, and lignite. The ranking depends on the types and amounts of carbon the coal contains and on the amount of heat energy the coal can produce. The rank of a coal deposit is determined by the amount of pressure and heat that acted on the plants over time.

Anthracite - contains 86%–97% carbon and generally has the highest heating value of all ranks of coal. Anthracite accounted for less than 1% of the coal mined in Australia in 2019.

Bituminous - contains 45%–86% carbon. Bituminous coal is the most abundant rank of coal found in Australia, and it accounted for about 86% of total Australian coal production in 2019. Bituminous coal is used to generate electricity and is an important fuel and raw material for use in the iron and steel industry.

Sub-bituminous - typically contains 35%–45% carbon, and it has a lower heating value than bituminous coal. About 5% of total Australian coal production in 2019 was sub-bituminous. Sub-bituminous coal is mostly used to generate electricity.

Lignite - contains 25%–35% carbon and has the lowest energy content of all coal ranks. Lignite is crumbly and has high moisture content, which contributes to its low heating value. Lignite accounted for 9% of total Australian coal production in 2019. Lignite is mostly used to generate electricity.

Annex E: Details of proposed NSW Coal Mining Projects – under EPBC Act consideration as at 8 July 2021

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
1. Company	Wollongong Coal Limited/Jindal steel	SIMEC	Mangoola Coal Operations Pty Ltd (MCOPL), a subsidiary of Glencore Coal Pty Ltd	Vickery Coal Pty Ltd, a subsidiary Whitehaven
2. Project description	Proposed expansion of existing underground operations. Proposal	Proposed underground mine expansion will produce an additional	Extension project which will provide access to 52 Mt of	Extension Project will account for an additional 33 Mt of

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
	will extract 3.7 Mt of ROM coal over 5 years Mining at a rate of no more than 1.2Mt of ROM per annum The ROM coal meets specification for unwashed coking coal that would be exported as a lower ash, single product	33 Mt of ROM coal over 10 years. Mining at a rate of up to 4 million tonnes (Mt) per annum of ROM coal.	ROM coal over 8 years s. 47G(1)	ROM coal over 25 years. Approved Mine 168 Mt of ROM coal Total Production of 150 Mt of saleable coal all to be exported- 40% Thermal 60% semi soft coking coal (SSCC is also classified as

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
	coal for use in iron and steel making. The mine has been in care and maintenance since December 2015.			metallurgical coal). (SSCC can also be used as premium quality thermal coal)
3. Metallurgical Coal %	84 % coking coal (16% coal rejects when washed – washing will be done by the end user in India)	90-95% coking coal	N/A	60% coking coal

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
4. Metallurgical coal classification a. Hard coking Coal (mt) b. Soft coking coal (mt) c. PCI (mt)	100% hard coking coal Gross calorific value: 6300-7400 kcal/kg raw coal ash: 26 – 32% total sulphur: 0.42 – 0.45 ROM moisture:9-12%	100% hard coking coal Hard coking coal is expected to account for 22.6 Mt of the saleable coal output.	N/A	The Extension Project will account for an additional 33 Mt of ROM coal. There will be a reduction of approx. 10% of the Total ROM to saleable coal leaving 29.7 MT of saleable coal. Using the 60/40 ratio of Metallurgical Coal

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
				Versus Thermal Coal the Estimate for coal production for the Extension Project would be Approx. 17.82 Mt of saleable semi-soft coking coal Vickery Extension ash content is lower than average ash content of Aus SSCC and all other major

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
				seabourne SSCC suppliers apart from Canada. Sulphur content at 0.4% is at lower end globally, Indonesia and Columbia have lower ash content. Vickery Extension coal has a low sulphur content only Russia has a lower sulphur

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
				content of thermal coal globally.
5. Thermal Coal %	N/A	5-10% thermal	100% low and high ash thermal	40% (used for power generation)
6. Thermal coal quality properties: a. Ash Content (%)	N/A	a. Ash Content: 23% b. Volatile Matter: 25% c. Total Sulphur: 0.3%	Mangoola markets primarily two thermal coal types, a relatively low ash thermal rated at about 5,800 kcal (per kilogram) and a high	a. Ash content: 7.6% b. Volatile matter: unknown c. Sulphur: 0.4%

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
b. Volatile Matter (%) c. Total Sulphur (%) d. Calorific Value NAR (kcal/Kg)		d. Calorific Value NAR: 6300(kcal/Kg)	ash thermal with 4,775 kcal. [Economic impact assessment page 4] Low Ash: 24.8 High Ash: 16.3 Total: 41.1 ROM: 52.3	d. Calorific Value: 6420 Kcal/kg Vickery Extension thermal coal is of higher quality in terms of calorific value than country weighted averages of all other coal exporters including within Australia. (pg. 12, Ashurst

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
			[Economic impact assessment Table 30: page 56] Yearly break down also provided in table 30	Submission to IPC, 2020)
7. When mine extension will commence (life of project)	15 July 2021 (five years)	2022 (10 years)	2022 (eight years)	TBA (25 Years)

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
a. **Timeframe for exporting the coal** b. **When coal is likely to be used (combusted)**	a. Coal exported in September 2021 b. Coal combusted in November-December 2021 (for the first development panel and assume remaining coal will be combusted within the 5 year life of the project)	Extraction - Currently scheduled for secondary extraction (i.e. longwall extraction of coal) in September 2022. It takes 1 to 2 months for the coal to be processed and loaded onto ships. Combustion – for the furthest customer, it		

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
		would be approximately 3 months (assuming the customer uses the product relatively quickly, which Tahmoor Coal assumes they do).		
8. Emissions a. Scope 1 b. Scope 2 c. Scope 3	a. 1,419,000 t CO2-e b. 104,000 t CO2-e c. 9,600,000 t CO2-e	d. 26.7 Mt CO_{2-e} (19Mt CO2-e abated)	a. 3.25 Mt CO2-e(table 6.35 EIS)	a. 0.0 Mt CO_{2-e} (Legal Cons p52)

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
		e. 1.24 Mt CO_{2-e} f. 65.8 Mt CO_{2-e}	b. 402,192 t CO_{2-e} (table 6.35 EIS) c. 104.3 Mt CO_{2-e} (table 6.35 EIS)	b. 0.15 Mt CO_{2-e}(Legal Cons p52) c. 100 Mt CO_{2-e}(Legal Cons p52)
9. Customer (JV/owner)	Jindal Steel and Power PTY limited (owner)	Whyalla Steel Works BlueScope's Port Kembla steelworks	Unknown	Unknown
10. Contracts in place in	N/A as the mine is part of the	Tahmoor Coal advised that the usual	Unknown	Unknown

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
place with customer(s)	customer's corporate structure.	practice for coal mines is to secure contracts approximately one year in advance. The Tahmoor Coal mine does negotiate longer term contracts from time to time. One key customer is BlueScope Steel (Port Kembla), and		

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
		the two operations are strategically close in distance. This alliance is important for the ongoing viability of BlueScope Steel operations, as presented by BlueScope Steel at the IPC Hearings.		

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
Product Destination	Orissa India	25% domestic (South Australia and Port Kembla), 75% to international markets	81% of product coal for export to China, India, Japan, Malaysia, Philippines, South Korea, Taiwan, Vietnam 19% of product coal to go domestically (Bayswater, Liddell Power Stations)	Taiwan, South Korea, Japan

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
11. Source of Replacement Coal and GGE Intensity of that coal	Jindal Steel advised it has no replacement option for this coal.	Tahmoor Coal advised that the Tahmoor Mine extracts premium quality coking coal from the Bulli Seam. The same coal seam is mined by South32. It is worth noting that South32 Dendrobium Mine has a limited life with		

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
		approval to approximately 2024.		
7. Information sources	EPBC Act referral [link] Refence no. 2020/8702 Russell Vale Underground Expansion Project	EPBC Act referral [link] Refence no. 2017/8084 NSW Assessment reports & EIS [link] Independent Planning	EPBC Act referral [link] Refence no. 2018/8280 NSW Assessment reports & EIS [link] Independent Planning	EPBC Act referral [link] Refence no. 2016/7649 NSW Assessment report and EIS [link] Independent Planning

Project Name and (EPBC Reference)	Russell Vale Colliery Revised Underground Expansion Project (2020/8702)	Tahmoor South Coal Project (2017/8084)	Mangoola Continued Coal Operations Project (2018/8280)	Vickery Extension Project (EPBC 2016/7649)
	public environment report [link] The NSW State Assessment report [link] Documents provided as part of the NSW assessment [link]	Commission site [link]	Commission site [link] EIS Appendix 25 – Glencore Position on Climate Change [link] EIS Appendix 22 – Greenhouse Gas and Energy Assessment [link]	Commission site [link] Ashurst Submission to IPC – Consideration of Greenhouse Gas Emissions and Climate Change (16 June 2020). [link]

MANGOOLA COAL CONTINUED OPERATIONS PROJECT

(2018/8280)

UPDATED EPBC ACT ASSESSMENT LEGAL CONSIDERATIONS REPORT

30 September 2021

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1 OVERVIEW

1.1 Using this report

1. This updated legal considerations and assessment report (the Report) should be read in conjunction with the covering brief and other attachments. This Report adopts the terminology defined in the final decision brief (for example, the proponent, proposed action, etc.).

2. All attachments refer to attachments to the proposed decision brief unless otherwise specified.

3. The department has prepared this Report to guide the Minister for the Environment in making a decision whether or not to approve the Mangoola Continued Coal Operations Project (the MCCO Project or the proposed action) for the purposes of each controlling provision under sections 130 and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

4. The Report includes:
   a. the matters you must and may consider in making your proposed decision, including the impacts of the proposed action on the matters protected by each of the relevant controlling provisions
   b. the department's analysis and conclusions in respect of these matters and recommended proposed decision
   c. the department's assessment of how, in approving the proposed action and attaching the proposed conditions to the approval, you will not be acting inconsistently with any applicable recovery plans and threat abatement plans and relevant international obligations.

5. In preparing this Report, the department took into account the following information:
   a. NSW Government's assessment and decision documents, including:
      i. the NSW Department of Planning, Industry and Environment's (DPIE) assessment report (AR) (Attachment G3)
      ii. the NSW Biodiversity Conservation Division (BCD) advice (BCD advice; Attachment G6)
      iii. MCCO Project – Proponent response to BCD on MNES (Attachment I5)
      iv. letter from DPIE advising of state approval and Commonwealth matters (Attachment G1)
      v. the Independent Planning Commission of NSW's (IPC) statement of reasons for their approval decision (IPC SOR; Attachment G5)
      vi. the NSW State Development Consent (Attachment G2)
   b. proponent's Environmental Impact Statement and attachments (EIS; Attachment I1)
   c. proponent's response to submissions report (RTS); (Attachment I2)

d. approved Conservation Advice, Recovery Plans and Threat Abatement Plans (Attachments H1-H12)

e. the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) advice (Attachment J1)

f. proponent's response to IESC advice (Attachment J2)

g. additional documentation cited and attached to the briefing package.

6. The NSW Government's assessment and decision documents (Attachments G1, G2, G3, G4, G5, and G6) are the 'assessment report' for the purposes of section 130(2) of the EPBC Act. They summarise the impacts of the proposed action on the environment, including matters protected by the relevant controlling provisions. The NSW Government refers to the proposed action as the 'project' in its assessment.

1.2 Recommendation

7. The department concludes in this Report and recommends that you agree that the proposed action should be approved under sections 130 and 133 of the EPBC Act subject to the proposed conditions specified in Attachment B.

8. The department notes NSW's conclusions in relation to the acceptability of the impacts of the proposed action on listed threatened species and ecological communities and water resources, and the conditions attached to the NSW State Development Consent (NSW conditions). The department considers that there are some additional considerations in relation to approval under the EPBC Act and recommends that additional conditions be attached to an approval under the EPBC Act to protect, and repair or mitigate damage to, matters of national environmental significance from the impacts of the proposed action.

1.3 Considerations relating to decision-making under Part 9 of the EPBC Act

9. We set out below a summary of the requirements under the EPBC Act that relate to your decision about whether or not to propose to approve the taking of the action. The Report addresses each of these considerations in turn.

10. Section 136(5) of the EPBC Act provides that, in deciding whether to approve the taking of an action, and what conditions to attach to an approval, you must not consider any matters you are not required or permitted to consider.

1.4 Mandatory considerations

11. Under subsection 136(1) of the EPBC Act, in deciding whether or not to approve an action and what conditions to attach to the approval, you must consider the following, so far as they are not inconsistent with any other requirement of Subdivision B, Division 1 of Part 9 the EPBC Act:

a. matters relevant to any matter protected by the controlling provisions for the action; and

b. economic and social matters.

12. The controlling provisions for the proposed action are:
    a. sections 18 and 18A (listed threatened species and communities)
    b. sections 24D and 24E (a water resource, in relation to coal seam gas development and large coal mining development).

13. The department's analysis of these considerations is in Sections 3, 4, 5 and 6, respectively, of this Report.

1.5 Factors to be taken into account

14. In considering the above matters, you must take into account:
    a. the principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(b) and 391(2) of the EPBC Act) (section 136(2)(a))
    b. the NSW assessment report (the AR), being the assessment report relating to the proposed action (section 136(2)(b))
    c. any other information you have on the relevant impacts of the proposed action (section 136(2)(e))
    d. any relevant comments given to you by another Minister in accordance with an invitation under section 131, 131AA or 131A ((section 136(2)(f) and section 131AA(6))
    e. any relevant advice obtained by the Minister from the IESC in accordance with section 131AB (section 136(2)(fa))
    f. any information given to you in accordance with a notice under section 132A (section 136(2)(g)).

15. These factors are addressed in Section 8 below.

1.5.1 Human Safety and your Duty of Care

16. On 8 July 2021, the Federal Court of Australia declared that you have a duty to take reasonable care, in the exercise of your powers under sections 130 and 133 of the EPBC Act in respect of the Vickery Extension Project (EPBC 2016/7649), to avoid causing personal injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere: *Sharma v Minister for Environment (No 2)* [2021] FCA 774 (**Sharma No 2**). On 27 May 2021, the Court published its reasons for making that declaration: *Sharma v Minister for Environment* [2021] FCA 560 (**Sharma No 1**). The decisions are collectively referred to as Sharma (Attachment H of the Final Decision Brief).

17. The Court also held that human safety is a mandatory relevant consideration in relation to a controlled action that may endanger human safety, including through the emission of greenhouse gases (GHGs).

18. Notwithstanding that you are appealing the Federal Court's judgement in Sharma, the Department has nonetheless applied the Sharma reasoning to this proposed action. The Department's analysis of these considerations are in Section 7 of this Report.

1.5.2 Environmental history

19. In deciding whether to approve the taking of an action, and what conditions to attach to the approval, you may, under section 136(4) of the EPBC Act, consider whether the person proposing to take the action is a suitable person to be granted an approval, having regard to:
    a. the person's history in relation to environmental matters; and
    b. if the person is a body corporate – the history of its executive officers in relation to environmental matters; and
    c. if the person is a body corporate is a subsidiary of another body or company (the parent body) – the history in relation to environmental matters of the parent body and its executive officers.
20. The proponent's environmental history is addressed in Section 9 below.

1.5.3 Bioregional Plan

21. In accordance with section 176(5), you are required to have regard to a bioregional plan in making any decision under the EPBC Act to which the plan is relevant. The proposed action is not located within or near an area designated by a bioregional plan. The department considers there are no bioregional plans relevant to the proposed action.

1.5.4 Requirements for decisions about listed threatened species and communities

22. Under section 139 of the EPBC Act, in deciding whether or not to approve for the purposes of a subsection of sections 18 or 18A the taking of an action, and what conditions (if any) to attach to such an approval, you must not act inconsistently with:
    a. Australia's obligations under:
        i. the Biodiversity Convention; or
        ii. the Apia Convention; or
        iii. CITES; or
    b. a recovery plan or threat abatement plan.
23. In addition, under section 139(2) of the EPBC Act, if:
    a. you are considering whether to approve, for the purposes of a subsection of sections 18 or 18A, the taking of an action; and
    b. the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community.
24. You must, in deciding whether to so approve the taking of the action, have regard to any approved conservation advice for the species or community.
25. These requirements are addressed in Part 10 below.

1.5.5 Considerations in deciding conditions

26. Under subsection 134(1) of the EPBC Act, you may attach a condition to the approval of an action if you are satisfied the condition is necessary or convenient for:

    a. protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action), or

    b. repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage has been, will be or is likely to be caused by the action).

27. Under subsection 134(2) you may attach a condition to the approval of the action if you are satisfied the condition is necessary or convenient for:

    a. protecting from the action any matter protected by a provision of Part 3 for which the approval has effect; or

    b. repairing or mitigating damage that may or will be, or has been, caused by the action to any matter protected by a provision of Part 3 for which the approval has effect.

2 BACKGROUND

2.1 Description of the proposed action

28. The proponent and the person proposing to take the action, Mangoola Coal Operations Pty Limited, is a wholly owned subsidiary of Glencore Coal Pty Limited (Glencore). In assessing the proposed action, the department has engaged directly with Glencore and the proponent.

29. The proposed action involves extending the existing open cut mine known as the Mangoola Coal Mine (EPBC 2018/8280) (Attachment D4) through the establishment of a new open cut coal pit to the north of the existing Mangoola Coal Mine operation, and related surface infrastructure and activities, and extending the existing mine life until December 2030 (representing 8 years of mining in the Northern Pit if mining commences in 2022).

30. The Mangoola Coal Mine is located 20 km north of Muswellbrook and 10 km north of Denman, NSW, within the Muswellbrook local government area.

31. The proposed action includes:

- extracting an additional 52 Mt of coal by extending the footprint of the open cut mine to the north of the approved footprint by approximately 623 ha. This area of additional disturbance as a result of the proposed action is referred to in this report as the 'Northern Extraction Area' (NEA).
- maintaining the extraction rate of run-of-mine (ROM) coal at 13.5 Mt per annum.
- construction of a haul road overpass across Big Flat Creek and Wybong Road in order to link the existing Mangoola Coal Mine to the proposed NEA.
- continuing use of the existing Mangoola Mine Coal Handling and Processing Plant (CHPP), train load out facility, rail loop and mining fleet.

- construction of additional water truck fill points and ongoing relocation of mining support infrastructure as mining progresses.
- establishment of an out-of-pit overburden emplacement area.
- distribution of overburden between the NEA and the existing mine in order to optimise the final landform design.
- realignment of a portion of Wybong Post Office Road.
- construction of a water management system (WMS) which will be connected to the existing mine.

32. In order to link the existing Mangoola Coal Mine infrastructure to the NEA, the proponent proposes to construct a haul road overpass across Big Flat Creek and Wybong Road. This will enable ROM coal to be transported to the CHPP as well as allowing some overburden to be hauled to the existing Mangoola Coal Mine site to improve topographic relief and to reduce the size of the final void.

33. The proposed action is predicted to have a net benefit of $408.6 million in net present value (NPV) terms to the NSW economy, and will create approximately 145 construction jobs and an additional 80 full time equivalent (FTE) jobs (on top of the 400 FTE employees at Mangoola Coal Mine).

2.2 Regional context and land use

34. The proposed action is located in the Hunter Coalfield, in the upper Hunter Valley, which has a long history of coal exploration and mining, including open cut and underground mining activities since the late 19th century. There are sixteen large coal mine complexes in the Hunter Coalfield, operated by both global and Australian mining companies. Five of these coal mine complexes are located within 20 km of the Mangoola Coal Mine (see Figure 2 at Attachment G3)

35. The closest towns to the proposed action area are Muswellbrook 20 km to the east and Denman 10 km to the south.

36. Land use surrounding Mangoola Coal Mine is primarily pastoral agricultural enterprise, predominantly used for grazing purposes, but also viticulture to the south-west and east and small olive groves to the north-west. Several large coal mines operate to the east of Mangoola Coal Mine.

37. The 3,758 ha Manobalai Nature Reserve is a large area of remnant vegetation located 5.5 km north-west of the proposed action area. This provides a significant link via other remnant patches of vegetation to the Great Eastern Ranges and Wollemi National Park to the south.

38. On a local scale, the existing operations at Mangoola Coal Mine are located within the catchments of Sandy Creek to the south-east, Anvil Creek and Clark's Gully to the west and Big Flat Creek to the north.

39. The proposed action area is in the Wybong Creek catchment, an unregulated tributary of the Goulburn River which subsequently flows into the Hunter River. Wybong Creek has an estimated catchment area of 792 square kilometres (km^2). See Figure 1.6 at Attachment I1 for the regional catchment and drainage context.

40. The additional disturbance proposed as part of the proposed action area is located within the Big Flat Creek catchment, which covers an area of approximately 36.5 km^2 and runs parallel to Wybong Road (see Figure 1.6 at Attachment I1).

2.3 Referral and controlled action decision under the EPBC act

41. Prior to the current referral, two referral submissions were made for projects in the same area:
    - Anvil Hill Coal Mine (EPBC 2007/3228)
    - Modifications to Mangoola Coal Mine Plans & relocation of electricity transmission line (EPBC 2010/5607).
42. The Anvil Hill Coal Mine project was referred by the previous owners, Centennial Coal Pty Ltd (Centennial) for the establishment of a new open-cut coal mine and ancillary infrastructure. This project was determined not to be controlled action under the EPBC Act.
43. Glencore purchased the mine from Centennial in October 2007 and renamed it Mangoola Coal Mine. Mining operations commenced in September 2010.
44. In 2010, Xstrata Mangoola Pty Limited and Transgrid submitted a referral for a proposed action to modify the Mangoola Coal Mine plans and relocate a 500 kV electricity transmission line. The proposed action was determined not to be a controlled action on 20 September 2010.
45. On 17 August 2018, the proponent referred the proposed action to the department under section 68 of the EPBC Act.
46. The proposed action was published on the department's website on 31 August 2018 and comments from the public and Commonwealth Ministers were invited until 13 September 2018. No public submissions were received.
47. Comments were received from other Commonwealth Ministers/Agencies:
    - The then Department of Agriculture and Water stated that the proposed action may have a significant impact on water resources and recommended that Geoscience Australia and the IESC undertake assessment of potential water impacts.
    - The then Department of Industry, Innovation and Science noted that Geoscience Australia agreed with the proponent's self-assessment that the proposed action be a controlled action with the water trigger as a controlling provision. Geoscience Australia recommended that potential cumulative impacts should be accounted for in the EIS.
48. On 20 September 2018, a delegate stopped the clock to seek further information from the proponent on the following protected matters:
    - Water Resources
    - Listed Threatened Species and communities, including:
        - *Prasophyllum* sp. Wybong – critically endangered;

- Painted Honeyeater (G*rantiella picta*) – vulnerable;
- Corben's Long-eared Bat *(Nyctophilus corbeni*) – vulnerable;
- Austral Toadflax *(Thesium australe*) – vulnerable;
- Sandy Hollow Commersonia *(Androcalva rosea*) – endangered;
- *Lasiopetalum longistamineum* – vulnerable;
- *Ozothamnus tesselatus* – vulnerable;
- Denman Pomaderris (*Pomaderris reperta*) – vulnerable;
- Wollemi Mint-bush (*Prostanthera cryptandroides subsp. cryptandroides)* – vulnerable; and
- Central Hunter Valley Eucalypt Forest ecological community – critically endangered.

49. The department received the additional information on 19 December 2018. The department then assessed the significance of the likely impacts of the proposed action on each of the listed threatened species and communities that were the subject of the additional information request. With the exception of *Prasophyllum* sp. Wybong, the department considered that it was unlikely any of these species or ecological communities would be significantly impacted by the proposed action.

50. On 21 January 2019, a delegate determined that the proposed action was a controlled action under the EPBC Act, and the controlling provisions for the action were section 18 and 18A (listed threatened species and communities) and sections 24D and 24E (water resources).

51. The decision noted that the proposed action would be assessed under the assessment bilateral agreement with NSW. Under the bilateral agreement, upon completion of the NSW assessment process, the NSW Government provides a report on its assessment of Commonwealth matters to the Minister for the Environment's consideration prior to a final decision being made under the EPBC Act.

52. The referral decision package for EPBC 2018/8280 can be found at Attachment D6.

53. On 22 August 2019, a departmental delegate jointly sought advice with the NSW Government from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) on the impacts of the proposed action on local water resources. On 4 October 2019, the IESC provided advice Attachment J1 which is discussed further below.

54. On 21 May 2021, the proponent requested a variation of the proposed action, and in June 2021, a delegate accepted the variation, which included:

- an increase in ROM coal extraction from 45 to 52 Mt over the life of the mine.
- a one-year extension to the existing mine life until December 2030 (representing eight years of mining in the NEA).
- minor changes to the project layout.

55. The approved variation to the proposed action is at Attachment D4.

2.3 NSW assessment process

56. Following the controlled action decision, the NSW Government assessed the proposed action in accordance with the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). An overview of the key steps of the NSW Government's assessment is outlined in Table 1.

Table 1 Overview of key steps in the NSW Government's assessment

Date	Key step
7 May 2019	The proponent lodged the Application (SSD-8642) and supporting EIS with DPIE
18 July 2019 to 28 August 2019	DPIE publicly exhibited the EIS
23 August 2019	DPIE and the department jointly referred the proposed action to the IESC
18 December 2019	The proponent provided its Submissions Report to DPIE
4 October 2019	The IESC provided advice
14 February 2020	The proponent provided their response to IESC's advice
3 December 2020	The NSW Minister for Planning and Public Spaces requested the IPC to conduct a public hearing and make a determination
29 January 2021	DPIE referred the Application to the IPC for determination
3-4 March 2021	The IPC conducted an Electronic Public Hearing over two days
26 April 2021	The IPC approved the action

57. Public exhibition of the EIS (Attachment I1) occurred for 90 days between 18 July 2019 and 28 August 2019. During this period 334 public submissions were received, comprised of 13 submissions from NSW agencies and councils, 17 submissions from special interest groups and 304 submissions from the general public. 69 per cent of submissions supported the project, 27 per cent of submissions objected to it and 4 per cent provided general comments.

58. On 18 December 2019, the proponent provided an RTS report to DPIE which addressed the issues raised during public exhibition (Attachment I2). The RTS summarised the key issues raised by the submissions as follows:

- cumulative air quality and air pollution impacts were raised in 49 community submissions. A number of community submissions also raised specific concerns related to the air quality impacts predicted for their private residences
- Potential long term adverse health impacts on the local community such as respiratory diseases were raised in 33 community submissions and three group submissions
- 20 community submissions raised concerns about dust from mining operations impacting rural amenity

- 51 community submissions and three group submissions raised concerns about noise impacts from mining operations on residents in close proximity to the mine. These issues were specifically in relation to sleep disturbance, construction noise, inadequate noise monitoring, poor complaints process, and the predicted residual noise impacts for private residences.
- 35 community submissions raised social impacts, including impacts on sense of community composition, cohesion, character, function and sense of place. Impacts of the proposed action on the surrounding aesthetic value and amenity as well as the negative impact on community services and property value were also raised.
- 32 community submissions and four group submissions raised issues relating to climate change. These issues included intergenerational equity, greenhouse gas (GHG) and scope 3 emissions, the precedence of the Rocky Hill Mine decision, and alternative energy transition.
- Biodiversity impacts were raised in nine community submissions and one group submission. The issues raised included impacts on flora and fauna and threatened species, and concerns about the adequacy of the proposed offset.
- Concerns in relation to water impacts were raised in 21 community submissions and two group submissions. The issues raised included impacts on surface water resource security, reduction of water quality in the affected catchments, impacts to private groundwater bores, and concerns about water usage/extraction.
- 16 community submissions raised issues relating to the final landform, including the proposed final void design, void water quality, and the impractical use of land as a final void.

59. DPIE prepared an assessment report for the proposed action (Attachment G3). DPIE obtained technical advice from government agencies and independent experts during its assessment due to significant community concerns about the potential impacts of the project on the environment.

60. The AR (page 148-149, Attachment G3) concluded that:

> "The Department has completed its whole-of-government assessment of the Project in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the potential environmental, social and economic impacts on both the natural and built environments, and surrounding community.
>
> In assessing the Project, the Department has considered the development application, EIS, Submissions Report and additional information provided by Glencore, including peer reviews commissioned by Glencore to inform its technical assessment of noise, air quality, groundwater, flood modelling, economics, property value analysis and the final landform.
>
> The Department has also paid careful consideration to all submissions received from the community during the exhibition period, obtained independent expert advice on the air quality aspects of the Project and considered the advice provided by NSW Government agencies, Muswellbrook Shire Council, DAWE and the IESC.
>
> The Department recognises that a number of local residents still have concerns about the potential for the Project to impact their lifestyles, amenity or wellbeing. Equally, the Department recognises that a large proportion of the community has expressed its support for

the Project and the potential economic, employment and social benefits it represents. The Department has carefully considered these different viewpoints and the Project's social and environmental impacts throughout its assessment.

On balance, the Department's assessment has concluded that the impacts of the Project would generally comply with relevant assessment criteria, policies and guidelines, and that the residual environmental and social impacts of the Project could be managed through Glencore's proposed mitigation measures, the Department's recommended conditions and a detailed suite of management plans.

The Department considers that the Project represents a logical 'brownfield' extension of the open cut mining operations at Mangoola Mine, consistent with the NSW Government's recently released Strategic Statement on Coal Exploration and Mining in NSW. The Project would allow for the efficient recovery of an additional 52 Mt of ROM, adjacent to an existing open cut operation, while making use of the existing Mangoola CHPP and rail infrastructure.

The mine plan has been designed to efficiently recover the coal resource while minimising impacts on immediate landholders and would help to better integrate the final landform of the Mangoola Mine with the surrounding landscape. The Project would facilitate ongoing mining operations to 2030, preventing the early closure of the existing mining operations and represents a 13 month extension to the approved life of the existing mine.

The Project would generate approximately 145 jobs during construction and would provide ongoing employment 400 existing employees and employment for a further 80 operational employees. Additionally, Glencore has offered to provide additional VPA contributions in the order of $5 million to Muswellbrook Shire Council, which includes funding for a community enhancement program and road maintenance. Glencore considers that the Project would provide wide-ranging economic benefits for the region and the State, and is expected to generate net benefits to NSW in the order of $408 million NPV.

Overall, the Department considers that the Project has been designed to minimise environmental and amenity impacts and that the benefits of the Project outweigh its potential negative impacts. Consequently, the Department considers that the Project is in the public interest, and is approvable, subject to stringent conditions".

61. On 29 January 2021, DPIE referred the proposed action to the IPC for determination, recommending the proposed action be approved.

62. The IPC's review included a public hearing over two days on 3 and 4 March 2021. The public hearing was held electronically via telephone or video conference.

63. The IPC received a total of 895 written public submissions. 776 submissions were in support, 107 submissions objected to the proposed action and 12 submissions made neutral comments on the proposed action.

64. Submissions in support of the proposed action raised the local and regional socio-economic benefits of the proposed action, including employment opportunities.

65. Submissions opposed to the proposed action raised issues including impacts to groundwater and biodiversity, increased GHG emissions, and social impacts.

66. On 26 April 2021, the proposed action was granted development consent by the IPC under the EP&A Act subject to the NSW conditions (Attachment G2). The IPC's Statement of Reasons for their decision is at Attachment G5.

2.4 EPBC approval process

67. The department was formally advised of the outcome of the NSW assessment process on 6 May 2021 (Attachment G1) and was provided with the State Development Consent (Attachment G2) for consideration.

68. The letter (Attachment G1) stated:

- The proposed action has been assessed in the manner specified in Schedule 1 of the Bilateral agreement made under section 45 of the EPBC Act relating to environmental assessment between the Commonwealth and the New South Wales Government (Bilateral Agreement).
- DPIE concluded the likely impacts of the proposed action on protected matters will be acceptable, provided the action was taken in a manner consistent with the avoidance, mitigation and offset measures proposed by the proponent, and in accordance with the NSW conditions.
- DPIE considers NSW conditions B52, B53 and B55 to B58 provide a suitable regulatory framework to manage potential impacts and risks to listed threatened species and communities, and conditions B35 to B37 and B45 to B51 provide a suitable regulatory framework to manage and mitigate water resource impacts.
- DPIE recommends that the proposed action should be approved by the Commonwealth Minister for the Environment.

69. The proponent paid its cost recovery fees for the proposed action on 13 May 2021. The payment of the fees commenced the EPBC Act 30 business day assessment timeframe (section 131(1B)(a) of the EPBC Act).

70. On 15 July 2021, your delegate approved an extension of the approval decision timeframe to 10 September 2021, to allow sufficient time to include in the Proposed and Final Decision Briefing package material that addresses issues arising from the Federal Court's judgment in Sharma and Ors v the Minister for the Environment, concerning the exercise of your statutory powers.

71. On 8 September 2021, the department advised the proponent that the department would be extending the decision timeframe to 1 October 2021, to allow sufficient time to incorporate any matters from the Sharma No 1 and 2 and associated orders from the Court.

72. On 10 September 2021, your delegate approved an extension of the approval decision timeframe to 1 October 2021.

3 WATER RESOURCE, IN RELATION TO COAL SEAM GAS (S24D AND S24E)

73. This section of the Report sets out the department's analysis and recommendation on the acceptability of the impacts to water resources. It sets out:

a. The NSW conditions relevant to water resources

b. the department's review and consideration of the assessment and analysis undertaken by the DPIE and the IPC of the proposed action's impacts on water resources

c. the department's consideration of the IESC advice, and

d. the conditions that the department recommends to attached to the approval in relation to water resources.

74. The DPIE assessment of the proposed action included an investigation of the potential impacts of the proposed action on water resources, the environment and downstream water users. DPIE noted the key water resource issues are related to water licensing, flood modelling, water quality, groundwater drawdown, changes in catchment areas and impacts on tributaries. Key concerns raised during the EIS public exhibition period, and addressed in the RTS Report, include impacts on surface water resources, private groundwater bores and Groundwater Dependent Ecosystems, and water quality.

3.1 NSW conditions relevant to water resources

75. NSW conditions B36-B38 relate to water supply:

- Condition B36 requires the proponent to ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.
- Condition B37 requires that the proponent must not use any licensable water from the Wybong Creek Water Source for mining purposes.
- Condition B38 requires the proponent to report on water extracted from the site each year (direct and indirect) in the Annual Review, including water taken under each water license.

76. NSW conditions B39 to B45 relate to compensatory water supply:

- Condition B39 requires the proponent to notify the owners of bores listed in the accompanying table that they may request monitoring of the listed bore to determine the level of drawdown from the development, prior to commencing construction. In the event monitoring data records drawdown of more than 2 meters as a result of the development, the proponent must provide compensatory water in accordance with conditions B41 to B45.
- Condition B40 requires the proponent to notify owners of licensed privately-owned groundwater bores that are predicted to have a drawdown of greater than 2 meters as a result of the development they may be eligible for compensatory water under conditions B41 to B45, prior to the commencement of mining operations north of Wybong Road.
- Condition B41 requires the proponent to provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than an impact is minor or negligible) as a result if the development, in consultation with DPIE Water, and to the satisfaction of the Planning Secretary.

- Condition B42 requires the proponent to ensure that the compensatory water supply measures must provide an alternative long-term water supply of water that is equivalent in quantity and volume, to the loss attributable to the development. The burden of proof that the impact on water supply is not due to mining, rests with the proponent. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.
- Condition B43 states that, if the proponent and the landowner cannot agree on whether the impact on water supply is attributed to the development or the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.
- Condition B44 requires the proponent to provide compensation, to the satisfaction of the Planning Secretary, if they are unable to provide an alternative long-term supply of water.
- Condition B45 requires that, in the event of any complaint relating to a privately owned, licensed groundwater bore which may have been adversely and directly impacted as a result of the proposed action, the proponent must facilitate the provision of a temporary water supply, pending the outcome of any groundwater investigation and/or the provision of an alternative long-term supply of water as required under condition B41 and B42.

77. NSW conditions B46 and B47 relate to water discharges:

- Condition B46 requires the proponent to ensure all surface discharges from the site comply with discharge limits (both volume and quantity) set for the development in any Environmental Protection Licence (EPL); or relevant provisions of the *Protection of the Environment Operations Act 1997* (POEO Act) and Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002.
- Condition B47 requires the proponent to implement all reasonable and feasible measures on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.

78. NSW conditions B48 and B49 relate to water management performance measures:

- Condition B48 requires the proponent to ensure the development complies with the water management performance measures in Table 6 of the development consent.
- Condition B49 states that the performance measures in Table 6 apply to the entire site, including all landforms constructed under previous development consents. However, these performance measures do not require any additional earthmoving works to be undertaken for landforms that have been approved and constructed under previous consents, except where those earthworks are required for the establishment of a stable and non-polluting landform. This condition clarifies the scope of the performance measures in Table 6.

79. NSW conditions B50 to B52 relate to a water management plan:

- Condition B50 requires the proponent to prepare a Water Management Plan for the development, to the satisfaction of the Planning Secretary.
- Condition B51 states that the proponent must not commence mining operations north of Wybong Road until the Water Management Plan is approved by the Planning Secretary.
- Condition B52 requires the proponent to implement the Water Management Plan as approved by the Planning Secretary.

80. NSW conditions B85 to B91 relate to rehabilitation of the site:

- Condition B85 requires the proponent to rehabilitate the site in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*. This rehabilitation must be consistent with the proposed rehabilitation strategy described in the documents listed in condition A2(c) and shown in Appendix 9 and must comply with the objectives in Table 9 of the Development Consent.
- Condition B86 states that the rehabilitation and mine closure objectives in Table 9 apply to the entire site, including all landforms constructed under either this consent or previous consents. However, the proponent is not required to undertake any additional earthmoving works on landforms have been approved and constructed under previous consents, except where those earthworks are required for the establishment of a stable, non-polluting and free-draining landform.
- Condition B87 requires the proponent to rehabilitate the site progressively, as soon as practicable following disturbance. All reasonable steps must be taken to minimise the total area exposed at any time. Interim stabilization and temporary vegetation strategies must be employed when areas prone to dust generation, soil erosion, and weed incursion cannot be permanently rehabilitated.
- Condition B88 requires the proponent to prepare a Rehabilitation Strategy for all land disturbed by the development to the satisfaction of the Planning Secretary.
- Condition B89 prohibits the proponent from commencing mining operations north of Wybong Road until the Rehabilitation Strategy is approved by the Planning Secretary.
- Condition B90 requires the proponent to implement the Rehabilitation Strategy approved by the Planning Secretary.
- Condition B91 requires the proponent to prepare a Rehabilitation Management Plan for the development, in accordance with the conditions imposed on the mining lease(s) associated with the development under the *Mining Act 1992*.

3.2 Water Balance, Water Licensing (Demand and Supply)

3.2.1 Public Comments

81. Written submissions were received during the EIS public exhibition and IPC public hearings regarding the impacts of the project on surface water resources and private groundwater bores. Specific concerns were raised regarding availability of water for other sustainable industries in the area and contamination of the local water supply.

3.2.2 Proponent's Assessment

82. The EIS states that the proponent currently holds 861 megalitres (ML) in share components of Wybong Creek Unregulated water access licenses. The proponent's Surface Water Assessment estimates the proposed action will require a maximum of 317 ML/year (to account for the maximum take/reduction in flow volumes predicted due to a reduction in catchment area) and concludes that the proponent holds sufficient licenses to account for the modelled water take.

83. The EIS states that the proponent currently holds adequate licenses to extract groundwater required for the proposed action. The proponent is licensed:

    - under the Water Sharing Plan for the North Coast Fractured and Porous Groundwater Sources to take up to 700 ML/year. Based on modelling outputs, a maximum of 290 ML/year will be required from this water source.
    - under the Hunter Unregulated and Alluvial Water Sources Water Sharing Plan 2009 to extract up to 254 ML/year. Based on modelling outputs, a maximum of 33 ML/year for groundwater and 28 ML/year for surface water will be required from this water source.

84. The proponent's Surface Water Assessment included a detailed water balance assessment, integrating the proposed action with existing mine operations. The proponent states that model outputs indicate a low risk of water balance shortfall.

85. Should a shortfall in required water occur, the proponent proposes to source additional water through the purchase of water access licenses (if available) and otherwise through reductions in water use in other operational activities (i.e. dust suppression or scaled back production).

86. Mangoola Coal Mine operates in accordance with a Water Management Plan prepared in consultation with and approved by NSW Government agencies. The Water Management Plan describes the environmental and community impacts and performance criteria relevant to the existing mine's water management system.

87. The proponent proposes to update the Water Management Plan for the proposed action in consultation with NSW agencies in accordance with any conditions of approval including those related to:

    - a water balance model detailing water supply, use, management and transfer
    - an Erosion and Sediment Management Plan; and
    - Surface Water Management Plan.

3.2.3 DPIE Assessment

88. In relation to water balance and use, the AR states at paragraph 6.8.3:

> The existing Mangoola mining operations water supply comprising water collected in accordance with harvestable rights, groundwater inflows into mining areas, dirty water and mine water captured within the mining footprint as part of the existing surface water management system and supplementary water supplies pumped directly from the Hunter River in accordance with relevant water license provisions.

89. The water management component of the proposed action will involve the continued use of existing approved water management infrastructure and Hunter River Salinity Trading Scheme discharge point. It will also involve the construction of additional water management infrastructure, including mine water and sediment dams, flood protection from Big Flat Creek and mine water reticulation system (AR Table 1).

90. In relation to private groundwater bores, paragraphs 6.8.105-107 of the AR state that eight privately owned bores are located within 3 km of the proposed action area. One of these bores has been decommissioned, and another has been converted to a Government monitoring bore. Of the six remaining bores, four are predicted to experience drawdown of less than 1 m as a result of the proposed action, and another bore is predicted to experience drawdown of 1.3 m.

91. DPIE noted the sixth groundwater bore located to the west of the project site is predicted to experience a drawdown of more than 2 m, but these impacts are primarily associated with the existing Mangoola operations. It is relevant to note that the owner of this bore is already afforded acquisition rights under the existing approval.

92. In order to mitigate the impacts to these landholders, the proponent committed to monitoring the six bores, and if proposed action related impacts are detected, offer compensatory measures to ensure an alternative long-term supply of water is provided.

3.2.4 IPC Findings

93. The IPC broadly agreed with DPIE's assessment (see Attachment G5 at 147-150 and 165-167). The IPC imposed conditions which:

- state that the proponent must ensure it has sufficient water for all stages of the development and, if necessary, (must) reduce the scale of the development to match its available water supply (condition B36).
- require the proponent to prepare and implement a Water Management Plan (WMP) for the development that includes a Site Water Balance (conditions B50-B52, and especially B50(e)(i)).
- require the proponent to notify the owners of the six bores they may request monitoring of the listed bores to determine the level of drawdown from the project, and in the event monitoring data records a drawdown of more than 2 meters as a result of the project, the proponent must provide compensatory water (conditions B39 – B45).

3.2.5 Department's consideration

94. The department agrees with the NSW DPIE and IPC assessments in relation to water supply, demand, and balance. The department considers that the modelling carried out has been appropriate and the proponent has sufficient water to meet the operational requirements of the proposed action as well as options to manage their water demand and supply.

95. The department considers that NSW conditions B36-38 are appropriate to manage water supply and conditions B39-44 provide compensatory water supply measures in

the event of drawdown. It is recommended that you attach these conditions to your approval.

96. Likewise, the department considers that NSW condition B50 should be attached to your approval.

97. The department considers that the NSW conditions are sufficient to address the matters raised above regarding water supply and does not consider that it is necessary to attach any additional conditions.

3.3 Groundwater

3.3.1 Public Comments

98. Submissions were received during the EIS public exhibition regarding issues relating to potential groundwater impacts of the project relating to concerns about impacts to private groundwater bores. The issue of impacts to private groundwater bores is addressed above in Section 3.2.

3.3.2 Proponent's Assessment

99. The proponent's EIS included a Groundwater Impact Assessment (**GIA**) prepared by Australasian Groundwater and Environmental Consultants (**AGE**). The GIA was peer reviewed on behalf of the proponent by s. 47F(1) of HydroSimulations.

100. The GIA identified the extraction of the Northern Pit will create a localized area of depressurization, drawing water from the surrounding aquifers into the Northern Pit and resulting in a perimeter of localized drawdown around the project area (as shown in Figure 32 of the AR, page 21).

101. The GIA predicts the average groundwater inflow from the Permian coal measures over the life of mining will be 123 ML/year.

102. The proponent's assessment of impacts on groundwater bores is discussed above in section 3.1.

103. The GIA identified ten plant community types (PCTs) within the NEA that have the potential to be at least partially dependent on groundwater. These potential groundwater dependent ecosystems (GDEs) were shown to occur in areas of 1 m or greater predicted drawdown in the alluvium, colluvium and regolith as a result of the proposed mining operations.

104. Six of the potential GDEs were considered to have a low likelihood of groundwater dependence, while three were considered to be moderately dependent and one was considered highly dependent on groundwater.

105. The ten potential GDEs were not the same vegetation associations as any ecological communities listed under the EPBC Act.

106. The IESC raised concerns about the impacts of the proposed action on GDEs (discussed further below). The proponent's Response to IESC Advice, prepared by Umwelt, stated that the direct and indirect impacts of the proposed action on GDEs would be:

- Groundwater drawdown within the vicinity of the proposed action area, including in areas occupied by GDEs.
- Potential groundwater quality changes and interactions during active mining operations and post mining operations.
- Reduced long-term surface water catchment yield in Big Flat Creek and Wybong Creek which may result in a small reduction in surface flow and baseflow during operations of the proposed action.
- Potential surface water quality impacts to Wybong Creek and Big Flat Creek from the proposed action.
- Post mining changes in alluvial and surface water fluxes due to residual drawdown created by flow of groundwater to the final voids.

107. In the Response to IESC advice, the proponent noted that current mining operations have caused groundwater drawdown below the root zone for the identified potential GDEs. The proponent also noted that, based on past annual ecosystem monitoring undertaken at a potential GDE location along Big Flat Creek, the drawdown is not having any observable adverse impacts on the flora.

108. The proponent concluded that the proposed action would not materially exacerbate the drawdown which has already occurred under the current mining operations.

3.3.3 DPIE Assessment

109. DPIE stated in the AR that the proposed action and existing operations would cumulatively result in sustained lower groundwater levels in the locality for a long period of time (at 6.7.40).

110. DPIE considered that the proposed action would be unlikely to cause significant incremental impacts on GDEs in the short term, and that predicted indirect impacts on GDEs could be appropriately managed through a comprehensive monitoring regime and adaptive management measures, including specific trigger levels for remedial action and/ or offsetting. The department also considered that performance measures requiring negligible environmental consequences on GDEs were appropriate to ensure that approved impacts are appropriately recognised and any adverse impacts are appropriately offset (6.7.41-42).

111. DPIE concluded in the AR at (6.8.140 – 6.8.141):

> Overall, the Department is of the view that these impacts are manageable and licensable, and considers that the Project would not substantially alter the scale of surface and groundwater impacts associated with the existing Mangoola Mine. Additionally, as none of the affected water resources provide significant water supplies for domestic or agricultural use, it is considered unlikely that the Project would have any material effect on water supplies or security for nearby agricultural operations or downstream users.
>
> The Department therefore considers that water-related impacts can be appropriately managed and mitigated through the recommended conditions, including strict performance measures and a comprehensive Water Management Plan that incorporates a sufficient monitoring network and TARPs to proactively identify and manage potential impacts.

3.3.4 IPC Findings

112. The IPC broadly agreed with the DPIE's assessment, and determined that the proposed monitoring and mitigation methods are an appropriate response to the potential groundwater impacts of the proposed action (see Attachment G5 at [161]-[167]).

113. The IPC imposed NSW conditions B50 – B52 that require the Proponent to prepare a water management plan (including a groundwater management plan) for the project to the satisfaction of the Planning Secretary, which among other things describes measures to be implemented to ensure compliance with the water management performance measures specified in NSW condition B48.

3.3.5 Department's consideration

114. The department agrees with the conclusions in the NSW DPIE and IPC groundwater assessments and agrees the groundwater modelling undertaken by the proponent is fit for purpose.

115. The department notes that one of the six privately-owned groundwater bores within 3 km of the project is predicted to experience drawdown of 2 m. The department considers that NSW conditions B39 to B45 address the possible impacts of the proposed action on privately-owned groundwater bores by providing measures to supply compensatory water in the event drawdown exceeds 2 m as a result of the proposed action. The department recommends that you attach these NSW conditions to your approval.

116. The department agrees with the performance measures outlined in NSW condition B48 and the water management plan requirements in NSW conditions B50-B52 and recommends you attach these NSW conditions to your approval.

117. The department considers generally that the NSW conditions are sufficient to protect and manage impacts to groundwater. However, the Office of Water Science (OWS) advised (Attachment E2) that the information provided in the proponent's response to the IESC advice, still did not adequately address impacts to GDEs. The IESC advice (Attachment J1) stated at [2(b)]:

> the ecohydrological model needs to be more comprehensive as, at present, while two GDEs are assessed to be potentially impacted, no attempt has been made to quantify the impacts of the predicted drawdowns on other groundwater-dependent ecosystems (GDEs). This limits the application of the model in identifying causal pathways and the likely severity of potential impacts of altered hydrology on water-dependent ecological assets. These causal pathways can then be used to guide appropriate monitoring and mitigation strategies.

118. OWS advised that the proponent had not clearly justified how they came to the conclusion that the GDEs and potential GDEs were not predicted to be impacted by the proposed action, and that further information on how this conclusion was reached should be provided.

119. Consistent with the IESC advice and the OWS advice, the department considers that it is necessary to attach additional conditions to the approval to protect GDEs from potential impacts of the proposed action. These conditions are addressed further

below in the discussion about the IESC advice, and the recommended conditions and would improve the monitoring and evaluation of GDE's potentially impacted by the proposed action and clarify the action to be taken if an exceedance of a performance measure occurs.

3.4 Final void

3.4.1 Public Comments

120. The IPC heard concerns from speakers at the Public Hearing and received written submissions regarding the final void, including concerns regarding the long-term impacts of the final void on groundwater.

3.4.2 Proponent's Assessment

121. In addition to the final void approved as part of the existing Mangoola Coal Mine, the proponent proposed in the EIS to leave a second final void in the NEA. The final voids will eventually form permanent pit lakes and act as localized groundwater sinks.

122. The EIS included an assessment of the final void water and salt balance and modelled the indicative post mining changes in hydraulic properties, recharge, water levels and the long-term effects on the groundwater system for a period of 500 years.

123. The proponent provided a preferred final landform plan to DPIE. This plan was informed by a detailed Mine Plan Options Report which accompanied the EIS and provided the proponent's evaluation of a range of alternative final landform and final void configurations. A summary of the proponent's considerations of the final landform options and proposed option (Case 3) is provided in Table 13 in the AR.

124. In the RTS, the proponent committed to remove highwall sections at the margins of the final voids, which would improve the integration of the voids into the final landform and slightly decrease the overall void size.

125. The AR stated at 6.6.9:

> Following the completion of its mine planning options analysis, the proponent concluded that retention of two final voids will improve landform topography, relief and drainage. The alternative of creating a final landform with either no or one final void in the landscape would require the use of overburden that would otherwise have been used to create an undulating free draining landform. Importantly, should this occur, the resulting landform would have a reduced capacity for drainage and increased potential for ponding and would result in a flatter and less visually variable landscape.

126. The proponent's analysis concluded that, over time, the salinity levels in both pit (void) lakes is predicted to increase as a result of evapo-concentration, reaching final electrical conductivities in the 'saline' range. The final void modelling indicated that the waterbodies within both voids will equilibrate more than 30 m below their respective spill levels, meaning that this water would be wholly contained within the voids with no chance of saline water overflowing into the surrounding environment and impacting surface water quality.

127. According to the GIA, equilibrium levels in the pit lakes will be reached over more than 200 years, with long term water take estimated at approximately 23 ML/year

over this period and comprising 10 ML/year from the existing Mangoola Mine void and 13 ML/year from the proposed Northern Pit void.

3.4.3 DPIE Assessment

128. DPIE concluded that it was satisfied that the final voids (including associated catchment areas) have been designed in a manner to ensure saline water inflows are largely contained within the final voids and not present a risk of overflows to the surrounding environment (at 6.8.127).

3.4.4 IPC Findings

129. The IPC agreed with DPIE (see Attachment G5 at [168]-[170]).

130. The IPC included a specific water management performance measure in condition B48 which requires the proponent to ensure adequate freeboards within all mine water storage dams and voids at all times to minimise the risk of discharge to surface waters. NSW condition B50 requires the proponent to prepare detailed plans, design objectives and performance criteria for the final voids and a program to monitor and evaluate water loss/seepage from water storages into the groundwater system, including from any final voids, as part of the WMP.

131. NSW condition B85 specifies rehabilitation and mine closure objectives for the site including designing the final voids so they act as long-term groundwater sinks to limit the release of saline water to the surrounding environment, and the final landform is stable and non-polluting.

3.4.5 Department's consideration

132. The department agrees with the NSW DPIE and IPC assessments in relation to the final void. The department considers that the NSW conditions regarding water management performance measures, the water management plan and rehabilitation adequately address the possible impacts of the final void on water resources and recommends that you attach these NSW conditions to your approval.

3.5 Surface Water and Flooding

3.5.1 Public Comments

133. Several submissions regarding the impacts of the proposed action on surface water losses and subsequent impacts to the agricultural industry were received during the DPIE and IPC's exhibition periods. Additionally, some community and interest groups raised concerns that the proposed action would result in additional salt levels in Wybong Creek and the Hunter River.

3.5.2 Proponent's Consideration

134. The proponent's EIS included a Surface Water Assessment (SWA) and flood modelling assessment, prepared by Hydro Engineering and Consulting Pty Ltd and dated May 2019.

135. The SWA made the findings outlined below:

a. In relation to catchment and flow volumes

   i. The development of the Northern Pit would result in a number of changes to the existing catchment areas, and reduce catchment yields in Big Flat Creek and Wybong Creek. The SWA predicts that these changes to catchment yields would result in small reductions in surface flows within Big Flat Creek and the loss of a minor amount of surface flows in Wybong Creek (at 3.2.2.3).

   ii. The proposed action could result in up to a 1.2% reduction in average annual flow within the Wybong Creek catchment. Additionally, it may increase the frequency of 'no-flow' days from 26.5% to 28.3% of days (at 3.2.4.1).

   iii. Changes in groundwater-derived baseflow at Big Flat Creek are predicted to be negligible (at 3.2.4.2).

b. In relation to flood levels

   i. The proposed action will increase areas of inundation during flood events, upstream of the Big Flat Creek overpass. Areas of inundation would be confined to land owned by Glencore.

   ii. The proposed action is not predicted to materially increase flood levels at Wybong Road (at 3.2.2.3).

c. In relation to water quality:

   i. The proposed action will discharge water into the Hunter River system. However, this is unlikely to cause a significant impact as discharges will be monitored prior to release and management of cumulative salt loads in the river system will continue. As such, the proposed action is not likely to cause a significant impact to water quality (at 3.2.4.3).

   ii. Flow velocity in Big Flat Creek is not likely to change significantly. As such, it is unlikely the proposed action will cause a significant change to erosion, nor a significant impact on water quality (at 3.2.2.3).

d. On the basis of a cumulative impact assessment which accounted for the impacts of mines in the catchment of the Goulburn River, material cumulative impacts on surface water or flooding were unlikely (at 3.2.6).

3.5.3 DPIE Assessment

136. The AR made the findings outlined below:

a. In relation to catchment and flow volumes:

   i. The reduction in annual average flows is unlikely to materially affect Wybong Creek (at 6.8.27). DPIE also considered that the predicted surface water losses overall would be negligible in the context of the broader catchment areas (at 6.8.32).

   ii. The reduction in 'no flow' days within Big Flat Creek would not be a significant change due to the ephemeral nature of the creek and the fact that Glencore is the only licensed surface water user on the creek (at 6.8.26).

b. In relation to flood levels:

   i. Increased impacts to Wybong Road resulting from increased flood levels would be minor in nature, and only occur in flood events where the road would be forced to close due to flooding along other parts of road, which is already known to occur (at 6.8.54).

   ii. The posed action will result in some increase in inundation areas upstream of the Big Flat Creek overpass. Inundation up to and exceeding the 1:100 Annual Exceedance Probability (AEP) event will be limited to Glencore land.

   iii. The proponent committed to construct a flood levee between the proposed action area and Big Flat Creek to a level equal to the 1:1,000 AEP flood level plus 0.5 m freeboard. The NSW condition B48 specifies that the approval holder must design, install and maintain flood levees to protect mining areas from a 100 year Average Occurrence Interval flood event. Additionally, condition B48 requires the approval holder to ensure no increased flooding impacts on roads or privately owned land beyond what is predicted in the EIS.

   iv. DPIE accepted that flooding impacts would be localized to Big Flat Creek and land owned by Glencore. DPIE considered the proposed action would not materially impact the flood risk of public areas (6.8.58).

c. In relation to water quality:

   i. DPIE was satisfied that the proposed action would not result in any significant increases in flow velocities, and therefore considered the risk of increased erosion negligible (at 6.8.53).

   ii. The proposed action will separate clean water and dirty water, with the dirty water to be reused through the mining operations and to include controls to ensure any coal contact water is not discharged from the site.

   iii. DPIE noted any seepage from sediment dams will be directed toward the open cut and final void, and surface runoff will be directed to sediment detention basins for reuse in the mine's WMS.

   iv. The AR concluded the implementation of the proposed mitigation and monitoring measures would ensure the proposed action will not result in any significant water quality risks to downstream receiving environments.

   v. The AR notes there is no proposed change to the existing water management discharge arrangements as a result of the proposed action. Water management structures (i.e. dams) have been constructed to allow sufficient capacity to ensure that all water would continue to be managed within the limits of the existing system, without the need for offsite discharges (except as already approved for operational reasons or from sediment dams during extreme weather events).

137. DPIE was satisfied that the proposed action is unlikely to cause a detrimental impact to downstream water quality within the Hunter River catchment, and recommended that conditions be attached to the approval requiring Glencore to prepare an updated Surface Water Management Plan including a Salt Balance (at 6.8.47).

3.5.4 IPC Findings

138. The IPC made the findings outlined below.

a. In relation to catchment and flow volumes:

i. The IPC noted that the development of the Northern Pit would result in a number of changes to the existing catchment areas, with reduced catchment yields in Big Flat Creek and Wybong Creek. However, the IPC found that the predicted surface water losses would not be significant in the context of the broader catchment area and that there would be minimal cumulative impacts to downstream water users as a result of the proposed action.

ii. The IPC acknowledged the concerns raised by the public regarding the potential for surface water losses and impacts on the agricultural industry.

b. In relation to flood levels:

i. The IPC agreed with DPIE that the proposed mitigation measures (including constructing a flood levee) mean that the proposed action will not result in any significant increase in flow velocities in Big Flat Creek and the risk of increased erosion is negligible.

c. In relation to water quality:

i. The IPC acknowledged the concerns raised by the public regarding the potential for surface water losses and impacts on the agricultural industry.

ii. The IPC noted the proposed action will not result in changes to existing water management discharge arrangements and that surface water monitoring at the existing Mangoola Coal Mine is undertaken in accordance with the approved Surface Water Monitoring Program.

139. In relation to surface water discharges, the IPC imposed NSW condition B46 which requires the proponent to ensure all surface discharges from the site comply with discharge limits (both volume and quantity) set for the development in any EPL; or relevant provisions of the POEO Act and Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002.

i. The IPC also imposed NSW condition B47 which requires the proponent to implement all reasonable and feasible measures on the site to minimise the need to discharge saline water to the Hunter River under the Hunter River Salinity Trading Scheme.

3.5.5 Department's consideration

140. The department agrees with the NSW DPIE and IPC assessments in relation to surface water.

141. The department is satisfied that impacts to surface water will generally be effectively managed through the NSW conditions and recommends you attach conditions B36-B52 of the NSW conditions, as specified in Condition 2 of Attachment B. However, the department considers that it is necessary to attach further conditions to the approval to ensure that there are no adverse impacts on surface water quality.

142. The Department notes that whilst under the existing mining operations, no controlled releases via the discharge point in the Hunter River have been required, it is possible that the proposed action could result in discharges via the discharge point in the Hunter River. The inclusion of EPBC condition 4c will ensure that any changes in water quality resulting from potential future discharges will be mitigated and monitored, and exceedances of water quality parameters will be addressed.

143. Advice received from the OWS *(Attachment E2)* identified the need for monitoring parameters to include a range of contaminants. Therefore, Department also considers it necessary to include EPBC condition 4b which will require the approval holder to submit a list of water quality monitoring parameters and performance criteria to be included in the surface water management plan (condition B50(iv) of the NSW development consent). The water quality parameters must include (but not be limited to) key metals (total and dissolved) and nutrients. This condition will ensure the water quality parameters are specified and measurable, allowing for condition 4c to be implemented effectively.

144. In relation to water discharges to the Hunter River, the Department considers it necessary to include condition 4c of the EPBC approval conditions which requires the proponent to prepare a Stream Monitoring Program for the Hunter River discharge point that includes:

    a. a map showing the water discharge location on the Hunter River associated with the action. The map must also identify the receiving waters.

    b. baseline water quality data of the approved water quality parameters for the receiving waters, upstream and downstream of any water discharge locations associated with the action and identified in condition 4c(i)

    c. expected water quality, volume, timing (seasonal) and frequency of discharged water and the potential impacts to surface water quality

    d. proposed mitigation measures to reduce impacts of the discharged water to the receiving environment

    e. a program to monitor the approved water quality parameters against the performance criteria within the receiving waters. The monitoring program must be designed to detect impacts to water quality directly associated with the action and be able to distinguish from natural variability and upstream impacts

    f. a program to monitor stream biota within the receiving waters. The program must include site-specific guideline values and mitigation strategies following sampling events.

145. EPBC condition 4c states that coal extraction in the MCCO Additional Project Area cannot commence until you have approved the Stream Monitoring Program.

146. The Department considers the inclusion of EPBC conditions 4b and 4c will ensure potential impacts to the Hunter River are not unacceptable.

3.6 IESC advice

147. The IESC advice (Attachment J1) identified the key potential impacts from the proposed action as being:

a. Contribution to cumulative impacts on groundwater-dependent vegetation and associated biota in the vicinity of Big Flat Creek;

b. Presence of a final void in the rehabilitated landscape which will have impacts on water quantity and may also impact on groundwater quality;

c. Potential ongoing water quality issues associated with sedimentation from both the proposed infrastructure and the unquantified impacts from uncontrolled discharges from sediment dams;

d. Potential impacts from water discharges on erosion and water quality in Big Flat Creek; and

e. Drawdown in four private bores of >2 m.

148. The proponent provided a range of additional information in response to the IESC comments in its Response to IESC Advice (see Attachment J2).

149. DPIE's consideration of the IESC advice is set out in sections 5, 6, and 7 within DPIE's AR. DPIE formed the view that the IESC recommendations have been addressed by the proponent or are capable of being addressed through conditions of consent.

150. The department's detailed consideration of the IESC advice and how it was addressed during the assessment process and through the NSW conditions is at Attachment J3. The department has identified a number of outstanding recommendations from the IESC advice.

3.6.1 Outstanding issue - GDEs

151. The IESC noted that the ecohydrological model provided by the proponent needed to be more comprehensive because while two GDEs were assessed to be potentially impacted, no attempt had been made to quantify the impacts of the predicted drawdowns on GDEs. This limited the application of the model in identifying causal pathways and the likely severity of potential impacts of altered hydrology on water-dependent ecological assets

152. NSW condition B50 requires that a Water Management Plan be prepared to the satisfaction of the NSW Planning Secretary; which must include detailed baseline data for GDE's impacted by the action as well as a monitoring program. However, the department considers that condition B50 provides limited protection from impacts to GDEs. Therefore, consistent with the issues identified by the IESC concerns and advice received from the OWS, the department recommends that the EPBC Act conditions include a performance measure to ensure that the action has negligible impacts on GDE's (i.e. no further impact beyond what was predicted in the EIS).

153. Condition 3 requires the approval holder to implement a GDE Performance Measuring program, a trigger action response plan for any exceedance, and a repair/mitigation plan. In the event an exceedance cannot be repaired or mitigated, the proponent must provide an offset which must be approved by the Minister. This condition will ensure GDE's within the proposed action area are protected from potential impacts and that the department is made aware of any exceedances.

3.6.2 Outstanding issue – surface water discharge and quality monitoring

154. The IESC noted that water quality monitoring is currently undertaken as part of the existing coal mine's operation in accordance with the Mangoola Coal Surface Water Monitoring Plan. However, no data is provided for currently monitored sites in the Hunter River. The IESC also noted that discharge locations, volumes and qualities were not clearly presented in the EIS and that discharge impacts had not been discussed in the EIS. The IESC made a number of suggested improvements for mitigation and management of potential impacts.

155. NSW condition B50(iv) requires the proponent to prepare a surface water quality monitoring program that includes an assessment of all potential impacts from discharges (including spills), and cumulative impacts. The proposed action cannot commence until the Water Management Plan is approved by the State Planning Secretary (condition B51), and must be implemented by the proponent (condition B52).

156. The NSW conditions do not specify which water quality parameters are to be included as part of the performance measures or surface water management plan. The department considers that this is necessary because the potential impacts of each project on water resources can vary, therefore the water quality parameters to be monitored have to be specified based on these potential impacts.

157. The department therefore recommends that condition 4 be attached to the approval which requires that the proponent must:

    a. submit a list of water quality monitoring parameters and performance criteria to be included in the surface water management plan (condition B50(iv) of the NSW development consent). The water quality parameters must include (but need not be limited to) key metals (total and dissolved) and nutrients (condition 4b).

    b. prepare a Stream Monitoring Program for the Hunter River discharge point (condition 4c).

    c. Recommended Conditions of Approval in relation to water resources

158. The department recommends that you attach a condition of approval that the proponent must not extract or process more than 52 million tonnes of run-of-mine coal over the life of the mine (condition 1). This condition reinforces the NSW condition and limits the amount of coal that can be extracted over the life of the project and consequently sets an upper limit on impacts to EPBC matters. The department notes that the water assessment has been done on the basis of extracting 52 million tonnes of run-of mine coal. The level of coal extraction is a key part of how the activity is conducted and relates to predicted groundwater flows and the proposed processing and management of water across the operation. Additional coal extraction could have the potential to result in further impacts beyond what's been those considered in the NSW assessment. Further, from an administrative perspective, defining the maximum amount of ROM coal to be extracted clarifies the scope of the activity for compliance purposes and is consistent with NSW conditions.

159. As noted above, the department recommends you attach conditions to your approval which require the approval holder to comply with NSW conditions B36 to B52 and

B85 to B91. The Department considers that compliance with the requirements imposed by these conditions will ensure that impacts on water resources are generally monitored and managed effectively, and requiring compliance with these conditions as a condition of the EPBC Act approval will ensure that the department has the ability to enforce compliance with these requirements.

160. The conditions discussed below provide further assurance to the Commonwealth that impacts to GDEs and Surface Water will be appropriately managed and mitigated by the approval holder by setting evidence-based limits (if required) and establishing clear protocols and consequences should those limits be exceeded.

161. As explained above, the department recommends that you impose an additional condition to protect GDEs. Condition 3 requires the proponent to:

    a. ensure that the action has negligible impacts to GDEs.

    b. include in the Groundwater Management Plan required under NSW condition B50(v) a program to monitor the impact of the proposed action on GDEs to ensure that it has a negligible impact, a trigger action response plan to respond to any exceedances, and a plan to repair and mitigate any exceedances

    c. notify the department of any exceedances and the proposed repairs/ and or mitigation work to be undertaken, or the proposed offset (which must be approved by the Minister).

162. This condition ensures GDEs within the proposed action area are given protection and ensure the department is aware of any exceedances. This condition also ensures, that if an impact occurs on GDEs that cannot be repaired or mitigated, the Minister will have oversight of an offset. As such, the Department considers that condition 3 will prevent the proposed action from causing an unacceptable impact on GDEs.

163. As explained above, the department recommends that you attach an additional condition to protect surface water quality. Condition 4 requires the approval holder to:

    a. Ensure that the action has negligible impacts to surface water quality.

    b. Submit a list of water quality monitoring parameters and performance criteria for the Ministers approval. The approved water quality parameters and performance criteria are to be included in the Surface water management plan (condition B50(iv) of the State development consent). The water quality parameters must include (but need not be limited to) key metals (total and dissolved) and nutrients. Coal extraction from the MCCO additional project area cannot commence until the water quality monitoring parameters and performance criteria have been approved by the Minister (the approved water quality parameters and performance criteria).

        i. The approved water quality parameters and performance criteria are subject to the same requirements as the performance measures listed in Table 6, condition B48 of the State development consent.

    c. Prepare a Stream Monitoring Program for the Hunter River discharge point which includes:

i. a map showing the water discharge location on the Hunter River associated with the action. The map must also identify the receiving waters.

ii. baseline water quality data of the approved water quality parameters for the receiving waters, upstream and downstream of any water discharge locations associated with the action and identified in condition 4c(i)

iii. expected water quality, volume, timing (seasonal) and frequency of discharged water

iv. proposed mitigation measures to reduce impacts of the discharged water to the receiving environment

v. a program to monitor the approved water quality parameters against the performance criteria within the receiving waters. The monitoring program must be designed to detect impacts to water quality directly associated with the action and be able to distinguish from natural variability and upstream impacts

vi. a program to monitor stream biota within the receiving waters. The program must include site-specific guideline values and mitigation strategies following sampling events.

vii. Coal extraction in the MCCO Additional Project Area cannot commence until the Stream Monitoring Program has been approved by the Minister.

164. This condition will ensure the proposed action does not have an unacceptable impact on surface water quality by requiring the appropriate management measures to be developed and approved by the Minister before coal extraction can proceed.

165. The department also recommends that you impose conditions that require the proponent to keep the department informed of key developments, to ensure that the department has up to date information for post approval and/or compliance matters:

a. Condition 5 requires the approval holder to provide the department with the version of the Water Management Plan approved by the NSW Planning Secretary as required by condition B50 of the State development consent within 5 business days of its approval by the NSW Planning Secretary.

b. Condition 6 requires the approval holder to notify the department within 5 business day of submitting a request to change an approved Water Management Plan approved by the NSW Planning Secretary. If the revised version of the Water Management Plan is approved by the NSW Planning Secretary, the approval holder must provide the department with the approved revised Water Management Plan within 5 business days of its approval and outline what changes have been made and any implications for protected matters.

c. Condition 7 states that, if, at any time during the period for which this approval has effect, the approval holder detects or predicts an exceedance of any trigger levels which are specified in the approved Groundwater Management Plan or Surface Water Management Plan required by condition B50 of the State development consent, the approval holder must notify the department of the exceedance in writing within 5 business days of detecting or predicting the exceedance.

3.7 Conclusion on water resources (s24D & s24E)

166. Following consideration of the information discussed above, the department is satisfied the proposed action will not have unacceptable impacts on water resources, provided it is taken in accordance with the NSW conditions and the additional proposed conditions discussed in this report.

167. The department therefore recommends approving the proposed action for the purposes of sections 24D and 24E of the EPBC Act.

4 LISTED THREATENED SPECIES AND ECOLOGICAL COMMUNITIES (SECTIONS 18 & 18A)

168. The department's Environmental Reporting Tool (ERT) identifies 37 threatened species and 5 ecological communities that may occur within 5 km of the proposed action area (see ERT Report at Attachment D2).

169. Based on the location of the proposed action, the likely habitat present in the area of the proposed action and the findings of the NSW assessment process, the department considers the proposed action is likely to have a significant impact on the following four listed threatened species and one listed ecological community:

- Regent Honeyeater (*Anthochaera phrygia*) – critically endangered
- *Prasophyllum* sp. Wybong – critically endangered
- Swift Parrot (*Lathamus discolor*) – critically endangered
- Grey-headed flying fox (*Pteropus poliocephalus*) - vulnerable
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community

170. The department does not consider the proposed action is likely to have a significant impact on any other listed threatened species or ecological communities. This is addressed further below in part 4.4 of this report.

171. In assessing the impact of the proposed action on listed threatened species and ecological communities, the department has considered the impacts of the 2019/2020 bushfires at a local, regional, and national scale for the relevant species. The Swift Parrot, Regent Honeyeater and Grey-headed Flying-fox have been identified as requiring urgent management intervention to support their protection and recovery following the 2019/2020 bushfires.

172. The proportion of each species' habitat impacted by the bushfires can be seen at the Appendix to this report.

173. While the proposed action area was not burnt during the 2019/2020 fire season, substantial areas of habitat for EPBC listed species and ecological communities were significantly impacted by these large-scale bushfires nationwide. The proposed action area lies within the Sydney Basin Interim Biogeographic Regionalisation for Australia

(IBRA) region and the Hunter IBRA Subregion. Approximately 30 per cent of the Sydney Basin region was burnt, and 0.25 per cent of the Hunter subregion was affected by the bushfires.

174. The department's analysis of relevant threatened species and communities is discussed in more detail below and relies predominantly on the AR (Attachment G3) and proponent's assessment material (Attachment I1-I4).

4.1 NSW conditions relevant to listed threatened species

175. Conditions B54-B56 of the NSW conditions of approval relate to avoidance, mitigation and offsetting measures for listed threatened species and communities.

176. NSW condition B54 requires the proponent to implement a Biodiversity Offset Strategy for the development as described in the documents listed in the development consent and shown conceptually in Appendix 6 of the development consent.

177. NSW condition B55 requires the proponent to continue to implement the mitigation and management measures described in the approved Translocation Plan for Orchids and Other Threatened Flora, dated September 2012 and prepared by Umwelt for the Mangoola Coal Project disturbance area, to the satisfaction of the Planning Secretary.

178. NSW condition B56 requires that, within 10 years of the cessation of mining operations, or other timeframe agreed to by the Planning Secretary, the proponent must make suitable arrangements for the long-term protection of the ecological mine rehabilitation and offset areas described in the document/s listed in condition A2(c), including appropriate covenants to the satisfaction of the BCT. If the rehabilitation area does not meet the listing criteria of the targeted Plant Community Type or the completion criteria, then the Applicant must retire the relevant deficient biodiversity credits in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

179. NSW conditions B57 to B59 require:

- Condition B57 - the proponent to prepare a Biodiversity Management Plan to the satisfaction of the Planning Secretary. This plan must meet the specifications listed in the Development Consent.
- Condition B58 - that the proponent must not commence mining operations north of Wybong Road until the Biodiversity Management Plan is approved by the Planning Secretary.
- Condition B59 - that the proponent must implement the Biodiversity Management Plan as approved by the Planning Secretary.

4.2 Species and ecological communities

4.2.1 Regent Honeyeater – (*Anthochaera phrygia*) – critically endangered

4.2.1.1 Species information

180. The Regent Honeyeater is a striking black and yellow bird with a patchy distribution between south-east Queensland and central Victoria. It primarily occurs in box-ironbark woodland, but also occurs in other forest types. The species primarily feeds on nectar, and to a lesser extent, insects. It mainly feeds on nectar from eucalypt species and mistletoes, and it prefers taller and larger diameter trees for foraging[1].

181. The conservation advice states that the species is thought to have undergone a population decline of greater than 80 percent in 24 years. The main cause of the decline is thought to be clearance of the species habitat[2].

182. Key identified threats to the species include the clearing, fragmentation and degradation of suitable habitat, and competition for habitat with other nectarivorous and non-nectarivorous bird. The rapid decline of the once large population also means a severe loss of genetic variability is also a threat[3].

4.2.1.2 Impacts

183. The AR (Attachment G3) states that the Regent Honeyeater was not recorded within the proposed action area, with the nearest recorded sighting of the species being approximately 16 km to the north-east in 1996.

184. The AR states that 148 ha of Regent Honeyeater habitat will be directly impacted by the proposed action (Attachment G3) through the removal of potential narrow-leaved ironbark dominated habitat.

185. The AR states that the proposed action is unlikely to have a significant residual impact on the Regent Honeyeater because: no breeding or nesting habitat has been identified within the proposed disturbance area, and the species has not been recorded within the Northern Extension Area in contemporary or historical surveys.

186. DPIE concluded that there will be no residual significant impacts on the Regent Honeyeater as the impacts will be isolated to 148 ha of foraging habitat (i.e., no impact on breeding habitat) and the impacts on vegetation of importance to the Regent Honeyeater within the development footprint do not extend beyond the site.

187. The department considers that the Regent Honeyeater is a semi-nomadic species, and it may be many years between foraging visits to a particular site depending on flowering events at the site. Therefore, the foraging habitat that will be cleared is likely to be important habitat for this species.

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[1] Department of Agriculture, Water and the Environment, 2020, Anthochaera phyrgia – *Regent Honeyeater SPRAT profile* [website], http://apps.internal.environment.gov.au/cgi-bin/sprat/intranet/showspecies.pl?taxon_id=82338

[2] Department of Agriculture, Water and the Environment, 2015, *Conservation Advice* Anthochaera phyrgia *Regent Honeyeater*, Canberra

[3] Department of Agriculture, Water and the Environment, 2016, *National Recovery Plan for the Regent Honeyeater (*Anthochaera phyrgia*),* Canberra

188. The department considers that the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of the species, in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.

4.2.1.3 2019/2020 bushfires

189. Habitat for the species experienced further decline as a result of the 2019-20 bushfires throughout the east coast of Australia. The species was included on the department's provisional list of 119 species requiring urgent management intervention[4]. The department has considered of the scale of these impacts at a local, regional and national level, and has taken these into account in the assessment of the impacts of the project to Regent Honeyeater.

190. The department considered the aims and management actions outlined in the department's technical report on the bushfires[5], and notes that the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of habitat. The department considers that the management actions to be implemented under the Biodiversity Management Plan (NSW condition B57) will contribute to identified priority actions in the report.

191. At a local level, the closest impacts of the main fires were approximately 31 km south of the proposed action area, 40 km from the Wybong Heights offset area, and 30 km from the Mangoola Offset Sites. The department notes that, regionally and nationally, the fires were more severe in other areas of eastern Australia, and, as a result, has reduced overall habitat for the Regent Honeyeater as a whole.

192. Within the Sydney Basin IBRA region approximately 5 per cent of the total area of Regent Honeyeater habitat was burnt and approximately 0.25 per cent (1,143 ha) of this species habitat was burnt within the Hunter IBRA Subregion (or 0.04 per cent of the total 3,258,545 ha of Regent Honeyeater habitat burnt in the 2019/2020 bushfires).

193. Figure 2 at the end of this report shows that Regent Honeyeater habitat largely remained unaffected in the Hunter subregion. The department therefore considers that the 2019/2020 bushfires have not resulted in the 148 ha of habitat that will be cleared as a result of the proposed action being more important to this species than was the case prior to the fires occurring.

194. Having examined the likely impact of the proposed action in addition to the impacts of the 2019-2020 bushfires, the department considers that it is not necessary to impose any additional avoidance, mitigation or offset measures beyond those proposed, even in light of the decline of Regent Honeyeater habitat following the bushfires.

4.2.1.4 Avoidance and Mitigation

195. The proponent's Assessment of Commonwealth Matters Report (ACM) contains a range of avoidance and mitigation measures to mitigate impacts on Regent Honeyeater, both for the existing Mangoola Coal Mine and the proposed action (Appendix 24 of Attachment I1). The measures described in the ACM includes delivering an adequate Biodiversity Offset Strategy (BOS) that appropriately compensates for the residual loss of ecological values, re-instating landscape

connectivity at local and regional scales as a part of post-mine rehabilitation, and mitigating the impacts of light, noise and blasting by implementing management plans and best practice measures.

196. The NSW conditions require the proponent to prepare and implement:

- A Biodiversity Management Plan which will describe the measures to be implemented to minimise the amount of clearing and enhance the quality of vegetation and vegetation connectivity within the project area (conditions B57-B59 of the Development Consent)

197. The department considers that these measures are suitable and necessary to reduce impacts to the Regent Honeyeater and remaining habitat, and recommends you adopt the relevant NSW conditions relating to these measures in your EPBC Act approval.

4.2.1.5 Offsets and compensatory measures

198. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of up to 148 ha of habitat for the Regent Honeyeater will need to be offset to ensure the project does not have an unacceptable impact on the species.

199. The offset liability for the Regent Honeyeater is 8,443 ecosystem credits comprised of the following PCTs:

a. HU816 - Spotted Gum - Narrow-leaved Ironbark shrub - grass open forest of the central and lower Hunter (369 credits)

b. HU817 - Narrow-leaved Ironbark - Bull Oak - Grey Box shrub - grass open forest of the central and lower Hunter (7,821 credits)

c. HU821 - Blakely's red Gum - Narrow-leaved Ironbark - Rough-barked apple shrubby woodland of the Hunter (253 credits).

200. Prior to the commencement of the action the proponent is required under NSW condition B53 to retire 8,443 ecosystem credits (converted to equivalent biodiversity credits following reasonably equivalent conversation process), for the impacts to 148 ha of habitat.

201. The DPIE AR states that residual impacts of habitat loss associated with the Regent Honeyeater will be adequately met through the retirement of credits from the proposed Mangoola Offset Site and Wybong Heights Offset Site.

4.2.2 Swift Parrot (*Lathamus discolor*) – critically endangered

4.2.2.1 Species information

202. The Swift Parrot is a slim, medium-sized parrot is mostly bright green in colour, with dark-blue patches on the crown, a prominent red face and yellow bordered chin and throat[4].

[4] Threatened Species Scientific Committee, 2016, *Conservation Advice* Lathamus discolor *Swift Parrot,* Canberra

203. The species breeds in Tasmania during the summer and the entire population migrates to mainland Australian for the winter. Whilst on the mainland the Swift Parrot disperses widely to forage on eucalypt species, with the majority being found in Victoria and NSW. The area of occupancy has declined significantly since European settlement. 70 per cent of the principal wintering habitat for the species has been cleared in NSW[5].

204. Key foraging habitat for the species within the proposed action area includes the following PCTs: 1598 - Forest Red Gum Grassy Open Forest on Floodplains of the Lower Hunter (Eucalyptus tereticornis dominant in the canopy), 1602 Spotted Gum - Narrow-leaved Ironbark Shrub - Grass Open Forest of the Central and Lower Hunter (Corymbia maculata dominant in the canopy), and 1607 Blakely's Red Gum - Narrow-leaved Ironbark - Rough-barked Apple shrubby woodland of the upper Hunter (Eucalyptus tereticornis x Eucalyptus blakelyi intergrades dominant in the canopy).

205. Key threats to the species include habitat loss and alteration, predation by sugar gliders, competition, disease, and illegal wildlife capture[6].

206. The species recovery plan states that the majority of Swift Parrot foraging in NSW occurs outside of conservation reserves, and therefore those areas continue to be vulnerable to loss, fragmentation or disturbance[3].

4.2.2.2 Impacts

207. The proponent's Assessment of Commonwealth Matters Document (Appendix 24 of Attachment I1) states that no Swift Parrots were recorded within the proposed action area or immediate locality. The nearest Swift Parrot sighting was 28 km to the east, near Muswellbrook in 2012.

208. The AR (Attachment G3) states the proposed action will impact 27.4 ha of potential Swift Parrot habitat, based on the presence of spotted gum (Corymbia maculata) and forest red gum (Eucalyptus tereticornis) which are key foraging resources for the Swift Parrot in the Hunter Valley.

209. Additional vegetation survey data and habitat assessment results indicated supplementary key foraging species identified in the recovery plan were not recorded in the proposed action area.

210. The proponent's assessment of significance states the proposed action is unlikely to have a significant residual impact on the Swift Parrot despite the presence of the presence of low to medium quality foraging habitat because the species does not breed on within the proposed action area, and no records of the species have been recorded within the proposed action area.

211. DPIE concluded that there will be no significant impacts on the Swift Parrot given the species is highly mobile and wide-ranging.

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[5] Department of the Environment, 2016, *Lathamus discolor (Swift Parrot) Consultation Document*, Canberra

[6] Saunders, D.L & C.L. Tzaros, 2011, *National Recovery Plan for the Swift Parrot* (Lathamus discolor), Melbourne

212. The department analysed the PCTs that will be cleared and identified 148 ha of PCTs containing winter flowering eucalypt species that provide foraging habitat for the Swift Parrot.

213. The department considers that the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of the species, in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.

4.2.2.3 2019/2020 bushfires

214. Habitat for the species experienced further decline as a result of the 2019-20 bushfires throughout the east coast of Australia. The species was included on the department's provisional list of 119 species requiring urgent management intervention[4]. The department has considered of the scale of these impacts at a local, regional and national level, and has taken these into account in the assessment of the impacts of the proposed action to the Swift Parrot.

215. The department considered the aims and management actions outlined in the department's technical report on the bushfires[5], and notes that the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of habitat. The department considers that the management actions to be implemented under the Biodiversity Management Plan (NSW condition B57) will contribute to identified priority actions in the report.

216. At a local level, the closest impacts of the main fires are approximately 31 km south of the proposed action area, 40 km from the Wybong Heights offset area, and 30 km from the Mangoola Offset Sites. The department notes that, regionally and nationally, the fires were more severe in other areas of eastern Australia, and, as a result, has reduced overall habitat for the Swift Parrot as a whole.

217. As indicated in figure 3 at the end of this report, the 2019/2020 fires impacted a very broad area of habitat classified as likely Swift Parrot habitat in the Sydney Basin region. Figure 3 shows that species' habitat largely remained unaffected in the Hunter subregion. The 2019/2020 bushfires have therefore not resulted in the 148 ha of potential foraging habitat that will be cleared being more important to this species than was the case prior to the fires occurring.

4.2.2.4 Avoidance and Mitigation

218. The ACM report (Appendix 24 to Attachment I1) and the EIS contain a range of avoidance and mitigation measures to mitigate impacts on MNES. The measures described in the EIS include tailoring project design to reduce physical impacts to biodiversity, vegetation and habitat clearing protocols, and weed control.

219. The NSW conditions require the proponent to prepare and implement:

- A Biodiversity Management Plan which will describe the measures to be implemented to minimise the amount of clearing and enhance the quality of vegetation and vegetation connectivity within the project area (conditions B57-B59 of the Development Consent).

220. The department considers that these measures are both necessary and convenient to protect, and to mitigate and repair damage to, the Swift Parrot, and recommends you attach the NSW conditions referred to above to approval under the EPBC Act.

4.2.2.5 Offsets and compensatory measures

221. The EIS states that the Swift Parrot is not expected to be significantly impacted and therefore does not require to be offset through species specific credits. The EIS notes the Swift Parrot is identified as an ecosystem credit species under the NSW FBA and any loss of potential habitat will be offset on a like-for-like basis in accordance with the FBA.

222. The NSW assessment concluded that there will be no significant impacts on the Swift Parrot given the species is highly mobile and wide-ranging.

223. However, the department analysed the PCTs that will be cleared by the proposed action and identified 148 ha of PCTs containing winter flowering eucalypt species that may provide potential foraging habitat for the Swift Parrot. This is the same 148 ha discussed above which may provide suitable Regent Honeyeater habitat. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of 148 ha of foraging potential habitat for the Swift Parrot will likely result in a residual significant impact for the species and offsets are required to ensure the proposed action does not have an unacceptable impact on the species.

224. The proponent agrees with the department's analysis and has committed to provide offset the impacts to 148 ha of Swift Parrot foraging habitat. The offset liability for the Swift Parrot is 8,443 ecosystem credits comprised of the following PCTs:

    a. HU816 - Spotted Gum - Narrow-leaved Ironbark shrub - grass open forest of the central and lower Hunter (369 credits)

    b. HU817 - Narrow-leaved Ironbark - Bull Oak - Grey Box shrub - grass open forest of the central and lower Hunter (7,821 credits)

    c. HU821 - Blakely's red Gum - Narrow-leaved Ironbark - Rough-barked apple shrubby woodland of the Hunter (253 credits).

225. Prior to the commencement of the action, the proponent is required under NSW condition B53 to retire 8,443 ecosystem credits (converted to equivalent biodiversity credits following reasonably equivalent conversation process), for the impacts to 148 ha of habitat.

226. The DPIE AR states that residual impacts of habitat loss associated with the Swift Parrot will be adequately met through the retirement of credits at the proposed Mangoola Offset Site and Wybong Heights Offset Site.

4.2.3 Wybong Leek-orchid (*Prasophyllum* sp. Wybong) – critically endangered

4.2.3.1 Species information

227. *Prasophyllum* sp. Wybong is a terrestrial orchid with a single, tubular, fleshy, dull-green lead and a single flower spike with numerous flowers, which grows approximately 30 cm high[7].

228. The species is endemic to NSW and seven populations are known to occur in open eucalypt forest and woodland. Historically, its area of occupancy is estimated to be 1.5 km^2 however recent surveys demonstrate it has a larger area of occupancy.

229. There is some differences in the taxonomic listing of the *Prasophyllum* individuals present within the proposed action area under Federal and State legislation. Under the EPBC Act the Prasophyllum individuals present within the proposed action area are considered to be Prasophyllum sp. Wybong, which is listed as a critically endangered species under the EPBC Act. While the same Prasophyllum individuals are considered to be *Prasophyllum petilum* which is listed as endangered under the NSW Biodiversity Conservation Act 1995 (BC Act). *Prasophyllum petilum* is also a threatened species listed as endangered under the EPBC Act, however its known distribution does not include the Upper Hunter.

230. Key threats to this species include habitat clearance, weed invasion, vehicle traffic, and inappropriate disturbance regimes[8].

4.2.3.2 Impacts

231. The proposed action will involve the clearance of approximately 691 Prasophyllum sp. Wybong individuals and 101.6 ha of habitat.

232. Surveys undertaken to date have identified 5,806 individuals of the species in Mangoola's land holdings, of which 3,538 occur outside of the current mining area. In addition to the direct removal and loss of 691 individuals, the proposed action may potentially impact upon an undetermined number of individuals adjacent to the proposed action area. Potential impacts to nearby individuals may occur due to: altered hydrological regimes; population fragmentation; dust; weeds; and increased grazing pressures.

233. The referral brief stated that this species is known from seven locations, however these populations are small and highly susceptible to stochastic events. The population near Mangoola Mine is the largest known population of this species and is the southernmost population in the species range.

234. The department considers that the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of the species, in

[7] *Approved Conservation Advice for* Prasophyllum *sp. Wybong (C. Phelps ORG 5269) (a leek-orchid*). Canberra, ACT: Department of the Environment, Water, Heritage, and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/81964-conservation-advice.pdf

[8] *ibid*

accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.

235. Avoidance and Mitigation

236. The ACM report (Appendix 24 to Attachment I1) contains some measures to mitigate impacts on MNES for the proposed action. The measures described in the report include tailoring project design to avoid and minimise impacts where possible and habitat enhancement measures to supplement mine rehabilitation areas.

237. The NSW conditions require the proponent to prepare and implement a Biodiversity Management Plan which will detail management actions to minimise the amount of clearing and maximise the salvage of resources within the project area (Condition B57 of Development Consent).

238. The department considers these measures are suitable and necessary to reduce impacts to Prasophyllum sp. Wybong. and remaining habitat, and recommends you adopt the NSW condition B57 in your EPBC Act approval.

239. The proponent has also committed to implementing a range of measures to avoid and mitigate the impacts to Prasophyllum sp. Wybong.

240. Prior to the proposed action being referred under the EPBC Act, the proponent redesigned the NEA to reduce the total number of individuals to be cleared by 34, to 691.

4.2.3.3 Offsets and compensatory measures

241. The department considers that it is necessary for the clearance of 691 of Prasophyllum sp. Wybong individuals and 101.6 ha of habitat to be offset to minimise the impact of the proposed action to this species.

242. The department advised the proponent that, due to the different listings, its approach to biodiversity offsetting for Prasophyllum sp. Wybong is different to the NSW Biodiversity Conservation Division (BCD). BCD had confirmed adequate offsets had been provided for Prasophyllum petilum under the NSW Framework for Biodiversity Assessment (FBA) and the NSW Biodiversity Offsets Policy for Major Projects for the MCCO Project.

243. On 22 July 2020, the proponent provided a briefing note to the department with the subject ‘Mangoola Coal Continued Operations Project (MCCO Project) Offset Analysis for *Prasophyllum* sp. Wybong’ (P. Wybong Report, Attachment I4) which outlined the proponent’s proposed biodiversity offset strategy to address impacts of the proposed action on *Prasophyllum* sp. Wybong. Under the offset calculations, the proponent is required to provide 193 ha of known habitat for the *Prasophyllum* sp. Wybong.

244. The department considered that the *Prasophyllum* Wybong Report provided a robust methodology and sufficient evidence to demonstrate why the offset area will provide suitable habitat for the species. The department was satisfied with the quantum and nature of the proposed offsets for *Prasophyllum* sp. Wybong in the offsets strategy is

consistent with the department's offsetting requirements and the NSW FBA process and provides land based offsets containing known populations of this species.

245. Based on survey efforts undertaken to inform the EIS the proponent identified the Prasophyllum sp. Wybong within 143.2 ha of the proposed offset sites for the proposed action. However, the proponent undertook further studies during the 2020 flowering period for the Prasophyllum sp. Wybong and identified additional specimens within the proposed land-based offsets for the proposed action. The confirmed additional specimens increases the area of offset land with known habitat for Prasophyllum sp. Wybong of 197.5 ha, which exceeds the offset requirements for the species.

246. On 3 September 2020, the department wrote to the proponent stating it was satisfied that the P. Wybong Report provided an adequate assessment of the habitat within the impact and offset areas, and that the proposed offset area will meet the department's offsetting requirements.

247. The department recommends that you attach a condition of approval (condition 10) that requires the proponent must provide evidence that 193.1 ha of *Prasophyllum* sp. Wybong offset habitat has been secured under a Biodiversity Stewardship Agreement, and of a P*rasophyllum* sp. Wybong offset management plan, prior to the commencement of coal extraction (or another timeframe that you agree to).

248. The department recommends that you attach a condition of approval (condition 11) that requires the proponent must provide an annual report outlining the results of the monitoring and management actions required under the *Prasophyllum* sp. Wybong offset management plan.

249. The department considers that conditions 10 and 11 are necessary because the conditions of the NSW development consent do not provide for offsets in relation to this species. The *Prasophyllum* species present within the proposed action area is identified as a different species under NSW legislation, and the conditions of the NSW development consent accordingly do not provide for offsets in relation to the *Prasophyllum* sp. Wybong.

4.2.4 Grey-headed Flying- fox (*Pteropus poliocephalus*) – vulnerable

4.2.4.1 Species information

250. The Grey-headed flying fox (GHFF) is one of the largest bats in the world and feeds primarily on blossoms and fruit in canopy vegetation and supplements this diet with leaves. Major food plants include the fruit and blossom of rainforest species, especially Ficus spp., and blossoms of myrtaceous species such as Eucalyptus, Corymbia and Angophora, melaleucas and banksias

251. Important winter or spring foraging habitat has been identified in the Draft Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus (2017) as vegetation communities containing Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora, C. eximia, and C. maculata.* The recovery plan states the recovery of the GHFF is primarily dependent on the

protection and rehabilitation of foraging habitat and the expansion of forested areas are productive during winter and spring.

252. The GHFF has historically occupied forests and woodlands in the coastal lowlands, tablelands and slopes of south-eastern Australia, from Bundaberg in Queensland to Geelong in Victoria, with rare sightings outside its range. The primary known threat to the survival of the GHFF is loss and degradation of foraging and roosting habitat. Conflict with people, including disturbance in camps and mortality from actions to manage commercial fruit crops, is considered to be a moderate threat, but is increasing in urban areas.

253. Due to its role as a pollen and seed disperser, the GHFF contributes to sustaining ecological processes within vegetation communities along the east coast, including three of Australia's World Heritage Areas: Fraser Island, the Gondwana Rainforests and the Greater Blue Mountains, which are adjacent to the proposed action area.

4.2.4.2 Impacts

254. The AR states the GHFF was not recorded within the proposed action area and no breeding habitat was identified within the disturbance area. It notes a GHFF camp is located 17 km east of the project area at Muswellbrook, while the closest individual record is 10 km south of the proposed action area.

255. The AR (Attachment G3) states the proposed action will have a direct impact on 162.6 ha of potential foraging habitat for the Grey-headed flying fox.

256. The proponent's assessment of significance states the clearance of 162.6 ha of potential GHFF habitat is unlikely to result in a significant impact to the species because: the proposed action area is unlikely to contain an important population, and the habitat within the proposed action area is highly fragmented and will not further impact connectivity to the wider landscape.

257. DPIE agreed with the conclusion that the project is unlikely to have a significant impact on the GHFF.

258. The department considers that the proposed action is likely to have a significant impact on the species as it is likely to reduce the area of occupancy of an important population, in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.

4.2.4.3 2019/2020 bushfires

259. Habitat for the species experienced further decline as a result of the 2019-20 bushfires throughout the east coast of Australia. The species was included on the department's provisional list of 119 species requiring urgent management intervention[4]. The department has considered of the scale of these impacts at a local, regional and national level, and has taken these into account in the assessment of the impacts of the project to the GHFF

260. The department considered the aims and management actions outlined in the department's technical report on the bushfires[5], and notes that the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of

habitat. The department considers that the management actions to be implemented under the Biodiversity Management Plan (NSW condition B57), will contribute to identified priority actions in the report.

261. The closest impacts of the main fires are approximately 31 km south of the proposed action area, 40 km from the Wybong Heights offset area, and 30 km from the Mangoola Offset Sites. The department notes that, regionally and nationally, the fires were more severe in other areas of eastern Australia, and, as a result, has reduced overall habitat for the GHFF as a whole.

262. As indicated in Figure 4 at the end of this report, the 2019/2020 fires impacted a very broad area of habitat classified as likely GHFF habitat in the Sydney Basin region. Figure 4 shows this species' habitat largely remained unaffected in the Hunter subregion. The 2019/2020 bushfires have therefore not resulted in the 162.6 ha of habitat will be cleared being more important to this species than was the case prior to the fires occurring.

263. Having examined the likely impact of the proposed action in addition to the impacts of the 2019-2020 bushfires, the department considers that it is not necessary to impose any additional avoidance, mitigation or offset measures beyond those proposed, even in light of the decline of GHFF habitat following the bushfires.

4.2.4.4 Avoidance and Mitigation

264. The ACM report (Appendix 24 to Attachment I1) contains some measures to mitigate impacts on MNES for the proposed action. The measures described in the report include tailoring project design to avoid and minimise impacts where possible.

265. The NSW conditions require the proponent to prepare and implement a Biodiversity Management Plan which will detail management actions to minimise the amount of clearing and maximise the salvage of resources within the project area (Condition B57 of Development Consent).

266. The department considers these measures are suitable and necessary to reduce impacts to the GHFF and remaining habitat, and recommends you adopt the NSW condition B57 in your EPBC Act approval.

4.2.4.5 Offsets and compensatory measures

267. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of up to 162.6 ha of habitat for the GHFF will need to be offset to ensure the proposed action does not have an unacceptable impact on the species.

268. The offset liability for the GHFF is 9,594 ecosystem credits comprised of the following PCTs:

    a. HU812 - Forest Red Gum grassy open forest on floodplains of the lower Hunter (1,151 credits)

    b. HU816 - Spotted Gum - Narrow-leaved Ironbark shrub - grass open forest of the central and lower Hunter (369 credits)

c. HU817 - Narrow-leaved Ironbark - Bull Oak - Grey Box shrub - grass open forest of the central and lower Hunter (7,821 credits)

d. HU821 - Blakely's red Gum - Narrow-leaved Ironbark - Rough-barked apple shrubby woodland of the Hunter (253 credits)

269. Prior to the commencement of the action the proponent is required under NSW condition B53 to retire 9,594 ecosystem credits (converted to equivalent biodiversity credits following reasonably equivalent conversion process), for the impacts to 162.6 ha of habitat.

270. The DPIE AR states that residual impacts of the loss of PCTs HU816, HU817 and HU821 will be adequately met through the retirement of credits from the proposed Mangoola Offset Site and Wybong Heights Offset Site.

271. The offset credits required for HU812 will be retired through a combination of retirement of the proposed Mangoola Offset Site and ecological rehabilitation.

4.2.5 White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community (Box Gum CEEC)–critically endangered

4.2.5.1 Ecological community information

272. White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community (Box Gum CEEC) occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through NSW and the Australian Capital Territory to Victoria. Due to the Box Gum CEEC's occurrence on fertile soils, it has been extensively cleared for agriculture and intact remnants are now extremely rare. Clearing and fragmentation for urban, rural residential, agricultural and infrastructure development remain ongoing threats to this community[9].

273. The Box Gum CEEC EC is characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box (Eucalyptus albens), Yellow Box (Eucalyptus melliodora), or Blakely's Red Gum (Eucalyptus blakelyi) trees. It can occur either as woodland or derived native grassland9.

274. Habitat for this ecological community experienced further decline as a result of the 2019/2020 summer bushfires throughout the east coast of Australia. Figure 4 of this report shows the extent of the community distribution impacted by the fires. The Department considered the scale of these impacts at a local, regional and national level, and has taken these into account in the assessment of the impacts of the proposed action to the Box Gum Grassy Woodland critically endangered ecological community (CEEC).

[9] Department of Environment, Climate Change and Water NSW (2010). National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/white-box-yellow-box-blakelys-red-gum-grassy-woodland-and-derived-native-grassland-national

275. Less than 1% of Box Gum CEEC remains in good condition and much occurs in small, fragmented, isolated patches. According to the SPRAT database only 0.1% remains in near-intact condition.

4.2.5.2 Impacts

276. The proposed action involves the clearance of 24.3 ha of Box Gum CEEC.

277. While the BDAR states the project is likely to have a significant impact on Box Gum CEEC, the BDAR also concludes the proposed action is unlikely to lead to a substantial reduction in the quality or integrity of remaining Box Gum CEEC habitat in the locality or modify natural processes or systems necessary for the survival of the community.

278. As indicated in Figure 1 minor areas of likely White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland habitat ecological community habitat were affected by the fires in the Sydney and Hunter regions. The 2019/2020 bushfires have therefore not resulted in the 24.3 ha of Box Gum CEEC which will be cleared being more important than was the case prior to the fires occurring.

279. In the referral brief the Department considered that the loss of approximately 24 ha of Box Gum CEEC is likely to have a significant impact on this ecological community because it will adversely affect habitat critical to the survival of an ecological community and reduce the extent of an ecological community.

280. This assessment was based on the significant impact criteria for critically endangered species and communities provided in the EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (2013).

4.2.5.3 Avoidance and Mitigation

281. The proponent has committed to a range of measures to manage indirect 'edge effects' of Box Gum CEEC, including the delineation of clearance areas to avoid unnecessary impacts and clearance of surrounding vegetation, development of a Vegetation Clearance Protocol and Bushfire Management Plan, and the ongoing management of dust, weeds, erosion and sedimentation. These commitments are reflected in the NSW conditions.

4.2.5.4 Offsets and compensatory measures

282. The department considers that, despite the proposed avoidance and mitigation measures, the direct clearance of up to 24.3 ha of Box Gum CEEC will need to be offset to ensure that the proposed action does not have an unacceptable impact on the ecological community.

283. The total offset liability for Box Gum CEEC is 1,389 biodiversity credits.

284. The proponent has committed to offset the residual impacts of the proposed action on Box Gum CEEC on a like-for-like basis, in accordance with the NSW Biodiversity Offsets Scheme, including though the provision of local land-based biodiversity offsets.

285. Proposed EPBC Condition 9 states that, prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by the Minister, the approval holder must retire the biodiversity credits specified in Table 1. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust. Table 1 specifies the area of each PCT that comprises Box Gum Woodland that will be cleared and the number of credits required.

286. This condition will ensure that the proponent provides sufficient offsets for the loss of Box Gum CEEC.

Recommended conditions of approval – listed threatened species and ecological communities

287. Conditions 8 – 12 in the Final Decision Notice (Final Decision Brief Attachment B) will minimise the impacts and compensate for residual impacts of the action on EPBC listed threatened species and communities.

288. Condition 8 imposes the following clearing limits:

a. 24.3 hectares of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EPBC Act listed ecological community.

b. 148 hectares of Regent Honeyeater (*Anthochaera phrygia*) habitat.

c. 148 hectares of Swift Parrot (*Lathamus discolor*) habitat.

d. 162.6 hectares of Grey-headed flying fox (*Pteropus poliocephalus*) habitat.

e. 101.6 hectares of land containing *Prasophyllum* sp. Wybong.

289. These limits are based on the description of the proposed action in the EIS and DPIE AR. This condition ensures that no additional habitat of these five species and ecological community will be cleared beyond that which has been identified and will be offset.

290. Conditions 9 to 11 expand upon the offset requirements under the NSW conditions.

291. Condition 9 requires that, prior to the commencement of coal extraction in the MCCO project area, or other timeframe agreed to by you, the approval holder must retire the biodiversity credits specified in Table 1 of the Final Decision Notice. The credits must be retired in accordance with the NSW Biodiversity Offset Scheme of the NSW Biodiversity Conservation Act and to the satisfaction of the Biodiversity Conservation Trust.

292. The department considers that this condition is necessary because it provides transparency as to how the offset credits being retired under the NSW conditions correlate to the relevant listed threatened species and ecological community.

293. Condition 10 requires the proponent to provide you with evidence that 193.1 ha of *Prasophyllum* sp. Wybong habitat has been secured under a Biodiversity Stewardship Agreement, as well as a *Prasophyllum* sp. Wybong Offset Management Plan. Condition 11 requires the approval holder to provide you with an annual report outlining the results of the monitoring and management actions required under the *Prasophyllum* sp. Wybong offset management plan. The department considers that

these conditions are necessary to ensure adequate offsets are provided, secured, managed and monitored for impacts on *Prasophyllum* sp. Wybong, in addition to the offsets required under the NSW conditions. As noted above, *Prasophyllum* sp. Wybong has a different species listing under NSW legislation, and so it's important that the department has an ongoing compliance role to ensure that offsets are achieved for the species, noting it's critically endangered status and limited distribution.

294. Condition 12 reinforces the NSW conditions which relate to listed threatened species. Condition 12 requires the approval holder to comply with NSW condition B57 to prepare and implement the Biodiversity Management Plan, and comply with NSW conditions B54, B55, B56, B57, B58 and B59 (to the extent the conditions in Part B relate to EPBC Act threatened species and ecological communities).

295. A number of changes have been made to the conditions to be attached to the approval since you made the proposed decision. These changes are explained in the Final Decision Brief.

4.3 Other listed threatened species and ecological communities relevant to the proposed action

296. The department has considered the information in the EIS and the DPIE AR with regards to potential impacts from the proposed action on other listed threatened species and communities and considers that no additional EPBC Act listed threatened species or ecological communities are likely to be significantly impacted by the proposed action.

297. The department notes that the proponent will be required to retire 27 species credits under the NSW development consent for the Large-eared Pied Bat (*Chalinolobus dwyeri*), which is listed as a vulnerable species under the EPBC Act.

298. No roosting or breeding habitat for this species is present within the proposed action area, however the proponent has identified several areas within 500 m of the proposed action area that contain potentially suitable breeding habitat. A total of 2.1 ha of nearby woodland/open forest habitat which will be cleared within the proposed action area has therefore been considered in the NSW assessment to be potential Large-eared Pied Bat breeding habitat.

299. The department considers that given the significant impact criteria for a vulnerable species, the proposed action area does not contain habitat critical to the survival of the species, or an important population. The department considers that given the nature and scale of the proposed impacts, that the proposed action is unlikely to reach the threshold of a significant impact on the Large-Eared Pied Bat, with consideration of the Significant Impact Guidelines.

4.4 Conclusion on Threatened Species and Communities (s18 and s18A)

300. The department has considered the information in the EIS and the DPIE AR, as well as the other documents and material attached to this brief, regarding the likely impacts of the proposed action on listed threatened species and communities.

301. For the reasons set out above, the department is satisfied that any potential impacts on listed threatened species and ecological communities from the proposed action can be adequately addressed through the recommended approval conditions, and therefore the proposed action is not expected to result in an unacceptable impact on threatened species and ecological communities, provided it is taken in accordance with those conditions.

302. The department therefore recommends that the proposed action be approved for the purpose of the controlling provisions in sections 18 and 18A, subject to the above-mentioned conditions.

5 GREENHOUSE GAS EMISSIONS FOR MNES PURPOSES

303. The proposed action will produce 52 million tonnes (Mt) of run of mine coal through to 2030. The coal produced by the proposed action will be 100% thermal coal. The mine extension is proposed to operate over 8 years from 2022-2030.

304. DPIE states in the AR that the Mining, Exploration and Geoscience (MEG) Division within the Department of Regional NSW advised that the existing Mangoola Mine currently sells product coal to domestic (27%) and export markets (73%).

305. GHG emissions are categorized into three different types:

- Scope 1: direct emissions from owned or controlled sources of an organisation/development;
- Scope 2: indirect emissions from the generation of purchased energy electricity, heat and steam used by an organisation/development; and
- Scope 3: all other upstream and downstream emissions related to an organization/development

306. Under GHG emissions reporting and accounting frameworks[10], the scope 2 and 3 emissions estimated for the Project are the scope 1 emissions of other organisations/developments. For example, the scope 3 emissions from combustion of coal here or in an overseas country will form part of the scope 1 emissions of the organisation combusting the coal for electricity generation and will also be the scope 1 emissions of the country where the coal is combusted under applicable national accounting frameworks (page 121, Attachment G3).

307. Over the life of the proposed action, the maximum estimated total greenhouse gas emissions are predicted to total 107,940,192 t CO_2-e, made up of:

- 3,251,000 t CO_2-e of scope 1 primarily from fugitive emissions and diesel use during its operational phase;

[10] The *Greenhouse Gas Protocol* (GHG Protocol) (World Business Council for Sustainable Development [WBCSD] and World Resources Institute [WRI], 2004 was applied for the Project.

- 402,192 t CO_2-e scope 2 emissions, associated with the production of electricity used by the proposed action including underground mining equipment, conveyor belts, ancillary equipment, and administration facilities; and
- 104,287,000 t CO_2-e of scope 3, which would be generated by third parties who transport and consume the extracted coal.

5.1 Proponent Assessment

308. The proponent's EIS included a Greenhouse Gas and Energy Assessment (GHGEA) prepared by Umwelt (Australia) Pty Ltd and dated May 2019.

309. The GHGEA proposes a range of management and mitigation measures to minimise scope 1 and scope 2 GHG emissions as far as possible, particularly by reducing electricity consumption and diesel usage, including:

- limiting the length of material haulage routes, thereby minimizing transport distances and associated fuel consumption;
- optimising haul road ramp gradients and payload to reduce diesel consumption;
- selecting equipment and vehicles that have high energy efficiency;
- scheduling activities so equipment and vehicle operation is optimised (e.g. minimizing idle times and in-pit servicing);
- improving extraction and processing energy use through implementation of through seam blasting;
- energy efficiency initiatives to reduce indirect electricity consumption i.e., scope 2 emissions;
- implementation of the existing emissions cap for the Mangoola Mine in accordance with the Safeguard Mechanism under the Australian national greenhouse gas mitigation policy framework; and
- participation, monitoring and reporting within the Commonwealth Government's National Greenhouse Energy and Reporting Scheme (NGERS), which includes ongoing review of technologies and measures to further minimise GHG emissions.

5.2 Public Comments

310. Public submissions on the EIS raised concerns about the potential air quality impacts of the project and the effect on human health, as well as the broader issue of cumulative air quality impacts.

311. Public submissions during the IPC process raised similar concerns to those raised on the EIS. Submissions also raised concerns regarding inter-generational equity, as well as the Government's commitment to reducing GHG emissions.

5.3 DPIE Assessment

312. The NSW assessment report (Attachment G3) considered the GHGEA provided as part of the environmental impact statement, noting that the proposed action is projected to generate approximately 108Mt CO_2-e over its lifespan (8 years).

5.4 Source of emissions and amount of emissions

313. The AR states that the main sources of scope 1 and scope 2 GHG emissions from the proposed action will be associated with fugitive emissions due to exposure of coal seams during mining operations, and on-site electricity and diesel consumption. DPIE notes that the vast majority of scope 3 emissions from coal mined by this project will be generated by combusting the coal in power stations to generate electricity.

314. The AR states the proposed action is expected to generate approximately 108 Mt carbon dioxide equivalent (CO_2-e) over the life of the mine (8 years), comprising of 3.6 Mt CO_2-e of scope 1 and 2 emissions, and 104 Mt CO_2-e of scope 3 emissions (see Table 2) below).

Table 2: Direct and indirect GHG emissions of the proposed action (source NSW assessment report)

GHGEs	Sources	Annual Average	Total
Scope 1	Fugitive emissions from exposed coal seams and on-site diesel consumption	0.41	3.25
Scope 2	On-site electricity consumption	0.05	0.40
Scope 3	Purchase of diesel and electricity and the transport and consumption of product coal (predominantly thermal)	13.04	104.29
Total		**13.50**	**107.94**

Note: Mt CO_2-e = million tonnes carbon dioxide equivalent.

5.4.1 Scope 1 & 2 emissions

315. DPIE considered that the likely GHG emissions associated with the proposed action will be:

- 407,000 t CO2-e of scope 1 emissions per annum (3,251,000 t CO2-e total); and
- 51,000 t CO2-e of scope 2 emissions per annum (402,192 t CO_2-e total). The GHGEA notes that the proposed action will utilise the existing CHPP at the Mangoola Mine which is the main source of electricity usage.

316. DPIE noted that scope 1 and 2 emissions represent a very small proportion of the proposed action's emissions (approximately 3.5%) and should be considered relative to the global impacts that would arise from the recovery of alternative coal resources for power generation, and should be weighed against the potential economic and social benefits of the Project.

317. DPIE states in the AR that Glencore has applied reasonable and feasible measures to reduce its scope 1 and 2 emissions through the design and operation of the proposed action. The majority (approximately 70%) of residual scope 1 and 2 GHG emissions would be associated with fugitive gas emissions due to exposure of the seams during open cut mining operations and only 30% of the predicted scope 1 and 2 GHG emissions would be due to on site fuel and electricity consumption required to operate the mine.

318. DPIE recommended conditions to manage GHG emissions of the proposed action to the greatest extent practicable, including requiring the proponent to:

- take all reasonable steps to improve energy efficiency;
- manage 'non-road' mobile diesel equipment to comply with any exhaust emission standards specified under an EPL for the site; and
- prepare a detailed Air Quality and Greenhouse Gas Management Plan for the project.

319. DPIE's assessment of direct energy use and associated greenhouse gas emissions found that the scope 1 and scope 2 emissions generated by the proposed action would be low and comprise a very small contribution towards climate change at both the national and global scale.

320. The AR considers air quality impacts as a result of the proposed action can be effectively managed through the recommended conditions and the implementation of comprehensive monitoring and management measures.

5.4.2 Scope 3 emissions

321. As identified in Table 2, approximately 104 Mt CO2-e of predicted total emissions from the proposed action comprise of scope 3 emissions, equating to approximately 13 Mt CO2-e per year.

322. The GHGEA states that approximately 96% of the proposed action's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries or jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan.

323. On 20 September 2021, the proponent provided a breakdown of Mangoola coal sales in the 2020-21 financial year. In that financial year approximately 30% of coal was sold in Australia, 23% in Japan, 12% in South Korea, 7% in India and Taiwan, 5% in Thailand, 4% in New Caledonia and 3% in China. The proponent noted that 84% of these sales occurred in countries identified in the 2019 EIS, and over 98.4% were to countries that are signatories to the Paris Agreement or with equivalent domestic policies for emissions reductions

324. DPIE noted that almost 97% of emissions generated by the proposed action comprise Scope 3 GHG emissions from the consumption of coal by end users. DPIE also notes that under the Paris Agreement accounting rules and Australian legislation scope 3 emissions are not included in Project emission reporting to avoid double counting emissions.

325. The NSW AR notes that the majority of key consumer countries identified by Glencore are signatories to the Paris Agreement.

326. The NSW AR further notes that, while Taiwan is not a signatory to the Paris Agreement, it has developed its own GHG emission reduction targets (enforced under its Greenhouse Gas Reduction and Management Act) comparable to those of countries who are signatories.

327. DPIE stated in the AR that the NSW Government's Strategic Statement on Coal Exploration and Mining in NSW (2020) identifies that, in the medium term, there will still be a strong global demand for thermal coal for power generation for at least the duration of the proposed action.

328. The GHGEA states that, under current policy settings, global greenhouse gas emissions are forecast to reach 56,200,000,000 t CO2-e per annum by 2025 (the United Nations Environment Programme Emissions Gap Report 2016). Based on this forecast, the GHGEA estimates that during operation, the proposed action's scope 1 emissions will contribute approximately 0.00073 per cent to global emissions per annum. Based on this estimate, the proponent considered that the proposed action, in isolation, is unlikely to influence global emissions and climate change trajectories.

329. The GHGEA also noted that for Australia to achieve its commitment under the Paris Agreement, it would need to achieve a 28% (i.e.,762,000,000 t CO2-e) reduction in GHG emissions by 2030. The forecast project-related scope 1 emissions would increase the required national mitigation effort by approximately 0.43%. DPIE notes that the projected emissions levels for the proposed action were relatively modest for a coal mine of its scale and that the emissions would represent a small proportion of Australia's NDC.

330. Further to this, NSW DPIE notes that the proponent recently announced it will limit coal production to 150 Mt per annum across its global operations in order to limit its total GHG emissions and that the proposed action fits within the coal production cap commitment. DPIE also notes that the proponent has reviewed the feasibility of pre-draining coal seam gas to reduce scope 1 and 2 emissions, however it considered this option is economically unviable due to capital and operational costs.

331. DPIE recommended that the proponent be required to prepare and implement a detailed Air Quality and Greenhouse Gas Management Plan to detail measures to minimise GHG emissions during both the construction and operational phases of the proposed action.

332. Overall, DPIE considers the GHG emissions for the proposed action have been adequately considered and that, if the proposed action is undertaken in accordance with the NSW conditions, they are acceptable when weighed against the relevant climate change policy framework, objects of the EP&A Act (including the principles of Ecologically Sustainable Development, ESD) and the socio-economic benefits of the proposed action.

5.5 IPC decisions and conditions

333. Clause 14(1)(c) of the Mining State Environmental Planning Policy (SEPP) requires the IPC to "consider whether or not the consent should be issued subject to conditions aimed at ensuring the development is undertaken in an environmentally responsible manner, including conditions to ensure…greenhouse gases are minimised to the greatest extent practicable"

334. Clause 14(2) of the Mining SEPP requires the IPC to "consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development

and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions".

335. In considering the matters specified in clauses 14(1)(c) and 14(2) of the Mining SEPP, the IPC finds the Project's scope 1 and 2 GHG emissions have been estimated using the recommended methodologies consistent with current national and NSW policy settings and commitments.

336. The IPC (Attachment G5 – Statement of Reasons) agreed with the DPIE assessment and also noted:

- under the Paris Agreement, all emissions associated with an activity within Australia's borders count towards Australia's total emissions. Almost all countries have committed to track their progress with the aim to reduce global GHG emissions. The National Greenhouse and Energy Report Scheme (NGERS) is a national reporting framework designed to support Australia's international reporting obligations. The IPC noted that NGERS does not require reporting of and organisation's scope 3 emissions. The IPC noted that scope 3 emissions occurring overseas become the consumer country's scope 1 and 2 emissions and would be accounted for under the Paris Agreement in their respective national inventories;
- the proposed action is not inconsistent with the NSW Government's NSW Climate Change Policy Framework (CCPF), the net zero plan or Australia's obligations in respect to the nationally determined contributions (NDCs);
- the proposed action includes appropriate measures for minimising and managing scope 1 and scope 2 emissions to the greatest extent practicable.

337. The IPC was of the view that GHG emissions for the proposed action have been adequately estimated and are permissible when weighed against the Mining SEPP, relevant climate change policy framework, objects of the EP&A Act, ESD principles and the proposed action's socio-economic benefits.

338. The IPC noted there are uncertainties surround the largest component of the project's scope 1 emissions – fugitive emissions from coal seams, and the mitigation measures for these emissions with specific reference to the high methane content of the Upper Pilot Seam.

339. In response to this uncertainty, the IPC has included a specific objective in Table 9 of condition B85 which requires the proponent to minimise post-mining fugitive emissions.

340. The IPC imposed conditions for air quality and GHG regulation (B30, B31, B32, B33, B34 and B85), including the approval holder must:

- take all reasonable steps to improve energy efficiency and reduce scope 1 and scope 2 GHG emissions;
- ensure that major mobile diesel mining equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;

- prepare and implement an Air Quality and Greenhouse Gas Management Plan; and
- minimise post-mining fugitive emissions from exposed coal seams (discussed above).

5.6 Conclusion

341. The department notes the NSW approval conditions relevant to greenhouse gas emissions and that additional conditions were added by the IPC to minimise fugitive emissions.

342. The department notes that the IPC found Scope 3 emissions become the consumer countries' Scope 1 and 2 emissions and would be accounted for under the Paris Agreement in their respective national inventories. The management of GHG emissions under international and national frameworks is discussed further below in section 7.

343. The department does not consider that further conditions are necessary to protect listed threatened species and ecological communities and water resources.

6 6 ECONOMIC AND SOCIAL MATTERS (SECTION 136(1)(B))

344. In deciding whether or not to approve the proposed action and what conditions to attach to the approval, you must consider economic and social matters, so far as they are not inconsistent with any other requirement of Subdivision B, Division 1 of Part 9 of the EPBC Act.

345. Information on economic and social matters was primarily obtained from the AR (Attachment G3), EIS (Attachment I1), response to submissions report (Attachment I2) and the IPC statement of reasons (Attachment G5). The key issues are discussed below.

6.1 Economic matters

346. The NSW AR (Attachment G3) states the proposed action will provide major economic benefits for the region and NSW as whole, including:

- a predicted net benefit to the community of $408 million, including $129.5 million to the NSW Government
- on-going employment of up to 480 operational workers
- temporary employment of 145 workers during construction
- providing significant funding for local infrastructure and community service projects over the life of the mine in the order of $5 million, including a Voluntary Planning Agreement with Muswellbrook Council for community enhancement program and road maintenance.

347. An Economic Impact Assessment (EIA) was prepared by Cadence Economics (Cadence) in 2019 as a part of the EIS. The EIA was peer reviewed on behalf of

Glencore by Emeritus Professor Jeff Bennet. The NSW AR notes that the EIA considered the proposed action's economic costs and benefits relative to "baseline operations", which represent the exhaustion of currently approved coal resources in 2025 and subsequent closure and rehabilitation of the mine.

348. The independent economic expert concluded that the EIA was consistent with the EA Guideline and Technical Notes and provided sound findings regarding the likely economic impacts associated with the project.

349. Public submissions to the IPC (Attachment G4) cited both positive and negative economic impacts of the proposed action. Issues raised include:

- the contribution to the local economy through employment and support for local business.
- the scale of economic impacts and benefits has been overstated.
- the economic future for coal mining is uncertain.

350. DPIE considered a range of economic issues in the AR (Attachment G3) including amenity and health impacts, impacts on water and agriculture, biodiversity and heritage, traffic and visual impacts.

351. The IPC imposed a number of conditions to mitigate and manage residual social impacts, including requiring the proponent to:

- comply with strict noise, blasting and air criteria and operating conditions, and prepare noise, blasting and air quality management plans;
- comply with water quality objectives, discharge requirements and compensatory water requirements for any loss of water supply due to mining operations;
- independent review of potential exceedances of applicable environmental criteria, at the request of landowners.

352. State condition B108 requires the proponent to prepare and implement a Social Impact Management Plan for the project in consultation with Muswellbrook Council, the Community Consultative Committee, the local community and other interested stakeholders.

353. DPIE acknowledged that Council and community members raised genuine concerns about potential impacts of the project on the lifestyle, amenity or wellbeing of the community.

354. DPIE noted in the AR (Attachment G3) that it carefully weighed the impacts of the project against the significance of the resources and the socio-economic benefits. On balance, DPIE believes the proposed action's benefits to the local, regional and State economies outweigh its potential costs, is in the public interest and is approvable, subject to stringent conditions.

355. In its Statement of Reasons, the IPC noted that DPIE accepted the proponent's EIA and that it was prepared in accordance with the NSW Guidelines for the economic assessment of mining and coal seam gas proposals and Technical Notes supporting

the guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (technical notes).

356. The IPC did not accept the proponent's methodology used to calculate benefits to NSW based workers and supplier benefits and found them to be over-estimated in the proponent's EIA. However, the IPC accepted that the proposed action would have a positive economic impact in relation to employment through the provision of up to 400 ongoing positions, 80 operational positions and 145 construction jobs. The IPC acknowledged that a large portion of workers' salaries would be reinvested and circulated within the region and NSW more broadly.

357. Furthermore, the IPC did not accept the proponent's methodology for calculating GHG costs and disregarded the EIA's approach to the allocation of the costs of fugitive emissions. The IPC was of the view that all fugitive Scope 1 and 2 emissions should be fully costed for in the economic analysis because they are emitted in NSW and therefore attributable to NSW. However, the IPC considered that the total estimated GHG cost did not materially alter the proposed action's net benefit to NSW.

358. In making its final decision to approve the proposed action, the IPC found that the proposed action will generate net positive social and economic benefits for the local area, Hunter region and greater NSW through continued employment opportunities, royalties and tax revenue (Attachment G5).

359. The department agrees with the IPC assessment of economic impacts of the proposed action.

6.2 Social matters

360. The EIS includes a Social Impact Assessment (SIA) prepared by Umwelt Pty Ltd, which considers the negative and positive social impacts of the project on adjacent landowners as well as local and regional communities.

361. The SIA was prepared in accordance with DPIE's Social Impact Assessment Guidelines for State Significant Mining, Petroleum Production and Extractive Industry Development (2017).

362. The NSW AR states that the proposed action will generate a range of social benefits for the local and regional community through direct and indirect employment opportunities and economic growth in the regional economy. It will also generate benefits for the State through royalties and tax revenues.

363. The SIA recognised potential adverse social impacts in the local community, particularly to rural residents close to the mine where there will be increased impacts. DPIE acknowledged while the potential impacts are predicted to remain within relevant assessment criteria or could be appropriately addressed in accordance with NSW policies and guidelines, local residents are still likely to have concerns about the potential impacts to their lifestyle, amenity or wellbeing.

364. The IPC considered the potential social impacts of the project, and the likely social benefits (Attachment G5), and concluded the benefits include:

    a. Generation of additional jobs.

b. Employment opportunities for the Indigenous community.

c. Growth in indirect employment in upstream and downstream industries.

d. Diversification from a predominantly agricultural economy.

e. Increase in local procurement.

365. The IPC statement of reasons (Attachment G5) acknowledged the potential for negative social impacts on the local community and region through increased pressure on local services, facilities, social dynamics and other land users.

366. Issues raised in public submissions to the IPC included: employment, job certainty, flow-on benefits to local business, local community benefits, social impacts, community enhancement, visual impacts, air quality, noise, vibration, proximity to dwellings, lighting, transport, traffic, biodiversity, sustainability, water resources, climate change, flooding, bushfire, rehabilitation, final landform and mine closure.

367. The IPC noted the project will result in a range of positive and negative social risks and/or impacts, but concluded that the negative social risks associated with the proposed action can be appropriately monitored, managed and mitigated through the State conditions.

368. The department agrees with the DPIE and IPC assessment of social impacts of the proposed action.

6.3 Indigenous and cultural matters

369. The EIS dealt with the impact of the proposed action on two areas of heritage; Aboriginal Cultural Heritage and Values, and Historical Heritage.

370. An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared by Australian Cultural Heritage Management in consultation with 37 Registered Aboriginal Parties (RAPs) as part of the EIS process (Attachment I1, Appendix 16).

371. An Aboriginal Archaeological Impact Assessment (AAIA) was also prepared by OzArk Environmental & Heritage Management (OzArk) to assess the scientific value of sites and artefacts identified within the project area (Attachment I1, Appendix 11.6 of Appendix 16).

372. The ACHAR identified a total of 71 Aboriginal sites within the Northern Extension area, of which 26 are within the proposed disturbance area. These sites include 15 artefact scatters and 11 isolated finds. DPIE noted the 26 sites located within the proposed disturbance area will be impacted if the project goes ahead.

373. The AR states two sites near Big Flat Creek occur within the footprint of the proposed haul road overpass and have low-moderate to moderate scientific significance. The remaining sites have low scientific significance.

374. An Historic Heritage Assessment (HHA) was prepared by Umwelt as part of the EIS process. The AR states no items of historic heritage were identified within the Northern Extension Area. DPIE also noted the nearest historic heritage items are located between 1,680 m and 3,049 m from the Northern Extension Area.

375. DPIE noted the only potential impacts to these sites will be from blasting operations and the vibration predicted to be generated by the project is predicted to be well below the relevant impact criteria.

376. The NSW IPC agreed with the DPIE assessment that the Aboriginal cultural heritage impacts of the project are likely to be minimal and are able to be suitably managed. The NSW IPC imposed conditions requiring that the proposed action does not cause direct or indirect impacts on any identified heritage items located outside of the NEA, beyond those predicted in the EIS. The IPC was also of the view that the 26 aboriginal sites within the proposed disturbance area should be salvaged in accordance with protocols outlined in the existing approved Aboriginal Cultural Heritage Management Plan (ACHMP). The IPC imposed conditions which require the proponent to prepare and implement an updated ACHMP.

6.3.1 Conclusion

377. The NSW Assessment and IPC assessment concluded that impacts to indigenous and cultural heritage as a result of the proposed action are likely to be minimal and can be suitably managed under the NSW conditions.

378. The department agrees with the DPIE and the IPC assessment of indigenous and cultural impacts of the proposed action.

379. The department notes the conclusions in the NSW AR and the IPC Statement of Reasons as they relate to Indigenous and cultural matters.

7 MANDATORY CONSIDERATION - DUTY OF CARE AND HUMAN SAFETY

380. On 8 July 2021, the Federal Court of Australia declared that you have a duty to take reasonable care, in the exercise of your powers under ss 130 and 133 of the EPBC Act in respect of the Vickery Extension Project (EPBC 2016/7649) (Extension Project), to avoid causing personal injury or death to persons under 18 years of age and ordinarily resident in Australia, arising from emissions of carbon dioxide into the Earth's atmosphere: *Sharma v Minister for Environment (No 2)* [2021] FCA 774 (Sharma No 2). On 27 May 2021, the Court published its reasons for making that declaration: *Sharma v Minister for Environment* [2021] FCA 560 (Sharma No 1). These decisions are collectively referred to as Sharma.

381. The Court also found that human safety is a mandatory relevant consideration in relation to a controlled action that may endanger human safety, including through the emission of GHGs. The Court said at [404] of Sharma No 1:

> 'In relation to a controlled action of that kind, the lives and safety of the Children are not optional considerations but have to be taken into account by the Minister when determining whether to approve or not approve the controlled action. That implication is found in the 'subject-matter, scope and purpose' of EPBC Act…'

382. The Court found that you owed the applicants and other Australian children a duty to take reasonable care to avoid causing them personal injury when deciding whether to approve the Extension Project. The relevant risk of personal injury was the real risk of

harm to Australian children arising from heatwaves and bushfires, brought about by increases to global average surface temperatures: see Sharma No 1 at [247]. The Court found that the Extension Project would lead to the emission of 100MT of CO_2, which the Court found would cause a small but measurable increase to global average temperatures and that the proposed action's emissions would increase the risk of harm to Australian children arising from climate change. While the Court accepted that the contribution of the Extension Project to the increase in global average surface temperature might be characterised as "tiny", there was a "real risk that even an infinitesimal increase in global average surface temperature may trigger a 4°C Future World" and, in that context, "the Minister's prospective contribution is not so insignificant as to deny a real risk of harm to the Children": Sharma No 1 at [253].

383. The department notes that you are appealing the whole of the Federal Court's judgment in Sharma, except for that part concerning the dismissal of the application for an injunction. The grounds for the appeal are set out in the notice of appeal that has been filed with the Federal Court. The basis of the appeal is generally that the trial judge made errors of law.

384. Notwithstanding that you are currently appealing the Federal Court's judgment in Sharma, the department has applied the Sharma reasoning to this decision.

7.1 Application of Sharma reasoning to this decision

385. In deciding whether or not to approve the taking of the proposed action, you must take into account human safety and you must take reasonable care to avoid causing death or personal injury to Australian children. Human safety should be given 'elevated weight' in balancing the matters you must consider in exercising your discretion to approve or not approve the proposed action under ss 130 and 133 of the EPBC Act. The Court in Sharma No 1 stated at [407]:

> 'Faced with a controlled action which poses a real risk to the safety of members of the Australian community, the Minister may be expected to give at least elevated weight to the need to take reasonable care to avoid that risk of harm. To do so would be consonant with the policy of the EPBC Act. In such circumstances, the imposition of a duty of care which may, as a practical matter, impose a requirement upon the Minister to consider and give elevated weight to the need for reasonable care to be taken to avoid death or personal injury will not distort the Minister's discretion or skew the intended statutory balance.'

386. This part of the legal considerations report addresses the risks to human safety posed by the proposed action, your duty to take reasonable care to avoid causing death or injury to Australian children in making your decision and the department's recommendation, taking into account these matters and weighing them against other considerations including economic and social considerations. This section is structured as follows:

- Global coal markets and the likelihood of the proposed action's emissions increasing global GHG emissions;
- How GHG emissions are managed under international and national frameworks;

- Summary of GHG emissions for the proposed action, measures being undertaken by the company to manage the proposed action and Independent Planning Commission (**IPC**) Assessment;
- Risks of a warming climate;
- Social and economic considerations; and
- Conclusion.

7.2 Global coal markets and the likelihood of the proposed action's emissions increasing global GHG emissions

387. To assist you in making your decision, the department has reviewed publications of the International Energy Agency that analyse trends in global markets including 'World Energy Outlook 2020'[11] (**WEO 2020**), IEA Electricity Market Report – July 2021 (**Electricity Markets Report**) and 2021 IEA 'Net Zero by 2050' (**Net Zero by 2050**). The department has taken into account the expert reports of Professor Steffen filed in the Sharma proceedings, dated 30 June 2020, 7 December 2020 and 17 January 2021. These reports are referred to as the '**Steffen Reports**' and are included in this brief with the other reports filed in the proceeding from Dr Ramona Meyricke, Professor Anthony Capon and Dr Karl Mallon (Attachment I). The department has also taken into account the letter from Environmental Justice Australia on behalf of Lock the Gate Alliance in relation to the proposed action (Attachment L6) and the letter from School Strike 4 Climate dated 24 August 2021 (Attachment L5).

388. The department has also sought the advice of the Department of Industry, Science, Energy and Resources (**DISER**) in relation to the extent to which, if at all, the approval of certain coal projects including the proposed action, would affect the global level of consumption of coal in possible future scenarios (Attachment L4) (**DISER Advice**).

389. The DISER Advice explains that the two primary uses of coal are for energy and steelmaking. Coal used for steelmaking is referred to as metallurgical or coking coal. Coal used for energy is referred to as thermal coal.

390. The proponent has advised that 100% of the coal produced will be thermal coal for electricity production.

391. The Mangoola mine extension will produce 52 Mt of thermal coal for electricity generation over a period of 8 years. Thirty per cent of Mangoola's coal will likely supply domestic power stations (AGL) and 70% will be exported.

392. The GHGEA (2019) states that approximately 96% of the proposed action's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries or jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan.

[11] https://www.iea.org/reports/world-energy-outlook-2020

393. s. 47(1) / s. 47G(1)

7.2.1 Global Demand for Coal

394. The WEO 2020 identifies a number of scenarios for future global energy demand and supply to 2040. These scenarios include the:

- Sustainable Development Scenario (SDS): which assumes that global coal consumption will be constrained to a level consistent with the aims of the Paris Agreement and energy-related sustainable development goals (SDG) (these are: affordable and clean energy (SDG 7), to reduce the severe health impacts of air pollution (part of SDG 3) and climate action (SDG 13)); and
- Stated Policies Scenarios (STEPS): which assumes that global coal consumption will not be constrained to a level consistent with the aims of the Paris Agreement or address sustainable development goals. This scenario takes into account the policies and implementing measures affecting energy markets that have been adopted as of mid-2020, together with relevant policy proposals which have not been fully implemented.

395. The DISER Advice notes that global demand for coal will gradually decrease to 2040 in either SDS or STEPS scenario. Global demand for coal is estimated to be 1850 Mtce (million tonnes of coal equivalent) in 2040 in the SDS scenario and 4735 Mtce in 2040 in the STEPS scenario. However, demand for coal varies by region.

396. Table 1 of the DISER Advice details predicted coal demand in the STEPS scenario and demonstrates that demand for coal in the Asia Pacific region (including Southeast Asia, Japan, India and China) will remain relatively steady up to 2040. The DISER Advice states:

> Coal consumption in India is expected to grow over the next 20 years by 182 Mtce. Coal consumption in South East Asia is also expected to grow rapidly over the same period, increasing by 157 Mtce. Coal use rebounds in China in the near term, peaking around 2025, before declining to 2040. Japan is expected to see the largest reduction in coal consumption over the period, declining by 55 Mtce. By 2040, the Asia Pacific region will account for 85 per cent of global coal consumption (Table 1).

397. Table 2 of the DISER Advice details predicted coal demand in the SDS scenario and demonstrates that demand for coal in India will decrease from 590 Mtce in 2019 to 516 Mtce in 2025, 454 Mtce in 2030 and 298 Mtce in 2040. In China, demand will decrease from 2864 Mtce in 2019 to 2539 Mtce in 2025, 1952 Mtce in 2030 and 1045 Mtce in 2040. In Japan, demand will decrease from 157 Mtce in 2019 to 104 Mtce in 2025, 57 Mtce in 2030 and 41 Mtce in 2040. In Southeast Asia, demand will decrease from 246 Mtce in 2019 to 234 Mtce in 2025, 170 Mtce in 2030 and 79 Mtce in 2040. Although in this scenario there is a decline in overall demand, this decline is much less significant for the life of the proposed action which is 8 years.

398. The DISER Advice notes that, in either the SDS or STEPS scenario, the global demand for coal up to 2040 can be met by alternative sources of coal. Alternative sources of coal include all currently approved Australian coal mines, as well as all known or likely coal mines and coal deposits outside Australia but excludes the proposed action and other unapproved Australian coal mining developments.

7.2.2 Global demand for electricity from fossil-fuels

399. The IEA Electricity Information: Overview (Statistics Report August 2021)[12] states that in 2019, generation from combustible fuels (e.g. coal, oil, natural gas, biofuels and industrial and municipal waste) accounted for 65.3% of global gross electricity production. Electricity generation from combustible fuels accounted for 57.1% of total OECD gross electricity production, compared with 71.1% for non-OECD. The IEA report[13] found that coal accounted for 36.7% of global electricity production in 2019, natural gas 23.5%, hydro 16%, nuclear 10.3%, wind 5.3%, solar 2.6% and biofuels and waste 2.4%.

400. The IEA Statistics Report August 2021 states that provisional data for 2020 shows that gross electricity generation fell 2.4% across the OECD. Compared with 2019, the electricity mix shifted towards renewables, with lower generation from coal (-15.9%) offset in part by higher output from wind (+12.3%) and solar (+20.8%). This shift to renewables was driven in part by depressed electricity demand during Covid-19 lockdowns, low operating costs and priority access to the grid for renewables. In the OECD, combined output from wind, solar, and geothermal is now approaching that of hydro.

401. The IEA[14] forecasts that increases in electricity generation from all renewable sources should push the share of renewables in the electricity generation mix to an all-time high of 30% in 2021. However, despite record additions of renewable generation capacity, the IEA's Electricity Market Report – July 2021[15] states that fossil fuel-based generation and associated emissions are rising along with electricity demand. Although renewable electricity generation continues to grow strongly, it cannot keep up with increasing demand. Renewables are expected to be able to serve around half of the projected growth in global demand in 2021 and 2022. The IEA Electricity Market Report – July 2021 states that, as electricity demand growth rebounds in 2021, half of the increased supply is expected to be provided by renewable energy, with coal supplying almost 40% of new demand.

402. The IEA Electricity Market Report – July 2021 states that coal generation will continue to increase in the Asia Pacific region in the coming years because year-on-year demand growth is still strong in several countries, including China, India, Indonesia and Vietnam.

403. The IEA Coal 2020 Report also forecasts that coal demand will rise in South and Southeast Asia as electricity demand and infrastructure expand. This region has

[12] https://www.iea.org/reports/electricity-information-overview/electricity-production
[13] https://www.iea.org/data-and-statistics/charts/world-gross-electricity-production-by-source-2019
[14] https://www.iea.org/reports/global-energy-review-2021/renewables
[15] https://iea.blob.core.windows.net/assets/01e1e998-8611-45d7-acab-5564bc22575a/ElectricityMarketReportJuly2021.pdf

strong economic growth prospects, and relies on coal to supply part of the additional energy needs, especially for power generation. A large portion of demand for coal in Southeast Asia originates in the power sector. Indonesia and Vietnam in particular, as well as the Philippines, are expanding coal-fired power plant capacity.

404. The department notes that these forecasts are based on policies and investment projections in place at the time of these respective publications.

7.2.3 NSW Strategic Statement on Coal

405. The NSW Government has developed a Strategic Statement on Coal Exploration and Mining in NSW[16]. The statement identifies that coal mining in NSW is anticipated to continue for the next few decades. Although recognising that emissions reduction measures will be required, the statement notes that ending or reducing NSW thermal coal exports while there is still strong global demand for coal is likely to have little to no impact on global carbon emissions.

7.2.4 Alternative Sources of Coal and Related GHG Emissions

406. The DISER advice notes the long-term demand for thermal coal depends primarily on its price and demand for energy (including the cost of alternative energy products and consumer preferences for energy types). Supply of thermal coal depends on availability in nature, the technology used for extraction, the labour and capital costs associated with production, the cost of transporting the coal to the demand source (normally by rail and ship) and the regulatory costs associated with environmental protection and worker health and safety.

407. The DISER Advice states that your decision to approve the proposed action does not affect any of the demand factors identified. The DISER Advice notes that recent trade disruptions have demonstrated the substitutability of coal, where coal destined for China has been resold or redirected to various countries and China has managed to source its coal needs in the absence of previously substantial Australian supply. The DISER Advice concludes:

> 'Regardless of any feasible scenario of future global demand, the small fraction of current global coal supply that these projects represent, combined with the relatively flat global seaborne coal cost curves indicates that the Decision will not have any discernible impact on global coal prices. The alternative sources of coal identified in sub-question 1 are readily substitutable for any coal that might be produced by the Coal Mining Projects.'

408. The department notes DISER's advice that the carbon dioxide emissions of electricity generated from coal are dependent on a number of factors. DISER notes that it is not possible to identify specific mine sources that would be the alternative source of coal in the event the proposed action is not approved. DISER considered that it is not possible to conclude that any decision to approve the coal project will necessarily increase GHG emissions associated with coal consumption.

[16] https://www.resourcesandgeoscience.nsw.gov.au/__data/assets/pdf_file/0004/1236973/Strategic-Statement-on-Coal-Exploration-and-Mining-in-NSW.pdf

7.2.5 Impact of a Decision to Approve or Refuse the Proposed Action on Global GHG Emissions and Climate Change

409. The department considers that the available evidence indicates that a decision to approve the proposed action would be unlikely to lead to an increase in global average surface temperatures. This is because the action consequent upon the approval of the project is not likely to cause more coal to be consumed globally (and therefore more GHG emissions) than if the proposed action was not approved.

410. The DISER Advice states that 'any decision of the Minister to approve one or more of the Coal Mining Projects (Decision) is not expected to materially impact on the total amount of coal consumed globally'. The department agrees with this conclusion. DISER notes that the approval or refusal of the proposed action will not affect global demand for coal and there are sufficient alternative sources of coal to supply future demand for coal in projected future scenarios. In those circumstances, the rejection of the proposed action is unlikely to have an impact on total global coal consumption, or to impact the price of coal.

411. As noted above, given that the DISER Advice noted that it is not possible to identify specific mines that will be used in substitution for the proposed action's coal, in circumstances where the refusal of the proposed action would not impact the total amount of coal consumed, and other coal sources will be available to meet demand, it is not possible to conclude that the amount of GHG emissions that would occur even if the proposed action was approved would necessarily increase in any material degree.

412. The department has also considered the Steffen Reports in reaching the above conclusion. Professor Steffen acknowledges the argument that 'if a proposed new coal development is not allowed to proceed, another new coal resource, either in Australia or overseas, will be developed to take its place'. However, Professor Steffen states that this argument is flawed because it presumes that there is and will continue to be a demand for new coal resources beyond those that already exist, whereas he is of the view that evidence demonstrates that coal production is in steady decline. The department notes that this is inconsistent with other available evidence which indicates that demand for coal is likely to continue (see paragraphs [394]-[398] above).

7.2.6 Conclusion on Coal Markets and Substitution

413. As found by the Court in Sharma, an increase to total global GHG emissions poses a risk to human safety by increasing total global average surface temperatures. The relevant risk to human safety found to exist in Sharma was the risk of death or personal injury from heatwaves or bushfires.

414. The department considers that the approval of the proposed action is not likely to cause harm to human safety because, if the proposed action is not approved, there is no reason to believe that a comparable amount of coal would not be consumed in substitution of the proposed action's coal. Therefore, the department does not consider that the proposed action will necessarily result in an increase to global GHG emissions.

7.3 How GHG Emissions are managed under international and national frameworks

415. In the event that the small amount of emissions from the proposed action are additional and are not substituted by emissions from other coal production, the department has considered the national and international frameworks within which those emissions will be managed and measures to mitigate their impacts. These matters further inform your consideration of your duty of care and your consideration of the impact of the proposed action on human safety.

7.3.1 International framework for climate change

416. The international climate treaties, the Paris Agreement, done at Paris on 12 December 2015, the Kyoto Protocol, done at Kyoto on 11 December 1997, and the United Nations Framework Convention on Climate Change (**UNFCCC**), done at New York on 9 May 1992, are the primary multilateral mechanisms governing the international response to climate change.

417. The Paris Agreement entered into force on 4 November 2016. 191 countries are Party to the Paris Agreement, including Australia.

418. The temperature goal of the Paris Agreement is to limit the increase in global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. All parties must prepare, communicate and maintain successive NDCs and pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions. In Australia, our emissions reduction targets and national climate mitigation policies are the responsibility of the Minister for Energy and Emissions Reduction, supported by DISER.

419. Projections in the IPCC Special Report, 'Global Warming of 1.5°C'[17] (8 October 2018) indicate that, if NDCs in place in 2018 were implemented successfully, the world would reach 2.7-3.2 degrees Celsius above pre-industrial levels by 2100. Under the Paris Agreement successive NDCs are required to represent a progression beyond the current NDC and reflecting its highest possible ambition (Article 4.3).

420. Under Article 4 of the Paris Agreement, parties aim to reach global peaking of GHG emissions as soon as possible, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removal by sinks of GHG in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty. 137 governments around the world including Australia (covering 70% of global emissions) have announced intentions to reach net zero emissions which better align with the Paris Agreement temperature goal to limit the increase in global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

421. To respond to climate change, industry, legal and financial fiduciary bodies have also called on business to recognise, understand and respond appropriately to the risks and consequences posed by climate change, potentially independent of government

[17] https://www.ipcc.ch/sr15/

policy. Many companies and businesses have also established net zero by 2030 – 2050 targets. Industry is increasingly acknowledging that effort across the whole supply chain is required to enable sectors to decarbonise.

7.3.2 Climate change framework in anticipated international coal markets for the proposed action

422. s. 47(1) / s. 47G(1)

423. s. 47(1) / s. 47G(1)

424. As outlined above, the GHGEA forecast that 96% of the proposed action's scope 3 GHG emissions will be generated in Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan. Taking into account the GHGEA projections, and the export destinations for the current Mangoola coal, the department accepts that the majority of the proposed action's coal is likely to be exported to the markets identified in the GHGEA. The department notes that some variations may include export to the other destinations to where Mangoola coal is currently exported.

425. On 16 September 2021, DISER provided the following information in relation to the national commitments of countries identified in the proponent's 2019 GHGEA:

Japan

Japan's official NDC commits to emissions reduction of 26% below 2013 by 2030. In addition,

- Japan's Global Warming Countermeasures Law 2021 commits that "a decarbonised society will be realized by 2050".
- At the US-hosted Leaders' Summit on Climate in April 2021, Japan announced it will reduce emissions 46% below 2013 by 2030.
- Japan's Ministry of Economy, Trade and Industry (METI) released its Basic Energy Policy draft in July 2021. Under the plan, by 2030:
    - coal use will be reduced from 26% to 19%
    - gas use will be reduced to 56% to 41%
    - solar is set to increase to 15% from 6.7% in 2019
    - wind is set to increase to 6% from 0.7% in 2019

The Republic of Korea (South Korea)

South Korea's official NDC commits to emissions reduction of 24.4% below 2017 emissions by 2030. In addition,

- At the US-hosted Leaders' Summit on Climate in April 2021, South Korea announced a commitment to ending financing of overseas coal fired power plants.

India

India's official NDC commits to reducing the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 levels; achieving about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund; and, creating an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030.

In addition, India first announced a target of 450 GW of renewable energy capacity by 2030 at the 2019 Climate Action Summit, and reiterated the target at the US-hosted Leaders Summit on Climate in April 2021.

Taiwan

Taiwan is not a Party to the Paris Agreement. It submitted an intended NDC in 2015 committing to reduce emissions 20% below 2005 levels by 2030. In addition,

- Taiwan legislated its Greenhouse Gas Reduction and Management Act in 2015 with the long-term goal to reduce emissions 50% below 2005 levels by 2050.

China

China's official NDC commits to achieve the peaking of CO_2 emissions around 2030 and making best efforts to peak early; to lower CO_2 emissions per unit of GDP by 60% to 65% from the 2005 level; to increase the share of non-fossil fuels in primary energy consumption to around 20%; and to increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.

In addition, at the General Debate of the 75th Session of the United Nations General Assembly, China's President Xi Jinping announced China would

- scale up its NDC with more vigorous policies and measures,
- peak CO_2 emissions before 2030,
- achieve carbon neutrality before 2060.

China's 14th Five Year Plan (released March 2021) includes a number of intentions aligned with the President's announcement:

- develop an action plan to achieve peak carbon emissions by 2030, anchored to efforts to achieve carbon neutrality by 2060, and the need to adopt more vigorous policies and measures.
- aim to reduce carbon dioxide emissions per unit of GDP by 18 per cent over the 2021 to 2025 period (the same target as the 13th Five Year Plan), peak carbon emissions by 2030 and achieve carbon neutrality by 2060.

- Detailed targets will be revealed when sectoral plans are released towards the end of 2021. For the first time, the Ministry of Ecology and Environment will also release a Five Year Plan for Climate Change in late 2021, which will serve as a blueprint for China's climate action.

The Department notes that on 22 September 2021, President Xi Jinping announced China would not build new coal fired power stations abroad.

Malaysia

Malaysia's official NDC commits to economy-wide carbon intensity (against GDP) reduction of 45% (unconditional) by 2030 compared to 2005 levels.

The Philippines

The Philippines' official NDC commits to a 75% reduction in emissions below BAU by 2030. 2.71% of this target is unconditional and 72.29% is conditional. The mitigation contribution is conditioned on the extent of financial resources, including technology development & transfer, and capacity building, that will be made available to the Philippines.

Viet Nam

Viet Nam's official NDC commits to reduce emissions by 9% compared to BAU by 2030 using domestic resources, and up to 27% with international support through bilateral and multilateral cooperation and the implementation of new mechanisms in the Paris Agreement.

The Department also notes the policies of:

New Caledonia

The Department notes that New Caledonia, as a territory of France, is not a separate Party to the Paris Agreement. In 2016 New Caledonia in 2016 implemented an energy transition scheme which aims to reduce energy consumption, increase the amount of renewables in the energy mix and reduce emissions.18

Thailand

Thailand's NDC aims to reduce GHG by 20% from business as usual level (2005 the reference year) by 203019.

Indonesia

Indonesia's updated NDC commits it to an unconditional reduction target of 29% and conditional reduction target up to 41% of the business as usual scenario by 203020.

426. The department notes that Japan, South Korea, India, China, Malaysia, Philippines, Vietnam, France (New Caledonia), Thailand, and Indonesia are signatories to the Paris Agreement and Taiwan has equivalent commitments.

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[18] https://gouv.nc/sites/default/files/atoms/files/2016.06.23_schema_tranition_energetique_stenc.pdf

[19] https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Thailand%20First/Thailand%20Updated%20NDC.pdf

[20] https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/Updated%20NDC%20Indonesia%202021%20-%20corrected%20version.pdf

7.3.3 Domestic measures

427. Under the UNFCCC, Kyoto Protocol and Paris Agreement, the Australian Government has committed to reduce national GHG emissions, track progress towards those commitments, and report annually on Australia's GHG emissions.[21] Australia first communicated its NDC under the Paris Agreement in 2015, committing to an economy-wide target to reduce GHG emissions by 26 to 28% below 2005 levels by 2030.

428. In preparing this brief, the department consulted with DISER who advised:

> Australia has a strong record of overachieving on its emissions reduction targets – we overachieved on our two previous targets, under the Kyoto Protocol and UNFCCC.
>
> Australia has in place a comprehensive suite of emissions reduction policies, which are working to reduce emissions in all sectors of the economy. Building on these policies, the government is currently focused on low emissions technologies globally scalable, commercial, and achievable.
>
> Australia's Technology Investment Roadmap[22] will drive down the cost of low emissions technologies and accelerate their deployment, both in Australia and overseas. The Roadmap brings a strategic and system-wide view to future investments in low emissions technologies, in partnership with the private sector, states and territories, and key international partners.
>
> The Roadmap's first annual Low Emissions Technology Statement[23] articulates five priority technologies (clean hydrogen, carbon capture and storage, low carbon materials like steel and aluminium, energy storage and soil carbon) and accompanying stretch goals – ambitious but realistic goals to bring priority low emissions technologies to economic parity with existing mature technologies.
>
> These technologies are expected to avoid in the order of 250 million tonnes of emission per year by 2040, through deployment in Australia and low emission exports. The Roadmap will guide the deployment of an estimated $20 billion of Government investment between now and 2030, including through the CEFC, ARENA, the Climate Solutions Fund, and the Clean Energy Regulator. The Government's investments through the Roadmap will help to secure around $80 billion in total investment from the private sector and governments over the next 10 years.
>
> Commonwealth legislation relating to the Australian Government's policies and programs to reduce emissions and fulfil its emissions reporting and target tracking obligations are regulated by the Clean Energy Regulator (**CER**). The CER is responsible for administering the National Greenhouse and Energy Reporting Act 2007 (**NGER Act**), the Carbon Credits (Carbon Farming Initiative) Act 2011, the *Greenhouse and Energy Minimum Standard Act 2012*, and the *Australian National Registry of Emission Units Act 2011*.

429. Australia's National Inventory System (**NIS**) estimates and reports Australia's GHG emissions in accordance with Intergovernmental Panel on Climate Change (**IPCC**) guidelines and rules adopted by the Parties to the Paris Agreement. The NIS

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21 https://www.industry.gov.au/policies-and-initiatives/australias-climate-change-strategies/tracking-and-reporting-greenhouse-gas-emissions.
22 https://www.industry.gov.au/data-and-publications/technology-investment-roadmap-first-low-emissions-technology-statement-2020
23 https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf

comprises an independent national monitoring system to compile Australia's national GHG inventory. The scheme established under the NGER Act is a primary data collection tool for the NIS, with high quality facility level NGER data used where possible for the energy, industrial processes and waste sectors. The UN climate treaties, including the Paris Agreement, specify that Parties are responsible for the emissions occurring within their jurisdictions.

430. This means that emissions across each jurisdiction, conceptually equivalent to scope 1 emissions, are aggregated to fulfil Paris Agreement emission reporting and target accounting obligations. Scope 2 and scope 3 emissions that occur within the same jurisdiction are not added to this calculation as it would result in double counting of emissions: one facility's scope 2 and 3 emissions are another facility's scope 1 emissions. Scope 3 emissions associated with Australian facilities that occur outside Australia's jurisdiction (e.g. emissions from the combustion of Australia's coal in an export destination) are accounted for in the countries where those emissions occur.

431. In supplementary advice provided on 16 September 2021, DISER stated that CO_2 emissions associated with the project that occur within Australia's jurisdiction over the period 2021-30 would be covered by the Australian Government's Paris Agreement NDC for that period (2030 Paris target).

432. The Government has committed to an economy-wide 2030 Paris target to reduce emissions to 26 to 28 per cent below 2005 levels by 2030, expressed as an emissions budget over the period 2021-30.

433. Emissions from the project occurring beyond that period (within Australia's jurisdiction) will be covered by future NDCs made by the Government consistent with Article 4.3 of the Paris Agreement

434. In January 2021, the Prime Minister announced that 'our goal is to reach net zero emissions as soon as possible, preferably by 2050'[24].

7.3.4 NSW Climate Change Policy

435. The NSW government has developed the NSW (**CCPF**)[25] and Net Zero Plan Stage 1: 2020-2030[26] which provides guidance and measures to achieving net zero emissions in NSW by 2050.

436. The aim of the CCPF is to maximise the economic, social and environmental wellbeing of NSW in the context of changing national and international policy, with the aim to achieve net-zero emissions by 2050. The CCPF does not set prescriptive emission reduction targets, but sets policy directions for government action, for example, to improve opportunities for private sector investment in low emissions technology in the energy industry, which is needed for a transition to a net-zero emissions inventory.

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[24] https://www.pm.gov.au/media/address-national-press-club-barton-act

[25] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf

[26] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/net-zero-plan-2020-2030-200057.pdf

437. The Net Zero Plan builds on the CCPF and sets out a number of initiatives to deliver a 35% cut in emissions by 2030, compared to 2005 levels. NSW has recently announced it will update its emissions reduction targets for 2030, setting a new goal to reduce emissions by 50 per cent below 2005 levels by 2030.

438. In addition to the above policies, the NSW State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007[27] (Mining SEPP) requires the NSW consent authority to consider, in approving a development application:

- whether conditions should be attached to consents to ensure that the development is undertaken in an environmentally responsible manner, including conditions to ensure that greenhouse gas emissions are minimised to the greatest extent possible (clause 14(1) of the Mining SEPP); and
- an assessment of GHG emissions (including downstream emissions) from the development and must do so having regard to any applicable State or national policies, programs or guidelines concerning GHG emissions (clause 14(2) of the Mining SEPP).

7.4 Summary of GHG emissions for the proposed action, measures to manage the proposed action, and IPC assessment

439. Over the life of the proposed action (8 years), the maximum estimated total GHG emissions are predicted to total 107,940,192 t CO_2-e, made up of:

- 3,251,000 t CO_2-e of scope 1 primarily from fugitive emissions and diesel use during its operational phase;
- 402,192 t CO_2-e scope 2 emissions, associated with the production of electricity used by the proposed action including underground mining equipment, conveyor belts, ancillary equipment, and administration facilities; and
- 104,287,000 t CO_2-e of scope 3, which would be generated by third parties who transport and consume the extracted coal.

7.4.1 Proponent/Glencore commitments

440. The Mangoola coal mine is operated by Glencore, one of the world's largest and diversified resource companies. The proponent is a subsidiary of Glencore.

441. In December 2020, Glencore announced its target to reduce its global total emissions (scope 1, 2 and 3) by 40% by 2035; as well as its long-term goal to become a net-zero company by 2050[28]. In August 2021, Glencore provided a presentation to the department and stated that their global emissions reduction target has been increased to a 50% reduction in Scope 1, 2 & 3 emissions by 2035 (Attachment L2 – in confidence).

442. In December 2020, Glencore released their climate report, Pathway to net zero (Attachment L1). This report outlines seven core actions that Glencore will take to

[27] https://legislation.nsw.gov.au/view/html/inforce/current/epi-2007-0065
[28] https://www.glencore.com/media-and-insights/news/Climate-Report-2020--Pathway-to-Net-Zero

achieve their GHG reduction targets. The core actions include managing scope 1 and 2 emissions of their global assets, supporting the uptake/integration of abatement and investing in carbon capture technology.

443. The department notes that Glencore has published statements and plans to the market on their net zero by 2050 pathway. The department recommends that you note that these commitments would be beneficial, but that, in deciding whether or not to approve the proposed action, you take into account that only those measures required by the NSW development consent.

7.4.2 7.4.3 State assessment

444. As discussed above in section 5 of this Report, NSW DPIE and the IPC assessed the GHG emissions of the proposed action and the IPC imposed conditions relating to air quality and GHG regulation (B30, B31, B32, B33, B34 and B85), including that the approval holder must:

- take all reasonable steps to improve energy efficiency and reduce scope 1 and scope 2 GHG emissions;
- ensure that major mobile diesel mining equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;
- prepare and implement an Air Quality and Greenhouse Gas Management Plan; and
- minimise post-mining fugitive emissions from exposed coal seams.

445. While the IPC requested that Mangoola give greater priority to investigating and minimising fugitive emissions from exposed coal seams, the IPC concluded that the GHG emissions of the proposed action were adequately estimated and that the impacts associated with the GHG emissions of the proposed action were acceptable and in the public interest.

446. The department has considered the greenhouse gas emissions and NSW assessment of the emissions from the proposed action.

7.5 Risks of a warming climate

447. The department sought internal advice from Climate Adaptation and Resilience Division regarding the current state of climate change and, in particular, the outcomes from the most recent IPCC Report 'Climate Change 2021: The Physical Science Basis'[29] (**IPCC Report**). The Climate Adaptation and Resilience Division advised that the Government receives its primary advice on climate science from the Bureau of Meteorology (**BoM**) and the CSIRO. This advice aligns with information provided by the IPCC and other national and international organisations.

448. The IPCC Report provides an update on the latest climate science, including the rates, causes and likely future trajectories of global warming and other changes to the climate system.

[29] https://www.ipcc.ch/report/ar6/wg1/

449. The Climate Adaptation and Resilience Division advised that the key findings in IPCC Report are consistent with the findings of the State of the Climate 2020 report, produced by BoM and the CSIRO.

450. The IPCC report finds that increasing global GHG emissions will increase total global average surface temperatures with the consequences described in that report. These consequences pose risks to human safety.

451. The department has also taken into account the expert evidence regarding the risks of a warming climate filed by the Applicants in Sharma. The expert evidence considered in the Sharma judgment included the Expert Report of Dr Ramona Meyricke, Expert Report of Professor Anthony Capon, Expert Report of Dr Karl Mallon, and the Steffen Reports. This expert evidence is included at Attachment I of your brief and is summarised in the Sharma judgment, in particular from [29]-[90], [205]-[246] (at Attachment D). The department notes that you are appealing certain findings in the judgment which arguably go beyond aspects of the evidence that was before the Court, with particular reference to the Steffen reports. Those errors are identified in your notice of appeal, as follows, with references to paragraphs in Sharma No 1:

(a) the best available outcome that climate change mitigation measures can now achieve is a stabilised global average surface temperature of 2°C above pre-industrial levels ([31] and [74(ii)]);

(b) at a stabilised global average surface temperature above 2°C, there is an exponentially increasing risk of the Earth being propelled into an irreversible 4°C trajectory ([31], [74(iii)] and [75]);

(c) there is a real risk that even an infinitesimal increase in global average surface temperature above 2°C above pre-industrial levels may trigger a 4ºC Future World ([253]);

(d) a decision under the EPBC Act to approve the Extension Project would cause an increase in CO_2 emissions of 100Mt above the CO_2 emissions that would otherwise occur ([79], [84], [247] – [249]);

(e) if the Extension Project were to proceed, any CO_2 emissions resulting from burning of coal extracted through that project would be outside the emissions contemplated by the "carbon budget" necessary to achieve a target of 2°C above pre-industrial levels ([86] – [87], cf [73]).

452. Dr Mallon analyses the possible future impacts resulting from climate change, including heatwaves and bushfires. Dr Meyricke also addresses the likely harms arising from increased heatwaves and higher daily temperatures. Professor Capon identifies direct, indirect and flow-on impacts on human health as a result of a warming climate, including from heatwaves and bushfires.

453. On the basis of this evidence, the Court found that the relevant risk to human safety from increases in global average surface temperature was the risk of death or personal injury from heatwaves or bushfires.

7.5.1 Contribution of the proposed action to climate change

454. It is acknowledged that the Court in Sharma No 1 found that, even though the emissions of the Extension Project (100MT) were 'tiny' on a global scale, there was a

real risk that even an infinitesimal increase in global average surface temperature may trigger a tipping point or a 4°C Future World: [253].

455. Thus, if, contrary to the DISER Advice, the proposed action were to cause additional coal to be consumed, the department considers that the proposed action risks a very small increase in global GHG emissions (see below), and therefore, a small increased risk to human safety.

456. The department notes that the total emissions from the proposed action are approximately equivalent to those associated with the Extension Project. The total GHG emissions of the proposed action would be approximately 107.94 Mt of CO_2 equivalent (3,250,870 Mt CO_2-e (scope 1), 402,192 tonnes CO_2-e (scope 2) and 104,286,583 tonnes CO_2-e (scope 3)). The emissions of the proposed action are discussed above at [303] – [343].

7.5.2 Reasonable measures to mitigate climate change

457. As outlined above, climate change is a global problem that the international community has responded to through the UNFCCC and now the Paris Agreement. Parties to the Paris Agreement have committed to prepare, communicate and maintain their NDCs that they aim to achieve, with the goal of limiting the increase in global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

458. The proponent stated in EIS documentation that approximately 96% of the proposed action's scope 3 emissions are forecast to be generated by electricity generators burning coal in countries and jurisdictions such as Australia, China, India, Japan, Malaysia, Philippines, South Korea and Taiwan, depending on future commercial agreements. Updated information provided by Glencore on Mangoola's current exports list Japan, South Korea, India, Taiwan, Thailand, New Caledonia and China as primary recipients of Mangoola coal

459. The department notes expected end customer base for the proposed action is located in countries that are either signatories to the Paris Agreement or countries with equivalent domestic policies for reducing GHG emissions or expect to become a Paris signatory in the near future in the case of Turkey which is currently importing 1.6% of Mangoola coal.

460. Further, scope 3 emissions occurring overseas will become the consumer country's scope 1 and 2 emissions and be accounted for under the Paris Agreement in their respective national inventories. The Paris Agreement does not require parties to take particular measures to achieve their NDCs; rather, parties may determine which domestic mitigation measures to pursue, with the aim of achieving the objective of their NDC. The scope 3 emissions associated with the combustion of Mangoola coal in Australian power stations occurring within Australia's jurisdiction over the period 2021-30 would be covered by the Australian Government's Paris Agreement NDC.

461. The department has taken into account the Steffen Reports in considering the impact of the proposed action on climate change. These reports address a different mine, but contain information relevant to the proposed action. Professor Steffen uses a carbon budget approach to determine the limited cumulative amount of additional

CO2 emissions that can be emitted consistent with limiting global temperature rise to 2°C, consistent with the Paris Agreement.

462. The department disagrees with Professor Steffen's conclusion that, because the majority of the world's existing fossil fuel reserves cannot be burned in the 'carbon budget', this means that no new fossil fuel developments or extensions can be approved consistent with limiting warming to 2°C. The department notes the following:

a. First, consistent with the Paris Agreement, national governments have a discretion to determine what measures will be employed to reduce GHG emissions. There is no government policy requiring approval of coal mines to be refused in order to meet Australia's commitments under the Paris Agreement, or to prevent coal being available to other countries to reduce other countries' emissions.

b. Second, the scope 3 emissions from the burning of the coal are taken into account in the country where they are emitted, consistent with the Paris Agreement. The majority of the proposed action's emissions are scope 3 emissions, and the proposed consumers of the coal will be parties to the Paris Agreement.

c. Third, evidence as discussed above indicates that there is an ongoing demand for coal. A decision to refuse the proposed action is likely to have no reduction of total GHG emissions.

d. Fourth, while GHG emissions result from the burning of coal, there are many other sources. The department disagrees that the use of coal in particular cannot continue as a source of such emissions. The fact that most fossil fuels must remain unburned accepts that some proportion of the world's existing fossil fuel reserves can be exploited (see Gloucester Resources v Minister for Planning [2019] NSWLEC 9 at [551]), and does not take into account other measures that may be taken to reduce or offset emissions.

463. The department has also taken into account the letter from Environmental Justice Australia (EJA) written on behalf of Lock the Gate dated 1 September 2021, referring to the Sharma decision, the IEA Net Zero 2050 Roadmap and the most recent IPCC report. The Sharma decision, IEA Net Zero 2050 Roadmap and IPCC report and have been discussed at sections 7.1, 7.2 and 7.5 respectively.

464. The department notes that the IEA Net Zero by 2050 Roadmap presents "a" pathway to achieving net zero emissions. The IEA describes this as "this formidable goal" "which requires "nothing short of a complete transformation of the global energy system". In this pathway which outlines 400 milestones of what needs to be done across all energy supply and use sectors; the IEA posits that no new oil and gas fields and no new coal mines or mine extensions will be "required" in their pathway. The department notes that the Net Zero by 2050 report is not a forecast but rather what the IEA analysis finds to be "technically feasible, cost effective and socially acceptable", noting that "each country will need to design its own strategy taking into account its specific circumstances".

465. The department acknowledges that parties' current NDCs under the Paris Agreement are insufficient to limit global average temperatures to well below 2°C preferably 1.5 degrees. However, there are mechanisms under the UNFCCC and Paris Agreement (Article 4 to increase the commitments made for future NDCs) to achieve the Paris goal of well below 2 degrees.

7.5.3 Reasonable measures to mitigate human safety impacts posed by climate change

466. The NSW IPC has imposed a number of conditions directed at the reduction and mitigation of GHG emissions from the proposed action. Those measures are outlined above in section 5.5.

467. The department has considered all completed assessments and NSW development consent conditions relating to GHG emissions. The IPC concluded that the proposed action included appropriate measures for minimising and managing the scope 1 and scope 2 emissions of the proposed action 'to the greatest extent possible'.

468. The department agrees that these conditions address the proposed action's GHG emissions and mitigate the risk to human safety caused by the proposed action to the greatest extent possible. The department also recommends that you take into account the social and economic benefits of the proposed action which are discussed further below.

7.6 Social and economic considerations

469. The department has outlined the relevant economic and social matters in this legal considerations report (paragraphs [346]-[368]). In summary, the department agrees with the IPC and considers that the proposed action would result in a range of benefits for the local and regional economies and would allow for the continued and valuable production of coal from the region. The refusal of the proposed action would prevent the opportunity for positive economic and social impacts.

470. The AR states that the proposed action would enable the continuous employment of the 400 employees currently working at the existing Mangoola Mine, provide for an additional 80 on-going operational jobs, and generate 145 short term jobs during the construction phase.

471. NSW DPIE concludes in the AR (Attachment G3) that the proposed action's benefits to the local, regional and State economies would outweigh its potential costs. As such, NSW DPIE considers the project justified from an economic efficiency perspective. The IPC, while noting that some benefits were overstated, concluded the proposed action would generate net positive social and economic benefits.

7.7 Conclusion on human safety risks

472. Even if, contrary to the DISER advice, the coal from the proposed action would not be substituted by other coal if the proposed action is not approved, the department still recommends approval, taking into account and balancing the other relevant considerations as detailed in this legal considerations report.

473. For the reasons identified throughout this report, the department recommends that you find, after giving elevated weight to human safety, that approval of the proposed action is not likely to cause harm to human safety and should be approved.

474. The department further considers that approval is appropriate having regard to the social and economic benefits of the proposed action. The department has formed this view after taking into account the matters referred to in this report and, in particular, that any contribution of the proposed action to global GHG emissions will be extremely small.

8 FACTORS TO BE TAKEN INTO ACCOUNT

475. In considering the relevant environmental matters and economic and social matters under s 136(1), you must take into account:

a. the principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(b) and 391(2) of the EPBC Act) (section 136(2)(a))

b. the NSW assessment report, being the assessment report relating to the proposed action (section 136(2)(b))

c. any other information you have on the relevant impacts of the proposed action (section 136(2)(e))

d. any relevant comments given to you by another Minister in accordance with an invitation under section 131, 131AA or 131A ((section 136(2)(f) and section 131AA(6))

e. any relevant advice obtained from the IESC in accordance with section 131AB (section 136(2)(fa))

f. any information given to you in accordance with a notice under section 132A (section 136(2)(g)).

8.1 The principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(9b) and 391(2) of the EPBC Act) (EPBC Act, s.136(2)(a))

476. In recommending that you approve the proposed action subject to conditions, the department has taken into account the principles of ecologically sustainable development, including the precautionary principle, in the following ways:

8.1.1 Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.

477. In recommending the approval of this proposed action, the department is satisfied the NSW assessment process has involved consideration of the long and short-term economic, environmental, social and equitable impacts in accordance with section 3A(a) of the EPBC Act. The department notes the proposed action has been assessed by NSW in accordance with the New South Wales Assessment Bilateral Agreement. The assessment included analysis of economic, environmental, social and equitable considerations, and included a public consultation process.

478. This report, the IPC Statement of Reasons (Attachment G5) and the AR (Attachment G3) provide sufficient information to allow you to conclude the decision-making processes have effectively integrated both short and long term social, economic and environmental considerations.

479. The department considers the likely impacts on the environment as a result of the proposed action are satisfactory in terms of the long-term and short-term economic, environmental, social and equitable impacts.

480. The department considers all short-term and long-term impacts on protected matters will be managed through the proposed conditions for approval under the EPBC Act.

481. The department considers the proposed action, if undertaken in accordance with the NSW conditions (Attachment G2) and the department's Final Approval Conditions (Attachment B), this will be consistent with the principle of ecologically sustainable development.

8.1.2 If 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 (also the precautionary principle - section 391(2))

482. The department considers that there are threats of serious or irreversible environmental damage generally to the matters protected by the controlling provisions of the proposed action. In recommending approval of the proposed action, the department concluded there is sufficient scientific information to know of, and understand, the likely impacts of the proposed action on matters protected by the controlling provisions of the proposed action.

483. Further, where there is a lack of certainty regarding the risk or severity of impacts, conditions have been recommended to ensure monitoring is undertaken and response mechanisms are in place to manage those impacts.

484. The IPC Statement of Reasons (Attachment G5) concluded that the precautionary principle has been appropriately applied through the application of mitigation and management measures set out in the proponent's EIS and supporting documents, the AR and the NSW conditions.

485. NSW conditions B57-B59 require the proponent to prepare and implement an ecological management plan, within which are specifications for monitoring and reporting on the condition of the site. These conditions are supported by Condition 12 of the Final Approval Decision Notice.

486. NSW conditions B50-B52 require the proponent to prepare and implement a water management plan, within which are specifications for monitoring and reporting on the condition of the site. These conditions are supported by Conditions 2-7 of the Final Approval Decision Notice (Attachment B).

8.1.3 The principle of intergenerational equity – the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

487. The department has taken the intergenerational principle into consideration when recommending the proposed action be approved.

488. In its SOR the IPC states that it considered inter-generational equity in its assessment of the potential environmental, social, and economic impacts of the proposed action, including by imposing conditions seeking to mitigate the potential long-term environmental impacts of the proposed action and providing for appropriate post-closure rehabilitation of the site.

489. The department agrees with this conclusion and considers that the recommended conditions of approval (Attachment B) will ensure the protection and management of listed threatened species and ecological communities and water resources. Those conditions ensure the proposed action must be implemented in a sustainable way so that the environment will be protected for future generations.

490. On this basis, the department considers that approving the proposed action subject to the recommended approval conditions would not be inconsistent with the principle of intergenerational equity.

8.1.4 The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

491. The department has considered the conservation of biodiversity and ecological integrity in relation to relevant threatened species and communities and in recommending the proposed action be approved. In addition, the department considers the AR (Attachment G3) and the EIS (Attachment I1) also took the conservation of biological diversity and ecological integrity into account as a fundamental consideration in assessing the proposed action.

492. The department considers that the proponent's commitments to avoid, mitigate and manage the impacts of the proposed action, including through the implementation of management plan objectives, and the recommended proposed conditions of approval, allow for the proposed action to not have serious or irreversible impacts on biological diversity and ecological integrity.

8.1.5 Improved valuation, pricing and incentive mechanisms should be promoted.

493. The department considers the costs of avoidance, mitigation and management measures for any relevant impacts provide appropriate pricing and incentive mechanisms for the protection of matters of environmental significance and the environment.

494. The NSW Development Consent implements performance-based conditions, where possible, to provide incentive to the proponent to achieve environmental outcomes and objectives in the most cost-effective way.

8.2 The NSW assessment report, being the assessment report relating to the proposed action (EPBC Act, s. 136(2)(b))

495. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account the assessment report relating to the proposed action. The NSW assessment report relating to the proposed action is at Attachments G1, G2, G3, G4, G5 and G6.

8.3 Any other information the Minister has on the relevant impacts of the proposed action (EPBC Act, s. 136(2)(e))

496. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account any other information you have on the relevant impacts of the proposed action (including information in a report on the impacts of actions taken under a policy, plan or program under which the action is to be taken was given to you under an agreement under Part 10 (about strategic assessments)).

497. There are no strategic assessment reports relevant to the proposed action. The department notes that, on 20 September 2012, the Australian Government entered into an agreement with the NSW Government to undertake a strategic assessment of a biodiversity plan for coal mining in the Upper Hunter Valley, NSW. Currently, there has been no report given to the Minister on the impacts of actions taken under the policy, plan or program, subject to the 20 September 2012 agreement under Part 10 of the EPBC Act, relevant to the Upper Hunter Strategic Assessment.

498. The Australian Government's Bioregional Assessment Program (completed in 2018) assessed the potential impacts of coal seam gas and large coal mining developments on surface water and groundwater, and ecosystems or assets depend on them. Six bioregions across Queensland, New South Wales, Victoria and South Australia were assessed.

499. In May 2018, the Bioregional Assessment for the Hunter Region (the BA) was released. It is at Attachment K. The BA considered the potential cumulative impacts on water and water-dependent assets in the Hunter subregion in NSW. The BA is a regional overview of potential impacts on, and risks to, water-dependent ecological, economic and sociocultural assets. The BA provides contextual information for Governments, industry and the community to further focus on the areas are potentially impacted, so local-scale modelling can then be applied when making regulatory, water management and planning decisions.

500. The BA focused on the potential cumulative impact between 2013 and 2102 of additional coal resource developments.

501. The department notes the BA was a regional scale water modelling assessment with the specific objective of focusing on areas for further local scale modelling. The department considers the site specific water impact assessments undertaken during the State assessment of the proposed action and the IESC advice (Attachment J1), provide a finer scale assessment of the proposed action's impacts on water resources and therefore can provide greater certainty with regard to decision making in respect to impacts on water resources. As outlined in the department's conclusions

in this Legal Considerations report, the department is satisfied that the proposed action will not have an unacceptable impact on water resources, provided it is undertaken in accordance with the recommended conditions of approval.

502. There are no bioregional plans relevant to this proposed action, as these relate to marine regions (see section 10).

503. Otherwise, all of the information which the department has considered in preparing this report is referred to in this Report and/or the final decision brief.

8.4 Any relevant comments given to the Minister by another Minister in accordance with an invitation under section 131, 131AA or 131A (EPBC Act, s. 136(2)(f) and s. 131AA(6))

504. Before you make a decision on whether or not to approve a proposed action you are required under sections 131(1) and 131AA(1) of the EPBC Act to:

a. inform the proponent and any other Commonwealth Minister(s) whom you believe has administrative responsibilities relating to the proposed action, of the decision you propose to make; and

b. invite the proponent and the Commonwealth Minister(s) to comment on your proposed decision within 10 business days.

505. On 15 September 2021, you wrote to:

- The proponent;
- The Minister for Indigenous Australians, the Hon Ken Wyatt AM MP;
- The Minister for Resources and Water, the Hon Keith Pitt MP;
- The Minister for Agriculture and Northern Australia, the Hon David Littleproud MP; and
- The Minister for Energy and Emissions Reduction, the Hon Angus Taylor MP.

506. The responses to your invitation to comment are discussed in the final approval decision brief and are found at Attachment C of the Final Decision Brief.

507. A letter notifying the NSW Minister for Planning and Public Spaces, the Hon Rob Stokes MP, of your proposed decision was also sent.

508. No comments were invited from the public under section 131A of the EPBC Act.

8.5 Any relevant advice obtained by the Minister from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development in accordance with section 131AB (section 136(2)(fa))

509. In considering the matters set out in section 136(1) of the EPBC Act – matters relevant to protected matters and economic and social matters – you must take into account any relevant advice obtained from the IESC.

510. On 23 August 2019, a delegate sought advice from the IESC. A summary of how the IESC advice was addressed during the NSW assessment and the department's

conclusions is provided at Attachment J3 and a copy of the IESC advice is at Attachment J1.

511. The department is satisfied the IESC advice has been adequately addressed during the NSW assessment process, the NSW conditions and proposed conditions of EPBC Act approval.

8.6 Any information given to the Minister in a notice requested under section 132A (EPBC Act, s. 136(2)(g))

512. Section 132A of the EPBC Act provides that, for certain actions, before you decide whether or not to approve the taking of the action for the purposes of a controlling provision, and what conditions (if any) to attach to an approval, you may request the appropriate Minister of the State or Territory to give you a notice stating the method has been used to assess the certain and likely impacts of the action on things other than matters protected by the controlling provisions for the action.

513. Section 132A of the EPBC Act does not apply to the proposed action as the action does not meet the criteria in s 132A(1).

9 PERSON'S ENVIRONMENTAL HISTORY – SECTION 136(4)

514. In deciding whether to approve a proposed action, and what conditions to attach to any approval, you may, under section 136(4) of the EPBC Act, consider whether the person proposing to take the action is a suitable person to be granted and approval.

9.1 Advice from department's Compliance Section

515. On 17 May 2021, the department sought advice regarding the environmental history of the proponent and Glencore from the Compliance Section in the Department's Office of Compliance (Attachment E3).

516. On 17 May 2021, the Compliance Section advised a search of the department's Compliance and Enforcement Management Systems database indicated there was one recorded incident that relates to contraventions of national environmental law by another subsidiary of Glencore (Xstrata) (Attachment E3). This is the only contravention of either national or state laws that the Compliance Section was aware of in relation to Glencore or the proponent.

517. The compliance section advised that the contravention was related to an incident in 2012 where Xstrata plugged subsidence at its Glencore Colliery with concrete, which subsequently flowed out and concreted up Cockle Creek in Mt Sugar Loaf National Park.

518. The Compliance advise stated that OEH issued a remediation order to Xstrata. It was determined that the water trigger legislation (which was introduced after the incident took place) did not apply to the event, and that the amount of disturbed land did not appear extensive enough to be likely to have a significant impact on MNES.

9.2 Environmental history information from the proponent

519. On 28 May 2021, the department wrote to the proponent and requested information (from the last ten years) on the following matters:

- the environmental history of the proponent and its executive officers;
- the environmental history of the proponent's parent body or parent bodies; any body or bodies of which the proponent is a subsidiary; and
- the environmental history of the executive officers of the proponent's parent body or parent bodies.

520. On 25 June 2021, the proponent responded to the letter of 28 May 2021 and provided the department with a table of its environmental history within the past ten years (Attachment F).

521. The proponent's response stated that there had been five incidents over the past ten years where the proponent (formerly known as Xstrata Mangoola Pty Ltd) had been issued with an official caution, penalty notice or has been subject to an agreed enforceable undertaking. In each case, the enforcement action was determined by the relevant state government authority and the proponent has taken steps to avoid re-occurrence. These incidents have been summarised in table 3 below.

Table 3: Summary of proponent's environmental history records

Date Penalty Received	Issue	Agency	Regulatory Action and penalty
29 November 2011	Failure to comply with conditions of PA06_0014 related to exceedance of blasting limits associated with a TransGrid powerline.	DPIE	$3000 penalty infringement notice (PIN) from DPIE
10 April 2013	The EPA identified a non-compliance with condition R4.3 of EPL 12894 which requires the provision of a noise compliance assessment report which determines compliance with condition L2.1 of EPL 12894.	EPA	Official Caution
28 April 2013	Failure to carry out road works. Related to Schedule 3, Condition 50(b) sub section (i) and (ii) and Condition 50(f) of PA 06_0014 by due date (30 April 2013).	DPIE	$3000 PIN from DPIE
24 September 2015	EPA investigation in response to a formal community complaint in relation to off-site impacts from a blast including, vibration, dust, fumes and offensive odours.	EPA	Official Caution
24 March 2020	An exceedance of blast overpressure criteria by 0.9 decibels (dB)	DPIE	Formal Warning

522. The response stated:

a. that none of the proponent's executive officers were executive officers at the time of these contraventions have been convicted of any environmental offences in the last ten years, and

b. that the parent body and its subsidiaries (other than Mangoola) are not operating companies and have not been convicted of any environmental offence in the last ten years. None of the current directors, secretaries or officers of these subsidiaries have been convicted of an environmental offence in the last ten years.

9.3 Conclusion on environmental history

523. Having regard to the nature and scale of the incidents outlined above, the department notes the proponent has been issued with two penalties and one formal warning from DPIE, and two official cautions by the NSW Environmental Protection Authority. The department considers that these incidents did not result in significant environmental harm. Further, the penalties imposed were not severe and they are reflective of the minor nature of the incidents. Finally, the proponent accepted and acknowledged these infringements and penalties which the department considers represents the proponent's commitment to take responsibility for incidents that result in environmental harm.

524. On the basis of the above factors, the department considers that the proponent is a suitable person to be granted an approval.

9.4 Minister not to consider other matters (EPBC Act, s. 136(5))

525. Under Subsection 136(5) of the EPBC Act, in deciding whether or not to approve the taking of a proposed action, and what conditions to attach to an approval, you must not consider any matters you are not required or permitted, by Division 1, Part 9 of the EPBC Act, to consider.

526. The department has based its recommendation to approve the proposed action with conditions on matters you are required or permitted by Division 2, Part 9 of the EPBC Act to consider.

10 REQUIREMENTS FOR DECISION ABOUT THREATENED SPECIES AND ENDANGERED COMMUNITIES (EPBC ACT, S. 139)

527. Under section 139(1) of the EPBC Act, in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, you must not act inconsistently with:

a. Australia's obligations under:

i. the Convention on Biological Diversity (Biodiversity Convention), or

ii. the Convention on the Conservation of Nature in the South Pacific (Apia Convention), or

iii. the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), or

b. a recovery plan or threat abatement plan.

528. Section 139(2) states, if:

a. the Minister is considering whether to approve, for the purposes of a section of section 18 or section 18A, the taking of an action; and

b. the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community;

c. the Minister must, in deciding whether to approve the taking of the action, have regard to any approved conservation advice for the species or community.

10.1 The Biodiversity Convention

529. The Biodiversity Convention is available at: https://www.cbd.int/convention/text/

530. The Biodiversity Convention requires Contracting Parties, as far as possible and as appropriate, to introduce procedures requiring environmental impact assessments of projects are likely to have significant adverse effects on biological diversity to avoid and minimise such impacts, and requires Parties to introduce appropriate arrangements to ensure the environmental consequences of their programs and policies are likely to have significant adverse impacts on biological diversity are duly taken into account.

531. The proposed action was subject to an environmental impact assessment process under the EP&A Act. The AR identifies the likely impacts of the proposed action on listed threatened species and communities, and recommends measures to avoid, mitigate and offset those impacts. These measures are reflected in the NSW conditions at Attachment G2, and the conditions which the department recommends be attached to an approval. The department notes that approval of the proposed action was carried out following an EIS, and there are arrangements in place to ensure the significant adverse impacts of the proposed action on biological diversity are taken into account.

532. The department considers the proposed action will not have unacceptable impacts on biodiversity, including Commonwealth-listed threatened species and communities, if it is taken in accordance with the recommended conditions.

533. The department therefore considers you should be satisfied approving the proposed action, subject to the proposed conditions which will avoid, mitigate and offset impacts to biodiversity, is not inconsistent with Australia's obligations under the Biodiversity Convention.

10.2 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

534. CITES is available at: https://cites.org/eng/disc/text.php

535. The aim of CITES is to ensure international trade in specimens of wild animals and plants does not threaten their survival.

536. The department considers you should be satisfied approving the proposed action, subject to conditions, is not inconsistent with Australia's obligations under CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

10.3 Convention on the Conservation of Nature in the South Pacific (Apia Convention)

537. The Apia Convention is available at: https://www.sprep.org/convention-secretariat/apia-convention

538. The Apia Convention encourages the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations, and regions and objects of aesthetic interest or historic, cultural or scientific value.

539. The Apia Convention was suspended with effect from 13 September 2006. While this Convention has been suspended, Australia's obligations under the Convention have been taken into consideration.

540. The proposed action has undergone an environmental assessment which concluded the proposed action will not have an unacceptable impact on biodiversity, geological formations and objects of aesthetic interest or historic, cultural or scientific value, subject to the proposed conditions.

541. The proposed conditions of approval address and mitigate the impacts the proposed action will have on biodiversity and water assets, and how these impacts are managed in the long-term. The proposed conditions also require ongoing monitoring of potential impacts, implementation of mitigation and corrective actions, and offsetting of significant residual impacts. As such, the department considers you can be satisfied approving the proposed action, subject to conditions, is not inconsistent with Australia's obligations under the APIA Convention.

10.4 Recovery Plans and Threat Abatement Plans

542. The recovery plans relevant to the proposed action are:

- Department of the Environment (2016). National Recovery Plan for the Regent Honeyeater (Anthochaera phrygia). Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-regent-honeyeater-anthochaera-phrygia-2016. In effect under the EPBC Act from 04-May-2016 as Anthochaera phrygia.
- Saunders, D.L. & C.L. Tzaros (2011). National Recovery Plan for the Swift Parrot (Lathamus discolor). Birds Australia, Melbourne. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-swift-parrot-lathamus-discolor. In effect under the EPBC Act from 10-Feb-2012.
- DAWE 2021, National Recovery Plan for the Grey-headed Flying-fox 'Pteropus poliocephalus', Department of Agriculture, Water and the Environment, Canberra,

March. CC BY 4.0. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/recovery/grey-headed-flying-fox . In effect under the EPBC Act from 19-Mar-2021.

- Department of Environment, Climate Change and Water NSW. 2010. National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Available from:

543. NSW considered these recovery plans in its assessment, as summarised in Appendix E of the AR (Attachments G3), and is of the view approval of the proposed action will not be inconsistent with those recovery plans.

544. The recovery plans are provided at Attachments H4-H7 and discussed below.

10.4.1 National Recovery Plan for the Regent Honeyeater

545. The recovery plan for the Regent Honeyeater (Attachment H4) commenced in 2016 and identifies major threats to the species as:

a. small population size

b. habitat loss, fragmentation and degradation

c. competition.

546. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

a. improve the extent and quality of regent honeyeater habitat

b. bolster the wild population with captive-bred birds until the wild population becomes self-sustaining

c. increase understanding of the size, structure, trajectory and viability of the wild population

d. maintain and increase community awareness, understanding and involvement in the recovery program.

547. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of the habitat of the Regent Honeyeater, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, ensure the proposed action is not inconsistent with the recovery plan for Regent Honeyeater. A detailed discussion of impacts to the Regent Honeyeater is provided in section 4.2.1 of this report.

10.4.2 National Recovery Plan for the Swift Parrot

548. The recovery plan for Swift Parrot (Attachment H5) commenced in 2011 and identifies major threats to the species as:

a. habitat loss and alteration

b. climate change

c. collision mortality

d. competition

e. disease

f. illegal wildlife capture and trade

g. cumulative impacts.

549. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

a. identify the extent and quality of habitat

b. manage and protect Swift Parrot habitat at the landscape scale

c. monitor and manage the impact of collisions, competition and disease

d. monitor population and habitat.

550. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss and alteration of the habitat of the Swift Parrot, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for Swift Parrot. A detailed discussion of impacts to the Swift Parrot is provided in section 4.2.2 of this report.

10.4.3 National Recovery Plan for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum CEEC)

551. This ecological community can occur either as woodland or derived native grassland (i.e., grassy woodland where the tree overstorey has been removed). Box-Gum Grassy Woodland occurs along the western slopes and tablelands of the Great Dividing Range from southern Queensland through New South Wales and the Australian Capital Territory to Victoria. Due to the ecological community's occurrence on fertile soils, it has been extensively cleared for agriculture and intact remnants, including both trees and unmodified understory, are now extremely rare. Very few high-quality remnants remain anywhere across its former range. Current estimates indicate only 405,000 ha of the ecological community in various condition states remain.

552. Clearing and fragmentation for urban, rural residential, agricultural and infrastructure development remain on-going threats to this ecological community, while degradation resulting from inappropriate management and weed invasion by introduced perennial grasses continues to erode the conservation value of remnant areas.

553. The overall objective of this recovery plan is to promote the recovery and prevent the extinction of this critically endangered ecological community. The specific objective to be achieved within the lifespan of this recovery plan is to minimise the risk of extinction of the ecological community through:

a. achieving no net loss in extent and condition of the ecological community throughout its geographic distribution.

b. increasing protection of sites with high recovery potential.

c. increasing landscape functionality of the ecological community through management and restoration of degraded sites;

d. increasing transitional areas around remnants and linkages between remnants; and

e. bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Grassy Woodland.

554. The department considers habitat loss and alteration, and cumulative impacts are relevant threats to the proposed action. The department considers that increasing landscape functionality of the ecological community through management and restoration of degraded sites and achieving no net loss are relevant recovery actions to the proposed action.

555. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of Box Gum CEEC, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for Box Gum CEEC. A detailed discussion of impacts to the Box Gum CEEC is provided in section 4.2.5 of this report.

10.4.4 National Recovery Plan for the Grey-headed flying Fox (GHFF)

556. The overall objective of the recovery plan is to set out the management and research actions necessary to stop the decline of and support the recovery of the GHFF over the next ten years.

557. According to the recovery plan, the main threats to the survival of the GHFF population include roosting and foraging habitat loss, camp disturbance, mortality in commercial fruit crops, heat stress and bushfires.

558. The overall strategy for the recovery of the species, as detailed in the recovery plan, is to:

- Identify, protect and increase native foraging habitat critical to the survival of the species
- Identify, protect and increase roosting habitat of GHFF camps
- Determine trends in the GHFF population so as to monitor the species' national distribution, habitat use and conservation status.
- Build community capacity to coexist with flying-foxes and minimise the impacts on urban settlements from new and existing camps while avoiding interventions to move on or relocate entire camps
- Increase public awareness and understanding of GHFF and the recovery program, and involve the community in the recovery program where appropriate

- Improve the management of GHFF camps in areas where interaction with humans is likely
- Significantly reduce levels of licenced harm to GHFF associated with commercial horticulture
- Support research activities will improve the conservation status and management of GHFF

559. The department has considered the specific actions listed within this recovery plan in preparing this Report. The department notes that, while the proposed action will result in loss, fragmentation and degradation of the habitat of the GHFF, the proposed avoidance and mitigation measures will be required under the proposed conditions, including offsetting requirements, will ensure the proposed action is not inconsistent with the recovery plan for GHFF. A detailed discussion of impacts to the GHFF is provided in section 4.2.4 of this report.

10.5 Threat Abatement Plans

560. The threat abatement plans relevant to the proposed action are:

- Department of Sustainability, Environment, Water, Population and Communities (2011). Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/resource/threat-abatement-plan-biological-effects-including-lethal-toxic-ingestion-caused-cane-toads. In effect under the EPBC Act from 06-Jul-2011. (Attachment H8).
- Department of the Environment and Energy (2017). Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017). Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017. In effect under the EPBC Act from 18-Mar-2017. (Attachment H9).
- Department of the Environment (2014). Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi. Canberra, ACT: Commonwealth of Australia. Available from: .
  In effect under the EPBC Act from 22-Feb-2019. (Attachment H10).
- Department of the Environment and Energy (2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/competition-and-land-degradation-rabbits-2016. In effect under the EPBC Act from 07-Jan-2017 (Attachment H11).
- Department of the Environment (2015). Threat abatement plan for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats. In effect under the EPBC Act from 23-Jul-2015. (Attachment H12).

561. NSW considered these threat abatement plans in its assessment, as summarised in Appendix E of the AR (Attachment G3), and is of the view that approval of the proposed action will not be inconsistent with these threat abatement plans.

562. These threat abatement plans are provided at Attachments H8-H12.

563. The department notes:

- The threat abatement plan for predation, habitat degradation, competition and disease by feral pigs is relevant to the proposed action due to threats posed to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC.
- The threat abatement plan for competition and land degradation by rabbits is relevant to the proposed action due to threats to the Regent Honeyeater.
- The threat abatement plan for predation by feral cats is relevant to the proposed action due to threats to Swift Parrot.
- The threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads is relevant to species that occur in White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. However, the department notes that NSW concluded cane toads are not a threat to this CEEC in the Muswellbrook region.
- The threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi is relevant to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC. However, the department notes that NSW concluded Phytophthora cinnamomi is unlikely to occur in the region, due to its relatively dry climate.

564. The department considers that the proposed action is unlikely to contribute to increased feral animal activity within the proposed action area and, instead, is likely to assist with the management of these species through the proposed mitigation measures incorporated in the proposed conditions.

565. The department considers that cane toads and Phytophthora cinnamomi are unlikely to occur in the region and, therefore no specific or additional management measures are required.

566. The department considers that the proposed conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. On this basis, the department considers approval of the proposed action subject to the proposed conditions will not be inconsistent with any of the relevant threat abatement plans.

10.6 Conservation Advices

567. The approved conservation advices relevant to the proposed action are:

- Department of the Environment, Water, Heritage and the Arts (2009). Approved Conservation Advice for Prasophyllum sp. Wybong (C. Phelps ORG 5269) (a leek-orchid). Canberra, ACT: Department of the Environment, Water, Heritage and the Arts. Available from:

http://www.environment.gov.au/biodiversity/threatened/species/pubs/81964-conservation-advice.pdf. In effect under the EPBC Act from 13-Nov-2009. (Attachment H1)

- Department of the Environment (2015). Conservation Advice Anthochaera phrygia regent honeyeater. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/82338-conservation-advice.pdf. In effect under the EPBC Act from 08-Jul-2015. (Attachment H2)
- Threatened Species Scientific Committee (2016). Conservation Advice Lathamus discolor swift parrot. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/744-conservation-advice-05052016.pdf. In effect under the EPBC Act from 05-May-2016 (Attachment H3)

568. The department notes there is no approved Conservation Advice for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community, or the Grey-headed flying fox (*Pteropus poliocephalus*).

569. The department's Protected Species and Communities Branch was consulted on any upcoming listings in preparing this Report. On 6 September 2021, an email was received stating that they are not anticipating any changes to the documents relating to the threatened species and ecological communities identified by the department as being relevant to this proposed action. The department therefore understands that, at the time of writing, the above list includes all conservation advices currently relevant to the project.

570. The Consideration of Commonwealth Matters in the AR (Attachment G3, Appendix E), and advice from BCD (Attachment G6) includes consideration of these approved conservation advices. DPIE was of the view approval of the proposed action will not be inconsistent with those conservation advices.

571. The approved conservation advices are provided at Attachments H1-H3 and are discussed below.

10.6.1 Approved Conservation Advice for Swift Parrot

572. The conservation advice for Swift Parrot (Attachment H3) came into force in 2016 and identified major threats to the species as:

i. predation by sugar gliders

ii. habitat loss and alteration

iii. collision mortality

iv. competition

v. disease

vi. illegal wildlife capture and trading.

573. The conservation advice states that the priority conservation and management actions are to:

    i. review and update management prescriptions for Swift Parrots for use in the Forest Practices System and Local Government land use planning and approvals processes across the breeding and non-breeding range of Swift Parrots

    ii. revise and update forestry prescriptions to reflect the most recent habitat information available in Victoria and New South Wales

    iii. develop and implement strategies to reduce predation from sugar gliders when circumstances require

    iv. consider installing nesting boxes suitable for Swift Parrots in areas of low sugar glider predation to enhance swift parrot breeding success

    v. continue to raise public awareness of the risks of collisions and how these can be minimised, targeting known high-risk areas such as the greater Hobart, Melbourne and Western Sydney areas, and the central coast region of New South Wales (Wyong, Gosford, Lake Macquarie and Penrith Local Government areas)

    vi. encourage and support the protection, conservation management and restoration of swift parrot nesting and foraging habitat through agreements with landowners, incentive programs and community projects

    vii. develop and implement a Disease Risk Assessment for Swift Parrots.

574. The department has considered the conservation advice for the Swift Parrot in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures in accordance with the conservation advice. The proposed conditions also require that an offset be provided for residual significant impacts to the Swift Parrot, which will provide for conservation actions in accordance with the conservation advice.

10.6.2 Approved Conservation Advice for Regent Honeyeater

575. The conservation advice for Regent Honeyeater (Attachment H2) came into force in 2015 and identifies major threats to the species as:

    a. clearing, degradation and fragmentation of habitat

    b. removal of trees for timber and firewood, invasive weeds and inappropriate fire regimes

    c. competition with other birds

    d. severe loss of genetic variability.

576. The approved conservation advice states the priority conservation and management actions to assist in the recovery of the species are to:

    a. reverse the long-term population trend of decline and increase the numbers of Regent Honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years

b. maintain key Regent Honeyeater habitat in a condition maximises survival and reproductive success, and provides refugia during periods of extreme environmental fluctuation

c. improve the extent and quality of Regent Honeyeater habitat

d. bolster the wild population with captive-bred birds until the wild population becomes self-sustaining

e. maintain and increase community awareness, understanding and involvement in the recovery program.

577. The department has considered the conservation advice for the Regent Honeyeater in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures to address major threats to the species identified in the conservation advice. The proposed conditions also require provision of an offset for residual significant impacts to the Regent Honeyeater, which will provide for conservation actions in accordance with the conservation advice. The requirement to offset will contribute to the objective to improve the extent and quality of Regent Honeyeater habitat.

10.6.3 Approved Conservation Advice for *Prasophyllum* sp. Wybong

578. The conservation advice for *Prasophyllum* sp. Wybong (Attachment H1) came into effect in 2009 and identifies major threats to the species as being:

- Habitat clearance.
- Weed invasion.
- Vehicle traffic.
- Inappropriate disturbance regimes.

579. The approved conservation advice states the priority conservation and management actions to assist in the recovery of the species are to:

- Ensure mining, road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where *Prasophyllum* sp. Wybong (C. Phelps ORG 5269) occurs does not adversely impact on known populations.
- Manage any other known, potential or emerging threats including inappropriate disturbance, loss of pollinators and effects of climate change.
- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Protect populations of the listed species through the development of conservation agreements and/or covenants.

580. The department has considered the conservation advice for *Prasophyllum* sp. Wybong in preparing this Report and considers the proposed conditions require the proponent to undertake mitigation measures to address major threats to the species identified in the conservation advice. The proposed conditions also require provision

of an offset for residual significant impacts to the *Prasophyllum* sp. Wybong, which will provide for conservation actions in accordance with the conservation advice. The requirement to offset will contribute to the objective to improve the extent and quality of *Prasophyllum* sp. Wybong habitat.

11 CONDITIONS OF APPROVAL

11.1 Considerations in deciding on conditions

581. In accordance with subsection 134(4), in deciding whether to attach a condition to an approval, you must consider the following:

   a. any relevant conditions have been imposed, or you consider are likely to be imposed, under a law of a State or self-governing Territory or another law of the Commonwealth on the taking of the action, and

   b. information provided by the person proposing to take the action or by the designated proponent of the action, and

   c. the desirability of ensuring as far as practicable the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.

582. The NSW conditions are at Attachment G2. The department has given very careful consideration to the NSW conditions that are relevant to EPBC Act protected matters and has recommended conditions requiring the proponent to comply with these NSW conditions, where necessary or convenient for the protection of relevant matters. The NSW conditions relevant to the protection of water resources and listed threatened species and communities are discussed in the respective sections above.

583. Information provided by the proponent includes the EIS, the response to submissions report, the amended response to submissions report, and additional information (at Attachments I1, I2 and F, respectively). The department has considered this information in forming its conclusions and recommending the proposed conditions.

584. The department considers that the conditions proposed are a cost-effective means of achieving their purpose. The proposed conditions are largely based on the NSW conditions, which in turn were informed by assessment material provided by the proponent. As far as possible, the department has recommended conditions that rely on the commitments made by the proponent and/or on measures already required under the NSW conditions.

585. The department recommends that you attach approval conditions that will require the proponent to comply with applicable NSW conditions that are relevant to the EPBC Act protected matters. This approach will avoid unnecessary duplication of the NSW conditions (which the department considers are largely adequate to protect relevant matters of national environmental significance) but will still allow the department to retain an ongoing compliance role for the proposed action.

586. The department has included standard administrative conditions as part of the Final Approval Decision Notice (Attachment D, Annexure A, Part B). These conditions specify requirements for:

- the approval holder to notify the department of commencement of the action
- the approval holder to maintain and supply upon request accurate and complete compliance records
- the submission and publication of plans by the approval holder
- annual compliance reporting and relevant timeframes
- the reporting of instances of non-compliance and the relevant procedures and timeframes
- independent audits of compliance with the proposed conditions and the relevant procedures and timeframes
- completion of action protocols
- the approval holder to notify the department of any change or proposed change to the NSW Development Consent.

587. In addition to the standard administrative conditions required for an approval under the EPBC Act, the department recommends you attach additional conditions relating to:

- the protection of water resources
- the timely reporting of incidences of non-compliance
- the development and implementation of management plans relating to water resources are consistent with the conditions of the NSW development consent
- specific habitat clearance limits for protected matters
- ensuring management plans include objectives and outcomes are consistent with relevant Commonwealth statutory documents

588. As discussed in this Report, the department considers these conditions are necessary or convenient for protecting the matters protected by the provisions of Part 3 for which the approval will have effect.

589. The department considers the conditions proposed are a cost-effective means of achieving their purpose.

11.2 Conditions requiring consent

590. Subsection 134(3A) states that certain conditions cannot be attached to the approval of an action unless the holder of the approval has consented to the attachment of the condition.

591. The department has consulted with the proponent about the conditions to be attached to the approval and the proponent has agreed to the conditions as set out in the Final Decision notice. This correspondence is addressed in more detail in the Final Decision Brief.

11.3 Consideration of Condition-setting Policy

592. In preparing this Report, the department has had regard to the EPBC Act Condition-setting Policy (the Policy). The Policy outlines the Australian Government's approach to considering state and territory approval conditions when approving a project under the EPBC Act. The NSW Biodiversity Offsets Policy for Major Projects is listed in the Policy as an endorsed state policy which is consistent with the standards of a non-statutory Australian Government policy.

593. In accordance with the Policy, the department considers it is necessary and convenient to propose conditions require the proponent to comply with relevant NSW conditions where they relate to mitigating and offsetting impacts for EPBC Act protected matters. These conditions will avoid unnecessary duplication of State and Australian Government conditions and allow the department to retain an ongoing compliance role to ensure the outcomes for the significantly impacted EPBC Act matters are delivered.

11.4 Approval timeframe

594. The department recommends an approval timeframe of 19 years to account for the construction period, proposed operational lifespan of 8 years, and site rehabilitation. The approval would have effect until 31 December 2040.

12 CONCLUSION

595. Having considered all relevant matters under the EPBC Act, the department considers the impacts of the proposed action on the matters protected by the relevant controlling provisions will not be unacceptable, provided the proposed action is undertaken in accordance with the proposed conditions.

596. The department recommends you approve the proposed action, subject to the proposed conditions.

13 ATTACHMENTS

597. The attachments cited in this Report are attachments to the Final Decision Brief and the proposed decision brief.

14 APPENDIX

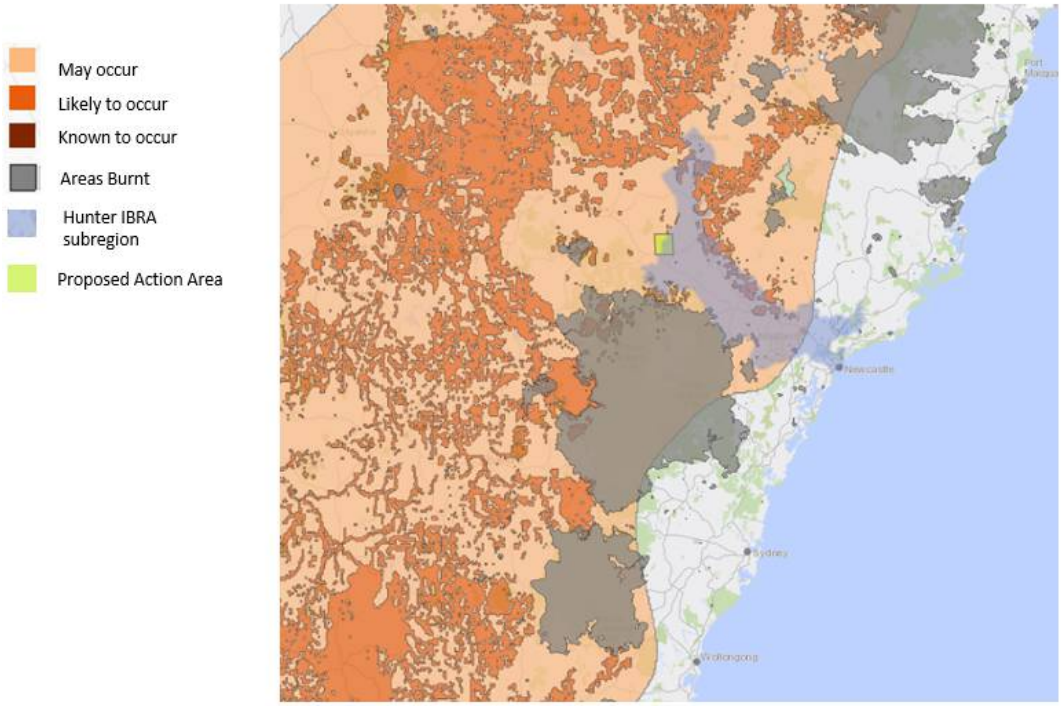


Figure 1: The map shows the modelled distribution of the Box Gum Grassy Woodland, and the extent of the 2019-2020 bushfires. This map shows a broad amount of likely and potential habitat was impacted by the bushfires. The map also shows the bushfires impacted a small amount of potential and likely habitat within the Hunter IBRA subregion.

This map is for illustrative purposes only.

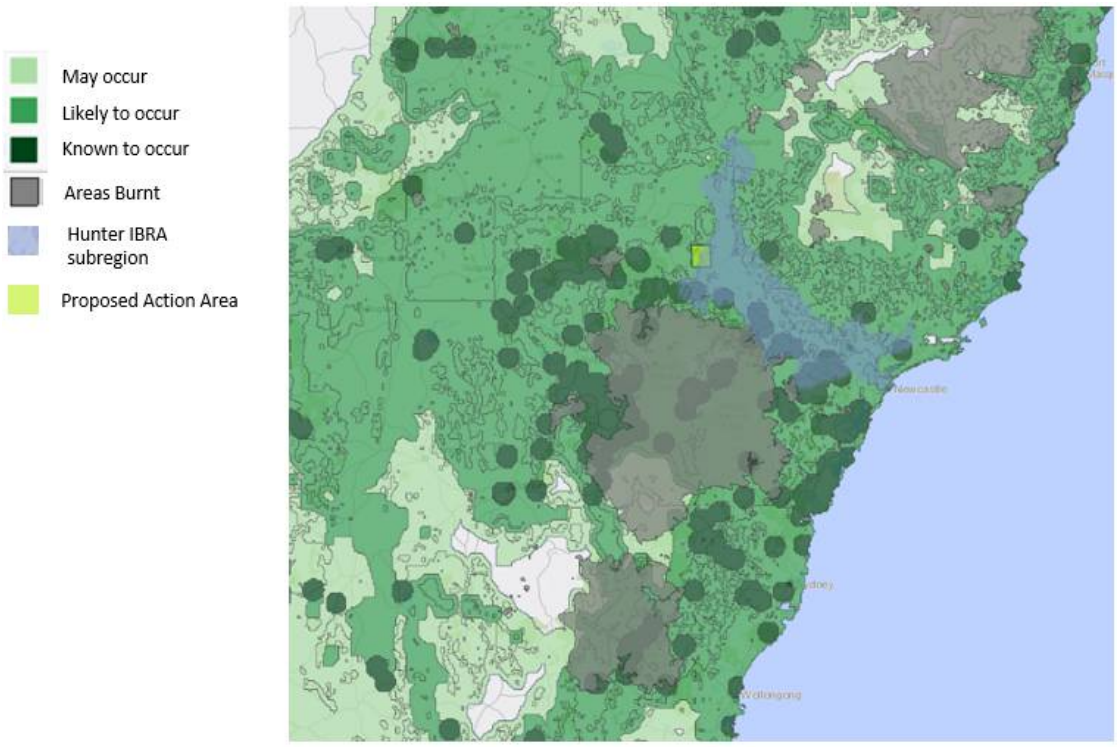


Figure 2: The modelled distribution of the Regent Honeyeater, and the extent of the 2019-2020 bushfires. This map shows a significant amount of Regent Honeyeater habitat was impacted by the bushfires. However, the map also shows only a small amount of this species habitat within the Hunter IBRA subregion was impacted by the bushfires.

The map is for illustrative purposes only.

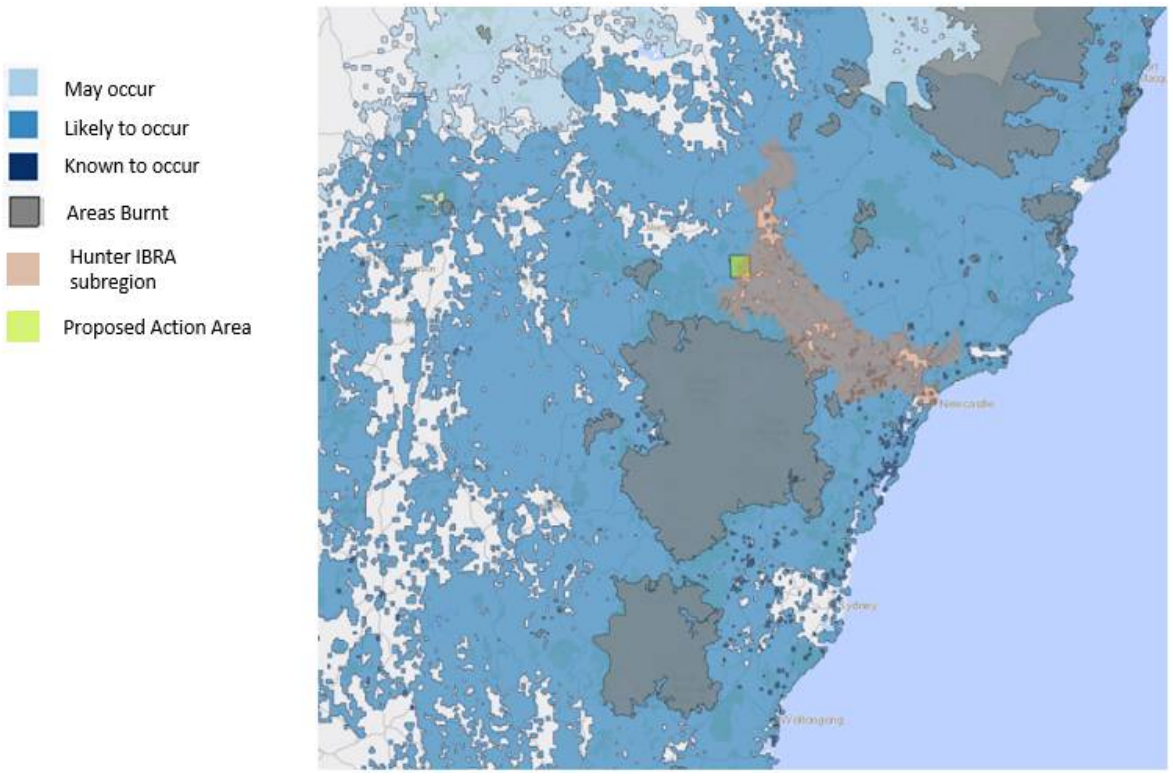
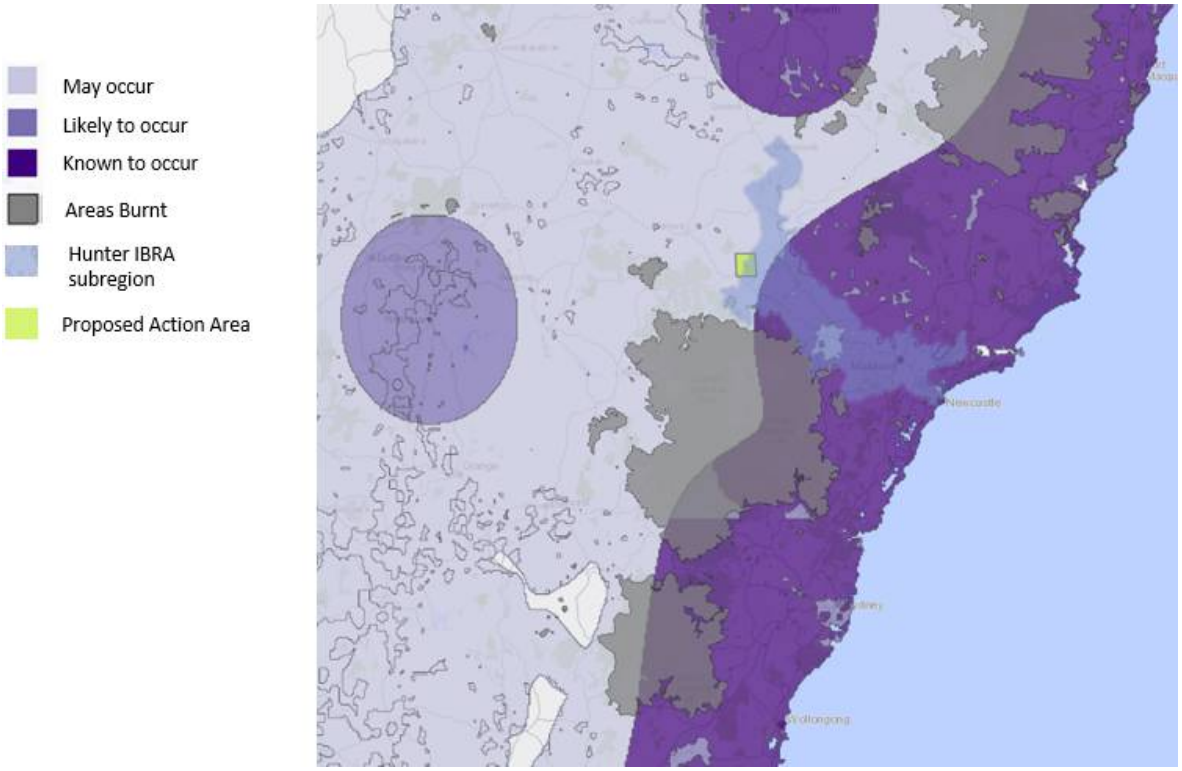


Figure 3: The modelled distribution of the Swift Parrot, and the extent of the 2019-2020 bushfires. This map shows a large amount of likely Swift Parrot habitat was impacted by the bushfires. The map also shows a small amount of likely habitat within the Hunter IBRA subregion was impacted by the bushfires.

This map is for illustrative purposes only.

Figure 4: The modelled distribution of the Grey-headed Flying-fox, and the extent of the 2019-



2020 bushfires. This map shows a large amount of known Grey-headed Flying-fox habitat was impacted by the bushfires. The map also shows a small amount of likely habitat within the Hunter IBRA subregion was impacted by the bushfires.

This map is for illustrative purposes only.

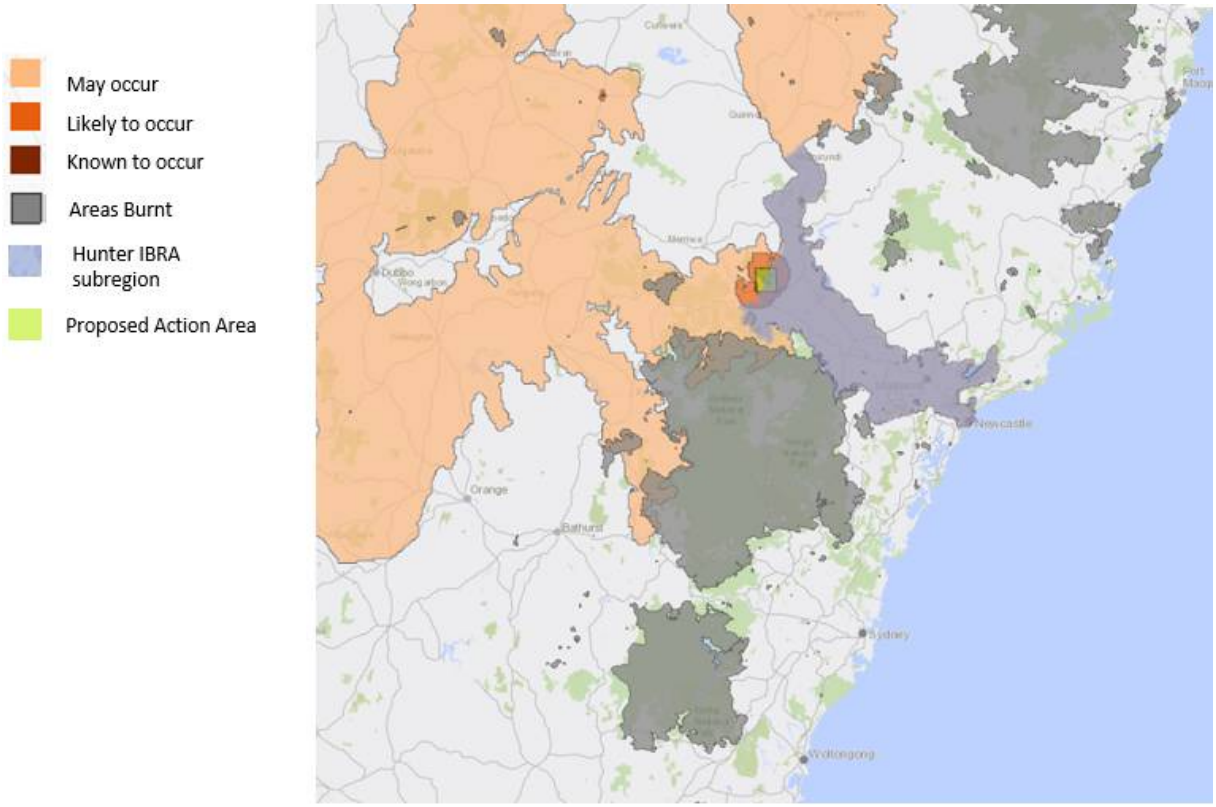


Figure 5: The modelled distribution of the Wybong Leek-orchid, and the extent of the 2019-2020 bushfires. This map shows a small amount of possible Wybong Leek-orchid habitat was impacted by the bushfires.

This map is for illustrative purposes only.

Supplementary information – Mangoola Continued Coal Operations Project (2018/8280)

Question	Advice
1. Would CO_2 emissions associated with the project, which occur in Australia, be covered by the Australian Government's emissions reduction commitments under the Paris Agreement?	Yes. CO_2 emissions associated with the project that occur within Australia's jurisdiction over the period 2021-30 would be covered by the Australian Government's Paris Agreement Nationally Determined Contribution (NDC) for that period (2030 Paris target). The Government has committed to an economy-wide 2030 Paris target to reduce emissions to 26 to 28 per cent below 2005 levels by 2030, expressed as an emissions budget over the period 2021-30. Emissions from the project occurring beyond that period (within Australia's jurisdiction) will be covered by future NDCs made by the Government consistent with Article 4.3 of the Paris Agreement.
2. Would the project's CO_2 emissions affect the Australian Government's ability to meet its emissions reduction commitments under the Paris Agreement?	Projected emissions from the project over the 2021-30 period were considered in the preparation of Australia's Emissions Projections 2020. That report states Australia is on track to meet and beat its 2030 Paris target.
3. Would CO_2 emissions associated with the project's exported coal, which occur in the proposed export markets, be covered by commitments under the Paris Agreement to reduce or limit emissions?	The Department was advised that the project's coal was intended for export to China, India, Japan, Malaysia, the Philippines, the Republic of Korea, Taiwan and Viet Nam. As at 15 September 2021, such emissions that occur before 2030 would be covered by NDCs to limit or reduce emissions undertaken by the following Parties to the Paris Agreement - China, India, Japan, the Republic of Korea, Malaysia, Viet Nam, and the Philippines.

	Taiwan is not a Party to the Paris Agreement. The Department notes that Taiwan submitted an (Intended) NDC to reduce emissions that would be expected to cover emissions associated with the project that occur in Taiwan. It is noted that the life of the project is estimated at 8 years, ending in 2030. It is possible, however, that emissions associated with the combustion of the project's product may still occur in the identified export markets beyond the 2030 end date of the above mentioned NDCs. It is expected that any such emissions would be covered by future NDCs submitted by the identified export markets. This expectation is based on Article 4.3 of the Paris Agreement, which provides "Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.".
4. Describe any emission reduction/limitation commitments/goals/policies (eg net zero goal) made by importing country governments or jurisdictions (India, China, Japan, Malaysia, the Philippines, Taiwan, the Republic of Korea, Viet Nam) that are additional to their NDC	As at 15 September 2021, the Department identified additional measures to be undertaken in the export destinations India, Japan, the Republic of Korea, Taiwan and China. For completeness NDC commitments are included below for all export destinations including those for which the department has not be able to identify additional measures (Viet Nam, Malaysia and the Philippines). **India** India's official NDC commits to reducing the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 levels; achieving about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund; and, creating an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030. In addition, India first announced a target of 450 GW of renewable energy capacity by 2030 at the 2019 Climate Action Summit, and reiterated the target at the US-hosted Leaders Summit on Climate in April 2021. **Japan** Japan's official NDC commits to emissions reduction of 26% below 2013 by 2030. In addition,

	• Japan's Global Warming Countermeasures Law 2021 commits that "a decarbonised society will be realized by 2050".
	• At the US-hosted Leaders' Summit on Climate in April 2021, Japan announced it will reduce emissions 46% below 2013 by 2030.
	• Japan's Ministry of Economy, Trade and Industry (METI) released its Basic Energy Policy draft in July 2021. Under the plan, by 2030:
	  ○ coal use will be reduced from 26% to 19%
	  ○ gas use will be reduced to 56% to 41%
	  ○ solar is set to increase to 15% from 6.7% in 2019
	  ○ wind is set to increase to 6% from 0.7% in 2019
	
	The Republic of Korea (South Korea)
	South Korea's official NDC commits to emissions reduction of 24.4% below 2017 emissions by 2030. In addition,
	• At the US-hosted Leaders' Summit on Climate in April 2021, South Korea announced a commitment to ending financing of overseas coal fired power plants.
	
	Taiwan
	Taiwan is not a Party to the Paris Agreement. It submitted an intended NDC in 2015 committing to reduce emissions 20% below 2005 levels by 2030. In addition,
	• Taiwan legislated its Greenhouse Gas Reduction and Management Act in 2015 with the long-term goal to reduce emissions 50% below 2005 levels by 2050.
	
	China
	China's official NDC commits to achieve the peaking of CO_2 emissions around 2030 and making best efforts to peak early; to lower CO_2 emissions per unit of GDP by 60% to 65% from the 2005 level; to increase the share of non-fossil fuels in primary energy consumption to around 20%; and to increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.
	
	In addition, at the General Debate of the 75th Session of the United Nations General Assembly, China's President Xi Jinping announced China would:
	• Scale up its NDC with more vigorous policies and measures,
	• Peak CO_2 emissions before 2030,

	• Achieve carbon neutrality before 2060. China's 14th Five Year Plan (released March 2021) includes a number of intentions aligned with the President's announcement: • develop an action plan to achieve peak carbon emissions by 2030, anchored to efforts to achieve carbon neutrality by 2060, and the need to adopt more vigorous policies and measures. • aim to reduce carbon dioxide emissions per unit of GDP by 18 per cent over the 2021 to 2025 period (the same target as the 13th Five Year Plan), peak carbon emissions by 2030 and achieve carbon neutrality by 2060. • Detailed targets will be revealed when sectoral plans are released towards the end of 2021. For the first time, the Ministry of Ecology and Environment will also release a Five Year Plan for Climate Change in late 2021, which will serve as a blueprint for China's climate action. **Malaysia** Malaysia's official NDC commits to economy-wide carbon intensity (against GDP) reduction of 45% (unconditional) by 2030 compared to 2005 levels. **The Philippines** The Philippines' official NDC commits to a 75% reduction in emissions below BAU by 2030. 2.71% of this target is unconditional and 72.29% is conditional. The mitigation contribution is conditioned on the extent of financial resources, including technology development & transfer, and capacity building, that will be made available to the Philippines. **Viet Nam** Viet Nam's official NDC commits to reduce emissions by 9% compared to BAU by 2030 using domestic resources, and up to 27% with international support through bilateral and multilateral cooperation and the implementation of new mechanisms in the Paris Agreement.