



29 August 2019

United Wambo Open Cut Coal Mine Project (SSD 7142) and associated Modifications (DA 305-7-2003 MOD 16 & DA 177-8-2004 MOD 3)

1. INTRODUCTION

1. On 12 November 2018, the NSW Independent Planning Commission (the **Commission**) received from the former NSW Department of Planning and Environment (since 1 July 2019 known as the Department of Planning, Industry and Environment) (the **Department**), a State Significant Development (**SSD**) Application for the United Wambo Open Cut Coal Mine Project (**SSD 7142**), and two associated modification requests for DA 305-7-2003 MOD 16 (**MOD 16**) and DA 177-8-2004 MOD 3 (**MOD 3**) from United Collieries Pty Limited (**United**) (the **Applicant**).
2. The Applicant, a majority-owned subsidiary of Glencore Coal Pty Limited (**Glencore**), on behalf of its 50/50 joint venture with Wambo Coal Pty Limited (**Wambo**), a majority-owned subsidiary of Peabody Energy Australia Limited (**Peabody**), is seeking approval to expand the existing open cut mining operations at the Wambo Coal Mine and develop a new open cut mine at the United Coal Mine (as referenced in paragraph 10). SSD 7142, MOD 16 and MOD 3 are referred to collectively as the **Project**.
3. The Commission is the consent authority in respect of SSD 7142 under section 4.5(a) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**) and clause 8A of the *State Environmental Planning Policy (State and Regional Development) 2011* (**SEPP SRD**). This is because:
 - SSD 7142 constitutes a State Significant Development under section 4.36 of the EP&A Act as the Application is for 'development for the purposes of coal mining', as specified in clause 5 of Schedule 1 of the SEPP SRD;
 - the Department received more than 25 submissions from the public objecting to the Project; and
 - a reportable political donations disclosure has been made by Glencore Australia Holdings Pty Ltd, a parent company of the Applicant.
4. In accordance with clause 8J(8) of the *Environmental Planning and Assessment Regulation 2000*, MOD 16 and MOD 3 are to be determined under the former section 75W of the EP&A Act. As MOD 16 and MOD 3 were submitted before 1 March 2018, and the Secretary has not notified the Applicant that the modifications will not be dealt with under section 75W, the provisions of clause 3 of Schedule 2 to the *Environmental Planning & Assessment (Savings, Transitional and Other Provisions Regulation 2017)* (**ST&OP Regulation**) apply. See Section 5.5 below regarding the use of the modification power in this case.
5. The Commission is a delegate of the Minister for Planning (**the Minister**) in respect of transitional Part 3A Projects in accordance with the Minister's delegation dated 14 September 2011. Under the Minister's delegation, the Commission is required to determine MOD 16 and MOD 3 because:
 - a reportable political donations disclosure has been made by Glencore Australia Holdings Pty Ltd, a parent company of the Applicant.
6. Mary O'Kane AC, Chair of the Commission, appointed Tony Pearson (as Chair), Professor Alice Clark and Dr Peter Williams to constitute the Commission Panel (the **Panel**).

7. Following constitution of the Panel, Professor Alice Clark withdrew from the appointment. Geoff Sharrock was appointed to replace Professor Alice Clark but also withdrew from the appointment.
8. Robyn Kruk AO was then appointed to replace Geoff Sharrock, such that Tony Pearson (as Chair), Robyn Kruk AO and Dr Peter Williams now constitute the Panel determining the Project.

1.1 Site and locality

9. The Project is situated along the south-western extent of the Hunter Valley coalfield and is generally bounded by Wollombi Brook to the southeast, the Golden Highway to the north and Wollemi National Park to the southwest (the **Site**).
10. The Site comprises two existing neighbouring coal mining operations: the United Coal Mine owned by the Applicant, and the Wambo Coal Mine owned by Wambo. The Project would result in the integration of open cut mining operations across the two existing coal mining operations under a single contemporary development consent.
11. The Project is located approximately 16 kilometres (**km**) west of the township of Singleton, within the Singleton Local Government Area (**LGA**). *Figure 1* shows the Site in a regional context, and *Figure 2* shows the local context of the Site.

Figure 1: Regional context

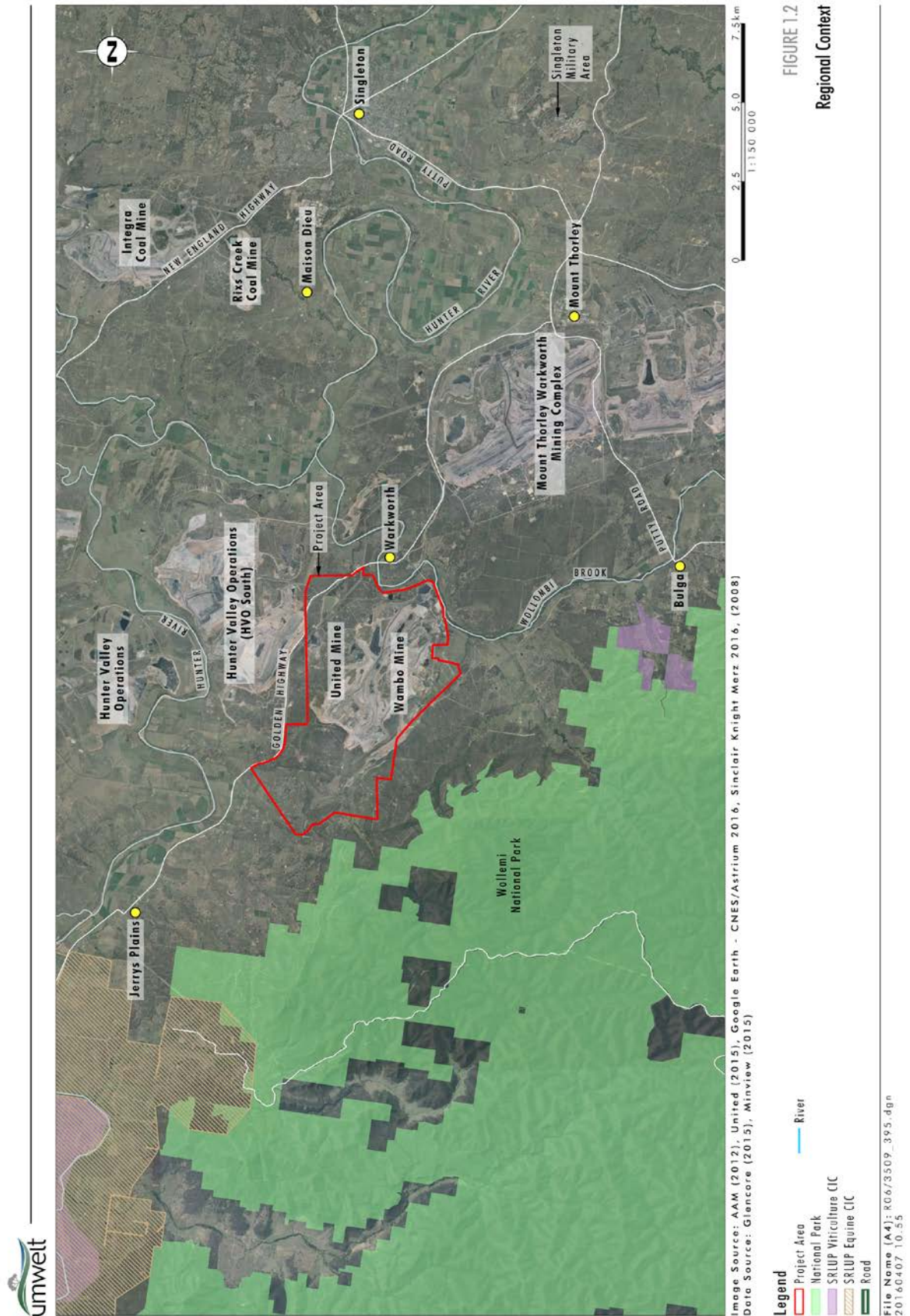


FIGURE 1.2
Regional Context

Source: Department of Planning & Environment's Final Assessment Report

Figure 2: Project Site

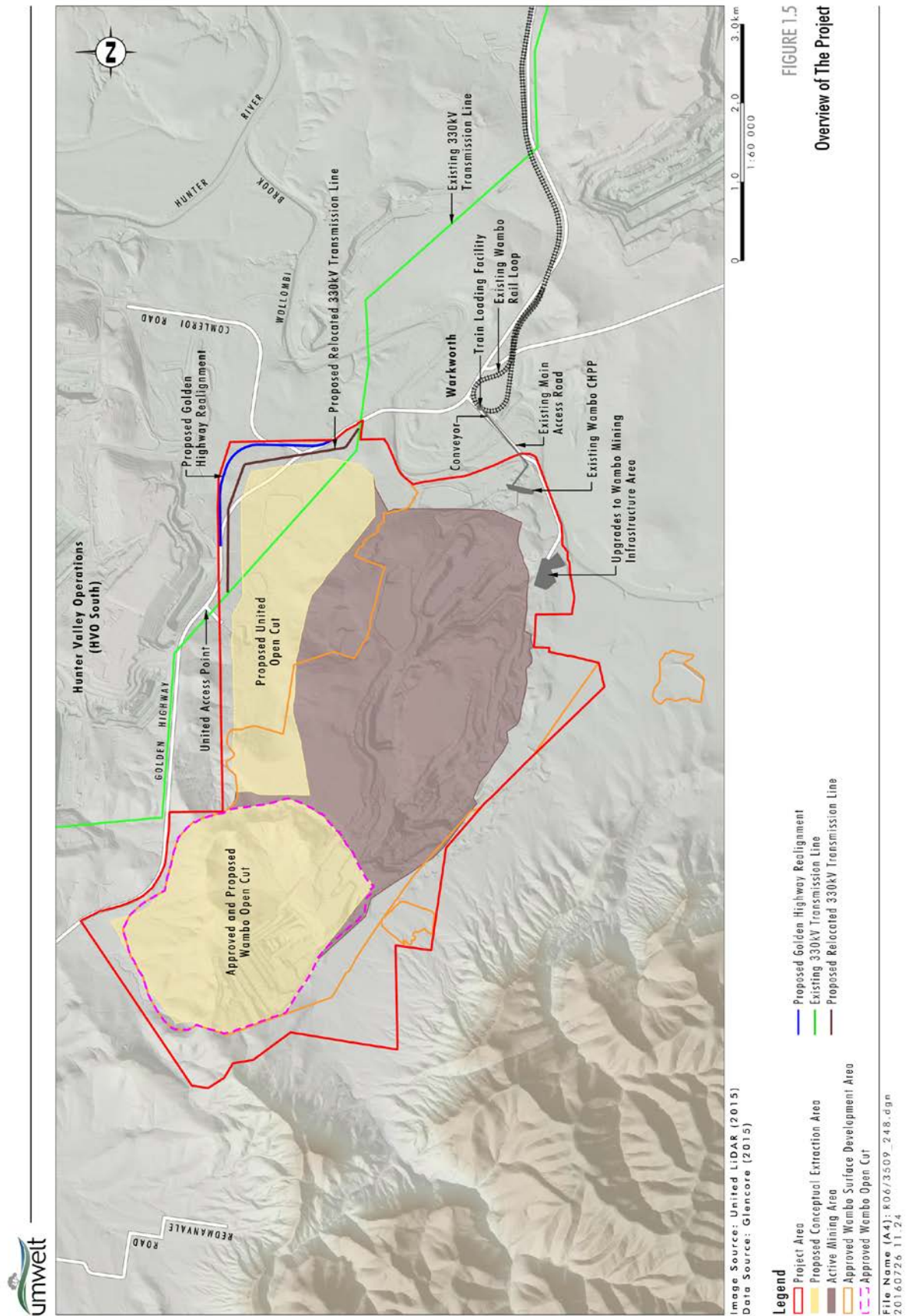


FIGURE 1.5
Overview of The Project

Source: Applicant's EIS, Umwelt

1.2 United Wambo Joint Venture Partnership

12. According to the Department's Preliminary Assessment Report (the **Department's PAR**), on 25 November 2014, Glencore and Peabody signed a 50:50 joint-venture agreement to facilitate the development and continuation of open cut mining at the United and Wambo Coal Mines: "...the joint venture agreement establishes that Wambo would continue to operate the currently approved Wambo open cut operations in the short term, in line with the requirements of DA 305-7-2003...", and, if the Project is granted approval, "United would assume operational responsibility for all open cut mining activities at both sites under a single consolidated development consent.". The United Coal Mine entered care and maintenance in March 2010 and operations at the Wambo Coal Mine are ongoing.

1.3 Summary of the Project before the Commission

13. Based on information provided in the Applicant's *United Wambo Coal Mine Project - Response to Independent Planning Commission Recommendations Report* (the **Applicant's Review Response**) and the Department's Final Assessment Report (the **Department's FAR**), the Project before the Commission for determination includes the following key aspects (see *Figure 2*):
- "extending Wambo Coal Mine's existing open cut mining area to facilitate extraction of deeper coal seams;
 - developing a new open cut mining area at United Colliery;
 - integrating the two open cut operations to extract up to 10 Mtpa [million tonne per annum] of ROM [run-of-mine] coal over a 23 year period;
 - relocating sections of the Golden Highway, 330 kV and 66 kV transmission lines and telecommunication lines to facilitate mining;
 - disturbing 673 hectares (ha) of additional land, including 527 ha of native vegetation;
 - transferring ROM coal to Wambo Coal Mine via internal haul roads for processing and rail despatch;
 - progressively rehabilitating the site to establish a native woodland dominated final landform that is integrated with surrounding natural landforms and retains two final voids;
 - employing 500 full time equivalent personnel (250 existing and 250 additional);
 - operating 24 hours a day, 7 days a week;
 - involving \$381 million (undiscounted) of capital investment; and
 - providing \$414 million (net present value) of economic benefits to NSW, including royalties of \$369 million over the life of the Project".
14. The Applicant's Review Response included a minor amendment to the Project boundary and associated schedule of lands, following additional survey work (see *Figure 3*). The Department's FAR accepted the amendment which has been reflected in the draft conditions of consent.
15. The Project would utilise existing Wambo Coal Mine infrastructure, transferring run-of-mine (**ROM**) coal via internal haul roads to Wambo Coal Mine (DA 305-7-2003) for processing. Product coal would be transferred via conveyor to the Wambo Train Loading Facility (DA 177-8-2004). The Project therefore includes the following modification applications.

"DA 305-7-2003 MOD 16

- continued operation of Wambo open cut until integrated mining commences by the Applicant under the joint venture;
- continued use of existing mine infrastructure and supporting facilities, including the Wambo coal handling and preparation plant (CHPP) and mine infrastructure area (MIA), and undertaking minor upgrades to this infrastructure;
- extension of operating life to align with the Project [SSD 7142];

- approval to receive and process ROM coal from the Project; and
- continued emplacement of reject material within the existing open cut voids.

DA 177-8-2004 MOD 3

- continued use of the existing coal loading and train refuelling (sic) infrastructure;
- continued transport of 15 Mtpa of product coal;
- extension of operating life to align with the Project;
- approval to receive and transport product coal from the Project [SSD 7142]; and
- approval to increase daily train movements from six to eight trains per day”.

16. The Applicant's Review Response provided a summary of the operational phasing of the Project for when the transition from separate ownership and operation to the joint venture commences. *Table 1* summarises the key activities associated with each phase of the transition.

Table 1: Operational phasing of the Project - transition to joint venture

	Open Cut Area	Phase 1A	Phase 1B	Phase 2
Development Consent	United	SSD 7142 Approved	United operates under SSD 7142	United Wambo JV Open Cut Operations In accordance with SSD 7142
	Wambo	Wambo continues to operate the open cut and underground under current 305-7-2003 and 177-8-2004, as modified by MOD 3	Wambo continues to operate the open cut and underground under 305-7-2003	<ul style="list-style-type: none"> • Wambo UG and CHPP under 305-7-2003 as modified by MOD 16 • Wambo Train Loading Facility under 177-8-2004 as modified by MOD 3 • Wambo Mine open cut consent conditions in DA 305-7-2003 cease to apply
Activities	United	Construction (Early Works) consisting of: <ul style="list-style-type: none"> • Cultural Heritage salvage, clearing • Water management infrastructure • MIA and CIA construction • Power lines 330kV, 66kV, 11kV • Access roads • Commencement of starter pit at United and haul road construction 	United continues with construction activities as per Phase 1A Ongoing development of United started pit and commencement of emplacement areas	United Wambo JV Open Cut Operations
	Wambo	<ul style="list-style-type: none"> • Continue mining in ML1572 • Continue to mine underground and operate CHPP and train loading 	<ul style="list-style-type: none"> • Continue mining in ML1572 • Continue to mine UG and operate CHPP and train loading 	<ul style="list-style-type: none"> • Wambo UG Operations and CHPP • Wambo Coal Terminal- train loading
Environmental Management Plans	Open Cut Area	Phase 1A	Phase 1B	Phase 2
	United	<ul style="list-style-type: none"> • Construction Environmental Management Plan • Aboriginal Cultural Heritage Management Plan • Biodiversity Management Plan • Water Management Plan 	<ul style="list-style-type: none"> • All SSD Environmental Management Plans approved • United MOP Phase 1 	<ul style="list-style-type: none"> • United Wambo Open Cut Management Plans (including combined United Wambo JV MOP)

		<ul style="list-style-type: none"> United Mining Operations Plan for Phase 1 including Construction Activities 		
	Wambo	<ul style="list-style-type: none"> Wambo MOP Amendment (boundary change, MIA) Wambo current Environmental Management Plans 	<ul style="list-style-type: none"> Wambo MOP Wambo Environmental Management Plans 	<ul style="list-style-type: none"> Wambo MOP Amendment to remove OC All UG Management Plans revised within 3 months
Environment Protection Licence	United	EPL 3141 variation: <ul style="list-style-type: none"> Variation of premises boundary Modification of schedule and fee-based activities and scales Addition of noise criteria to reflect SSD 7142 Modification and addition of environmental monitoring requirements and limits 	EPL 3141 variation of premises boundary	EPL 3141 variation of premises boundary
	Wambo	EPL 529 variation: <ul style="list-style-type: none"> Variation of premises boundary Updating of noise criteria in DA 305-7-2003 to reflect the "transitional noise criteria" imposed by s75W modification 	EPL 529 variation of premises boundary	<ul style="list-style-type: none"> EPL 529 variation: Variation of premises boundary Updating of noise criteria in DA 305-7-2003 to reflect the "post-transitional noise criteria" imposed by s 75W modification

Source: Applicant's Review Response

FIGURE 2.1
Revised Project Area

Legend

- Revised Project Area
- Project Area Changes
- Project Area
- Proposed Conceptual Extraction Area
- Active Mining Area
- Approved Wambo Surface Development Area
- Approved Wambo Open Cut
- Proposed Golden Highway Realignment
- Existing 330kV Transmission Line
- Revised Proposed Relocated 330kV Transmission Line

Image Source: United LIDAR (2015)
Data Source: Glencore (2015)

Hunter Valley Operations (HVO South)

Approved and Proposed Wambo Open Cut

Proposed United Open Cut

0 1.0 2.0 3.0 km
1:60 000

8

1.4 Stated need for the Project

17. In relation to the need for the Project, the Applicant's Environmental Impact Statement (**EIS**) concluded: *"World energy demand is predicted to increase significantly over the next 20-30 years. Meeting this increased energy demand into the future will require a mix of energy sources, however, thermal coal is expected to be a component of this energy mix into the foreseeable future (International Energy Agency (IEA) 2012). While coal demand has slowed, global coal consumption is projected to increase by 0.8 per cent per year until 2020 (IEA 2015) and there is continuing demand for high quality coal."*

The Project is well positioned to contribute to meeting this expected demand in the short to medium term and will maximise coal recovery from within the existing mining areas, whilst optimising the use of existing infrastructure and minimising the environmental impact associated with meeting this demand."

18. The EIS further stated: *"Significant synergies will be achieved through the integration of the United and Wambo open cut mining operations, allowing for the economic recovery of coal resources while reducing the environmental and social impacts to below those that would likely occur with two stand-alone mining operations."*

"The Project will maximise the utilisation of the existing mining facilities, including the MIA [mine infrastructure area] at Wambo, the Wambo CHPP [coal handling and preparation plant] and the Wambo train loading facilities for the life of the Project."

19. The EIS stated that a key benefit of the joint venture would be *"...an integrated final landform design across both open cut mining areas, providing a better final landform than that which would have occurred without the Joint Venture and reducing the number of final voids from potentially three voids to two."*

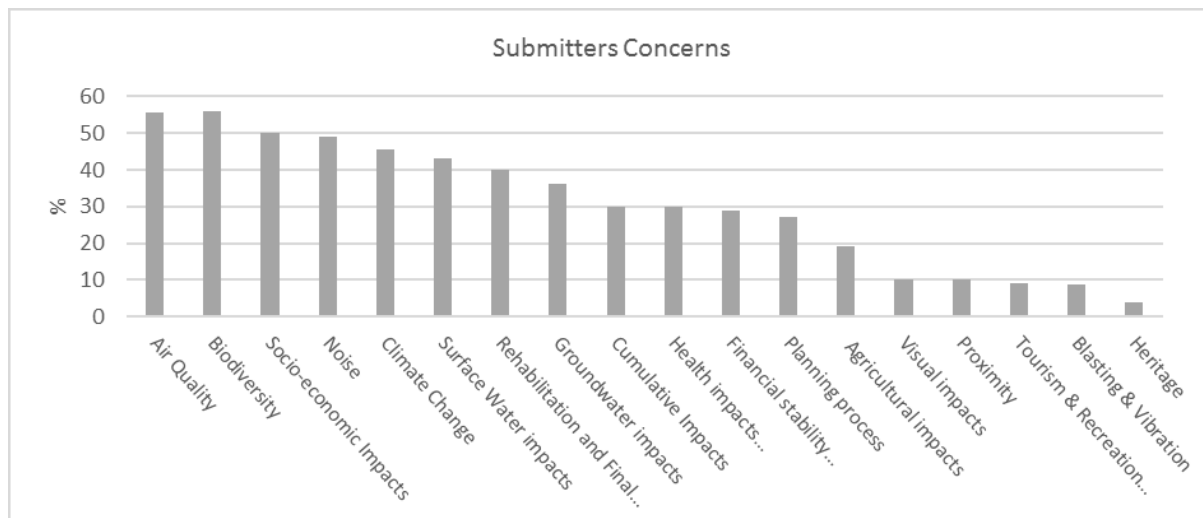
2. THE DEPARTMENT'S CONSIDERATION OF THE APPLICATION

2.1 Key steps in Department's consideration of the Project

20. On 8 August 2016, the Applicant submitted to the Department SSD 7142 Application and two Modification Applications, MOD 16 and MOD 3, including an EIS and accompanying specialist reports.
21. The Department placed SSD 7142, MOD 16 and MOD 3 on public exhibition from 11 August 2016 until 22 September 2016, and notified relevant government agencies.
22. In response to the public exhibition of SSD 7142, the Department received 103 public submissions, including from the general public, special interest groups and government agencies. Of these, 72 objected to the Application, three supported the Application, and 16 provided comments. Twelve submissions were received from public authorities including from Singleton Shire Council (**Council**).
23. During public exhibition, the Department also received advice from the Commonwealth Department of the Environment and Energy (**DoEE**) and the Commonwealth's Independent Expert Scientific Committee on Coal Seam Gas and Large Mining Development (**IESC**).
24. The Department received six submissions from the public in relation MOD 16, including five objections and one comment. Five objections were received from the public in relation to MOD 3. The agency submissions considered the Project collectively.

25. The key concerns raised in submissions were set out in the Department's PAR in sections 5.1 and 5.2, as illustrated below in *Figure 4*.

Figure 4: Concerns raised in submissions objecting to the Project



Source: Department's PAR

26. The Applicant submitted the *United Wambo Open Cut Coal Mine Project, Response to Submissions (RtS)*, in two parts: Part A in March 2017 (**RtS Part A**) and Part B in May 2017 (**RtS Part B**). The RtS responded to key concerns raised during public exhibition of the Project in relation to the assessment topics and refined aspects of the Project concerning the proposed final voids, reduced the disturbance area associated with the Project and proposed additional mitigation and management commitments. The RtS Part B provided a response to the IESC advice, addressed key assessment criteria and proposed refinements to the final voids, reductions to the disturbance areas and additional mitigation and management commitments.
27. On 24 July 2017, the Department sent the Applicant a request for further information. In September 2017, the Applicant submitted a Response to Request for Further Information Report (**RRFI**) to address residual matters raised by the Department and various agencies following review of the RtS.
28. According to the Department's PAR, following publication of the RtS, the Department commissioned independent expert reviews, including an air quality review undertaken by Ramboll Environ Australia Pty Ltd, and an economic review undertaken by the Centre for International Economics (**CIE**).

2.2 The Independent Planning Commission's review process and public hearing

29. On 28 November 2017, the then Minister requested that the former Planning Assessment Commission (**PAC**) carry out a review of the Project in accordance with section 23D of the EP&A Act and clause 268R of the *Environmental Planning and Assessment Regulation 2000* (**EP&A Regulation**) (the **Review**). The Minister's Terms of Reference included a direction to carry out a review of the merits of the Project as a whole, hold a public hearing and submit a final report pursuant to clause 268V of the EP&A Regulation to the Department.
30. On 12 December 2017, the Department's PAR was provided to the Commission. It concluded: "Overall, the Department believes that the benefits of the Project would outweigh its costs and that the proposed mine plan strikes an appropriate balance between protecting

the environment and local community, and realising the significant economic benefits of the Project to the region and the State...the Department's preliminary findings are that the Project would be expected to deliver a net benefit, is in the public interest and is approvable, subject to strict conditions."

31. On 8 February 2018, the Commission held a public hearing at the Singleton Civic Centre, 12 Queen Street, Singleton. A total of 10 speakers presented at the public hearing. The summary of issues raised in oral and written submissions to the Commission are found at Appendix 3 to the *Independent Planning Commission's Review Report* (the **IPC Review Report**).
32. On 26 March 2018, the Commission published the IPC Review Report. The Commission made 47 recommendations regarding aspects of the Project that required clarification, further assessment, clearer justification or stronger conditioning to ensure that potential impacts are avoided, minimised and/or mitigated, including:
 - 12 recommendations on noise, vibration and blasting;
 - nine recommendations on air quality;
 - nine recommendations on biodiversity;
 - six recommendations on final landform and rehabilitation;
 - seven recommendations on water resources;
 - one recommendation on visual impact; and
 - three recommendations on the transition to joint venture.
33. The IPC Review Report concluded: *"Giving consideration to the information available, views expressed at the public hearing and submissions received, the Commission's preliminary view is that the project has merit if it can satisfactorily and genuinely address the various recommendations contained within this review report... At this stage, the Commission considers the key issues that require further information and consultation with relevant agencies include noise, vibration and blasting, air quality, biodiversity, final landform and rehabilitation, water resources, visual impacts and transition to joint venture."*

2.3 The Department's consideration of the Applicant's Review Response

34. On 23 July 2018, the Applicant's Review Response was submitted to the Department.
35. Following assessment of the Applicant's Review Response, and further consultation with relevant agencies, the Department's FAR stated that it requested further information from the Applicant to assist with developing the Department's FAR and the draft conditions of consent, for consideration of the Commission in its determination of the Project. These additional information responses were provided to the Department on 11 October 2018 and 17 October 2018.

2.4 The Department's Final Assessment Report

36. The Department's FAR was submitted to the Commission on 12 November 2018 and considered the recommendations made in the IPC Review Report, the Applicant's Review Response and additional information provided following the IPC Review Report, as set out in paragraph 35. Section 5.8 of this Statement of Reasons (**SoR**) sets out the Commission's assessment of how the recommendations contained in the IPC Review Report have been addressed by the Applicant and Department and sets out the Commission's assessment of the Project as a whole.
37. The Department consulted with Council, the Division of Resources and Geoscience (**DRG**), the Resources Regulator, Department of Industry - Lands and Water (**DoI - L&W**), Environment Protection Authority (**EPA**), Office of Environment and Heritage (**OEH**),

Heritage Council, Roads and Maritime Services (**RMS**), Rural Fire Service (**RFS**), Subsidence Advisory NSW and Transport for NSW (**TfNSW**).

38. The Department's FAR also considered matters relating to the voluntary planning agreement (**VPA**), including the Applicant's offer, Council's position and the independent review into the VPA offer. See section 5.7.
39. The Department's FAR included draft conditions of consent for SSD 7142 and for MOD 16 and MOD 3, and "...[i]mportantly, the Department has carried over all outstanding obligations, ongoing commitments and project specific conditions to ensure that Peabody retains responsibility for all previously imposed requirements."
40. The Department's FAR concluded that it is "...satisfied that the Applicant has appropriately addressed all of the Commission's recommendations in its Response Report. The Department considers that its assessment process has been detailed, extensive and informed by community views, relevant agency input and technical experts. The Department is therefore confident that its preliminary assessment and final assessment reports together provide a robust assessment of the merits of the Project."
41. In addition, the Department's FAR concluded that:
"...the Project is a logical and strategic extension of open cut mining operations at Wambo Coal Mine and United Colliery. The joint venture would facilitate efficient and optimised recovery of a significant coal resource with fewer environmental impacts than would be expected from an equivalent greenfield project. The Department is satisfied that the proposed management, mitigation and offset measures would appropriately minimise and compensate for any residual adverse social, environmental and economic impacts of the Project. The Project would provide substantial social and economic benefits and the Department is satisfied that it would deliver a net benefit to the State.

The Department is satisfied that its recommended conditions provide a comprehensive, contemporary, and precautionary approach to the regulation and management of the Project. These conditions require appropriate and strict compliance with relevant performance measures and standards to ensure that any residual impacts are effectively mitigated. The Department considers that these conditions represent current best practice for regulating open cut coal mines in NSW. These conditions also provide a high level of protection for the local environment and the amenity of the local community and promote the orderly development of the State's significant coal resources."

The Department is satisfied that the benefits of the Project outweigh its residual costs and considers that the Project is in the public interest and is approvable subject to strict conditions of consent."

3. THE COMMISSION'S MEETINGS AND SITE VISIT

3.1 Meetings with the Department

42. On 6 December 2018, the Commission met with the Department. The matters discussed included the Applicant's Review Response, the Department's FAR, and the recommended draft conditions of consent. In addition to responses provided during the meeting, the Department also took several questions on notice.
43. On 5 February 2019, the Commission met with the Department for a second time with the final reconstituted Panel, to enable the new Panel member to be fully acquainted with the material. The matters discussed included the Applicant's Review Response, the Department's FAR and the matters taken on notice at the 6 December 2018 meeting.

44. A copy of the meeting agendas is available on the Commission's website and transcripts of both meetings have been available on the Commission's website since 11 February 2019.
45. On 2 July 2019, the Commission met with the Department to discuss proposed amendments to the draft conditions of consent. On 10 July 2019, the Department provided further information by email to the Commission with respect to ecological mine rehabilitation and the associated conditions of consent. The email has been available on the Commission's website since 8 August 2019.

3.2 Meetings with the Applicant

46. Also on 6 December 2018, the Commission met with the Applicant. The matters discussed included the Applicant's Review Response, the Department's FAR, the recommended draft conditions of consent, and other Project updates. In addition to responses provided during the meeting, the Applicant also took several questions on notice.
47. Also on 5 February 2019, the Commission met with the Applicant for a second time with the reconstituted Panel. The matters discussed included the Applicant's Review Response, the Department's FAR, and the matters taken on notice at the 6 December 2018 meeting.
48. A copy of the meeting agendas is available on the Commission's website and transcripts of both meetings have been available on the Commission's website since 11 February 2019.

3.3 Meeting with the NSW Environmental Defenders Office (EDO) on behalf of Hunter Environment Lobby (HEL)

49. Also on 5 February 2019, the Commission met with representatives from the EDO on behalf of HEL. The EDO requested a separate meeting with the Commission to enable independent experts engaged by HEL to make submissions in relation to the Project because they were unable to attend the scheduled public meeting in Singleton on 7 February 2019. The meeting was attended by Dr Megan Kessler and Matt Floro of the EDO and the following HEL representatives, whom presented to the Commission:
 - Roderick Campbell (the Australia Institute) - economics;
 - Steven Gauld - noise;
 - David Paull - ecology; and
 - Dr Matthew Currell - groundwater.
50. The EDO representatives provided reports from the independent experts engaged by HEL (listed at paragraph 49), as well as reports from Dr Stephen Bell (biodiversity), A/Prof Howard Bridgman (air quality) and Prof Will Steffen (climate change). A copy of the independent expert reports and a transcript from the meeting with the EDO has been available on the Commission's website since 6 February 2019 and 11 February 2019 respectively.
51. On 3 and 6 May 2019, the Commission received additional written comments from the EDO and from independent experts engaged by the EDO on behalf of HEL, including Tim Buckley (economics and climate change), Prof Will Steffen (climate change) and Roderick Campbell (economics). See paragraphs 279 and 280 for further discussion.

3.4 Public meeting

52. On 12 December 2018, the Commission postponed a public meeting as a result of a Commission member identifying a perceived conflict of interest and withdrawing from the Panel (see paragraph 7).

53. On 7 February 2019, the Commission held a public meeting at Singleton Civic Centre, 12 Queen Street, Singleton. The Commission received 35 requests to speak, all of whom spoke at the public meeting. A copy of the speakers' schedule has been available on the Commission's website since 4 February 2019.
54. An opportunity to lodge written comments with the Commission was provided until seven days after the public meeting. Prior to the seven days lapsing, both the Applicant and the EDO on behalf of HEL sought additional time to provide written comments and supplementary independent expert reports after the seven days had lapsed. The Commission agreed to provide an extension of time in each instance.
55. A total of 509 written comments were received by the Commission in relation to the Project, including 505 written comments received up to seven days following the public meeting and four written comments received after the seven-day period. All presentations made at the public meeting and all written comments received were made available on the Commission's website. A transcript of the public meeting has been available on the Commission's website since 13 February 2019.
56. In summary, the main issues of concern raised in oral and written submissions to the Commission included:
- Noise, vibration and blasting impacts:
 - noise levels exceedances;
 - meteorological conditions;
 - concerns regarding mitigation and acquisition rights and application of the *Voluntary Land Acquisition and Mitigation Policy (VLAMP)* for surrounding property owners;
 - Air quality:
 - health impacts as a result of dust and poor air quality;
 - blast plumes impact on air quality;
 - exceedances are not notified;
 - Biodiversity:
 - proposed clearing of critically endangered ecological communities (**CEECs**);
 - use of rehabilitated land as biodiversity offsets and a lack of like-for-like offsets;
 - impacts on Matters of National Environmental Significance (**MNES**);
 - *Environment Protection Biodiversity and Conservation Act 1999 (EPBC Act)* requirements have not been addressed;
 - Water resources:
 - water licencing and impact on private bores;
 - impacts associated with the groundwater saline sinks;
 - cumulative groundwater impacts given the scale of mining in the Hunter;
 - impact on groundwater dependent ecosystems (**GDEs**) due to drawdown;
 - impacts to water tanks as a result of dust and air pollution;
 - Final landform and rehabilitation:
 - the mine currently has approval for two voids, which will remain unchanged;
 - voids are changing the landscape of the region;
 - concerns with mine rehabilitation being used as an offset;
 - the rehabilitation strategy should be approved before mining operations commence;
 - rehabilitation at the Wambo Coal Mine has been successful and provides foraging area for animals;
 - Economic and social benefits:
 - employment opportunity and local economic stimulation;
 - the economic assessment data is inaccurate raising concerns with the analysis provided in the assessment;
 - concerns regarding economic credentials of Peabody which may impact on their ability to deliver on rehabilitation commitments;
 - mining industry provides support to local businesses and charitable organisations;

- Health and social amenity impacts:
 - psychological impact of mining on the community and concerns over cumulative health impacts;
 - loss of quality of life due to mining;
 - impacts on property prices;
- Climate and greenhouse gas emissions:
 - impacts of climate change are worsening and should not be ignored;
- Draft conditions of consent:
 - some draft conditions are too vague, unenforceable and lack certainty;
 - the Secretary has too much power and discretion over the approval of management plans and other conditions of consent; and
 - timing of requirements for management plans, monitoring programs and other activities required under the draft conditions should be revised. Management plans should be prepared and approved before any works commence.

3.5 Meeting with Singleton Shire Council

57. Also on 7 February 2019, the Commission met with Council. The matters discussed at the meeting included the VPA negotiations between the Applicant and Council, recommendations in the IPC Review Report relating specifically to Council and the draft conditions of consent. A transcript of the meeting has been available on the Commission's website since 11 February 2019.

3.6 Site inspection

58. On 8 February 2019, the Commission conducted an inspection of the Site with the Applicant. Representatives of community groups also attended as independent observers. The Site inspection commenced at the Project's site office and followed the identified points set out in the series of maps provided by the Applicant. The Commission observed a series of scheduled blasts at the end of the Site inspection. The community representatives were unable to observe the blasts due to logistical constraints. A copy of the blast footage was placed on the website on 14 February 2019. The Commission also visited the town of Bulga and its surrounds, independent of the Applicant and community groups. The maps provided by the Applicant and notes of the Site inspection have been available on the Commission's website since 1 April 2019.
59. As mentioned in paragraph 58, representatives from the following community groups attended and observed the Site inspection:
- Green Alliance Network (**GAN**);
 - Hunter Communities Network (**HCN**);
 - Lock the Gate (**LtG**); and
 - Rivers SOS.

4. ADDITIONAL INFORMATION

60. The Department's FAR noted that it had engaged GLN Planning (**GLN**) on 25 October 2018 to undertake a review of the *"acceptability and reasonableness of Glencore's [VPA] offer, including consideration of both the quantum and distribution of funds."* On 5 December 2018, the Department provided the Commission with information in relation to the GLN advice. This information has been available on the Commission's website since 6 March 2019.
61. On 18 February 2019, the Department responded to the questions taken on notice during its meeting with the Commission on 5 February 2019. The Department's response, which has been available on the Commission's website since 6 March 2019, included:
- clarification of an area of Crown Land;

- a draft condition of consent relating to diesel emissions reduction equipment;
 - general terms of the Applicant's VPA offer to Council; and
 - categorisation of threatened species under the EPBC Act.
62. On 7 March 2019, the Applicant wrote to the Commission to advise it was considering the relevance of the recent Rocky Hill judgment to the Project *"Having regard to some of the comments made in that judgment in relation to market substitution and carbon leakage, the proponent intends to commission an independent expert report to address those matters in the context of the United Wambo project...the independent expert would use data and analysis which is proprietary in nature and which it considers to be of high commercial value... As such, the proponent seeks the IPC's agreement to receive the report on a confidential basis to treat the entire report as commercial-in-confidence."* A copy of the letter has been available on the Commission's website since 26 March 2019.
 63. Without having seen the report, the Commission was not willing to agree to this request and, as a result, the Applicant elected to withhold the report. The Applicant subsequently provided a summary of the report to the Commission on 15 April 2019 (see paragraph 66).
 64. On 22 March 2019, the Commission wrote to the Department requesting further information in relation to the IPC Review Report Recommendation 30, with respect to a report on mine rehabilitation, commissioned by the NSW Minerals Council (**NSWMC**) and the Department's recommended draft conditions of consent. A copy of the letter has been available on the Commission's website since 26 March 2019.
 65. On 22 March 2019, the Commission wrote to the Applicant requesting further information in relation to the IPC Review Report Recommendation 7, with respect to the noise assessment and application of the VLAMP and Recommendation 31, with respect to rehabilitation and final landform options, the Project Greenhouse Gas Assessment, and the Department's recommended draft conditions of consent. A copy of the letter has been available on the Commission's website since 26 March 2019.
 66. On 15 April 2019, the Applicant provided the following responses to the Commission's 22 March 2019 letter, which have been available on the Commission's website since 15 April 2019:
 - *Response to Independent Planning Commission February 2019 Public Meeting*, dated April 2019 (**Applicant's Response 1**); and
 - *Response to the Findings in the Rocky Hill and Wallarah 2 Cases on Climate Change and Greenhouse Gas Emissions*, dated 14 April 2019 (**Applicant's Response 2**).
 67. On 17 April 2019, the Department provided a response to the Commission's 22 March 2019 letter (**Department Response 1**), which has been available on the Commission's website since 18 April 2019.
 68. On 23 April 2019, the Commission wrote to the Department requesting additional information in relation to the Applicant's responses set out in paragraph 66. In particular, the Commission requested additional information in relation to noise, final landform, notification procedures under the draft conditions of consent and climate change, specifically in relation to the Applicant's Response 2. A copy of the letter has been available on the Commission's website since 24 April 2019.
 69. On 15 May 2019, the Department provided a response to the Commission's 23 April 2019 letter (**Department Response 2**), which has been available on the Commission's website since 16 May 2019.
 70. On 17 May 2019, the Applicant provided a further response to the Commission responding

to further comments received from the EDO on behalf of HEL on 3 May 2019 and 6 May 2019, which has been available on the Commission's website since 20 May 2019.

71. On 27 May 2019, the Applicant provided the Commission with the maximum predicted noise levels across the Project to the decimal place, which has been available on the Commission's website since 30 May 2019.
72. As set out in paragraphs 66 and 70, the Commission received responses from the Applicant and comments from stakeholders in relation to the judgments in *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7 (**Rocky Hill case**) and *Australian Coal Alliance Inc v Wyong Coal Pty Ltd* [2019] NSWLEC 31 (**Wallarrah 2 case**). As a result of matters raised in these written comments, including in relation to the project's significant contribution to Scope 3 greenhouse gas emissions (**GHGs**) (see section 5.8.3), on 2 August 2019, the Commission placed a statement on its website seeking comments on potential conditions of consent under consideration by the Commission:
- "The Panel is continuing its deliberations on the merits of the SSD and associated modifications but is considering a condition along the following lines:*
- 1. The Applicant must prepare an Export Management Plan for the development to the satisfaction of the Planning Secretary. This plan must set out protocols that require the Applicant to use its best endeavours to ensure that any coal extracted from the Site that is to be exported from Australia is only exported to countries that are:*
 - (a) signatories to the Paris Agreement within the United Nations Framework Convention on Climate Change; or*
 - (b) countries that the Planning Secretary considers have policies for reducing greenhouse gas emissions that would otherwise be similar to policies that would be required of that country if it were a signatory to the Agreement at (a) above; as at the date of export. The purpose of the Export Management Plan is to ensure that all practicable measures are adopted by the Applicant to minimise greenhouse gas emissions identified as Scope 3 emissions in the EIS.*
 - 2. The Applicant must not commence Phase 1B until the Export Management Plan is approved by the Planning Secretary.*
 - 3. The Applicant must implement the Export Management Plan as approved by the Planning Secretary for the life of the development."*
73. As set out above, the potential conditions of consent contemplated requiring the Applicant to prepare an Export Management Plan for the development, to the satisfaction of the Secretary. This matter is discussed further in section 5.8.3.

5. THE COMMISSION'S CONSIDERATION

5.1 Material considered by the Commission

74. In its determination of the Project, the Commission has carefully considered the IPC Review Report and the following material (the **Material**):
- the EIS and associated information including all accompanying specialist reports, submitted on 8 August 2016;
 - all Government agency submissions made to the Department;
 - all public submissions made to the Department in respect to the public exhibition period - 11 August 2016 to 22 September 2016;
 - Peer Review of Economic Assessment, CIE, October 2016;
 - IESC Advice, October 2016;
 - Response to Submissions, Part A and Part B and associated information, March 2017;
 - all Government agency responses to the RtS;
 - Air Quality Expert Review of EIS Air Quality Impact Assessment, Ramboll, July 2017;

- Applicant Response to Expert Review, Jacobs, September 2017;
- Review of Economic Analysis Related to United Wambo Open Cut Coal Project, CIE, September 2017;
- Applicant Response to Request for Additional Information, September 2017;
- all Government agency responses to additional information submitted by the Applicant in September 2017, November 2017 and December 2017;
- Applicant Further Response to EPA Noise Compliance Protocol, November 2017;
- Cumulative Air Quality Impact Assessment Peer Review, Ramboll, November 2017;
- Applicant Response to Cumulative Air Quality Impact Assessment, Jacobs, November 2017;
- Department of Planning and Environment, Preliminary Assessment Report - United Wambo SSD 7142 and associated information, November 2017;
- Applicant Additional Information on CEEC Mapping and Offsets, December 2017;
- United Wambo Review Report and associated information, Independent Planning Commission NSW, March 2018;
- United Wambo Response to IPC Review Report and associated information, July 2018;
- all Government agency comments on the IPC Review Report;
- Request for Additional Information, Umwelt, October 2018;
- Request for Additional Information - Noise Compliance Protocol, Umwelt, October 2018;
- Department of Planning and Environment, United Wambo Open Cut Coal Mine, State Significant Development, Final Assessment Report (SSD 7142), November 2018;
- information provided from the Department on the VPA on 5 December 2018;
- the Commission meetings with the Department and the Applicant on 6 December 2018 and 5 February 2019 and all information provided during those meetings;
- the Commission meeting with the Council on 7 February 2019 and all information provided during that meeting;
- the Commission meeting with independent experts engaged by the EDO on behalf of HEL including all information, presentation slides and reports provided during those meetings:
 - *United Wambo Open Cut Coal Mine Project (Project) - Independent Planning Commission Public Meeting*, Stephen Bell, 5 December 2018;
 - *Expert Report United Wambo Open Cut Coal Mine Project, Independent Planning Commission (IPC) Public Meeting*, Prof Will Steffen, 11 December 2018;
 - *Further review of United Wambo Open Cut Coal Mine Project - groundwater impacts*, Dr Matthew Currell, 12 December 2018 and presentation slides;
 - *Comments on the United Wambo Open Cut Mine Project and associated documents for the IPC Public Meeting*, A/Prof Howard Bridgman, 3 January 2019;
 - *Review of biodiversity considerations within the United Wambo Open Cut Coal Mine Project (SSD 7142), Submission to the Independent Planning Commission Public Meeting*, David Paull, 5 February 2019;
 - *United Wambo Mine, Submission to Independent Planning Commission*, Rod Campbell, February 2019;
 - *United Wambo Open Cut Coal Mine (SSD 7142) Review of Noise Report*, Stephen Gauld, for and on behalf of Day Design Pty Ltd, 1 February 2019;
- verbal presentations made to the Commission at the public meeting at Singleton on 7 February 2019 and associated presentation documents, aids and other information;
- the site and locality inspection conducted on 8 February 2019 and all information provided during the site inspection;
- all public written comments to the Commission received at the public meeting on 7 February 2019 and following the public meeting;
- additional information provided by the Department on 18 February 2019, 17 April 2019, 15 May 2019 and 10 July 2019;
- the Applicant's '*Response to Independent Planning Commission February 2019 Public Meeting*', April 2019;

- the Applicant's 'Response to the Findings in the Rocky Hill and Wallarah 2 Cases on Climate Change and Greenhouse Gas Emissions' 14 April 2019;
- additional responses provided by the EDO on behalf of HEL, May 2019, including:
 - *United Wambo Mine, Submission to Independent Planning Commission*, Tim Buckley, 1 May 2019;
 - *Responses to United Wambo Submission of 14 April 2019, responding to the Rocky Hill and Wallarah 2 cases on climate change and greenhouse gas emissions*, Prof Will Steffen, 1 May 2019;
 - *United Wambo Mine, May 2019 comments to Independent Planning Commission*, Rod Campbell, May 2019;
 - *United Wambo Open Cut Coal Mine Project (SSD 7142) and associated modifications (DA 205-7-2003 MOD 16 and DA 177-8-2004 MOD 3) (Project): Supplementary Submission*, EDO on behalf of HEL, 6 May 2019; and
- the Applicant's letter to the Commission, Response to Hunter Environment Lobby's May Submissions, 17 May 2019;
- all written comments received with respect to the potential conditions of consent regarding the management of Scope 3 GHGs (see section 5.8.3).

75. Copies of all information received, including written comments made to the Commission are available on the Commission's website and full transcripts of all meetings held, including the public meeting is available on the Commission's website.

5.2 Mandatory considerations

76. In its determination of the Application, the Commission has taken into consideration the following relevant mandatory considerations, as provided in section 4.15 of the EP&A Act (**mandatory considerations**):

- the provisions of all:
 - environmental planning instruments (**EPIs**);
 - proposed instruments that are or have been the subject of public consultation under the EP&A Act and that have been notified to the Commission (unless the Secretary has notified the Commission that the making of the proposed instrument has been deferred indefinitely or has not been approved);
 - planning agreements that have been entered into under section 7.4 of the EP&A Act;
 - the EP&A Regulation to the extent that they prescribe matters for the purposes of section 4.15(1) of the EP&A Act;
 that apply to the land to which the Application relates;
- the likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality;
- the suitability of the Site for development;
- submissions made in accordance with the EP&A Act and EP&A Regulation; and
- the public interest.

77. As set out in paragraph 3, MOD 16 and MOD 3 are considered to be modifications under section 75W and therefore the mandatory considerations as provided in section 4.15 of the EP&A Act do not apply. For the purposes of the Commission's determination, MOD 16 and MOD 3 have been considered as part of the Project and addressed as such throughout this SoR.

78. The Department's PAR stated "*The Department has considered statutory requirements for the assessment of the Project under the EP&A Act, the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and other relevant legislation. In regard to the EP&A Act, this has included consideration of the:*

- *objects found in section 5 of the Act; [now under section 1.3 of the EP&A Act]*
- *matters relating to threatened species found in the recently repealed sections 5A-5D of*

- the Act, in accordance with the transitional arrangements specified in the Biodiversity Conservation (Savings and Transitional) Regulation 2017;*
 - the matters listed under section 79C [now section 4.15 of the EP&A Act];*
 - applicable environmental planning instruments and draft instruments; and*
 - various other requirements of the Act and its Regulations, including concerning public exhibition.”*
79. The Department’s FAR noted that on 1 March 2018, the EP&A Act was amended, which included changes to the objects of the Act (now under section 1.3 of the EP&A Act) and section 79C matters for consideration (now under section 4.15 of the EP&A Act).

5.3 Commonwealth Approvals

80. The Commission notes that on 7 December 2015, the Project was determined to be a ‘controlled action’ under the EPBC Act, due to the likely significant impacts on listed threatened species and communities, under sections 18 and 18A, and a water resource, under sections 24D and 24E of the EPBC Act.
81. The Department’s FAR stated that *“In accordance with the bilateral agreement made under section 45 of the EPBC Act between the Commonwealth and NSW Governments, the Commonwealth has accredited the State’s assessment process for this Project.”* The Department’s FAR provided additional information for the Commonwealth Minister to take into account when deciding whether or not approve the proposal under the EPBC Act.
82. As set out in paragraph 28 and detailed in the Department’s PAR, the Department sought advice from the Commonwealth IESC in relation to potential impacts on water resources. The Applicant’s and the Department’s consideration of the IESC advice is addressed by the Commission in section 5.8.5.

5.4 Relevant Environmental Planning Instruments

83. The Department’s PAR included an assessment of the Project against the relevant provisions of the following EPIs:
- State Environmental Planning Policy No. 33 - Hazardous and Offensive Development;*
 - State Environmental Planning Policy No. 44 - Koala Habitat Protection;*
 - State Environmental Planning Policy No. 55 - Remediation of Land;*
 - State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007 (Mining SEPP);*
 - State Environmental Planning Policy (Infrastructure) 2007;*
 - State Environmental Planning Policy (State and Regional Development) 2011;*
 - Hunter Regional Environmental Plan (Heritage) 1989; and*
 - Singleton Local Environmental Plan 2013 (SLEP).*
84. The Department’s PAR stated: *“The Department has noted the applicant’s consideration of these matters in its EIS and assessed the Project against the relevant provisions of these instruments (see Appendix D). Based on this assessment, the Department is satisfied that the Project can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.”*
85. Given amendments to the EP&A Act on 1 March 2018 (see paragraph 79), the Department’s FAR, at Appendix D, updated the statutory considerations to address the amendments.
86. The Commission has reviewed the EPIs listed above in paragraph 83, and those identified in the Applicant’s EIS, the Department’s PAR, and the Department’s FAR. The Commission is satisfied with the Department’s assessment of the relevant EPIs because the

Department's PAR and the amendments provided in the Department's FAR provide a detailed appraisal of the relevant EPIs, and considers whether the Project is consistent with the aims and objectives of the relevant EPIs.

87. The Commission acknowledges that the updated assessment of relevant EPIs contained in the Department's FAR identifies where recommended draft conditions of consent have been proposed by the Department to minimise, mitigate and/or manage potential impacts of the Project to achieve acceptable environmental and amenity outcomes as required by those EPIs.
88. The provisions of relevant EPIs have been considered by the Commission in its assessment of the Project. Given its statutory significance, the Commission has elected to provide further analysis of the Mining SEPP in particular at paragraphs 151, 159, 204, 388 and 460 and in section 5.8.3. The Commission accepts and adopts the Department's assessment with respect to the relevant clauses of the Mining SEPP and all other EPIs as set out in Appendix D of the Department's PAR and the Department's FAR and the reasons provided in those assessments and has utilised and adopted the Department's assessment of EPIs for the purpose of this SoR.

Permissibility

89. The Department's PAR stated that *"...the Project area is zoned RU1 (Primary Production) or SP2 (Infrastructure) under the Singleton Local Environmental Plan 2013 (Singleton LEP). Open cut mining is permissible with consent in areas zoned RU1 but is prohibited within land zoned SP2.*

...the land zoned SP2 relates to the current Golden Highway road corridor. As agricultural development may be carried out within this zone, mining is permissible with consent on this land under Clause 7(1)(b)(i) of the State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007 (Mining SEPP).

The Applicant is proposing to realign a substantial section of the Golden Highway over land currently classified as RU1 (Primary Production). Development for the purpose of roads is permissible with consent in this zone."

90. The Commission agrees with this analysis. It finds that the Project is permissible with consent under the SLEP and the Mining SEPP, for the reasons set out in paragraph 88.

5.5 Associated Modifications

91. As set out in paragraph 15, two modifications are required to existing Wambo consents to facilitate the Project. Both DA 305-7-2003 and DA 177-8-2004 consents were issued under Part 4 of the EP&A Act.
92. As set out in paragraph 4, in accordance with clause 8J(8) of the EP&A Regulation and the transitional arrangements under Schedule 6A of the EP&A Act, the modifications are to be determined under the former section 75W of the EP&A Act. As the request to modify consents DA 305-7-2003 and DA 177-8-2004 was made prior to 1 March 2018 under the former section 75W of the EP&A Act and the Secretary has not notified the Applicant that the modification will not be dealt with under section 75W, the Commission is satisfied that the two modification requests fall within the broad scope of section 75W and can be determined under section 75W, in accordance with Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*.
93. The Commission is satisfied that MOD 16 and MOD 3 are within the broad scope of section 75W. The request to modify these consents can be considered under section 75W because

of the minor nature of the changes to the consents required to facilitate the SSD 7142 Application, as summarised in paragraph 15.

94. Even if MOD 16 and MOD 3 were to be assessed under section 4.55 of the EP&A Act, the Commission would be satisfied that the development proposed in each of MOD 3 and MOD 16 are each substantially the same development as the development for which consent was originally granted. This is because the changes relate to continuation of use and extending the operating life of the Wambo mine. Such changes do not vary the original development in any substantial way and the development maintains its original character.

5.6 Site Verification Certificate

95. The Department's PAR stated: "...the provisions of clause 50A of the EP&A Regulation apply and the Applicant is required to obtain either a SVC [Site Verification Certificate] or Gateway Certificate for the Project."
96. The Commission understands that the Applicant applied for a SVC in May 2016 to confirm whether the 3.8 ha area of undisturbed land, subject to the proposed Project, does not contain Biophysical Strategic Agricultural Land (**BSAL**). The Office of Environment and Heritage (**OEH**) subsequently advised that the soils within the 3.8 ha area do not meet the criteria for BSAL "...as they have poor drainage and sodicity or a greater than 10% slope. A SVC for this area was subsequently issued on 9 June 2016."

5.7 Relevant Planning Agreements

97. As set out in paragraphs 60 and 61, the Applicant made an offer to Council on 4 December 2018. The Council accepted the offer 'in-principle' on 17 December 2018. On 18 February 2019, the Department provided the Commission with the general terms of the Applicant's VPA offer (see paragraph 61) as follows (see Appendix 9 of the conditions of consent):

<i>Applicant's Contribution</i>	<i>Intended Use</i>	<i>Payment Details</i>
\$1,325,000	Singleton Community and Economic Development Fund, or similar, to be used across the local government area	Within 12 months of commencement of development under this consent
\$1,325,000	Funding of community infrastructure and services for local affected communities, including Jerrys Plains and Warkworth	Within 12 months of commencement of development under this consent or otherwise agreed with Singleton Council

98. The Commission finds that the terms of the offer are acceptable as they are supported by the advice of GLN. It is a proposed condition of consent that the Applicant enter into a VPA with Council in accordance with the terms of its offer, within six months of commencement of development under the consent as permitted by section 7.7(3) of the EP&A Act.

5.8 Likely impacts of the development on both natural and built environments

5.8.1 Noise, vibration and blasting

IPC Review Recommendations

99. The Commission made 12 recommendations relating to noise, vibration and blasting. The Applicant and the Department addressed each recommendation. The Department's FAR considered related recommendations collectively, including:
- policy setting;
 - road and rail noise;
 - revised Project Specific Noise Limits (**PSNLs**);
 - exceedances, mitigation and acquisition;
 - transitional noise (Phase 1); and
 - blast management.

Applicant's consideration

Policy setting

100. The Applicant's Review Response noted that a Noise Impact Assessment (**NIA**), dated July 2016, was prepared as part of the EIS and was undertaken in accordance with the Secretary's Environmental Assessment Requirements (**SEARs**), which required the application of the NSW Industrial Noise Policy (**INP**) (EPA 2000). The Applicant's Review Response further noted that the Noise Policy for Industry (**NPfI**) (EPA 2017) was released in 2017 and replaced the INP: *"The NPfI did not apply to the Project as the NIA was prepared prior to its implementation...The Environment Protection Authority (EPA) has issued transitional arrangements for implementation of the NPfI and under these arrangements, as the SEARs for the Project were issued prior to the release of the NPfI, the INP continues to be applicable policy for the Project."*
101. The Applicant's Review Response provided a comparison of the key differences between the INP and NPfI, noting that *"should the NPfI be adopted five private residences would be afforded lesser rights than currently proposed under the Project NIA. All of these residents, along with all residents in the Noise Affection and Active Noise Management Zones, have been consulted with extensively during the Project planning and assessment phases...every resident has been informed about the proposed impacts and then informed of the acquisition and/or management and mitigation rights...consultation undertaken has set an expectation of certain rights based on application of the INP."*
102. The Applicant's Review Response further stated: *"The other key difference with the application of the NPfI would be that under 'very noise enhancing meteorological conditions' higher criteria would apply, whereas technically under INP no criteria apply at these times."* The Applicant's Review Response further stated that *"...this approach is not applicable to the assessment of a proposed development but to the application of consent and licence conditions"*, however, it was stated that noise controls would be implemented when noise enhancing conditions occur, regardless of whether noise criteria apply at such times.
103. The Applicant's EIS considered the Project cumulative noise level with respect to the non-discretionary standards set out in clause 12AB (3) of the Mining SEPP. The EIS stated that: *"The cumulative noise impact assessment indicated the potential for cumulative noise impacts at three locations with private residences surrounding the Project Area. These potential cumulative impacts occur as a result of the Project contributing to a noise environment already significantly affected by industrial and road traffic noise. The*

assessment indicates that while there is potential for the recommended acceptable noise level to be exceeded at these private residences, the Project is generally a minor contributor and the cumulative industrial noise level will not exceed the cumulative noise acquisition criteria specified in DPE's Voluntary Land Acquisition and Mitigation Policy (2014)."

Road and rail noise

104. The NIA assessed the potential road and rail noise impacts from the Project. In relation to road traffic noise, the Applicant's Review Response stated that *"...many of the predicted heavy vehicle traffic movements to the site are to occur during the morning, while fewer are predicted to occur in the afternoon, when compared to the existing situation. This predicted change in the heavy vehicle movement patterns accounts for the predicted increase in road traffic noise in the morning period and the minor reduction in road traffic noise in the afternoon."* The NIA concluded that under the NSW Road Noise Policy (RNP) an increase of up to 2 dB (A) represents a minor impact that is *"barely perceptible to the average person."*
105. In relation to cumulative rail noise resulting from use of the Wambo rail spur, the Applicant's Review Response noted that the NIA assessed noise from all train movements on the Wambo spur, irrespective of whether the rail movement are attributed to Wambo underground operations or the Project. It also stated that no other coal mines utilise the Wambo rail spur. The NIA assessed the increase from six to eight trains per day and the Applicant's Review Response concluded: *"The increase in the maximum number of trains over a 24 hour period does not affect the intrusive LAeq, 15 minute noise level calculation."*

Revised Project Specific Noise Levels

106. The Applicant's Review Response included revised residential receiver PSNLs, to ensure consistency with those proposed in the Department's PAR. The revised PSNLs included additional background monitoring undertaken in the Moses Crossing area.

Exceedances, mitigation and acquisition

107. The Applicant's Review Response provided noise contour mapping to 1 dB(A), in response to the IPC Review Report Recommendation 6, however it stated that *"...single point noise calculations are the most precise representation of the predicted noise impacts of the Project and that 1 dB(A) contours infer a degree of precision which may be misleading."*
108. Following the revised contour mapping and land ownership mapping updates provided in the Applicant's Review Response, the Applicant reassessed the application of the *Voluntary Land Acquisition and Mitigation Policy (VLAMP)*, and concluded: *"There are no changes to the noise impact affectation predicted from the project as a result of the 1dB contours prepared in response to Recommendation 6."*
109. The Applicant's Review Response, Table 3.5, provided a breakdown of mitigation and acquisition rights to affected landowners, which stated *"...there are no changes to this list since the EIS except that since the EIS was completed the Joint Venture has purchased some of the affected properties."* An updated land ownership map was provided at Figure 3.1 of the Applicant's Review Response.

Transitional noise - Phase 1

110. The Applicant's Review Response stated that: *"During the transition process it is proposed that a set of 'transitional noise criteria' would be included in both the Wambo and Project SSD development consents to apply during Phases 1A and 1B. This would effectively impose one set of noise criteria. This process ensures accountability and provides certainty for the community as one clear set of noise criteria will apply to all United and Wambo mine*

complex operations during the transitional phase.”

111. The Applicant's Review Response noted that the transitional criteria that would apply during Phase 1, would be the higher of either the noise criteria of SSD 7142 or 305-7-2003 at each receiver, which was necessary as the *“...existing Wambo Open Cut is an older mine that has equipment and certain design features that means it is not possible for this mine to immediately operate under the more stringent noise limits that the new Project has been designed to meet.”* The Applicant's Review Response confirmed that once the transition process is complete, the following noise criteria will be in place across the both mine Sites:
- *“The Joint Venture open cut operations will operate under noise criteria specified in the new development consent for the Project (SSD 7142).*
 - *The Wambo underground and CHPP will operate in accordance with the noise conditions in the Wambo development consent (305-7-2003). It is expected that these noise criteria will be updated as part of the determination of the modification application submitted concurrently with the development application for the Project.*
 - *The Wambo Train Loading Facility will be operated in accordance with the noise conditions in the Wambo Train Loading Facility development consent (177-8-2004).”*
112. In response to correspondence from the EPA, the Applicant provided additional information titled 'Request for Additional Information - Noise Compliance Protocol' (**NCP**), prepared by Global Acoustics, dated 17 October 2018. The NCP sets out a protocol for noise compliance monitoring for each of the Project phases, prepared in accordance with the INP and the NPfI to *“...allow determination of compliance between the UWJV operations covered under SSD 7142 and the Wambo mine.”*

Blast management

113. The Applicant's EIS included a Blast Impact Assessment (**BIA**), dated 21 May 2016, which considered potential airblast overpressure and ground vibration impacts resulting from the Project. The EIS stated that: *“A review of monitoring data from 1093 blasts for the period to June 2015 identified no exceedances of ground vibration criteria at private residences. Four blasts were found to have exceeded the maximum airblast overpressure criteria of 120 dBL at private residences, with a further 12 blasts in excess of the 115 dB recommended airblast overpressure criteria. The number of blasts that exceeded the recommended airblast overpressure criteria of 115 dB constituted less than 5 per cent of the total number of blasts in a 12 month period and is therefore compliant with relevant criteria (Peabody Energy 2015).”*
114. The Applicant's Review Response provided a standard form of a negotiated agreement, in response to the IPC Review Report, included in Appendix 6 of the Applicant's Review Response. A negotiated agreement is an agreement entered into by the Applicant and an impacted landowner to enable the Applicant to operate outside of the relevant ground vibration and airblast overpressure criterion.
115. The Applicant's Review Response stated that blast management controls would be implemented to ensure relevant blast criteria for private residences will be met, and stated that: *“Blasts are designed in a way that effectively controls both ground vibration and overpressure and a model is prepared for each blast to check that the blast design is suitable and will meet all relevant criteria. Blasts are designed to be below the limits by a margin to provide some contingency for unexpected conditions. Each blast is monitored and the results fed back into the model so that modelling continues to accurately reflect site conditions.”*
116. The Applicant's Review Response noted that a Blast Management Plan would be prepared in consultation with the EPA.

Additional information

117. As set out in paragraph 67, the Commission requested further information from the Applicant in relation to draft Noise Operating Condition B4(e), specifically to:
- “advise of the anticipated frequency of this condition being triggered, including evidence and source of information?”
 - describe what would constitute ‘reasonable steps’?
 - advise how often in the last four years have noise-enhancing meteorological conditions been experienced on site?”
118. The Applicant's Response 1 provided an overview of the meteorological conditions when the noise criteria in the consent would not apply. Table 2 provides the frequency of meteorological conditions where the noise criteria in the consent has and has not applied over the past four years from data sourced from the Wambo mine meteorological station, Environment Protection Licence (EPL) No. 529 monitoring point 17 and stated that “...the meteorological station was upgraded in December 2016 and since the upgrade the more sensitive equipment installed has resulted in a reduction in the percentages of periods in which the proposed conditions of consent do not apply.”

Table 2: Noise enhancing meteorological conditions 2015 to 2018

Year	2015	2016	2017	2018	Average 2015 to 2018
Within consent conditions ≤ 3 m/s	54%	50%	75%	72%	63%
Outside consent > 3 to $< 5 = 5$ m/s	40%	40%	21%	23%	31%
Adverse > 5 m/s	6%	10%	4%	5%	6%

Source: Applicant's Response 1

119. The Applicant's Response 1 further stated that the Noise Management Plan (**NMP**) would include a Trigger Action Response Plan (**TARP**), augmented with meteorological data and other management measures, and its implementation would generally follow as set out below:
- “1. when the measured noise levels attributable to the mine are more than 2 dB below the limit operations can continue as normal*
- 2. when the measured noise levels attributable to the mine are within 2 dB of the limit and the meteorological conditions are standard or noise-enhancing the Noise TARP would require supervisors to start to implement further noise mitigation measures (see controls below)*
- 3. when the measured noise levels attributable to the mine are at or above the limit and the meteorological conditions are standard or noise-enhancing the Noise TARP would require immediate action to reduce noise (see controls below)*
- 4. when the measured noise levels attributable to the mine are above the license limit and the meteorological conditions are very noise-enhancing (periods where the consent criteria would not apply) the Noise TARP would require supervisors maintain all noise controls in place to minimise impacts.”*
120. On 27 May 2019, the Applicant provided the Commission with the maximum predicted noise levels at private residences located near to the Project to the first decimal place. The information included the different PSNLs applicable to each private residence. The response also confirmed that the Applicant has now purchased the following properties: R035a, R019, R028a, R028b.

Department's assessment

Policy setting

121. The Department's PAR stated, *"As the Project predates the release of the NPI [NPfI], the transitional arrangements stipulate that, apart from those aspects of the NPI [NPfI] that relate to low frequency noise, the INP continues to apply as the relevant NSW Government policy for the assessment and determination of the Project."*
122. With respect to low frequency noise, the Department's PAR stated that *"...it acknowledges the community's interest in the assessment of low frequency noise impacts and has long taken the position that more robust procedures were required for such assessment. This situation has been addressed to a large extent with the release of the NPI [NPfI], which provides for more contemporary assessment methods, such as frequency analysis."*
123. The Department's FAR reiterated this position that with the exception of low frequency noise, it *"...considers that the impacts of the Project should continue to be assessed against the former INP, in accordance with transitional arrangements, and as it would result in more conservative noise limits for the Project."*
124. The Department's PAR considered cumulative noise levels in accordance with the requirements of the Mining SEPP as well as the requirements of the INP. The Department's PAR stated that the: *"assessments indicate that cumulative noise levels are predicted to comply with the INP's acceptable night-time rural amenity criteria of 40 dB(A) for all residences in South Wambo, Redmanvale and Jerrys Plains."* The Department's PAR also stated that the modelling indicates that the Project would *"contribute between 1-3 dB(A) to the worst case cumulative amenity impacts in North Bulga (10% Project contribution), Maison Dieu (30% Project contribution) and private properties in Moses Crossing that would not be subject to acquisition rights due to the Project's operational noise impacts (40% Project contribution)."* The Department's PAR further stated that residences identified as experiencing significant exceedances of the PSNLs are already entitled to acquisition rights under the VLAMP, which have been afforded to these receivers.

Road and rail noise

125. The Department's FAR stated that it accepts that the *"...predicted changes in heavy vehicle movements account for the predicted increase in road traffic noise in the morning period and the minor reduction in the afternoon."* The Department's FAR further noted that both the predicted morning and afternoon period road traffic noise levels would meet the relevant criteria under the NSW RNP.
126. The Department's FAR stated that while the Project seeks to increase the maximum daily train movements from six to eight to allow greater flexibility in scheduling coal shipments, the increases *"...would not change the sound power level and associated LA_{max} pass-by noise levels of the trains servicing the Project or affect the intrusive the LA_{eq}, 15 minute noise level calculation."* The Department also noted that rail noise associated with the Project would be regulated under Australian Track Rail Corporation's (ARTC) Environment Protection Licence (EPL) 3142, and stated: *"Rail noise associated with the project is unlikely to increase rail noise impacts on this State network."*

Revised Project Specific Noise Levels

127. The Department's FAR stated: *"In undertaking its preliminary assessment, the Department raised concerns with the conservatism of the datasets used by the Applicant to establish background noise levels in the surrounding receiver areas. In particular, having reviewed*

these two datasets for the Moses Crossing area, the Department did not consider that the EIS contained sufficient justification for the adoption of the higher long-term background monitoring results and consequently adopted a conservative assessment of the Project's potential noise impacts by developing recommended PSNLs using the lower short-term background monitoring data."

128. The Department's FAR stated that the results of the additional background monitoring in the Moses Crossing area "...more accurately reflect the long-term monitoring results and has therefore revised the PSNLs to align with the long-term monitoring results." The revised PSNLs have been "...used as the basis for setting criteria in the respective consents."

Exceedances, mitigation and acquisition

129. The Department's FAR acknowledged the additional contour maps submitted by the Applicant, however, stated that the Department has relied on more accurate point data to assess potential impacts for each sensitive receiver, as it understands that the "...accuracy of contours notably diminishes at a scale of 1dB(A)."
130. The Department's FAR stated that: "As a consequence of revising the proposed PSNLs for Moses Crossing, there would be changes to the rights afforded to seven receivers under the VLAMP. Specifically, two receivers (R43 and R50c) would move from being afforded acquisition to mitigation and a further five receivers (R44, R50a, R50b, R56 and R133) would no longer be eligible for mitigation."
131. The Department's FAR further stated that, based on the revised PSNLs, "...the Project is predicted to exceed the PSNLs at 36 receivers." Table 5 of the Department's FAR (reproduced as Table 3 below) sets out the changes to exceedances and classification, and subsequent changes to mitigation and acquisition rights for each identified receiver.

Table 3: Changes to exceedances, mitigation and acquisition rights

Exceedance Category	VLAMP Classification	PAR		Final	
		Receivers	Total	Receivers	Total
Negligible (up to 2 dB(A) above PSNL)	-	R6, R7, R35a, R41a, R46, R379	6	R6, R7, R35a, R41a, R44, R46*, R50a, R50b*, R133*, R379	10
Moderate (3-5 dB(A) above PSNL)	Mitigation	R3, R25, R29, R30, R33, R41b, R42, R44, R48, R49, R50a, R50b, R56, R75, R133, R163, R320, R343, R344, R345, R346, R348	22	R3, R25, R29, R30, R33, R41B, R42, R43^, R48, R49, R50c, R75, R163, R320, R343, R344, R345, R346, R348	19
Significant (excess of 5 dB(A) above PSNL)	Acquisition	R16, R17, R19, R28a, R28b, R39, R40, R43, R50c	9	R16, R17, R19, R28~, R28b~, R39, R40~	7
* Later classified to not be a residence and will be excluded from the noise criteria ~ Recently purchased by the Applicant and will therefore be excluded from the noise criteria ^ Applicant requested that acquisition rights be maintained for this residence					

Source: Department's FAR

132. The Department's FAR stated that: "The Department remains satisfied that the Applicant has implemented all reasonable and feasible avoidance and/or mitigation measures to minimise the noise impacts of the development and that these 36 exceedances are acceptable, subject to consideration of voluntary mitigation and acquisition rights under the VLAMP."

133. The Department's FAR further stated that the Applicant's Review Response provided the *"...predicted 10th percentile noise levels for Wambo Coal Mine incorporating the underground operations, CHPP and Train Loading Facility...predictions demonstrate that Peabody can achieve the criteria at all but six receivers."*

Transitional noise - Phase 1

134. The Department's FAR stated that the Department held a number of discussions with the Applicant and the EPA in relation to regulation of noise during Phase 1 of the transition to the joint venture. The key issues discussed were:
- *"identifying appropriate criteria for the separate but neighbouring open cut operations (that would be operated under separate consents and EPLs) and*
 - *Identifying an appropriate compliance protocol to readily distinguish noise emissions from these two separate operations."*
135. The Department's FAR stated that the Applicant's Response Report *"...proposed transitional complex-wide [Project-wide] criteria to be imposed across both the consents/EPLs, with limits based on the higher of either the existing Wambo noise criteria or the proposed Project noise criteria. The Applicant stated that this was necessary due to the fact that the existing Wambo open cut is an older mine that has equipment and certain design features that mean it is not possible to immediately operate under the more stringent noise criteria that would apply for the Project."*
136. While the EPA and the Department acknowledged the Applicant's reasoning for applying Project-wide criteria across both consents, given that the Wambo open cut is an older mine (see paragraph 111) *"...both agencies raised concerns with the difficulties this posed for conditioning and regulating complex-wide [Project-wide] noise across two consents/EPLs, particularly as the sites would be owned and operated by different companies. The EPA stated that it was essential that the approval contains enforceable site-specific noise conditions that can be applied to each individual EPL and that separate noise level predictions should be provided for each licensed premise."*

In absence of these predictions and considering the short duration of this transitional phase, the Department considered the best way forward was to require United open cut operations to comply with the proposed operation noise criteria for the entire duration of the Project (ie during both Phase 1 and Phase 2), and for Wambo Coal Mine to maintain its existing criteria during this transitional phase when its operations continue business as usual."

137. The Department's FAR noted that the Project's operational noise criteria could be considered 'too generous' for this period of transition as only the United pit would be in operation. The Department, therefore, considered it appropriate to *"...remove the extra allowance for construction noise that is normally afforded to projects of this type...this approach requires the combined operational and construction noise of a project to not exceed a level of 5 dB(A) above the recommended operational criteria. This extra allowance is no longer necessary for this Project as the operational criteria includes sufficient capacity to accommodate construction noise."*
138. With regards to the Wambo consent (DA 305-7-2003) and MOD 16, the Department's FAR recommended that *"...the existing criteria be maintained for Phase 1, subject to the following suggested improvements:*
- *"the removal of receivers that are now mine-owned;*
 - *updates to the receiver identification numbers to align with SSD 7142; and*
 - *adjustments to the daytime criterion to reflect Departmental practice and community expectations that daytime criteria are not below those applied for the evening/night time*

(as was discussed in detail in the PAR)."

139. The Department's FAR stated that the Department prepared a Phase 1 noise criteria based on the above approach and recommended conditions of consent accordingly. The Department's FAR confirmed that both the Applicant and the EPA reviewed and accepted the proposed noise criteria. The EPA confirmed in a letter to the Department, dated 24 October 2018, that the EPA "...supports the noise limits included in the draft approval shown in condition B1."
140. The Department's FAR noted that following review of the noise criteria proposed by the Department "...the EPA raised residual concerns that an appropriate compliance methodology had not been developed to distinguish noise from each premise. The EPA advised that unless an appropriate methodology could be identified, it would be unable to effectively regulate noise associated with the development...the EPA was not satisfied with deferring the development of this protocol post determination. In response, the Applicant engaged its noise specialist, Global Acoustics, to prepare a protocol for determining compliance with separate premise-specific criteria. This protocol [the NCP] was provided on 17 October 2018."
141. Following its review of the NCP, the EPA recommended conditions to inform its refinement, the Department's FAR stated that it supports the approach but maintains that the "...protocol should be consistent with NPfI guidance and any further refinements could be developed in consultation with the EPA as part of preparing the Noise Management Plan for the Project. Any future protocol should continue to align with current policy and be appropriate for the intended short-term use (ie only 12 to 15 months)."

Blast management

142. The Department's PAR considered the BIA and concluded that "...the Project would be unlikely to result in material impacts on most nearby residential receivers, infrastructure and historic buildings and structures." The Department's PAR stated that the "...management of blasting should aim to ensure compliance with relevant criteria, without unnecessarily reducing operational flexibility and the ability of the mine to adopt best practice technologies."
143. The Department's FAR further stated that it is "...satisfied that blasting impacts from the Project could be managed through proactive blast design controls and that the recommended conditions of consent would adequately address the Commission's recommendations."

Additional information

144. As set out in paragraph 67, the Commission requested further information from the Department in relation to draft Noise Operating Condition B4(e).
145. In its letter to the Commission, dated 17 April 2019, the Department stated: "For the project, the criteria do not apply when wind speeds are greater than 3 metres/second (m/s), temperature inversion conditions are greater than 3 °C/100 metres (stability category G) or a combination of wind speeds greater than 2 m/s and temperature inversion conditions between 1.5-3°C/100 metres (stability category F)."
146. With respect to the Applicant's Response 1, the Department's Response 1 stated that it understands that "...the Applicant has separately provided the Commission with historical wind data from Wambo Coal Mine in an attempt to identify the likely frequency of these conditions. This data shows that, on average, winds are less than 3 m/s for 63% of the time. This data does not infer that, for 37% of the time, wind would enhance noise at any particular sensitive receiver. At the receiver level, this frequency would be much less. For example,

the meteorological data from the Noise Impact Assessment (NIA) indicates that the most consistent winds greater than 3 m/s come from the west-northwest during winter days for less than 20% of that season. This also includes 6% of the time when that wind's speed is greater than 5 m/s and therefore likely to mask any industrial noise with extraneous foliage and wind noise."

147. As set out in paragraph 120, the Applicant provided additional information in relation to the predicted operational noise levels for the Project. The Commission noted that the information provided by the Applicant was in some areas different from the operational noise criteria set out in the conditions of consent. The Commission subsequently provided the noise data to the Department for consideration, to which they provided a response on 28 June 2019, which stated:

- *"the Department has applied the usual longstanding practice supported by both it and the EPA to apply night / evening predictions where they are higher than evening / day predictions. The consents noise limits in the day should not be set lower than the night noise limit (ie Day >= Evening >= Night).*
- *where a prediction has a decimal of 0.5 – this is conservatively rounded down instead of up.*
- *some limits have been set at the relevant PSNL, where noise predictions are lower than the PSNL. An example is, where modelling predicts noise of 40/39/39 but the minimum PSNL for the area is 41/40/38, then the limits have been set at 41/40/39. Pls note that in this case, at night time, the higher noise prediction of 39 takes primacy over the lower PSNL.*
- *six of Glencore's listed receivers in fact have no residence."*

These differences address the great majority of the differences between Table 5 and the document provided by Glencore. However, we have identified two errors in Table 5 which are highlighted in red in the attached spreadsheet. These are for the night time noise limit at receivers 343 and 345. The limits for these receivers should be 39 for Receiver 343 and 37 for Receiver 345... We have updated the Department's recommended consent conditions in respect of R019, R035a, R343 and R345."

Public comments

148. The Commission heard from speakers at the public meeting and received written comments regarding potential noise, vibration and blasting impacts. The issues raised included:

- application of the relevant noise policy setting;
- background noise levels are incorrect;
- the predicted noise levels will exceed the PSNLs in some areas;
- no mitigation measures are proposed to meet the PSNLs;
- concerns over sleep disturbance at night because of noise emanating from the site;
- vibration effects from blasting and property damage; and
- cumulative noise impacts associated with several mines in the area.

Commission's findings

Policy setting

149. The Commission accepts and adopts the Department's assessment in the relation to application of the INP, with the exception of those aspects that relate to low frequency noise, for which the NPfI applies, as set out in paragraph 121-123. The Commission finds that the INP applies more conservative noise limits for the Project and is consistent with community expectations and information provided to affected residences regarding management and mitigation rights, for the reasons set out in paragraphs 100-102 and 121-123. This is reflected in the conditions of consent to be imposed in respect of the Project.

150. The Commission has considered the Project against the relevant non-discretionary development standards set out in clause 12AB (3) of the Mining SEPP, with respect to cumulative noise level. The Commission finds that properties that are predicted to experience exceedances, as set out in paragraph 103 and *Table 3*, would be afforded acquisition or mitigation rights under the VLAMP. In addition, the Commission finds that the development is consistent with the requirements of clause 12A of the Mining SEPP, with respect to consideration of the VLAMP.

Road and rail noise

151. The Commission accepts and adopts the road and rail noise assessment in the NIA, the clarifications provided in the Applicant's Review Response, and the assessment contained in the Department's FAR and finds that road traffic noise would meet the relevant criteria under the RNP. The Commission finds that although the Project would result in an increase in rail shipments, it would not change the sound power level generated by the trains servicing the Project or affect the intrusive noise level calculation. In addition, rail noise would continue to be appropriately managed under the ARTC EPL3142 in line with current practice, as set out in paragraphs 125 and 126. The Commission also notes that draft condition B4 'Noise Operating Conditions' requires the Applicant to *"...take all reasonable steps to minimise...road noise associated with the development, particularly during Phase 1B."*

Revised Project Specific Noise Levels

152. The Commission acknowledges the additional background monitoring undertaken by the Applicant and the adoption of the revised PSNLs as a basis for setting noise criteria in the proposed conditions of consent. The Commission finds that the revised PSNLs proposed in the Department's FAR are appropriate, for the reasons set out in paragraphs 127 and 128.

Exceedances, mitigation and acquisition

153. *Table 3* sets out the properties that are entitled to mitigation and acquisition in accordance with the VLAMP. Since the Department's FAR, the Applicant has purchased R019 which is reflected in draft condition D1 'Acquisition upon request'. The Commission notes that no amendments were required to draft condition D2 'Additional mitigation upon request' and the properties listed are consistent with the Department's FAR.
154. The Commission has determined to amend draft condition D6 'Notification of exceedances' to extend the audience to whom notification of exceedances are made to include the Community Consultative Committee (CCC): *"As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in PART B of this consent, the Applicant must provide details of the exceedance to any affected landowners, tenants and the CCC."*

Transitional noise - Phase 1

155. The Commission accepts and adopts the Department's FAR, and the recommended noise criteria imposed for the Phase 1 transition, for the reasons set out in paragraphs 135-139. The Commission finds that the NCP proposed by the Applicant (paragraph 112) provides an appropriate mechanism for distinguishing the Project's noise emissions from those associated with the Wambo mine, for the reasons set out in paragraphs 112, 140 and 141. In addition, the Commission finds that the approach is supported by the EPA (see paragraph 136 and 139) and draft condition B5 'Noise Management Plan' requires a monitoring program, which includes a protocol for distinguishing noise emissions of the development and the Wambo Mining Complex, and a protocol for identifying any noise-related exceedance, incident or non-compliance and the development of a notification process to

the Department and relevant stakeholders of any such events.

156. The Commission supports the approach that further refinements to the NCP be made in consultation with the EPA prior to commencement, see paragraph 141. Draft condition B5 requires the NMP be prepared in consultation with the EPA, which the Commission finds appropriate. In addition, the NMP is required to be approved by the Secretary prior to the Applicant being able to commence Phase 1B.

Blast management

157. At its site inspection held on 8 February 2019, the Commission observed a sequence of blasts undertaken at the Wambo Mine. Video footage of the blasts observed by the Commission have been available on the Commission's website since 14 February 2019.
158. The Commission finds that blasting would comply with the relevant criteria, as set out in paragraph 113, and is consistent with the relevant non-discretionary standards set out in clauses 12AB (5) and (6) of the Mining SEPP with respect to airblast overpressure and ground vibration. The Commission further finds that potential impacts have been adequately assessed and suitable management measures proposed, by way of draft condition B18 'Blast operating conditions' and draft B21 'Blast Management Plan', to ensure blasting activities continue to be appropriately managed under the Project, for the reasons set out in paragraphs 114-116 and 142-143.

Additional information

159. The Commission finds that the likely frequency of noise operating conditions not applying during certain meteorological conditions is low, as set out in paragraphs 118, 145 and 146. The Commission is satisfied that the disapplication of noise operating conditions during such conditions is appropriate given the detailed management measures proposed by the Applicant, as set out in paragraph 119. The Commission further finds that the noise operating conditions (draft condition B4) and the measures set out in the NMP (draft condition B5) are appropriate for managing potential noise impacts at all times, including during certain meteorological conditions.
160. As set out in paragraphs 65 and 68, the Applicant provided additional information in relation to the PSNLs and that the maximum predicted noise levels be provided to the first decimal place. The Applicant's Response 1 provided the target PSNLs as well as the predicted noise levels to the decimal place for Redmanvale Road. On 27 May 2019, the Applicant provided this information for areas across the Project and this information was provided to the Department for assessment and minor updates incorporated in the conditions of consent, as set out in paragraph 147.

Conclusion

161. The Commission acknowledges the public's comments in paragraph 148 in relation to potential Project related noise, vibration and blasting impacts. The Commission finds, having considered the Material, that the IPC Review Report recommendations and the public's comments have been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 100-143. The Commission is also satisfied with the additional information provided, for the reasons set out in paragraphs 159 and 160. In addition, the Commission finds that the Project is consistent with clause 12AB (3) of the Mining SEPP and, in any event, properties that are predicted to experience exceedances, would be afforded acquisition or mitigation rights under the VLAMP. The Project is also consistent with clauses 12AB (5) and (6) of the Mining SEPP with respect to airblast overpressure and ground vibration, as set out in paragraph 158.

5.8.2 Air quality

IPC Review Recommendations

162. The Commission made nine recommendations relating to air quality. The Applicant and the Department addressed each recommendation. The Department's FAR considered the following related recommendations collectively:
- policy setting;
 - updated air quality assessment;
 - blast fumes;
 - managing greenhouse gas emissions (**GHGE**) and diesel emissions;
 - mine-owned residences; and
 - air quality monitoring network.
163. As set out in paragraphs 66 and 69, the Commission received additional information from the Applicant, the Department and the public in relation to the Project's greenhouse gas emissions and climate change.

Applicant's consideration

Policy setting

164. The Applicant's Review Response stated that an Air Quality Impact Assessment (**AQIA**), dated 13 July 2016, was prepared as part of the EIS and was undertaken in accordance with the SEARs, which required application of the EPA's Approved Methods 2005. The Applicant's Review Response stated that transitional arrangements for the Approved Methods 2016 specifies that any application submitted before 20 January 2017 should be assessed under the Approved Methods 2005 and that the *"...updated Approved Methods 2016 do not technically apply to the assessment of the Project."*
165. The Applicant's Review Response further stated that: *"To address the IPC recommendation an updated air quality assessment using the 2016 Approved Methods has been prepared and is provided in Appendix 7. The overall findings of the air quality assessment did not change with the application of the 2016 Approved Methods."*
166. The Applicant's EIS considered the Project cumulative air quality level with respect to the non-discretionary standards set out in clause 12AB (4) of the Mining SEPP. The EIS stated that the: *"air quality modelling found that cumulative annual average PM₁₀ concentrations are predicted to comply with the non-discretionary cumulative air quality level of 30 µg/m³ criterion at all surrounding private residences, with the exception of one private residence (receiver 19) in Warkworth village. Receiver 19 has existing acquisition rights under the Wambo mine and train loading facility development consents."* The Applicant's EIS further stated that the *"overall findings of the assessment will not change as a result of the proposal to establish annual average standard of PM₁₀ of 25 µg/m³."*

Updated Air Quality Assessment

167. The Applicant's Review Response included an updated consolidated AQIA (**Updated AQIA**), which considered matters raised following submission of the EIS and additional modelling undertaken in response to the Ramboll review (see paragraph 28) and stated that *"...the overall findings of the air quality assessment as presented in the EIS did not change as a result of updating the assessment to include the additional modelling undertaken in response to the Ramboll review."*
168. The Applicant's Review Response further stated that the Applicant *"...believes that all*

recommendations of the Ramboll review have been fully and appropriately considered...United has made a number of commitments relating to air quality monitoring and management including a campaign of PM_{2.5} monitoring in two locations to distinguish the local ratio of PM_{2.5} to PM₁₀, which was identified by Ramboll as a question."

Blast fumes

169. The Applicant's Review Response stated that the AQIA found that *"...post-blast fume is not predicted to cause adverse impacts at any sensitive receptor. All fume modelling predictions were found to comply with the relevant air quality criteria when blasting was undertaken with standard management procedures in place."*
170. In relation to fume monitoring, the Applicant's Review Response commits to video record all blasts, for a minimum duration of 1 minute following the blast event or until the fume dissipates and stated that all blasts will be fume rated applying the Australian Explosives Industry and Safety Group's (AEISG): *"Visual NO_x Fume Rating Scale...blast fume ranking will also be assessed at the project boundary, should the fume reach the Project boundary."*
171. The Applicant's Review Response stated that the Applicant consulted the EPA in relation to blast fume monitoring and was advised that (at the time) there was no EPA guideline for the monitoring of specific concentrations of blast fume gases. Accordingly, the Applicant considered that: *"[The] AEISG (2011) Visual NO_x Fume Rating Scale...provide[s] the most appropriate method of monitoring of the relative concentrations of blast fumes."* The Applicant is also investigating alternative technologies for monitoring of blast fume concentrations and undertaking a trial using drone technology to plot NO₂ concentrations as blast fumes travel and disperse. The Applicant's Review Report stated that it will *"...review the outcomes of this trial once complete and will implement any outcomes that will improve the Project blast model."*

Managing greenhouse gas and diesel emissions from equipment

172. The Applicant's Review Response stated that it is committed to continual improvement in energy efficiency in all areas of the business, as *"...not only does it reduce greenhouse gas (GHG) emissions, including diesel related emissions, it is also a key driver in reducing operating costs."* The Applicant's Review Response made the following commitments:
- *"United will implement reasonable and feasible energy management controls as part of the Project including the management controls identified in Table 3.7 below and in the EIS GHG assessment."*
 - *At an operational level, United will aim to improve energy efficiency and reduce GHG emissions from the Project via:*
 - *limiting the length of haulage routes (where feasible) and associated fuel consumption*
 - *considering energy efficiency and fuel efficiency when selecting new equipment*
 - *scheduling activities so that equipment and vehicle operations is optimised."*
173. The Applicant's Review Response provided a summary of the mitigation measures (Table 3.7, section 3.2) proposed by the Applicant, with the detailed evaluation of each measure set out in its EIS.
174. The Applicant's Review Response stated that it has made clear commitments with respect to pollution reduction measures, including *"...optimising the Project design to reduce equipment emissions, best practice equipment maintenance and engine replacement strategies."* The Applicant's Review Response commits to purchasing Tier 4 equipment, at such time as it becomes commercially available in Australia.

175. The Applicant's Review Response stated that the majority of diesel emissions that will be generated by the Project are from engines with fuel capacities greater than 30 litres, which result in "...between 85%-95% of total Project fuel usage." To address this issue, the Applicant has made the following commitment:

"For new diesel equipment with an engine capacity of greater than 30L, when buying new equipment, United will purchase equipment with the best commercially available emissions technology where it is feasible to do so. Currently, the best commercially available equipment in Australia is US EPA Tier 2 equipment which United has already committed to purchasing. In the next few years this will be US EPA Tier 4 equipment."

176. The Applicant's Review Response further stated that it is committed to minimising diesel emissions associated with Project, including:

- *"servicing all machinery in accordance with maintenance contracts and adopting original equipment manufacturer recommendations for maintenance"*
- *targeting the maintenance to ensure equipment remains fit for purpose over its whole life cycle*
- *defining failure modes, effects and criticality*
- *constructing timelines for downtimes*

.... reporting on its progress in review and implementation of reasonable and feasible diesel emissions reduction measures in the Annual Review for the Project."

177. The Applicant's Review Response further commits to establishing a diesel combustion emissions baseline for the Project and implementing an action plan to reduce emissions. Specifically, the Applicant has made the following commitments:

- *"United will estimate the baseline non-road mobile diesel equipment fleet total PM2.5 and NOx (total mass in kg/yr) exhaust emissions and fuel specific (kg/kl fuel) and diesel consumption (kl/year) for the first year of mining operations (i.e. post construction) to set a baseline for the mining operation."*
- *United will estimate the annual non-road mobile diesel equipment fleet total PM2.5 and NOx (total mass in kg/yr) exhaust emissions and fuel specific (kg/kl fuel) and diesel consumption (lL/year) each year for three years using the same guideline used to establish the baseline."*
- *United will report on the outcomes of the above process in the Annual Review."*

In developing and implementing an action plan to seek to reduce emissions, United will consider the controls identified in NSW Coal Mining Benchmarking Study: Best practice measures for reducing non-road diesel exhaust emissions (EPA 2014) as well as the requirements of any future policy directive from the EPA."

Mine-owned residences

178. The Applicant's Review Response stated that tenants of mine-owned properties that are impacted by mining "...have a general at will right to terminate the lease at any time without penalty" and further stated that when such properties are offered for lease, prospective tenants are advised of the predicted impacts and given the appropriate information to determine whether the property will be suitable for their needs, including the NSW Health *Mine Dust and You* fact sheet.

179. The Applicant's Review Response further stated that for the duration of the lease, updated monitoring data would be made available on the Applicant's website. The Applicant's Review Response stated that its *Guideline for Occupation of Company Residential Premises* outlines the key health and safety issues and where relevant, the environmental impacts associated with renting a mine-owned residence.

180. In addition, the Applicant's Review Response stated that tenants are required to enter into a Residential Tenancy Agreement, which provides the option of vacating penalty free at any time during the tenancy "...by giving 14 days written notice."

Air quality monitoring network

181. The Applicant's Review Response set out the key features of the Applicant's air quality monitoring program, including a combination of:
- dust deposition gauges;
 - total suspended particulate (**TSP**) & PM₁₀ High Volume Air Samplers (**HVAS**);
 - continuous PM₁₀ monitoring units (TEOMs); and
 - two continuous PM_{2.5} monitoring units (TEOMs).
182. The Applicant's Review Response stated that the majority of monitoring stations are currently in place and that once the full complement of equipment is in place for the Project, the monitoring program will be regularly reviewed and revised if necessary throughout the life of the Project.

Additional information

183. The Applicant's Response 1 responded to a question from the Commission to the Department in relation to draft condition B28(d) 'Air quality operating conditions' and stated:

"...the air quality monitoring data showed the following trends:

There are seasonal variations in particulate matter concentrations, with PM₁₀ levels generally higher in spring and PM_{2.5} levels generally higher in winter.

- *There are daily variations in particulate matter concentrations, with levels typically highest in the morning and evening.*
- *The very highest short-term (i.e. hourly averaged) particulate matter concentrations have occurred under both light and strong wind conditions, usually when winds were from the northwest or southeast.*

The trends above highlighted that elevated ambient particulate matter concentrations or deposited dust levels could occur under a range of conditions and that there is no specific definition for adverse meteorology."

Department's assessment

Policy setting

184. The Department's FAR stated: *"In accordance with the EPA's implementation guidance, the Project could be assessed under the former Approved Methods 2005 because the development application for the project predates 20 January 2017. However, in recognition of the fact that the updated criteria have been developed for the purposes of protecting human health and amenity, and consistent with recent practice, the Department considers that the impacts of the Project should be assessed against the more conservative and contemporary 2016 standards. The Applicant also accepts adherence to these contemporary standards."*

Updated Air Quality Assessment

185. As set out in paragraph 28, the Department commissioned Ramboll to undertake a peer review of the AQIA. The Department's FAR noted that an AQIA was completed for the adjacent HVO South Mine (**HVO**) at approximately the same time. The Department identified

several discrepancies between the air quality predictions presented in both AQIAs. The Department subsequently re-commissioned Ramboll to undertake a further independent review of the cumulative air quality impacts in the immediate locality.

186. The Department subsequently requested a joint cumulative AQIA for the Project and HVO, which was completed, and peer reviewed, by Ramboll. The review concluded that *“...the majority of outstanding issues associated with the cumulative AQIA had been addressed. The only remaining issues noted by Ramboll was the lack of a locally-derived background PM_{2.5} data, however it was acknowledged by Ramboll that this matter would not change the ultimate conclusions of the cumulative assessment regarding predicted compliance at sensitive receptors.”*
187. The Department's FAR stated: *“On 6 August 2018, following review of the consolidated AQIA, Ramboll confirmed that the additional PM_{2.5} monitoring would address its residual concern and that all the recommendations of previous reviews have now been fully considered and adopted.”*

Blast fumes

188. The Department's FAR stated that the proposed approach to blast fume monitoring is currently being implemented at Wambo, as well as at other Glencore mining operations in Australia and that it is satisfied that the proposed approach is consistent with current industry standards and that it *“...has recommended that blast fume monitoring be included in the Blast Management Plan.”*
189. With respect to the proposed trial using drone technology, the Department's FAR noted that it supports the Applicant's commitment to review the trial once complete and to implement any outcomes that would improve blast design and/or pre-blast procedures. The Department's FAR stated that *“...the proposed trial would provide valuable information in relation to the most effective fume monitoring system and has recommended this trial be further detailed in the Blast Management Plan...including describing how the results would be implemented on the site.”*

Managing greenhouse gas and diesel emissions from equipment

190. The Department's FAR stated that it is *“...satisfied that the Applicant has explored a wide range of potential GHGE reduction and management measures currently available, including management of fugitive emissions, diesel use efficiency and electricity use efficiency.”*
191. The Department's FAR also stated that it is in the Applicant's interest to *“...continually improve the energy efficiency of its operations,”* as it would reduce operating costs and that it has recommended a draft condition of consent that would require the Applicant to take all reasonable steps to improve energy efficiency and reduce GHGEs.
192. The Department's FAR stated that the EPA has been investigating opportunities to minimise diesel emissions, including *“...consulting with the mining industry to reduce fine particulate loads generated from non-road diesel emission.”* Based on the figures presented by the Applicant (see paragraph 175), *“...application of the best commercially available emissions control technology on this equipment would adequately minimise diesel emissions of the Project,”* and the Department supports the Applicant's commitment to purchase Tier 4 equipment when it becomes available and is feasible to do so, as set out in paragraph 175. The Department has recommended a condition of consent requiring all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology.
193. The Department's FAR further stated that the EPA recommended more specific technology

requirements based on the USA and European Union policies: *“The Department supports the EPA’s recommendations and its industry-wide approach but notes that the EPA, as the lead NSW Government agency for regulating air pollution, should implement these more specific requirements through conditions on its EPL for the Project.”*

194. The Department’s FAR stated that it supports the commitment to establish baseline combustion emissions and to *“...estimate /report on emissions moving forward but considers there is no need to repeat this commitment in the conditions of consent”*.

Mine-owned residences

195. The Department’s FAR stated that it has *“...recommended that contemporary conditions be applied to the Project allowing tenants of any mine-owned property that is significantly affected by air quality emissions to terminate their tenancy agreements without penalty at any time.*

The Applicant has confirmed that its standard Tenancy Agreement, which would apply to leases for company-owned premises within mining impact areas, allows tenants to vacate penalty free at any time during the tenancy, should they determine that mining impacts are unacceptable.”

Air quality monitoring network

196. The Department’s FAR stated that it is generally satisfied with the Applicant’s proposed monitoring network, and considers that it can be refined further post determination and recommended a condition *“...requiring the Applicant to operate a comprehensive air quality management system that uses a combination of predictive meteorological and air quality forecasting and real-time monitoring to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures.”*
197. The Department’s FAR stated that details of the air quality management system and associated monitoring would be provided in the Applicant’s Air Quality and Greenhouse Gas Management Plan for the Project, which would *“...be prepared in consultation with the EPA and approved prior to commencement of mining operations.”*

Additional information

198. As set out in paragraph 67, the Commission requested further information from the Department in relation to draft condition B28(d), specifically to:
- *“advise of the anticipated frequency of this condition, including evidence and source of this information? and*
 - *confirm that, unlike B4(e), air quality criteria will continue to apply during such conditions?”*
199. In its letter to the Commission, dated 17 April 2019, the Department stated that *“...‘adverse meteorological conditions’ are generally conditions which may lead to elevated ambient particulate matter concentrations or deposited dust levels, when additional mitigation measures would typically be implemented on the site to ensure compliance with the air quality criteria.*

Following review of operating data from Wambo Coal Mine, the Applicant advised that additional mitigation measures (due to adverse meteorological conditions) are typically implemented 120 days per year. A similar frequency would be expected for the project.

With regards to extraordinary events, the proposed air quality criteria for the project include three annual average limits for PM10, PM2.5 and TSP. These cumulative criteria include all

sources of dust (ie project plus background) and therefore the Department's recommended conditions allow for dust concentrations arising during extraordinary events to be excluded from the annual averaging periods for these criteria, as they are considered outliers. This means that annual average criteria do not apply during these extraordinary events, but they do apply during adverse meteorological conditions.

... in reviewing Wambo Coal Mine's previous three Annual Reviews (2016, 2017 and 2018), Peabody reported compliance with all annual average criteria and did not report any extraordinary events.

...the Department has recommended condition B28(d) to ensure that the Applicant continues to minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events, should they arise."

Public comments

200. The Commission heard from speakers at the public meeting and received written comments regarding potential air quality impacts. Issues raised included:
- the Project should be assessed under the more contemporary *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (2016) (**Approved Methods 2016**);
 - application of the updated National Environmental Protection Measures (**NEPM**) and assessment of the Project under the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (2005) (**Approved Methods 2005**);
 - use of 2014 as the baseline year for assessment;
 - blast plume dust and the distances the plume can cover are unpredictable;
 - increased dust output and impacts as a result of the Project;
 - potential impacts on private property as a result of increased dust;
 - concerns with the overall PM_{2.5} and PM₁₀ concentrations;
 - concerns that potential exceedances of air quality criteria be correctly attributed to the source; and
 - the proposed air quality monitoring network is inadequate.

Commission's findings

Policy setting

201. The Commission notes that the Project's air quality impacts have been assessed against both the Approved Methods 2005 and the Approved Methods 2016 and that assessment under the latter framework was undertaken by the Applicant to address IPC Review Report Recommendation 13. The Commission notes that the Project demonstrates compliance under both policies and accepts the Applicant's conclusion outlined in paragraph 165 that application of the Approved Methods 2016 did not change the findings of the Updated AQIA. The Commission also accepts the Department's recommendation that the Project adopt contemporary air quality criteria, as set out in paragraph 184, which has been reflected in the draft conditions of consent.
202. The Commission also acknowledges that the Project would be subject to licencing under the contemporary air quality criteria. The Commission accepts and adopts the Department's position and finds that utilising the most contemporary framework is appropriate, particularly as the updated criteria was developed for the purposes of protecting human health and amenity (as set out in paragraph 184).
203. In addition, the Commission has considered the Project against the relevant non-discretionary development standards set out in clause 12 AB (4) of the Mining SEPP, with

respect to cumulative air quality level, and finds that the Project is predicted to comply with clause 12 AB (4) for the reasons set out in paragraphs 166, 199 and 216. In addition, as set out in paragraph 120, the Applicant has now purchased R19 in accordance with VLAMP.

Updated Air Quality Assessment

204. The Commission accepts the Applicant's Updated AQIA and adopts the Department's assessment of it because it provided a consolidated assessment accounting for issues raised following the EIS, additional modelling to address the Ramboll review and was prepared in accordance with the contemporary Approved Methods 2016. The Commission also finds that the Updated AQIA is robust and more accurate because it takes into account the cumulative air quality impacts in the immediate locality, including the HVO mine, for the reasons set out in paragraphs 185-187.
205. The Commission also finds that the Applicant's commitment to undertake PM_{2.5} monitoring in response to the findings of Ramboll review is appropriate given a lack of "...*locally derived PM_{2.5} data...*" (see paragraphs 168 and 186). The Commission notes that draft condition B29(e)(ii) requires the air quality monitoring program, under the Air Quality and Greenhouse Gas Management Plan, to use monitors to evaluate the performance of the development against the air quality criteria to guide planning of operations.

Blast fumes

206. The Commission accepts the Applicant's commitment to implement blast fume monitoring and the drone technology trial, as is currently being implemented at Wambo. The Commission notes that proposed condition B21 'Blast Management Plan' includes a requirement for the development of a Blast Fume Management Strategy for minimising blast fume emissions, reporting of significant blast fume events to the Department and to describe the blast fume trial and how results are proposed to be implemented on the Site.
207. The Commission finds that the potential impacts associated with blast fumes and the measures proposed for managing blast fumes, as required by the proposed conditions, are appropriate for the reasons set out in paragraphs 169-171, 188 and 189.

Managing greenhouse gas and diesel emissions from equipment

208. The Commission accepts the Applicant's Review Response and the commitments made in the GHGEA as set out in paragraph 172 in addition to those proposed in the GHGEA at paragraph 177.
209. The Commission acknowledges the Applicant's position with the respect to the procurement of Tier 4 equipment given the issues associated with feasibility and availability, as set out in see paragraphs 174 and 175. However, the Commission acknowledges the Applicant's commitment to purchase Tier 4 equipment when procuring new equipment (see paragraph 174).
210. As set out in paragraph 192, draft condition B28(b) requires that 'non-road' mobile diesel equipment, with engines >30 litres commissioned for the development includes reasonable and feasible diesel emissions reduction technology. The Commission supports this draft condition and has imposed the condition as follows: "*excluding existing equipment transferred from the Wambo Mining Complex, ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology...*". The Commission finds that diesel emissions are minimised to the greatest extent practicable in undertaking the development.
211. The Commission acknowledges the Applicant's commitment at paragraph 176 to "...*report*

on its progress in review and implementation of reasonable and feasible diesel emissions reduction measures in the Annual Review for the Project.” Accordingly, the Commission has amended draft condition of consent E11(c) ‘Annual Review’ to require the Applicant to “...report on the progress of implementing reasonable and feasible diesel emissions reduction measures for the Project”.

212. The Commission further acknowledges the Applicant’s commitment to establish a diesel emissions combustion baseline with the view of minimising diesel emissions in the future. The Commission also notes the Department’s position at paragraph 194, but finds that this commitment should be conditioned. The Commission finds that every effort should be progressed expeditiously to reduce diesel emissions and GHGEs from equipment in order to minimise as far as practicable predicted air quality impacts. Accordingly, the Commission has proposed a condition of consent, B29(e)(i), to require the Applicant to establish a diesel combustion emission baseline as part of the air quality monitoring program for the Project.
213. The Commission accepts the Department’s FAR (see paragraphs 191-193) and proposed condition B28(a)(iii), specifically that the Applicant is to take all reasonable steps to “...improve energy efficiency and reduce greenhouse gas emissions of the development.” The Commission has also proposed an amendment to B29(c)(ii) to require the Applicant to describe measures in its Air Quality and Greenhouse Gas Management Plan to ensure “...best practice management is employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency.” The Commission finds that the Applicant’s commitments to minimising GHGEs from equipment together with the proposed conditions of consent are appropriate for managing potential impacts associated with GHGEs, for the reasons set out in paragraphs 172-177 and 190-194.

Mine-owned residences

214. The Commission finds that the Applicant’s tenancy agreement and procedures for managing mine-owned residences and tenants is appropriate as the Applicant affords tenants the option of vacating a property, penalty free at any time, during the tenancy. Accordingly, the Commission has amended draft condition of consent B27(b) ‘Mine-owned land’ to enable tenants of mine-owned properties to terminate their agreement, subject to giving 14 days’ notice. The Commission notes that this reflects the notice period set out in the Applicant’s tenancy agreement.

Air quality monitoring network

215. The Commission accepts the Applicant’s proposed Air Quality Monitoring Network and commitment to review and revise if necessary the monitoring locations over the life of the Project, as set out in paragraphs 181 and 182. The Commission also finds that it is appropriate for the Air Quality Monitoring Network to be further refined prior to the commencement of mining operations in consultation with the EPA, for the reasons set out in 196 and 197. This is addressed in the proposed conditions.

Additional information

216. The Commission accepts both the Applicant’s Response 1 and the Department’s Response 1 (see paragraphs 66 and 67 respectively) in relation to the application of air quality criteria during adverse meteorological conditions or extraordinary events. The Commission notes that the last three annual reviews for Wambo, Peabody reported compliance with all annual average criteria and did not report any extraordinary events, as set out in paragraph 199. The Commission finds that proposed draft condition B28(d) is appropriate as air quality criteria continues to apply, with the exception of extraordinary events (such as bushfires, prescribed burning, dust storms and fire incidents). Proposed draft condition B28(d) requires the Applicant to minimise air quality impacts of the Project during adverse conditions or such

events, for the reasons set out in paragraphs 183 and 199.

Conclusion

217. The Commission acknowledges the public's comments in paragraph 200 in relation to predicted Project related air quality impacts. The Commission finds, having considered the Material, that the IPC Review Report recommendations and the public's comments have been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 164-197. The Commission is also satisfied with the additional information provided, for the reasons set out in paragraph 216.

5.8.3 Greenhouse Gas Emissions

Introduction

218. As discussed in section 5.8.2, the Commission made three recommendations in relation to managing climate change by way of GHGE emissions (including diesel emissions) in its IPC Review Report. The Applicant's Review Response, the Department's FAR and the Commission's findings in relation to these recommendations are set out above in paragraphs 172-177, 190-194 and 208-213.
219. This section sets out the Material before the Commission, during its consideration of the Project, in relation to potential impacts of GHGEs, including climate change as a result of the Project. This section also discusses the Commission's findings in relation to GHGEs.

Applicant's consideration

220. The Applicant's EIS was accompanied by a Greenhouse Gas and Energy Assessment (GHGEA), prepared by Umwelt Pty Ltd, dated May 2016. The GHGEA found that the operational phase of the SSD 7142 is predicted to result in the generation of GHGE, as set out in Table 4.

Table 4: Life of Mine Emissions - SSD 7142

Life of Mine Emissions		
	(t CO ₂ -e)	(%)
Scope 1	5,802,000	2.18
Scope 2	797,000	0.30
Scope 3	259,296,000	97.52
TOTAL	265,895,000*	100

Source: GHGEA, May 2016

**The Commission notes that the Table in the GHGEA Executive Summary contains an error in the total scope of GHGEs. The total provided in Table 4 reflects the corrected calculation*

221. The GHGEA stated: *"The Project is forecast to produce approximately 253,000 t CO₂-e Scope 1 emissions per annum, which is comparable to other Hunter Valley open cut coal mining operations of similar size."*
222. The GHGEA acknowledges that the majority of Scope 1 emissions are generated by fugitive emissions (emissions from pressurised equipment due to leaks and other unintended/irregular releases of gases), and diesel combustion and that the Applicant *"...has a direct influence over Scope 1 emissions and these emissions will be subject to management and mitigation plans."*
223. With regard to Scope 2 emissions per annum, the GHGEA stated that *"...the Project is forecast to consume approximately 149,000 GJ [Gigajoules] of electricity per annum, which*

will generate approximately 35,000 t CO₂-e of Scope 2 emissions.” The GHGEA further stated that the Applicant “...can influence reductions in Scope 2 emissions by pursuing electricity reduction and efficiency initiatives.”

224. In relation to Scope 3 emissions, the GHGEA stated: *“Approximately 11,274,000 t CO₂-e of Scope 3 emissions per annum are estimated to be associated with open cut mining and associated activities...generated by third parties who transport and consume coal products...United has no operational control over Scope 3 emissions, as these emissions are generated by the activities of other organisations.”*
225. The GHGEA also considered the associated modifications (MOD 16 and MOD 3) and Table 5 sets out the GHGEs the associated modifications are predicted to generate.

Table 5: Life of Mine Emissions - Associated modifications

Life of Mine Emissions		
	(t CO ₂ -e)	(%)
Scope 1	0	0
Scope 2	594,000	87.27
Scope 3	87,000	12.73
TOTAL	681,000	100

Source: GHGEA, May 2016

226. The GHGEA stated that the associated modifications would only impact electricity use and are therefore only predicted generate Scope 2 and 3 emissions at *“...approximately 43,000 t CO₂-e Scope 2 emissions per annum.”*
227. The GHGEA acknowledged that the Project's GHGE inventory is dominated by Scope 3 emissions: *“Approximately 97 per cent of the greenhouse gas emissions associated with the Project will occur either upstream or downstream of the project, and outside the direct operational control of United.”*
228. The GHGEA noted that the Australian Government has committed to reduce Australia's greenhouse gas emissions by 26-28 per cent on 2005 levels by 2030 (Commonwealth of Australia, 2015).
229. The GHGEA considered the Project's contribution to Australia's annual national emissions, which will represent approximately 0.053% of Australia's annual national emissions in 2030: *“If Australia is able to meet a 26 per cent reduction target by 2030, the nation will be generating approximately 393,548,000 t CO₂-e per annum (National Greenhouse Gas Inventory 2015). In year 2030 it is anticipated that the Project will generate approximately 208,000 t CO₂-e of Scope 1 emissions, if emissions are not mitigated.”*
230. The GHGEA further notes that Scope 2 and 3 emissions are not considered against national objectives, as the national targets only relate to Scope 1 emissions: *“While the Project is likely to increase the mitigation effort required to reach national targets, the Project itself is unlikely to prevent the Federal Government achieving its national greenhouse gas targets.”*
231. With regards to the impact on international objectives, the GHGEA sets out the key aims of the *Paris Agreement*, specifically to:
- *“Hold the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels*
 - *Increase the ability [of nations] to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner*

- that does not threaten food production
 - *Make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.”*
- 232. The GHGEA stated that Australia's intended mitigation contribution to reducing GHGEs, aligns with its national objectives, set out in paragraph 228: *“To meet the requirements of the Paris Agreement, Australia will have to develop interim targets for 2020 and 2025. To allow for incremental growth, the interim targets are likely to be lower than the targets set for 2030...the Project is unlikely to prevent Australia achieving its obligations under the Paris Agreement.”* The Commission notes that the GHGEA did not provide further detail as to why it is unlikely that the Project would prevent Australia achieving its obligations under the *Paris Agreement*.
- 233. The Applicant's RtS provided responses to the key issues raised during exhibition of the EIS. In relation to the need for the Project, the RtS stated that this is driven by global demand for coal as an energy source: *“[T]he Project itself does not result in the combustion of the product coal, nor does it drive demand for coal. Put another way, the global demand for coal will be unaffected by whether or not the Project proceeds.”*
- 234. In relation to Scope 3 emissions, concerns were raised in relation to the volume of emissions and the treatment of emissions in the context of Australia's commitments under the *Paris Agreement*. The Applicant's RtS stated that: *“[The] majority of Scope 3 emissions will be generated when the coal is combusted in countries like China, India, Japan and South Korea. China, India and Japan are all signatories to the Paris Agreement and have submitted plans to reduce their greenhouse gas emissions by 2030.”* The Commission notes that South Korea is also a signatory to the *Paris Agreement*.
- 235. The GHGEA proposes mitigation and management measures to minimise the Project's GHGE's, as set out in section 5.3 of the GHGEA. The Applicant's Review Response proposes additional mitigation measures for addressing potential impacts associated with Scope 1 and 2 emissions (see paragraphs 172-177).

Additional information

- 236. As set out in paragraph 66, the Commission received additional information from the Applicant, on 15 April 2019, prepared by Ashurst, to:
 - set out its position in relation to recent findings made in the *Rocky Hill* and *Wallerah 2* Land Environment Court (LEC) cases on climate change and GHGEs, including how the Court considers issues relating to climate change and GHGEs should be addressed by the Commission for the Project (see paragraphs 237-242);
 - summarise the impact assessment undertaken for the Project;
 - provide an overview of policy frameworks and climate change law that inform consideration of these issues in the assessment and determination of development applications under the EP&A Act (see paragraphs 244-255);
 - set out demand for coal, market substitution and carbon leakage (see paragraphs 256-264); and
 - respond to comments made to the Commission in respect of climate and GHGEs at, and following, the public meeting, including responses to Steffen February 2019 and Campbell February 2019 (see paragraph 265).

Applicant's position in relation to recent findings made by the LEC

- 237. The Applicant's Response 2 stated: *“[T]he Court's decision in the Rocky Hill case was the determination of a “merit appeal”...the Court's decision is, therefore, not a legal “precedent”. Further:*

...the Court's decision in the Wallarah 2 case was the determination of judicial review proceedings, with the consequence that this case is a legal "precedent" and is, in the Applicant's submission, both binding on and instructive to the IPC as to how the issue of climate change and GHG emissions may be addressed by the IPC in determining the development application for the Project."

238. The Applicant pointed out that the Wallarah 2 case *"...constitutes binding judicial precedent (established after the judgment in the Rocky Hill case was handed down) in which the Court found that there was no legal error [Applicant's emphasis] in a consent authority approving a coal mining project that has Scope 3 emissions, even where:*
(i) the combustion of its coal was predicted to generate Scope 3 emissions are significantly greater (by a factor of 7) than those of the Rocky Hill Coal Project; and
(ii) there was no proposal to offset those emissions by way of afforestation of land or otherwise."
239. The Applicant's Response 2 further stated: *"[C]limate change impacts and GHG emissions were not key reasons for the refusal of the Rocky Hill Coal Project, as the court made clear in [556] of the judgment that the significant and unacceptable planning, visual and social impacts of the proposed project were sufficient reasons alone for refusing the development application...the Rocky Hill case was concerned with the specific facts and circumstances of that proposed mining project, particularly its location...the IPC, in determining the development application for the Applicant's Project, is not obliged to adopt, consider or follow any particular aspect of the Court's decision in the Rocky Hill case, as the Court's decision in the Wallarah 2 case (which is a binding legal precedent) confirms."*
240. The Applicant further noted that the Commission is obliged to consider and determine the Application: *"on its own, individual merits, having regard to the environmental assessment material and information that is before it...the discharge of such an obligation by the IPC requires it to assess all of the impacts of the Project (both positive and negative), which involves an "intuitive synthesis of the relevant factors (as recognised at [687] in the Rocky Hill case)."*
241. The Applicant's Response 2 further stated: *"[A]s is evident from the judgment in the Wallarah 2 case, the fact that a Project generates GHG emissions does not mean that the starting position for consideration of a development application is that the Project should be refused...there is no government policy or legal principle that dictates the extent to which GHG emissions generated by the Project, or the combustion of the Project's coal by other developments, are to be considered and weighted in determining a development application under the EP&A Act, and there is no prescribed quantitative criteria against which the Project's GHG emissions are to be assessed;...*

...in the absence of any government policy or legal principle that dictates the extent to which GHG emissions generated by the Project, or the combustion of the Project's coal by other developments, must be considered and weighted in the determination of a development application under the EP&A Act, it is for the IPC to determine how much weight it is to accord to the climate change impacts and GHG emissions generated by the Project or the combustion of the Project's coal by other developments, as the Court's decision in the Wallarah 2 case confirms."
242. The Applicant concludes that the climate change impacts and GHG emissions generated by the Project or the combustion of the Project's coal by other developments *"...should not outweigh the significant social and economic benefits that the Project will deliver at a local, regional and State level."*

Summary of impact assessment

243. The Applicant's Response 2 summarises the impact assessment undertaken by the Applicant, across all assessment issues, as contained in Material already before the Commission and provides a summary of the mitigation and management measures proposed by the Applicant in respect of Scope 1 and Scope 2 GHGs, noting that Scope 3 emissions are not within the Applicant's control. Measures set out in the Applicant's Response 2 included (see also the mitigation and management measures referred to in paragraphs 172-177):

*“(a) limiting the length of material haulage routes;
(b) optimising ramp gradients;
(c) improving fuel efficiency of haulage trucks and mine equipment;
(d) payload management;
(e) increasing haul truck payload;
(f) improving rolling resistance of haul roads;
(g) scheduling activities to optimise equipment operation;
(h) blasting strategies to improve extraction;
(i) maximising resource recovery efficiency;
(j) working machines to their upper design performance;
(k) preventing unnecessary water ingress;
(l) in-pit servicing;
(m) high efficiency workshop lighting; and
(n) high efficiency heating, ventilation and cooling.”*

Policy framework and climate change law

244. The Applicant's Response 2 sets out the policy framework for consideration of climate change matters. The international climate change framework is comprised of:

*“(a) the United Nations Framework Convention on Climate Change (UNFCCC);
(b) the Kyoto Protocol;
(c) the Paris Agreement; and
(d) associated decisions by the Conference of the Parties serving each of the above instruments.”*

“For present purposes, the most important aspect of the international climate change framework is the Paris Agreement” (see paragraph 231).

245. The Applicant's Response 2 stated that a key feature of the *Paris Agreement* is the use of Nationally Determined Contributions (**NDCs**), which are “...*high-level policy plans setting out what approach each country will take to reduce emissions and contribute to the ‘well-below 2°C’ goal.*”
246. The Applicant's Response 2 noted that the 182 parties to the *Paris Agreement* have submitted their first NDC, including Australia, and these countries are the most likely export destinations for the Project's coal, including “*Japan, China, South Korea, Taiwan, India, Malaysia, the Philippines and Vietnam* (**Export Countries**).” The Applicant further noted that there may be other countries that the Project's coal is exported to over the life of the Project (see Applicant's Response 2, Appendix 2 for a description of each export country's domestic efforts to achieve their NDC). The Commission notes that Taiwan is not a party to the *Paris Agreement*, though it does have domestic policies to reduce GHGs.

247. The Applicant's Response 2 set out the classification of GHGs into Scope 1, 2 and 3 (see also paragraphs 222-224) and the issue of double counting, whereby *"...the Scope 3 emissions generated by the burning of a mine's coal by other developments are counted twice in the context of calculating a country's GHG emissions [as Scope 1 emissions] for the purpose of tracking progress toward achievement of its NDC.*

...if the Scope 3 emissions generated by the Project were to be included in Australia's national inventory report as well as the respective national inventory report of the countries to which the coal from the Project is exported, this would represent an over allocation of the total GHG emissions from the Project. Furthermore, there are challenges in the accuracy of the way in which the Scope 3 emissions are accounted for ex ante, particularly when matters such as technology and end uses are taken into account. For example, if the coal was exported and used in a supercritical coal-fired power station or in conjunction with carbon capture and storage, then the actual GHG emissions would likely be quite different than if used in a less-efficient, unabated power station."

248. The Applicant noted that at the domestic level, Australia's *National Greenhouse and Energy Reporting Act 2007 (NGER Act)*, imposes reporting obligations upon companies in respect of Scope 1 and Scope 2 emissions, thereby discouraging double counting: *"There is no requirement or obligation imposed on companies under Australian law to report on Scope 3 emissions. The exclusion of Scope 3 emissions from the reporting requirements under Australian law effectively avoids double counting of Scope 3 emissions since the end-user who is responsible for a project's Scope 3 emissions will ultimately account for them as Scope 1 emissions."*

249. With respect to the 'carbon budget approach', whereby the *"...maximum amount of CO₂ (i.e. the budget of CO₂) that can be released from human sources globally...Once the CO₂ concentration in the atmosphere reaches the set maximum amount (i.e. the budget is spent), global emissions of CO₂ must be 'net-zero'."* The carbon-budget approach is used at times by scientists and *"...it is not an approach that is required to be followed under the Paris Agreement, or Australian domestic laws...in the context of implementing, or measuring progress towards achievement of Australia's NDC."* The Applicant submitted that *"...it would be inappropriate for the IPC to either have regard to or apply the "carbon budget" for the reasons set out in Paragraph 6.27, Part C of the Applicant's Response 2.*

250. With respect to Australia, its NDC *"...communicates an unconditional economy-wide target to reduce GHG emissions by 26-28% below 2005 levels by 2030"* (as set out in paragraph 228). *Australia's emissions reduction target represents a 50-52% reduction in emissions per capita and 64-65% reduction in the emissions intensity of the economy between 2005 and 2030."* The Applicant noted that the policy document in support of Australia achieving its 2030 target is the Direct Action policy suite, comprising:

- *"Emissions Reduction Fund (ERF) complemented by the Safeguard Mechanism;*
- *the Renewable Energy Target (which requires 33,000Gwh of electricity generation) to be produced from renewable resources 2020;*
- *improvements in energy efficiency under the National Energy Productivity Plan,*
- *phasing out of synthetic GHGs; and*
- *direct support for investment in low emissions technologies and practices...*

Importantly, the Australian Government has not – in any climate change policy or law – indicated that the development of new coal mines, or expansions of existing coal mines, is to be prohibited or restricted in any way for the purpose of achieving Australia's NDC. As a corollary, it must follow that the Australian Government considers that Australia's NDC can still be achieved in circumstances where new coal mines, or expansions of existing coal mines, are approved."

251. In relation to climate change laws and policies of Export Countries, the Applicant's Response 2 concluded that:

"(a) the countries where the Project's coal will ultimately be burned or combusted (i.e. source of the Project's Scope 3 emissions) have numerous domestic laws and policies in place for how each respective country intends to achieve its NDC;

(b) it is both appropriate, and consistent with the overarching international climate change framework, for the Project's Scope 3 emissions to be accounted for, regulated and reported by the respective Export Countries as Scope 1 emissions generated in those countries; and

(c) because of this, the Scope 3 emissions of the Project should not outweigh the significant social and economic benefits that the Project will deliver at a local, regional and State level."

252. With respect to the NSW policy framework, the Applicant noted that the NSW Government has implemented the NSW Climate Change Policy Framework (**NSW CCPF**), which commits to "...follow the Paris Agreement and to work to complement national action." The CCPF is being delivered through:

"(a) the Climate Change fund;

(b) the development of a value for emissions savings that will be applied consistently in government economic appraisals;

(c) embedding climate change mitigation and adaptation across government operations including service delivery, infrastructure, purchasing decisions and regulatory frameworks;

(d) building on NSW's expansion of renewable energy; and

(e) developing action plans and strategies, including on advanced energy, energy efficiency, climate change adaptation, energy productivity, fugitive emissions, primary industry emissions and adaptation and health and wellbeing."

253. The Applicant submits that the NSW CCPF "...provides little, if any, assistance to the IPC in determining the development application for the Project. The Applicant's view in this regard is consistent with the decision of the Land and Environment Court in the matter of Wollar Progress Association Inc v Wilpinjong Coal Pty Ltd [2018] NSWLEC 92," whereby the Court accepted Wilpinjong Coal Pty Ltd submissions that it had not failed to comply with the requirements of the Mining SEPP, for two main reasons:

"(a) the Paris Agreement and the NSW Climate Change Policy Framework were not applicable policies within the meaning of that clause, in that those policies could not meaningfully guide the task of the consent authority to determine the development application before it; and

(b) even if the Paris Agreement and the NSW Climate Change Policy Framework were applicable policies for the purposes of clause 14(2) of the Mining SEPP, there was ample evidence that the consent authority had regard to each of those policies."

254. The Applicant acknowledges that consideration of climate change impacts and GHGE (including Scope 3 emissions) "...may be required, or is permitted, in determining a development application as a result of the following sources, the SEARs...relevant matters set out in s4.15 of the EP&A Act...the NSW case law...the provisions of any relevant environmental planning instrument, such as clause 14(2) of the Mining SEPP."

255. With regard to consideration of Scope 3 emissions, the Applicant's Response 2 further stated that it "...does not dispute the proposition that Scope 3 emission may be considered by the IPC...but would submit that:

(a) in light of the issue of double counting of GHG emissions...and the fact that both the Paris Agreement and domestic legislation (in the form of the NGER Act) clearly intend for such double counting to be avoided, the IPC should accord little weight to the Scope 3 emissions of the Project;

(b) it is for the IPC... to determine how much weight is to be attributed to the relevant social, economic and environmental factors associated with the Project (including the climate change impacts and GHG emissions of the Project) ...

(c) there are legal and policy reasons why the IPC should not, as a result of its consideration of Scope 3 emissions, seek to impose conditions of development consent on the Project which require any offset of GHG emissions."

Demand for coal, market substitution and carbon leakage

256. The Applicant's Response 2 noted the importance of recognising that there is, and will remain for the foreseeable future, a demand for thermal and coking coal, driven by the need for: *"...reliable, affordable and efficient source of energy to meet the basic needs of human populations throughout the world...That demand for coal will remain irrespective of whether the IPC approves the Project or not and, if the Project is not approved, the demand will simply be met by product coal sourced from elsewhere."*

257. The Applicant submits that if the coal was sourced elsewhere, there is a possibility that it would:

"(a) be of an inferior quality (in terms of calorific value, and ash and sulphur content) than the quality of coal that would be produced by the Project; and

(b) result in a higher level of GHG emissions than if the Project is approved."

258. With regard to the global demand for coal, the Applicant engaged the coal market expert CRU Group and, based on the analysis of the independent modelling undertaken by that company dated 12 April 2019, the Applicant's Response 2 stated:

"(a) coal will, in 2040, remain an important pillar of electricity generation in many of the world's regions, including in Southeast Asia, as well as in China and India;

(b) high quality coal from Australia (such as that produced by the Project) is, and will continue to be, in demand to meet the electricity generation demands in these regions in particular (as many of these countries do not have any domestic coal resources), as well as global demand more generally;

(c) as the ability of existing mines to service global demand for coal declines (e.g. as a result of exhausting their environmentally recoverable reserves), it will be necessary for the shortfall in coal demand to be met by brownfield expansions of existing coal mines or the development of new coal mines...; and

(d)...it is logical and preferable for the global coal demand to be met by the supply of higher quality coal resources (such as the Project's coal) than lower quality coal resources, in that the GHG emissions generated by the combustion of lower quality coal will generally be higher due to the fact that more lower quality coal will need to be combusted to achieve an equivalent energy output than what would be produced from the combustion of a higher quality of coal."

259. The Applicant's Response 2 considered that the demand for Australian export coal during the forecast period of 2019-2030 is *"...estimated to be 275 million tonnes in 2020 and 291 million tonnes in 2030. Therefore, it is forecast that there will be a supply gap between export production and demand of 27 million tonnes in 2020 to 47 million tonnes in 2030."*

260. Based on further supply and demand analysis, the Applicant's Response 2 submits that there is a supply gap, and, excluding future production from committed Australian Projects, *"...creates an increased production shortfall of 36 million tonnes in 2020 and 121 million tonnes in 2030...to meet demand"*, which *"represents respectively 13.1% and 41.6% of Australian supply, or 0.6% and 2.0% of global supply."*
261. The Applicant's Response 2 stated that the supply shortfall is likely to be bridged by alternative coal supplies from outside Australia: *"The most credible alternative supply countries are China, Russia, Indonesia, South Africa and Vietnam."* The Applicant further stated that *"...in order to appreciate the consequences that would likely follow from substitution...it is essential to first appreciate the quality of Project's coal...because the quality of Project's coal, relative to alternative markets and projects, is key for assessing the potential environmental impacts of any supply substitution that may arise."* The Applicant further noted that the high quality of the Project's thermal coal, compared with alternative supply sources, has consequences for the purposes of calculating GHGs.
262. In addition, the Applicant's Response 2 noted that one of the general findings in the Rocky Hill case was the potential for carbon leakage to occur: *"As the Court explained in the Rocky Hill case (at [535]):*
[carbon leakage can occur] where, as a result of more stringent climate policies or more stringent application of climate policies in a country, businesses move their production from that country to other countries with less ambitious climate policies or less ambitious application of climate policies, which can lead to a rise in global GHG emissions."
263. The Applicant's Response 2 considers hypothetical scenarios should market substitution of any shortfall occur, predicting overall that *"...substitution of the Australian supply shortfall by non-Australian coal will release between 153.9 and 280.2 million tonnes CO₂-e in the atmosphere over the 2019-2030 period (depending on the fugitive emissions values)."*
264. The Applicant's Response 2 stated its commitment to lowering GHGs by implementing low emissions technologies (HELE and CCUS), and provides a summary of the domestic laws, policies and measures of export countries aimed at climate change, GHGs and achieving the Country's NDC.

Response to comments made at, and following, the public meeting

265. The Applicant's Response 2 refuted a number of issues raised by speakers at the public meeting and in written comments to the Commission, including comments received by the EDO on behalf of HEL as set out above. Outlined in particular here is the Applicant's reply to assertions made in Campbell February 2019 and Steffen February 2019. The key points refuted by the Applicant in relation to the Project include:
- *"NSW planning laws do not prohibit or restrict (as distinct from regulate, pursuant to development consent conditions) the carrying out of fossil fuel development, including coal mines (nor, for that matter, does any other climate change law or policy...) ...the carrying out of the Project here is permissible with development consent under the Mining SEPP."*
 - *In the Rocky Hill case, the Court remarked on this aspect of Professor Steffen's evidence that:*
[552] ...It gives priority to existing and approved fossil fuel developments, along the lines of "first in, best dressed". It also frames the decision as a policy decision that no fossil fuel development should ever be approved.
[553] I consider the better approach is to evaluate the merits of the particular fossil fuel development that is the subject of the development application to be determined. Should this fossil fuel development be approved or refused? Answering this question involves consideration of the GHG emissions of the

development and their likely contribution to climate change and its consequences, as well as the other impacts of the development...

- *the Applicant would not suggest that the GHG emissions that are generated by the Project “are too small to matter”. The Applicant takes the GHG emissions generated by the Project seriously, which is why the Applicant has committed to implementation of the GHG emission mitigation measures.”*

Department’s assessment

266. The Department's FAR considered climate change and the management of GHGE with respect to the IPC Review Recommendations 17, 18 and 19. The Department's response to the recommendations is set out above in paragraphs 190-194.
267. The Department's PAR considered the potential impacts of the Project on climate change. In undertaking its assessment, the Department considered the CCPF.
268. With respect to Scope 1 and 2 emissions, the Department's PAR stated: *“The GHGEA estimated that the Project and associated harmonisation modifications would contribute to about 7.2 Mt of Scope 1 and 2 CO₂ - equivalent GHGEs over the life of the Project...Total indirect emissions.... would comprise about 259.4 Mt of Scope 3 CO₂ - equivalent emissions. These emissions would occur after product coal has been exported overseas and are largely associated with downstream electricity generation. For the most part, these indirect emissions would not be accounted for in Australia's annual emissions targets.”*
269. In its consideration of potential GHGEs the Department's PAR stated that *“...it would be more greenhouse intensive to extract the equivalent 150 Mt of coal from the development of a new mine compared to the proposed consolidation and intensification of mining activities at the Wambo and United sites. Likewise, it would be more greenhouse intensive for each of the joint venture partners to extract the same amount of coal from two separate and potentially sub-economic projects.”*
270. The Department's PAR further stated that *“...the Project enables the more efficient use of available standalone equipment and would achieve a lower per tonne GHGEs rate than each operation alone on a standalone basis.”*
271. The Department's PAR stated that the Applicant has a *“...significant financial interest in minimising energy-related emissions, particularly regarding the quantities of diesel used by the mining fleet.”* The Department's PAR further stated that the Applicant should be conditioned to investigate reasonable and feasible measures to minimise the Project's GHGEs and the Department's FAR concluded: *“With such conditions in place and given the relatively minor change in annual average GHGEs compared to the existing Wambo mine, the Department is satisfied that the predicted GHGE impacts of the Project are acceptable and could be appropriately managed.”*
272. The Department's Response 2, dated 15 May 2019 summarised what the Department considered to be the key arguments put forward in the Applicant's Response 2 and noted that it had given additional consideration to the NSW CCPF, which contains *“...the Government's aspirational objectives to align with Australia's national commitments under the Paris Agreement...the CCPF does not set any prescriptive emission reduction criteria, targets, or other outcomes that have application to the private sector or to development assessment and control.”*
273. The Department's Response 2 further stated that: *“While the Department fully recognises the importance of reducing GHGEs to limit increased climate change impacts, it does not consider it necessary to change its assessment approach or weighting of GHGEs impacts*

in light of the recent LEC case, particularly when neither the current State or national policy frameworks promote restricting private development as a means for Australia to meet its commitments under the Paris Agreement.”

274. The Department's Response 2 concludes that it does not consider that any change to its assessment of the Project's Scope 3 emissions are necessary and it *“...remains satisfied that it has comprehensively and appropriately considered GHGEs in accordance with clause 14 of the Mining SEPP and the objects and other mandatory requirements of the EP&A Act.”*

Public comments

275. The Commission heard from speakers at the public meeting and received written comments regarding potential impacts from the Project on climate change. Issues raised included:
- the Application does not meet the intergenerational equity requirements of ecologically sustainable development (**ESD**) due to the amount of coal to be extracted and period of consent to 2041;
 - concerns over disparity of the total sum of GHGEs predicted over the life of the Project;
 - the Applicant has not fully addressed the Commission's recommendation that all forms of GHGEs need to be reduced and has not included fugitive emissions;
 - recent *Rocky Hill* judgment should be considered by the Commission in its determination of the Project;
 - the NSW CCPF should be included among the policies considered for the Application;
 - climate change is a scientific fact that has been proven and backed by evidence and cannot be dismissed as a factor in the assessment of the Project;
 - the effects of climate change are already being experienced in Australia with hotter temperatures being recorded and extreme weather events; and
 - the *Paris Agreement* and the Australian Government's commitment to reduce emissions cannot be met by approving more coal mines.
276. As set out in paragraphs 49 and 50, on 5 February 2019 the Commission met with the EDO on behalf of HEL and received written comments from the following independent experts engaged by the EDO on behalf of HEL:
- Mr Roderick Campbell, The Australia Institute, United Wambo Mine Submission to Independent Planning Commission, February 2019 (**Campbell February 2019**); and
 - Emeritus Professor Will Steffen, The Australian National University, United Wambo Open Cut Coal Mine Project, 11 December 2018 (**Steffen February 2019**).
277. The key points made in Campbell February 2019 are summarised below:
- *“...under the SDS [Sustainable Development Scenario] scenario coal demand declines significantly in the years ahead, reducing by two thirds by 2040. This would have a major effect on the Hunter Valley industry as the IEA [International Energy Agency] expects the volume of traded coal to decline from over 1,100 million tonnes per annum (Mtpa) in 2017 to 815 Mtpa in 2025 and 518 Mtpa in 2040.*
 - *No consideration has been made by NSW planning authorities of what impact of such a decline will be on the NSW coal industry.*
 - *...IPC raised the future of the coal market with both the proponent and the Department...while the proponents have not updated their economic modelling assumptions, there have been major changes in the outlook for NSW coal exports...A key event is the abandonment of the Terminal (T4) coal port expansion in late May 2018...*
 - *Department of Industry figures show that NSW coal production has plateaued and declined slightly since its peak in the year to September 2014...while the declines are small.*
 - *In late 2014 the Centre for International Economics (CIE), the reviewers of the United Wambo economic assessment, wrote:*

‘Higher demand in Asia is expected to boost Australian thermal coal exports to 2018, with Australia expected to account for roughly 30 per cent of the increase in incremental global thermal coal exports’

This prediction was totally wrong. Demand in Asia declined almost as soon as these words were written.

- *...approving new coal mines noting ‘sustained demand’ for some level of thermal coal ignoring the social and environmental impacts of inter-mine competition in the Hunter is irresponsible and inefficient.”*

278. The key points made in Steffen February 2019 are summarised below:

- *“Anthropogenic climate change is real and poses serious risks for the wellbeing of humans and our societies. These risks rise rapidly and nonlinearly with the rise in global average surface temperature.*
- *Recognising that the risks to human wellbeing of unchecked climate change are too high to accept, governments around the world have agreed to limit warming to 1.5-2.0°C (the 2015 Paris accord).*
- *The carbon budget approach is the most robust way to determine the rate of emissions reductions required to meet the goals of the Paris accord. This approach limits the cumulative amount of additional CO₂ emissions that can be allowed consistent with the Paris accord.*
- *To meet a 2°C carbon budget, a very rapid phase-out of all fossil fuel usage by 2050 at the latest, or preferably earlier, is required. The 1.5°C carbon budget is smaller, requiring an even more rapid phase-out of fossil fuel usage.*
- *Development of new fossil fuel reserves, no matter how small, is incompatible with any carbon budget assuming a 50% or better chance of the budget meeting the temperature target.*
- *This means that the majority of the world’s existing fossil fuel reserves must be left in the ground, unburned. Furthermore, no new fossil fuel developments, or extensions to existing fossil fuel mines or wells, can be allowed.*
- *...approval of the development of the United Wambo Open Cut Coal Mine is inconsistent with the carbon budget approach to climate stabilisation.”*

279. On 3 May 2019, the Commission received additional written comments from the following independent experts engaged by the EDO on behalf of HEL:

- Emeritus Professor Will Steffen, The Australian National University, Responses to United Wambo Submission of 14 April 2019, responding to the Rocky Hill and Wallarah 2 cases on climate change and greenhouse gas emissions, 1 May 2019 (**Steffen May 2019**); and
- Mr Tim Buckley, Director of Energy and Finance Studies Australiasia, United Wambo Mine Submission to Independent Planning Commission, 1 May 2019 (**Buckley May 2019**).

280. On 6 May 2019 the Commission received additional written comments from the EDO on behalf of HEL:

- Mr Roderick Campbell, The Australia Institute, May 2019 Comments to the Independent Planning Commission, May 2019 (**Campbell May 2019**); and
- EDO NSW on behalf of HEL, Supplementary Submission, 6 May 2019 (**EDO May 2019**).

281. The written comments referred to in paragraphs 279 and 280 provided a response to the Applicant Response 1 and Applicant Response 2. The Campbell May 2019 and Steffen May 2019 written comments reiterated issues raised in previous comments to the Commission (Campbell February 2019 and Steffen February 2019, paragraphs 277 and 278 respectively) and refuted various aspects of Applicant Response 2.

282. The key points made in Buckley May 2019 are summarised below:

- *“As the combustion of coal is the single largest source of fossil fuel carbon emissions globally, addressing the continued use of coal is central to the global success or failure of the Paris Agreement. Either global temperature rise is limited to 1.5-2°C, or it isn’t.*
- *IEA SDS forecast assumes massive technology change. While we agree with this overall, we disagree with the IEA’s controversial forecast that the coal-fired power industry will be successful in developing and achieving wide-scale deployments of high efficiency low emission (HELE) coal-fired power plants fitted with carbon capture and storage (CCS).*
- *... there is no price signal to incentivise either HELE or CCS. IEEFA would contend that coal-fired power generated by a plant with HELE with CCS would see significant cost rises and as a result would not be competitive against competing zero-emissions alternatives.*
- *...the Ashurst Submission states that current nationally determined contributions (NDC) generally do not preclude ongoing coal use. IEEFA contends that current NDCs collectively do equate to the IEA NPS, which equates to a 2.7-3.0°C rise i.e. the failure of the Paris Agreement. But the Ashurst Submission is very selective, failing to mention that the Paris Agreement includes the requirement of the “ratchet-up” clause for all countries to progressively increase their ambition.*
- *As the four biggest thermal coal import nations [South Korea, China, Japan, India] globally, their collective energy policy ambition to decarbonisation is rising rapidly.*
- *... If the carbon emissions are priced in, then coal-fired power generation becomes increasingly uncompetitive...*
- *... global investors managing US\$32 trillion have called for the urgent implementation of a global price on carbon emissions, and also for the rapid phase out of unabated coal use in the OECD by 2030 and globally by 2050.*
- *The ratchet up clause of the Paris Agreement is seeing progressive new policy initiatives in all key coal importing nations. Technology change in zero emissions alternatives to thermal coal are accelerating rapidly, and the Project is 100% more emissions intensive than these increasingly low cost zero-emissions competitors.”*

283. The key points made in EDO May 2019 are summarised below:

- *“a. While the Rocky Hill case is not binding authority, it is persuasive authority... merits appeal decisions such as the Rocky Hill case, while not binding authority, are “persuasive” authority.*
- *b. HEL submits that it can reasonably be considered that the environmental impacts of the Project are sufficiently adverse in both absolute and relative terms.*
- *HEL submits that the environmental impacts arising from the greenhouse gas emissions that are an inevitable consequence of the Project warrant rejection in absolute terms.*
- *...the context for Preston CJ’s “absolute or relative impact” approach was his Honour’s acceptance of expert scientific evidence about the carbon budget approach and the importance of an urgent, rapid and deep decrease in global GHG emissions. This led his Honour to the so-called “wrong time” basis for refusal.*
- *b. The Wallarah 2 case demonstrates the Court’s tacit approval of the “wrong time” basis for refusal for the assessment of fossil fuel developments.*
- *...in light of the evidence of the carbon budget, is to consider and apply the “wrong time” basis for refusal as developed by Preston CJ in the Rocky Hill case. This is because the task before the IPC, that is, determining the merits of a development, is the same as the task before the LEC in the Rocky Hill case.*
- *c. GHG emissions and their likely contribution to climate change were a key reason in the Court’s “intuitive synthesis” of relevant factors leading to the refusal of development consent in the Rocky Hill case*
- *HEL submits that the IPC, as a primary decision-maker determining the development application for the Project on its own merits, should consider the reasoning in the Rocky Hill case highly persuasive.”*

284. As set out in paragraph 70, the Applicant provided a further response to EDO May 2019 and reiterated the Applicant's previous Responses 1 and 2 and provided brief comments countering some of the points presented. The comments reaffirmed earlier responses provided by the Applicant.
285. In addition, as set out in paragraph 72, the Commission sought comments on potential conditions of consent regarding management of Scope 3 GHGEs. The comments received are summarised in paragraph 306.

Commission's findings

286. The Commission has considered comments made by the public at, and following, the public meeting, as set out in paragraphs 275-278, 276 and 283 in relation to potential impacts on climate change as a result of the Project. The Commission has also considered the comments made by the Applicant, the Department, and the public on the potential conditions of consent with respect to the management of Scope 3 GHGEs, as set out in paragraphs 72 and 285.
287. As set out in paragraph 76, Section 4.15 of the EP&A Act sets out the mandatory considerations that the consent authority must consider in determination of the Project. Section 4.15(1)(a) requires consideration of any applicable EPI which includes the Mining SEPP. Section 4.15(1)(b) requires the Commission to take into consideration the likely impacts of the development, including environmental impacts (which the Commission considers to include potential impacts of GHGEs), and as considered throughout section 5.8. Section 4.15(1)(e) requires the Commission to take into consideration public interest, which includes the principles of ESD. The public interest and consideration of ESD is set out in section 5.12 below.
288. Clause 14(1)(c) of the Mining SEPP requires: *"Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following:
...(c) that greenhouse gas emissions are minimised to the greatest extent practicable."*
289. Clause 14(2) of the Mining SEPP also requires that *"...in determining a development application...[t]he consent authority must 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."*
290. The Mining SEPP's reference to "State...policies" includes the NSW CCPF, which stated: *"The NSW Government endorses the Paris Agreement and will take action that is consistent with the level of effort to achieve Australia's commitments to the Paris Agreement."* Under the Paris Agreement, Australia has committed to limit the increase in global temperature to below 2 degrees. The NSW CCPF says that its *"aspirational emissions savings objective is to achieve net-zero emissions by 2050."*
291. The stated aim of the NSW CCPF is to *"...maximise the economic, social and environmental well-being of NSW in the context of a changing climate and current and emerging international and national policy settings and actions to address climate change."* The plan for implementation of the NSW CCPF includes to *"...investigate how to embed climate change emissions savings and adaption in government decision-making."* While the Commission considers the guidance and overall content of the NSW CCPF useful in understanding the policy desire to mitigate and manage GHG emissions, it does not include

any objectives capable of being applied by a consent authority. It contains no standards or specific mechanisms by which the state's aspiration of net zero emissions by 2050 is to be achieved. It is a high level policy document that must be considered but is of limited assistance as an assessment tool.

Scope 1 and Scope 2 GHGEs

292. The Commission accepts the modelling and the analysis set out in the Applicant's GHGEA in relation to the estimation of Scope 1, 2 and 3 GHGEs. The Commission acknowledges that GHGEs are substantial over the life of the Project, as set out in paragraphs 220-226, which is uncontested by the Applicant.
293. The Commission finds that the Project's Scope 1 and Scope 2 GHGEs have been accurately calculated and acknowledges the Applicant's commitment to manage GHGEs and implementation of mitigation measures to reduce Scope 1 and Scope 2 GHGEs over the life of the Project as discussed in paragraphs 172-177 and 243.
294. The Commission notes the draft condition B28 'Air quality Operating Conditions' requires the Applicant to take all reasonable steps to "(a)(iii) *improve energy efficiency and reduce greenhouse gas emissions of the development.*" As set out in paragraph 210, the Commission supports draft condition B28(b) as follows "...*excluding existing equipment transferred from the Wambo Mining Complex, ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology...*". The Commission finds that diesel emissions are minimised to the greatest extent practicable in undertaking the development.
295. In addition, draft condition B29 'Air Quality and Greenhouse Gas Management Plan' requires an air quality monitoring program to be undertaken in accordance with the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)*, to be prepared in consultation with the EPA. The Commission has amended draft condition B29 to require the Applicant to describe measures to be implemented to ensure best practice management is being employed, including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency, to focus the Applicant to consider energy efficiency in its ongoing management of air quality.
296. The Commission finds that in accordance with the requirements of clause 14(1)(c) of the Mining SEPP, the Project includes appropriate measures for minimising and managing the Scope 1 and Scope 2 GHGEs to the greatest extent practicable, for the reasons set out in paragraphs 172-177, 243 and 295.

Scope 3 GHGEs

297. The Commission considered the Project against clause 14(2) of the Mining SEPP and as set out in paragraph 292, accepts the Applicant's assessment in relation to Scope 1, 2 and 3 GHGEs provided in the GHGEA. With regard to Scope 3 GHGEs, the Commission acknowledges that the majority of Scope 3 GHGEs is predicted to be generated when coal is combusted offshore in the Project's coal export countries: see paragraphs 234 and 243. The Commission also notes the Applicant's position regarding the likelihood that the majority of the Project's coal is likely to be shipped to countries that are signatories to the *Paris Agreement* with their own NDCs and domestic policies for reducing the impacts of climate change and GHGEs, as set out in paragraphs 234 and 246.
298. In its consideration of the Project's Scope 3 GHGEs, the Commission has had regard to:
- public comments
 - clause 14(1) and (2) of the Mining SEPP and the NSW CCPF;

- the Applicant Response 2, including global demand for coal, market substitution, double counting and carbon leakage (see paragraphs 256-264);
 - the carbon budget issues set out in public comments to the Commission (see paragraphs 275-278 and 276-283); and
 - the Project's contribution to Australia's national emissions (see 232).
299. The Commission acknowledges the position of the Applicant set out above (see paragraphs 231-234, 244-246, 249, 252, 253 and 255) and the public comments (see paragraphs 275-278 and 276-283), in relation to Australia's national and state commitments under the *Paris Agreement*. The Commission notes the NSW CCPF endorses the *Paris Agreement* and sets the goal of achieving net zero emissions by 2050 (see paragraphs 228, 228, 232, 234, 250 and 276).
300. The Commission notes that neither the *Paris Agreement*, Australia's NDC or the NSW CCPF prescribe the mechanisms by which reductions in GHGs to achieve zero net emissions by 2050 are to occur.
301. The Commission accepts the Department's position that while it is important to reduce GHGs to minimise impacts on climate change, the NSW CCPF does not set prescriptive emission reduction criteria, as set out in paragraphs 273 and 274. In addition, there is currently no Government policy prohibiting the approval of new coal mines (see paragraph 250). The Commission further notes that GHGs of the Project need to be considered in conjunction with the Project's other impacts and benefits.
302. The Commission accepts the Department's position that there is an absence of any mechanism agreed by national or state governments to calculate the Applicant's contribution to Scope 3 emissions. Further, there is no industry or government mechanism to effectively provide offset mechanisms for Scope 3 emissions associated with the Project. In the event that the Australian Government and/or industry introduces such mechanisms at a future time, the Commission notes that the Project would be required to comply (if enshrined in law) or voluntarily contribute to such programs (if not enshrined in law).
303. The Commission accepts that the Applicant has limited ability to control or manage Scope 3 emissions that are likely to be generated as a result of the Project. The Commission considers that while the principal responsibility for the mitigation and management of Scope 3 GHGs rests with the downstream consumer (because they have the ability to manage/control the emission), the cost of such emissions is arguably the responsibility of each party that operates in the relevant supply chain of the product coal, likely in some proportion to the benefit each party derives from their participation in the relevant supply chain. As a result, the Commission acknowledges that the Applicant has a degree of responsibility for the cost of the Project's Scope 3 GHGs, however that this is likely to be correlated with the Applicant's proportionate benefit derived from the position of the Project in the overall supply chain. To this end, the Commission considers that the Applicant's likely share of Scope 3 GHGs is likely to be on the lower end of the spectrum.
304. The Commission acknowledges the detailed analysis presented in relation to potential impacts associated with market substitution and carbon leakage. For the purpose of the Commission's consideration of the Project, the Commission accepts that all of the direct and indirect GHGs of the Project, as calculated by the Applicant, will impact the environment.
305. The Commission also acknowledges that the Project site is not a greenfield site and there are efficiencies involved in expansion of the Wambo Coal Mine and the United Coal Mine together. In this respect, the Project differs from the Rocky Hill mine which was proposed on a greenfield site, as set out in paragraph 239.

306. As set out in paragraph 72, on 2 August 2019, the Commission sought comments on potential conditions of consent under consideration by the Commission relating to the management of Scope 3 GHGs. The Commission received 55 written comments, including three comments received after the deadline. The Commission resolved to accept all comments received. A summary of the written comments is provided below:
- the condition should make a distinction between countries that have ratified the *Paris Agreement* versus signed the *Paris Agreement*;
 - potential restraint of trade issues;
 - the Applicant would be disadvantaged in the market as it would be the only coal mine with this condition of consent;
 - it is incumbent on the NSW Government to re-examine the approach to assessing and mitigating the effects of climate change risk;
 - the condition does not go far enough to address the problem of climate change;
 - how would the condition account for future amendments to the *Paris Agreement*;
 - the condition is inflexible, impractical and could result in regulatory uncertainty;
 - coal from the Project may be blended at various points in the delivery chain to which the Applicant has no control over; coal sales are made to third parties, traders and other producers and facilitated by brokers and the buyer is not always known at the time of the sale;
 - coal sales are often on-sold;
 - what happens to this condition if the NSW Government releases policy with the respect to Scope 3 GHGs or domestic and/or international climate change policy is amended throughout the life of the Project; and
 - the Project should be refused by the Commission outright.
307. In summary, the Applicant raised the following key concerns with respect to the potential conditions of consent:
- *“...the Proposed Condition would likely be perceived by other investors as creating sovereign risk in investing in mining and other significant projects in NSW, which may serve to undermine the achievement of the aims of the Mining SEPP to “promote the development of significant mineral resources” (see clause 2(b1) of the Mining SEPP);*
 - *The Proposed Condition, in effect, creates new public policy;*
 - *...the Proposed Condition discriminates unfairly against one particular project in one particular industry and is not an appropriate mechanism by which to achieve the objective of reducing GHG emissions on a global level;*
 - *The Proposed Condition does not recognise the fact that coal sales are not just made directly to end user customers, but also to traders and other producers and third parties.*
 - *...coal from the Project may be blended with coal from other mines, at various points in the delivery chain...*
 - *Coal sales are often forward sold*
 - *... concerns as to whether the Proposed Condition could be lawfully imposed...”.*
308. On 15 August 2019, the Commission received correspondence from the Secretary of the Department. The correspondence raised the following key concerns in relation to the potential conditions of consent:
- *“In considering these emissions, the consent authority must have regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions.*
 - *There are several applicable policies, programs or guidelines that warrant consideration...it is important to stress that none of these documents contemplate any action being taken (or being required to be taken) by either the State or Commonwealth government or the private sector in Australia to minimise or offset the GHG emissions of any parties outside Australia...*

- *There is no policy at either the State or Commonwealth level that would support the imposition of conditions on an applicant to minimise the scope emissions of if its development proposal.*
- *Any such policy is likely to result in significant implications for the NSW and Australian economy and it is not clear it would have any effect on reducing the global GHG emissions generated by parties in other jurisdictions outside Australia.*
- *...it is not this State Government's policy that greenhouse gas policies, or planning conditions, should seek to regulate, directly or indirectly, matters of international trade."*

309. The Commission considered all of the matters raised in the written comments identified above, including the matters raised by the Applicant and the Department. Relevantly the Commission has refined the conditions of consent to overcome concerns raised in relation to its practical implementation and to include an additional provision to allow for the Export Management Plan to be amended if there is a change to obligations arising under the United Nations Framework Convention on Climate Change (*Paris Agreement*), or the policies of a country that has equivalent domestic policies for reducing GHGE, that necessitate an amendment to the Export Management Plan. Further, a mechanism has been included in the proposed conditions to allow the Export Management Plan to be superseded if, in the future, legislative requirements of either NSW or the Commonwealth regulate the trade of coal in a way that would otherwise manage the Scope 3 emissions from the Project. The adopted suite of conditions (**Scope 3 Conditions**) are as follows:

Management of Scope 3 Greenhouse Gas Emissions

B32 The Applicant must prepare an Export Management Plan for the development to the satisfaction of the Planning Secretary. This plan must set out protocols that require the Applicant to use all reasonable and feasible measures to ensure that any coal extracted from the development that is to be exported from Australia, is only exported to countries that are:

- a) parties to the Paris Agreement within the United Nations Framework Convention on Climate Change; or*
- b) countries that the Planning Secretary considers have policies for reducing greenhouse gas emissions that would otherwise be similar to policies that would be required of that country if it were a party to the Agreement at (a) above;*

as at the date of sale. The purpose of the Export Management Plan is to ensure that all reasonable and feasible measures are adopted by the Applicant to minimise greenhouse gas emissions identified as Scope 3 emissions in the EIS to the greatest extent practicable.

B33 The Applicant must not commence Phase 1B until the Export Management Plan is approved by the Planning Secretary.

B34 The Applicant must implement the Export Management Plan as approved by the Planning Secretary for the life of the development.

B35 The Planning Secretary may determine that the Export Management Plan should be amended if it is satisfied that a change to obligations arising under the United Nations Framework Convention on Climate Change or Paris Agreement, or the policies of a country that is within B32(b) above, necessitates an amendment to the Export Management Plan.

B36 The Planning Secretary may determine that the Applicant is no longer required to implement the Export Management Plan if due to the existence of other State or

Federal legal mechanisms introduced by the NSW or Commonwealth Governments regulating the subject matter of the Export Management Plan, there is no longer any need for the Export Management Plan to be implemented by the Applicant.

310. The Commission notes that the Mining SEPP at clause 14(1)(c) states that ‘...the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring...that greenhouse gas emissions are minimised to the greatest extent practicable.’ The Commission further notes that in the Rocky Hill judgment Preston CJ held that Scope 3 emissions are within the suite of GHGEs contemplated at clause 14(1) of the Mining SEPP. Accordingly, the Commission finds that the Scope 3 Conditions are an appropriate mechanism for managing and minimising GHGEs (including Scope 3 GHGEs) as required under clause 14(1) of the Mining SEPP. Importantly, the Commission finds that the Scope 3 Conditions will, to the greatest extent practicable, ensure that Scope 3 GHGEs from the project will be accounted for as Scope 1 emissions in countries that have clear commitments to reducing greenhouse gas emissions.
311. Accordingly, the Commission finds that the Scope 3 Conditions are:
- for a planning purpose, as it mitigates an environmental impact caused by the Project and is responsive to the requirements of the Mining SEPP;
 - is related to the development; and
 - is a reasonable measure over which the Applicant has some control.

As a result, the Commission is of the view that a condition requiring the sale of extracted product coal for export to countries that are parties to the *Paris Agreement* or that otherwise have equivalent domestic policies for reducing greenhouse gas emissions at the date of sale, meets the *Newbury* tests for a lawful condition.

312. The Commission acknowledges concerns raised in comments that the Scope 3 Conditions may limit the destinations to which the Applicant’s coal can be exported. However, the Commission notes the Applicant’s Response 2 that “...of the most likely countries that the coal from the Project will be exported to, all are parties to the *Paris Agreement*...” (see paragraphs 246 and 297). The Commission further notes that, 182 countries have signed the *Paris Agreement*. In respect of sales to non-party countries such as Taiwan, it is open to the Applicant to seek consent from the Secretary to export coal to non-party countries where that non-party country has policies for reducing GHGEs that would otherwise be similar to policies that would be required of that country if it were a party to the *Paris Agreement*. The Commission notes that the refinements made to the proposed Scope 3 Conditions overcome concerns raised in relation to the ‘practical implementation’, in particular the obligation on the Applicant “...to ensure that all reasonable and feasible measures are adopted by the Applicant to minimise greenhouse gas emissions to the greatest extent practicable.”
313. In summary the Commission has considered the potential impacts of the Project as a result of Scope 1, 2 and 3 GHGEs, in accordance with the Mining SEPP, and section 4.15 of the EP&A Act. The Commission reiterates that under the current policy framework, there is no prescriptive emission reduction criteria, nor does the current policy framework prescribe whether coal mines should be approved or not, based on a Project’s contribution to GHGEs or in relation to the attribution of Scope 3 GHGEs to the Project or the Applicant. As set out in paragraphs 172-177, 243 and 295 the Commission finds that the Project’s Scope 1 and 2 GHGEs would be appropriately mitigated and/or managed. With respect to Scope 3 GHGEs, the Commission finds that requiring the sale of product coal to countries that are parties to the *Paris Agreement*, or those countries that otherwise have equivalent domestic policies for reducing greenhouse gas emissions, which the Applicant asserts will likely occur in any event (see paragraph 246), is an appropriate approach to managing the Applicant’s Scope 3 GHGEs.

5.8.4 Biodiversity

IPC Review Recommendations

314. The Commission made six recommendations in relation to biodiversity. The Applicant and the Department addressed each recommendation. The Department's FAR considered related recommendations collectively, including:
- pre-clearance surveys;
 - groundwater dependent ecosystem (GDE) monitoring;
 - staging and offset requirements; and
 - additional ecological mine rehabilitation.

Applicant's consideration

Pre-clearance surveys

315. The Applicant's Review Response noted that it supports the inclusion of pre-clearance surveys and inclusion of surveys in any conditions of consent. The Applicant stated that *"...its Project Biodiversity Assessment Report...outlines the proposed pre-clearance and tree felling procedures."*

GDE monitoring

316. The Applicant's Review Response noted that currently there is no requirement to monitor GDEs on the Site, but that Wambo Mine Consent Modification 17, Condition 36A of Schedule 4 requires Wambo to commission a Groundwater Dependent Ecosystem Study, to identify the likely level of groundwater dependence of the vegetation in the South Bates Extension Area and to develop a program to monitor any impacts.
317. The Applicant's Review Response noted that the Groundwater Impact Assessment (GIA) for the Project identified *"...two areas within the zone of cumulative groundwater drawdown that are predicted to be subject to groundwater drawdown impacts that are at least in part attributable to the Project...GDE1 and GDE2."* The Applicant noted that both GDE1 and GDE2 are outside the Project Site. GDE1 is located on land owned by adjacent mining company, HVO, and GDE2 is located on Wambo owned land. The GIA found that *"...GDE1 would be impacted by other approved mining operations and that the Project would not change the extent of the impact, but may result in this impact occurring one year earlier..."* than currently predicted.
318. The Applicant's Review Response commits to establishing a monitoring program for GDEs, which will include monitoring of groundwater levels and of the condition of the vegetation: *"Baseline vegetation condition monitoring will be undertaken prior to mining and further condition monitoring will be triggered by measurable impacts on alluvial groundwater levels in the vicinity of the GDEs that are attributable to the Project"*.

Staging and offset requirements

319. The Applicant's Review Response stated that it proposes to progressively retire biodiversity credits based on the staging of the native vegetation disturbance in line with the progressive development of the mine. The Applicant's Review Response describes indicative stages 1, 2 and 3, which are approximately seven-year stages. The final stages would be confirmed through the Biodiversity Management Plan, and *"[a]ll credits for each stage will be secured prior to commencement of any disturbance associated with each stage."*

320. With respect to the staging of rehabilitation commitments, the Applicant's Review Response stated that *"...the NSW Biodiversity Offset Policy for Major Projects does not require staging of rehabilitation to be linked to staged impacts. Rehabilitation will be undertaken progressively throughout the life of the mine as areas of finally shaped landforms become available."*
321. The Applicant's Review Response further noted that under the NSW Biodiversity Offset Policy for Major Projects and the NSW Framework for Biodiversity Assessment (FBA), credits generated by ecological mine rehabilitation *"...are heavily discounted when compared to credits generated from offset sites...ongoing rehabilitation monitoring and reporting to the NSW Government is required to demonstrate that the ecological rehabilitation is delivered to a standard that supports the generation of credits. If not, then more work to improve the rehabilitation is required or an alternative offset must be secured to retire these credits."*
322. With respect to offset sites, the Applicant's Review Response noted that 92% of the offsets required for Stage 1 was secured through the purchase of five offset sites (Wambo, Mangrove, Highfields, Jerrys Plains, Brosi) and ecological mine rehabilitation... *"Approximately 81% of the overall credit requirement for the Project is required in Stage 1. United will satisfy the remainder of the Stage 1 requirements by sourcing additional land based offsets or payment into the NSW Governments Offset Fund."*
323. In addition, the Applicant Review Response noted that the credits required for the *Central Hunter Valley and Eucalypt Forest and Woodland (CHVEFW)* CEEC, a Matter of National Environmental Significance (**MNES**) have been secured for Stage 1 through land-based offsets.
324. The Applicant's Response 1 provided an update on the status of biodiversity offsets for Stage 1 and the recent purchase of the South Wambo offset site. The Applicant's Response 1 stated: *"As presented to the IPC and at the public meeting, the Joint Venture has secured an additional offset area. The Wambo South Offset is approximately 265 ha and proximate to the Project Area providing an additional local offset."* The Applicant's Response 1 confirmed that *"...100% of the required biodiversity offsets for Stage 1 of the project have been secured."*
325. The Applicant's Response 1 set out further details in relation to like-for-like offsets, in response to comments raised in public comments. The Applicant's Response 1 stated: *"The like-for-like offsets currently proposed for Central Hunter Valley and Eucalypt Forest and Woodland CEEC include 1,191.1 ha of the community made up of four offset sites in proximity to the Project Area and mine rehabilitation...The proposed offset sites do not represent insignificant or small areas of the Central Hunter Valley Eucalypt Forest and Woodland CEEC in the Hunter Valley, noting that the conservation advice for the CEEC suggests that the median (not average) patch size is 1.7 ha."*

Additional ecological mine rehabilitation

326. The Applicant's Review Response stated: *"Additional areas beyond the proposed 878 ha of credit generating ecological mine rehabilitation woodland are capable of being rehabilitated to an equivalent outcome..."* and that selection of the 878 ha figure was based on *"...the Project self-imposing a limit on the use of rehabilitation offset for the CEEC at 25% of the total offset requirement based on stakeholder feedback, noting that the FBA does not impose a cap on the use of rehabilitation as an offset."* At its meeting with the Commission, the Applicant stated *"...we took on board 25 per cent. We're actually now at a point with just over five land-based offsets to limiting that to 17 [%]. When we add the South Wambo project, that number will reduce again and that will come under 15 per cent."*

327. The Applicant's Review Response further stated that, in addition to the 878 ha, *"...a further approximately 1570 ha of native open woodland vegetation will be established in the rehabilitated final landform, as part of the Wambo EPBC Act Approval."* Accordingly, a total of 2450 ha of native woodland will be established in the rehabilitated landform.
328. The Applicant's Review Response provided an overview of the *Assessment of Mine Rehabilitation Against Central Hunter Valley Eucalypt Forest and Woodland (CHVEFW) CEEC Report*, prepared by Umwelt (2017) (**Umwelt Report**). The Umwelt Report compared specific key diagnostic characteristics and condition thresholds of the CHVEFW CEEC to existing rehabilitation at four Hunter Valley mines. The Umwelt Report concluded that *"...with a targeted effort, future mine rehabilitation across the central Hunter Valley could be established which focuses on the Central Hunter Valley Eucalypt Forest and Woodland CEEC."* The Applicant's Review Response concluded that the Umwelt Report has relevance to the Project in that *"...it indicates that rehabilitation of mined land to areas of CEEC is expected to be achieved with appropriate planning and implementation of rehabilitation."*

Department's assessment

Pre-clearance surveys

329. The Department's FAR included a condition requiring the Applicant to undertake appropriate pre-clearance surveys prior to clearing of vegetation to minimise impact to fauna and associated habitat and to *"...maximise opportunities to salvage tree hollows and translocate threatened flora species."* The Department has drafted a condition requiring the preparation of a Biodiversity Management Plan (draft condition B71), which includes a requirement to undertake pre-clearance surveys.

GDE monitoring

330. The Department's FAR stated that as set out in its PAR, there would be *"...some localised effects on potential GDEs due to cumulative drawdown in the alluvium and shallow overburden."* The Department's FAR further noted that both GDE1 and GDE2 are located outside the Project site *"...along the riparian corridors of Redbank Creek and Wollombi Brook respectively..."* and that impacts to these GDE are likely to *"...result in sustained groundwater depressurisation and reduced alluvial recharge rates in the locality for a significant period of time."*
331. The Department's FAR acknowledged that there is some uncertainty *"...around the characterisation of these GDEs and how they may be impacted by the Project."* The Department has drafted a condition to require a GDE study to be prepared by the Applicant within 12 months of commencement of the Project under the consent, to include:
- *"assessment of the hydrological and hydrogeological settings of the site;*
 - *characterisation of the GDE's and their reliance on surface and groundwater resources;*
 - *identification of potential risks to these GDEs from mining; and*
 - *development of appropriate performance criteria and management measures to ensure negligible environmental consequences."*
332. The Department's FAR further noted that as part of the groundwater monitoring program, required under the Groundwater Management Plan, there is a requirement to develop detailed baseline data of GDEs and to develop groundwater performance criteria including trigger levels for identifying and investigating any potentially adverse groundwater impacts associated on GDEs. These measures accord with DoI - Water and IESC recommendations to develop trigger action response plans to manage potential impacts on GDEs. The Department's FAR concluded that it considered that *"...predicted 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.”

Staging and offset requirements

333. The Department's FAR stated that in response to recommendations made by OEH, and minor refinements to the disturbance area, the Applicant revised the biodiversity credit requirements and confirmed that the following biodiversity credits are required to offset the Project:
- *“26,383 ecosystem credits for 6 native plant community types occurring within the development footprint including impacts on the Central Hunter Valley Eucalypt Forest and Woodland (CHVEFW) critically endangered ecological community (CEEC) under the EPBC Act; and*
 - *562 species credits for the southern myotis (Myotis Macropus).”*
334. The Department's FAR stated that the OEH reviewed the Applicant's BioBanking Assessment Methodology (**BAM**) credit calculation report and *“...confirmed that it is satisfied with the biodiversity credit requirements for the Project.”*
335. With respect to staging, the Department's FAR noted that allowing 12 months for the Applicant to secure the Stage 1 credits is considered reasonable by the Department. As set out in paragraph 324, the Applicant has now secured 100% of the credits required for Stage 1. The Department's FAR noted that all credits required for Stage 2 and Stage 3 *“...would be required to be secured before the commencement of any disturbance associated with these stages.”* The Department's FAR further noted with respect to the remaining credit requirements for Stage 2 and 3, that they *“...represent a small percentage of the entire package (20%) and would not be required for 7-14 years...”* and that residual ecosystem credit requirements could be secured through other land-based offsets or by making a payment into the NSW Biodiversity Conservation Fund (**BCF**).
336. The Department's FAR also confirmed that both the Department and OEH accept the approach to staging for retirement of biodiversity credits proposed by the Applicant.
337. With respect to the Biodiversity Offset Scheme, the Department's FAR stated that the new *Biodiversity Conservation Act 2016 (BC Act)* came into force in August 2017 and replaces the BAM used to assess the Project. The BC Act requires the credit requirements to be converted to *“...reasonably equivalent biodiversity credits under the BC Act to facilitate retirement under the new legislation.”* The Department has included a note in the draft conditions to reflect this.
338. The Department's FAR noted the bilateral agreement between the NSW and Commonwealth Governments has not been updated to account for the changes resulting from the BC Act and that the Department of Environment and Energy has not endorsed use of the BCF. The Department's FAR stated that it has included a note in the conditions clarifying that *“...the relevant CEEC credits can only be discharged through payment into the BCF if this fund has been endorsed by the Commonwealth Minister responsible for administering the EPBC Act.”*

Additional ecological mine rehabilitation

339. The Department's FAR stated that the Applicant's commitment to limit the use of rehabilitation as offsets for CEECs at 25% was self-imposed *“...based on consultation with OEH and DoEE regarding the importance of providing a varied offset strategy that incorporates a combination of offset components, including land-based offsets and revegetation programs.”*

340. The Department's FAR noted that it supports the approach taken by the Applicant, acknowledging the time needed to achieve biodiversity outcomes associated with rehabilitation. The Department's FAR also noted that there is limited *"...unaccounted for land available within the Project area to establish additional ecological mine rehabilitation... This is largely due to Wambo Coal Mine's existing obligation to establish 1570 ha of open woodland on the site."*
341. With respect to the Umwelt Report, the Department's FAR stated that the study is *"...encouraging, particularly given that none of the case study mine sites set out to achieve the CHVEFW on mine rehabilitation... OEH advised that it was unable to provide comments on the relevance of the above report without reviewing the supporting data. As such, OEH is unable to form a view on the ability of the Applicant to create CHVEFW in mine rehabilitation areas."*
342. The Department's FAR acknowledged the uncertainty with respect to whether CHVEFW can be established through mine rehabilitation. Should rehabilitation not meet the completion criteria for CHVEFW, the Department has recommended a condition to require the Applicant to *"...retire relevant deficit biodiversity credits to make up for any shortfall."*
343. As set out in paragraph 67, the Commission requested further information from the Department in relation to the Rehabilitation Management Plan (**RMP**) and commentary in the Department's FAR that the RMP would *"...include a protocol for progress reviews to demonstrate that the target vegetation communities are on track to being achieved."* The Department's letter to the Commission dated 17 April 2019 stated that it has:
"...recommended conditions to reduce uncertainty and risk around establishing ecological mine rehabilitation on postmining landforms. This includes setting rehabilitation objectives for native woodland and specific objectives for credit-generating native woodland... The Applicant must be able to demonstrate that the ecological mine rehabilitation conforms to State-recognised plant community types, meets the relevant EPBC Act or BC Act listing criteria for CEEC or EEC, and aligns with reference/analogue sites in the local area.
If the ecological mine rehabilitation is unable to meet the above objectives, then the Applicant must provide supplementary offsets to make up for any shortfall... it can take up to 20+ years to restore self-sustaining native woodland ecosystems that are resilient."

Public comments

344. The Commission heard from speakers at the public meeting and received written comments regarding potential biodiversity impacts. Issues raised included:
- concerns regarding clearing of critically endangered ecological communities (**CEECs**);
 - potential interception of groundwater and drawdown in the alluvium that has the potential to impact on GDEs;
 - GDEs contain threatened vegetation;
 - concerns regarding the timing of the proposed GDE study;
 - use of rehabilitated land towards biodiversity credits and risk that the intended extent and quality of rehabilitation will not be achieved;
 - concerns as to whether mine rehabilitation land offers suitable habitat for threatened species, particularly once mining operation cease;
 - there is a lack of 'like-for-like' offsets;
 - the information presented by the Applicant in relation successful ecological mine rehabilitation at other sites has not been tested or verified by OEH;
 - woodland birds rely on fertile valley floor forest for habitat and foraging;
 - impacts on listed fauna species due to cumulative habitat loss; and
 - concerns regarding the impacts on landscape and habitat connectivity.

Commission's findings

Pre-clearance surveys

345. The Commission finds that the proposal to undertake pre-clearance surveys prior to any vegetation clearing, under the Biodiversity Management Plan is appropriate. The Commission further finds that the results of any pre-clearance survey should be utilised in the development of measures to minimise impacts on fauna and to provide for the salvage, transplanting, and/or propagation of any threatened flora, in accordance with draft condition B71(f)(ii) and (iii), as set out in paragraphs 315 and 329.

GDE monitoring

346. The Commission accepts the Applicant's Review Response and commitment to establish a monitoring program for GDEs, which it notes is proposed to be used to inform the Groundwater Management Plan required under Condition B52 'Water Management Plan'. The Commission accepts that potential impact on GDEs are not likely to be significant, for the reasons set out in paragraphs 317 and 332.
347. The Commission acknowledges concerns raised by the public in relation to the timing of the GDE study, i.e. within 12 months of the commencement of the Project. The Commission finds that the timing is reasonable as it would enable adequate time for the Applicant to develop the methodology, consult with DoI - Water and use the results to develop performance criteria for achieving the Project water management performance measures and to inform the groundwater management plan (required under Condition B52). The Commission further notes the Applicant's commitment, as set out in paragraph 318, and has amended draft condition B52, Groundwater Management Plan, to include detailed baseline data of groundwater levels, yield and quality for groundwater resources and groundwater dependent ecosystems.
348. The Commission finds that the proposed approach (see paragraphs 318, 331 and 332) is suitable given the uncertainty as to the characterisation of these GDEs and that this approach would provide the baseline data to inform an appropriate response with respect to management, mitigation and/or offsetting.

Staging and offset requirements

349. The Commission accepts the Applicant's Review Response and staged approach to the Applicant's offsetting obligations. The Commission acknowledges the revised status of the offset strategy as set out in the Applicant's Response 1 with respect to securing of the Wambo South offset site (see paragraph 324), and agrees that the Applicant has now satisfied 100% of the required offsets for Stage 1 (see paragraph 324).
350. In addition, the Commission accepts that Stage 2 and 3 offsetting obligations will not have been secured at the time of the determination. The Commission however finds that this is acceptable given:
- the extent of offsets that have currently been secured by the Applicant and the relatively small offset balance remaining for Stages 2 and 3 (see paragraph 322);
 - the availability of a payment mechanism into the BCF as a final offsetting option (provided it has been endorsed by Department of Environment and Energy as may be required under the bilateral agreement between the State and Commonwealth by that time) (see paragraph 335);
 - the Applicant's approach of finding like-for-like offsets (see paragraph 325); and
 - the barriers that exist in proposed conditions B56-B60 to prevent the Applicant from

commencement of disturbance associated with Stages 2 and 3 until the relevant biodiversity credits have been secured and retired or BCF payment made, in accordance with draft condition B55 'Biodiversity Credits Required'.

351. The Commission also notes that the Department and OEH support the Applicant's proposed staging for the retirement of biodiversity credits and site inspections have been undertaken by OEH and DoEE, as noted by the Applicant during the Commission's site inspection. The Commission further finds that draft condition B71 'Biodiversity Management Plan' provides suitable measures to ensure potential biodiversity impacts are minimised and/or managed during the Project.

Additional ecological mine rehabilitation

352. The Commission heard concerns from the public in relation to the Applicant's Review Response and the Department's FAR with respect to ecological mine rehabilitation. The Commission accepts the Applicant's Review Response and the Department's FAR in relation to ecological mine rehabilitation.
353. The Commission accepts that the Umwelt Report provides a useful example of mine rehabilitation techniques in the Hunter Valley and accepts the Department's FAR that the outcomes thus far are encouraging as to the potential outcomes for ecological mine rehabilitation on the Project site if consistent techniques are applied.
354. The Commission accepts the Department's FAR that sufficient *"...protocols for progress reviews to demonstrate that the target vegetation communities are on track to being achieved,"* for the reasons set out in paragraph 343. In addition, the Commission notes that draft condition B61 provides that ecological mine rehabilitation may be used to satisfy up to 25% of the CEEC ecosystem credit requirements. The Commission finds that the Applicant has adopted a precautionary approach and placed a high value on like-for-like offsets rather than seeking to use mine rehabilitation as an offset, albeit at a discounted rate, if appropriate offset sites are able to be secured. Noting the Applicant's current ecological mine rehabilitation requirements for the CEEC are now at 16%, the Commission has amended Condition B61 to enable the Applicant to use ecological mine rehabilitation to satisfy up to 20% of the CEEC credits required, still providing a degree of flexibility, which it considers is appropriate, for the reason set out in paragraph 326.
355. In addition, the Commission asked the Department to confirm whether the bond held under the Mining Act would include the Applicant's proposed ecological mine rehabilitation to be used for biodiversity offsetting, in addition to standard post-mining rehabilitation. The Department confirmed that the calculation of a bond held under the Mining Act may include all types of rehabilitation, but is dependent on how the Resource Regulator assesses the bond requirement. The Commission notes that financial assurance for the purpose of post mining rehabilitation does not require or include an obligation for the Resource Regulator to include ecological mine rehabilitation.
356. The Commission has therefore imposed a suite of conditions (B63-B68) to require the Applicant to lodge a Conservation Bond with the Department, should the Applicant elect to satisfy part of its required biodiversity offsets using ecological mine rehabilitation in accordance with condition B61. This is to ensure that any additional ecological mine rehabilitation is successfully implemented under the relevant conditions of consent. The Commission finds that a Conservation Bond is appropriate, given the barriers that exist to prevent the Applicant from commencement of disturbance associated with Stages 2 and 3. It ensures there will be funding to support the retirement of ecosystem credits even if those credits have not been retired because the source of such retirement is the nominated ecological mine rehabilitation. Should the Applicant elect not to satisfy part of its biodiversity credit obligations using ecological mine rehabilitation, a Conservation Bond would also

ensure that the purchase of any credits required under the consent would be fully funded. The Commission finds that it is important to ensure that the commitments made by the Applicant with respect to ecological mine rehabilitation, are appropriately conditioned and supported by some form of financial assurance. Such conditions are permitted in these circumstances by section 4.17(4B) of the EP&A Act.

357. The Commission has also imposed the following condition (B68), which states that a Conservation Bond may not be required, if the Resources Regulator secures a bond for the successful implementation of ecological mine rehabilitation:

'If the Applicant provides proof that a condition under Part 12A of the Mining Act 1992 has been imposed on a mining lease applicable to the site that requires the holder of the lease to provide and maintain a security deposit to the Resources Regulator to secure funding for the fulfilment of obligations under the lease relating to the successful implementation of Ecological Mine Rehabilitation, then the Planning Secretary may determine that no Conservation Bond is required under condition B63, or if a Conservation Bond has already been provided to the Planning Secretary, then the Planning Secretary may release the Conservation Bond.'

Conclusion

358. The Commission acknowledges the public's comments in paragraph 344 in relation to potential biodiversity impacts as a result of the Project. The Commission finds, having considered the Material, that the IPC Review Report recommendations and the public's comments have been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 315-343. For the same reasons and those provided in paragraphs 345-357, the Commission is also satisfied that the impacts in threatened species and biodiversity have been minimised to the greatest extent practicable as required by clause 14(1)(b) of the Mining SEPP, via the proposed conditions of consent.

5.8.5 Water resources

IPC Review Recommendations

359. The Commission made seven recommendations in relation to water resources. The Applicant and the Department addressed each recommendation. The Department's FAR considered related recommendations collectively, including:
- catchment areas;
 - Hunter River Salinity Trading Scheme (**HRSTS**) credits;
 - cumulative impacts;
 - groundwater monitoring bores;
 - stygofauna; and
 - IESC requirements.

Applicant's consideration

Catchment areas

360. The Applicant's Review Response stated in relation to catchment areas, that the proposed final landform "...results in an overall increase of 53 ha of catchment reporting to final voids rather than returning to natural drainage systems..." and that: "Due to the large catchment area and highly regulated nature of the Hunter River the detailed assessment indicates that this change in catchment area will have no impacts on flows in the Hunter River."

HRSTS credits

361. In relation to the extent of the HRSTS credits, the Applicant's Review Response stated that it holds "...[s]ufficient HRSTS credits...to meet Project requirements." United and Wambo together hold 440 HRSTS credits, which can be accessed through trades.

Cumulative impacts

362. As to the cumulative impacts of the mining operations on water resources, the Applicant's Review Response stated that detailed assessments of the cumulative impacts on both groundwater and surface water resources have been undertaken for the Project. The assessments were undertaken in accordance with the SEARs and the relevant legislative requirements, including under the NSW *Water Management Act 2000* (**WM Act**) and the NSW *Protection of the Environment Operations Act 1997* (**POEO Act**).
363. The Applicant's Review Response provided further analysis of cumulative assessment considerations and potential water impacts against the water resource aspects identified in the *Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources (SI Guidelines)* (DoE 2013). The Applicant's Review Response considered aspects including flow regimes, recharge rates, aquifer pressure, groundwater table levels, groundwater/surface water interactions, inter-aquifer connectivity, impact on water users, state water resource plans, water quality and river/floodplain connectivity. Overall, the analysis concluded that cumulative impacts would not be significant and would be managed through the water management system (**WMS**) and licensing requirements of the relevant Water Sharing Plans. The full analysis can be found in Table 3.19 of the Applicant's Review Response.

Groundwater monitoring bores and stygofauna

364. In relation to Recommendations 40 and 41 in the IPC Review Report regarding groundwater monitoring bores, the Applicant's Review Response stated that since "[t]he groundwater monitoring network was first established in 2000...several of the bores have been abandoned due to failure or deterioration of the borehole and / or removed due to mine progression. These former bores were identified in the EIS Groundwater Assessment as it used data from all bores, including past and present bores."
365. The Applicant's Review Response stated that it has committed to include a program of periodic sampling for stygofauna, which will be included in the Groundwater Monitoring Program for the Project.

IESC requirements

366. The Applicant's RtS considered the IESC requirements and set out how the Project would address IESC advice. The Applicant's RtS commits to the provision of additional monitoring bores, further monitoring of surface and groundwater impacts on GDE1, monitoring of metals in the surface WMS, refinement of proposed trigger schemes for water quality and levels and measurable triggers. The RtS further stated: "A Project specific water monitoring plan will be prepared in consultation with DPE, DPI Water, DoEE and with reference to relevant industry standards which are consistent with the National Water Quality Management Strategy."
367. The Applicant's Review Response stated: "Following the provision of the additional information responding to the IESC comments, it is understood that all of the matters raised in the IESC comments have been addressed." The Applicant also stated: "The IESC is an advisory body which has the role of providing advice to the Commonwealth and NSW

government agencies. United responded in detail to the advice provided by the IESC including providing further data and assessment of water impacts to the NSW government agencies. This additional information has been assessed by the government agencies and United understands that all water assessment issues have resolved.”

Department’s assessment

Catchment areas

368. The Department’s FAR stated that “...the Project would reduce the Wollombi Brook catchment area relative to currently approved final landforms but accepts that the Project is unlikely to cause unacceptable impacts to the system over the long-term.”

HRSTS credits

369. In relation to the extent of the HRSTS credits, the Department’s FAR stated that it is “...satisfied that the required HRSTS credits are available in the market, and could readily be obtained, if needed...[as]...Glencore holds 389 HRSTS credits which could be easily accessed through trades.”

Cumulative impacts

370. With respect to cumulative impacts of mining operations on the downstream environment, the Department’s FAR stated that it is “...satisfied that both the Surface Water and Groundwater Impact Assessments included in the EIS and supplementary information contained in the RTS, include appropriate consideration of cumulative impacts of the Project and other mining operations on the downstream environment.”
371. As to mine discharges, the Department’s FAR also stated that “...the Department is satisfied that the Project’s proposed water management system has been designed to minimise potential risks to water quality to surrounding catchments and downstream water users...[and]...in accordance with relevant Government standards.”
372. In relation to surface water licences, the Department’s FAR stated that “...no additional surface water licences are required for the Project...[as]...[t]he majority of water needs for the Project would be sourced from on-site sources...” and that should there be a need for supplementary supplies, the Applicant holds “...sufficient licences to use water from Wollombi Brook and the Hunter River.”
373. In terms of groundwater, the Department’s FAR stated that it “...accepts that the Project would result in an incremental increase in the cumulative drawdown within both the Quaternary alluvium and deeper Permian aquifer systems...” and that the Applicant holds the groundwater licences required under the relevant Water Sharing Plans for the existing operations and those required for the Project.
374. The Department’s FAR also supported the Applicant’s response that cumulative impacts “...are not predicted to be significant...” because:
- “the Project is located within a highly regulated water system that has been designed for the sustainable management of the State’s water resources;”
 - the licensing requirements of the Water Management Act 2000 and the Protection of the Environment Operations Act 1997 have consideration of cumulative impacts in their application, including “...licensing of allowable water take from both surface and groundwater, as well as water discharge volumes and quality;” and
 - cumulative impacts “...can be managed through the proposed water management system and licence requirements under relevant NSW Government Water Sharing

Plans.”

Groundwater monitoring bores and stygofauna

375. In relation to the recommendations in the IPC Review Report regarding the extent of groundwater monitoring bores, the Department's FAR stated: *“The Project is not predicted to impact any privately-owned bores located within alluvial aquifers. Groundwater levels within three mine-owned bores within the alluvial aquifers are predicted to decrease by a maximum of 1.6 m during mining and 0.74 m post mining.”*
376. As to the number of bores and vibrating wire piezometers (**VMPs**), the Department's FAR supported the Applicant's response referred to in paragraph 364 and stated: *“All available 31 bores and 20 VMPs are being monitored.”*
377. The Department's FAR accepted the Applicant's comments referred to in paragraphs 364 and 365, and recommended:
- *“...a condition requiring the preparation and implementation of a Groundwater Management Plan including a groundwater monitoring program, which would be required to be prepared prior to the commencement of development;”* and
 - *“...conditions requiring the Applicant to define performance criteria, including trigger levels for identifying and investigating any impacts on stygofauna as a result of the Project, and monitor against these criteria as part of the groundwater monitoring program.”*

IESC requirements

378. In relation to the IESC requirements, the Department's FAR referred to its PAR, which *“...provided clarification on the IESC issues and a sound basis for a comprehensive assessment of the Project. Importantly, the Department notes that the additional information provided did not change the overall water resource assessment outcomes as presented in the EIS.”*
379. The Department's FAR stated that it remained *“...satisfied with the information provided by the Applicant in relation to water resources and “that there would not be significant impacts on water resources in relation to the Project, above and beyond those already approved.”* The Department's FAR also stated that *“The proposed action is unlikely to have significant impacts on groundwater and surface water near the proposed mine and any impacts are able to be appropriately licensed, monitored and managed.”*

Public comments

380. The Commission heard from speakers at the public meeting and received written comments regarding potential impacts on water resources. Issues raised included:
- cumulative impacts on groundwater aquifers and concerns regarding compliance with the NSW Aquifer Interference Policy (NSW AIP);
 - concerns regarding cumulative drawdown and impacts to Wollombi Brook and the Hunter River as a result;
 - potential drawdown and associated cumulative impacts on alluvial aquifers;
 - impacts on privately owned / licensed bores and inadequate monitoring throughout the region;
 - groundwater and surface water modelling is incomplete resulting in uncertain predictions;
 - the IESC has an important role in the assessment of cumulative impact of mining on water resources; and
 - groundwater and surface interaction have not been adequately considered.

Commission's findings

Catchment areas

381. The Commission accepts the Applicant's assessment of catchment areas and finds that the overall increase of 53 ha in catchment area, resulting from the final voids is acceptable, as set out in paragraph 360. The Commission accepts the Department's assessment and agrees that the minor change to the catchment area is unlikely to impact on the Hunter River and the overall system in the long-term, for the reasons set out in paragraphs 360 and 368.

HRSTS credits

382. The Commission is satisfied that the Applicant holds adequate HRSTS credits and could obtain further credits if required from the two shareholders of the Project, for the reasons set out in paragraphs 361 and 369.

Cumulative impacts

383. The Commission accepts the Applicant's assessment of cumulative impact on surface water and groundwater resources. The Commission also finds that the assessments have been undertaken in accordance with the SEARs and the relevant legislative framework, including the WM Act and the POEO Act. The Commission finds that the Applicant's Review Response appropriately considered the various aspects of water resources in accordance with the SI Guidelines, as set out in paragraph 363.
384. The Commission accepts the Department's assessment in relation to the proposed WMS and that it has been designed to minimise impacts on downstream water users. The Commission finds that draft condition B52 'Water Management Plan' provides the appropriate management framework for ensuring potential impacts on water resources are managed and minimised, including potential impacts on downstream water users (see paragraphs 370 and 371). The Commission supports draft condition B52 based on the Water Management Plan being prescriptive and including the following sub-components:
- Site water balance, including annual inflows and outflows, sources and security of water supply, water use and management and storage capacity, licensed discharge points and limits, and reporting procedures;
 - Salt balance, including sources of saline material and on-site management, measures to minimise discharge of saline water and reporting procedures;
 - Erosion and sediment control plan, including measures to minimise soil erosion and the potential for the transport of sediment to downstream waters as well as permanent measures and flood management structures, and maintenance regime;
 - Surface water management plan, including detailed baseline data on flows and quality of watercourses, description of the WMS, detailed plans and design objectives for water management infrastructure, performance criteria including trigger levels for identifying potential adverse surface water impacts, a program for regular monitoring, reporting procedures, and a plan to respond to any exceedances of performance measures or criteria and to repair, mitigate or offset any identified adverse impacts.
 - Groundwater management plan, including detailed baseline data, yield and quality for groundwater resources, supply for other water users and GDEs, description of the WMS, performance criteria including trigger levels for identifying potential adverse groundwater impacts, a program to monitor and evaluate, reporting procedures, a plan to respond to any exceedances of performance measures or criteria and to repair, mitigate or offset any identified adverse impacts, and program to periodically validate the groundwater model.

385. The Commission acknowledges the Department's consideration of water licencing and accepts that no further water licences are required for the Project, as set out in paragraph 372.
386. The Commission notes the Department's assessment of groundwater (see paragraph 373) and finds that while the Project is likely to result in an 'incremental increase' in cumulative drawdown, the impact is not likely to be significant and would be managed under the relevant Water Sharing Plans. In relation to potential impact on privately owned bores, draft conditions B41-B45 'Compensatory water supply' provides appropriate measures for managing water supply and compensatory measures should water supply be compromised or adversely impacted. The Commission finds that the Project is consistent with clause 12AB (7) of the Mining SEPP.

Groundwater monitoring program and stygofauna

387. The Commission has considered the Project against the relevant non-discretionary development standards set out in clause 12 AB (7) of the Mining SEPP, with respect to aquifer interference, and finds that the Project is predicted to comply with clause 12 AB (7) for the reasons set out in paragraphs 364 and 375. In addition, the Commission finds that the Applicant's Review Response adequately addresses the Commission's recommendations in relation to groundwater monitoring of mine-owned and privately-owned bores.
388. The Commission accepts the Department's FAR and supports the inclusion of draft condition B52 'Water Management Plan', as set out in paragraph 384, which requires the preparation of a Groundwater Management Plan and the development of groundwater performance criteria, including trigger levels for identifying and investigating potentially adverse groundwater impacts associated with the Project on groundwater supply for 'other water users' such as privately-owned licensed groundwater bores. The Groundwater Management Plan includes requirements for reporting and for periodic reviews of the groundwater model. The Commission finds that by applying appropriate trigger levels in the management plan, this would ensure potential impacts and exceedances are appropriately identified, reviewed and rectified should exceedances be identified.
389. The Commission finds that the Applicant's Review Response is adequate and supports its commitment to include a program of periodic sampling for stygofauna which will be included in the Groundwater Monitoring Program for the Project. As set out above, the Commission notes that the Groundwater Management Plan component of Condition B52 requires groundwater performance criteria and trigger levels for aquatic habitats and stygofauna, which would enable appropriate monitoring of these features.

IESC requirements

390. The Commission finds that the Applicant has addressed the IESC advice and provided a detailed and considered response to each of the recommendations in its RtS. The Applicant's Review Response reiterated the response to each of the recommendations in the IPC Review Report and confirmed that it understands all water assessment issues to be have been resolved. The Commission accepts the Department's FAR in relation to the IESC advice (see paragraph 378) and acknowledges the detailed responses and additional commitments as set out in paragraph 366.

Conclusion

391. The Commission acknowledges the public's comments in paragraph 380 in relation to potential Project impacts on water resources. The Commission finds, having considered the Material, that the IPC Review Report recommendations and the public's comments have

been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 360-379. For the same reasons, the Commission is also satisfied that the impacts on water resources have been minimised to the greatest extent practicable as required by clause 14 (1)(a) of the Mining SEPP via the proposed conditions of consent.

5.8.6 Final landform and rehabilitation

IPC Review Recommendations

392. The Commission made six recommendations in relation to final landform and rehabilitation. The Applicant and the Department addressed each recommendation. The Department's FAR considered related recommendations collectively, including:

- review of final landform design;
- post mining land uses; and
- rehabilitation outcomes and conditions.

Applicant's consideration

Review of final landform design

393. In its response to the Commission's recommendations, the Applicant's Review Response stated that it had undertaken detailed investigation of mine planning options for the Project over many years, including consideration of a number of different final void options and designs, and has *"...undertaken further consideration of void rehabilitation options including the option of backfilling the voids...salinity and water related impacts and consideration of environmental benefits or adverse consequences of backfilling the voids."*

394. The Applicant's Review Response concluded that *"...the Project could be designed to extract 176 Mt of ROM coal without an additional void, maintaining the number of voids at two, as already approved for Wambo, and designing the final landform to be sympathetic with the surrounds."*

395. In relation to this option, the Applicant's Review Response concluded that the voids were *"...necessary, one for each mining area, to maintain project economic feasibility."*

396. As to the cost of backfilling the voids, the Applicant's Review Response concluded that it *"...is not economically feasible (\$777M) and United has confirmed that if it was required to backfill the voids the Project would not be likely to gain shareholder support to proceed with the two final voids at Wambo still retained."* The applicant also stated that backfilling the voids and not having a void as a groundwater sink *"...would result in adverse salinity impacts on Wollombi Brook as saline groundwater would flow into the Wollombi Brook alluvium."*

397. Overall, the Applicant's Review Response concluded that *"...while the Project will retain two voids and the voids will change from that currently approved in terms of location and design, these changes will also allow the economic benefits of the Project to be realised."*

398. The Commission's letter to the Applicant, dated 22 March 2019, requested additional information in relation to *"...the most desirable, evidence based environmental outcome in relation to the Wambo void, setting aside economic (and other) considerations"*. The Applicant's Response 1 provided additional groundwater modelling, by Australasian Groundwater and Environmental Consultants Pty Ltd (**AGE**), to assess the groundwater impacts associated with backfilling the Wambo void, which found that *"...if the Wambo Open Cut is backfilled the evaporative sink effect does not occur, and the resulting hydraulic gradient causes the groundwater to flow from the backfilled Wambo Open Cut towards the lower lying areas at North Wambo Creek. This contribution of water from spoil to the alluvium*

is predicted to increase salinity.”

399. The Applicant also stated that the additional groundwater modelling on potential backfilled final landform options was peer reviewed by Dr Frans Kalf of Kalf and Associates (**KA**), who stated: *“Based on a risk analysis matrix by AGE (2019) it has been concluded that there would therefore be a high risk of salinity solute migration to North Wambo Creek for the cases where both pits are backfilled or where Wambo pit is backfilled and United pit remains open.*

Under these circumstances, and the Aquifer Interference Policy (AIP) required conditions of limited salinity increase exterior to the pits, the most acceptable option would be for both voids to remain open. KA is therefore in agreement with this conclusion based on the data, modelling and analysis conducted by AGE.”

400. As to the potential beneficial and adverse environmental consequences of filling the voids, the Applicant's Response 1 stated: *“Backfilling both voids would take an additional six years of mining operations whereas backfilling the Wambo void only would take approximately three years of mining operations...”* and that this would result in *“...impacts such as dust, noise, water, lighting and visual impacts would be experienced for this additional period.”*
401. The Applicant's Response 1 responded to comments made at the public meeting and in submissions to the Commission. In particular, the Applicant's Response 1 provided clarification in relation to the costs associated with the filling of voids (also considered in paragraphs 396 and 400) and stated that *“...filling the voids would equate to a cost of approximately \$7.0 million per ha for the additional land area gained from backfilling the voids... Backfilling the voids requires significant earthworks and will result in additional environmental impacts including the predicted movement of saline water into the adjacent water bodies of the Wollombi Brook and North Wambo Creek.”*
402. The Applicant's Response 1 also responded to comments that the biodiversity impacts had not been appropriately accounted for and stated that the *“...assessment has been prepared on the basis that an offset strategy that meets government requirements will be implemented for the Project.”*
403. The Applicant's Response 1 also stated that until the voids were filled, *“...final rehabilitation of a large portion of the mine site would not be able to be achieved...there would be a significant delay in rehabilitation of an area of around 500 ha when compared to the rehabilitation plan for the Project as proposed. The delay would be in the order of 15 - 20 years meaning that the time required to achieve full mine closure and relinquishment of the mining lease would be significantly longer.”*
404. Overall, the Applicant's Response 1 concluded: *“The proposed final landform with the two voids seeks to strike a balance between mine planning, economic, environmental and social outcomes...the Project as proposed provides a balanced outcome that maintains the voids as long-term evaporative sinks avoiding impacts on surrounding water quality, maintains the number of voids at two as currently approved, provides an appropriate landform.”*

Post mining land uses

405. As set out above, the Applicant considered post mining land uses in its response to IPC Review Report Recommendation 32. The Applicant noted that given the proposed post mining landform, the Site location, size, proximity to conservation areas, and good access to infrastructure, there is opportunity to consider a wide range of land use options.
406. The Applicant's Review Response noted that currently the proposed final land use is native woodland: *“A key consideration is the existing requirements for revegetation of the Wambo*

mining area imposed by the Wambo mine development consent and EPBC Approval (1570 ha) that need to be met. These existing requirements have been incorporated into the Project final land use plan as well as utilising mine rehabilitation for offsetting requirements (up to 878 ha)...The remaining areas are proposed for agricultural land (125 ha)...in response to community input."

407. In response to the IPC Review Report, the Applicant met with Council in June 2018 to discuss potential compatible final land use options that could be developed post mine closure. The Applicant's Review Response stated: *"Council advised that it intends to implement a strategy and policy position that provides a framework for how Council can respond to and support the management and mitigation of the impacts of mining, including final land use, not only of the land but also the infrastructure that may be utilised for a future alternative industrial or business use."*
408. The Applicant's Review Response further noted that Council is a participant in the Upper Hunter Mining Dialogue (**UHMD**), established by the NSW Minerals Council to address community concerns regarding pressure on infrastructure and services, land rehabilitation, water, air quality and affordable housing. The Applicant commits to *"...working with Singleton Council (and also as part of the UHMD) in the development of a strategic plan that will provide a sustainable future for the local community."* In addition, the Applicant's Review Response stated that the Site comprises *"...a range of industrial infrastructure and other features that lend the site to a range of post mining land uses and United would welcome the opportunity for the site to be used as a case study as part of the development of the strategic plan proposed by Singleton Council."*
409. In addition, the Applicant's Response 1 commits to prepare a Final Land Use Strategy for the Project in consultation with the Council, the outcome of which will consider any local strategic planning statement prepared by Council and will be included in the Mine Operations Plan (**MOP**) for the Project and is to be reviewed when the MOP is updated.

Rehabilitation outcomes and conditions

410. In relation to the staging of rehabilitation, the Applicant's Review Response referred to its EIS and stated that *"...the rehabilitation strategy has been developed based on Glencore's experiences at other operations. The rehabilitation strategy includes mechanisms to facilitate achievement of the rehabilitation commitment for the Project..."* and that consistent with discussion between the Applicant, OEH and the Department, the Applicant proposes to *"...stage the retirement of credits in accordance with the progressive development of the Project...and offset requirements for each stage will be required to be secured prior to commencement of each stage of development."*
411. As to how the Project should be conditioned, the Applicant referred to its responses to the IPC Review Report and stated: *"It is envisaged that any development consent for the Project will include conditions to ensure that the ecological mine rehabilitation commitments made by United are met within the framework of the appropriate policies."*

Department's assessment

Review of final landform design

412. The Department's PAR stated that *"...as the final void lakes are now expected to achieve salinity levels typical of other mines in the Hunter Valley, the Department is satisfied that the proposed final landform would deliver an acceptable environmental outcome and assist in preventing the off-site migration of salt to downstream receiving environments."*
413. The Department's FAR stated that it had *"...thoroughly considered the full range of final*

landform options presented by the Applicant...” discussed in paragraphs 394-397 above and supported the Applicant’s comments that “...maintaining final voids in the final landform would assist in preventing the off-site migration of salt to downstream receiving environments.”

414. The Department also referred to its PAR conclusions, which stated that it “...does not consider that any further void treatments or mine plan changes are required at this time and that any further opportunities to optimise the use of final voids can be investigated as the mine progresses and assessed in detail as part of the mine closure process.”
415. As to the backfilling of voids, the Department stated that it “...accepts that filling of the voids could be prohibitively expensive and would result in up to 6 years of additional impacts to the community.”
416. In relation to the two void option, the Department’s FAR stated that it “...maintains the view expressed in its PAR, that the retention of two final voids is an acceptable option and that the improved landform variability, visual relief, functionality and rehabilitation requirements would deliver an acceptable environmental outcome that improves upon the landform currently approved at Wambo Coal Mine.”
417. In relation to a single, consolidated void option, the Department’s FAR stated that it “...maintains that there are still opportunities to review the final void designs as the Project progresses, with the aim of minimising to the greatest extent practicable the size, scale and number of final voids to be left post-mining.”
418. Notwithstanding, the Department’s FAR also stated that it “...supports the Applicant’s commitment to investigate options for the management and future use of the final voids and has recommended conditions that reflect these commitments and require the periodic review and optimisation of final void outcomes.”
419. With respect to the economic feasibility of backfilling the voids, the Department’s FAR stated: “The Department accepts that backfilling both final voids would not provide the optimal outcome for the Project, in part due to the high economic cost of undertaking this work, but more significantly due to the function of the final voids [acting] as a groundwater sink to capture saline water on site and mitigate downstream effects on the environment...”
420. The Department’s Response 2 to the Commission considered the AGE groundwater modelling noting that the assessment found that “...groundwater levels would equilibrate at around 80 - 83 mRL in the absence of the void (compared to 55 mRL if left open), resulting in saline groundwater (from being in contact with spoil material) flowing towards the lower lying North Wambo Creek alluvium.
- ...AGE considered that backfilling the Wambo void would present a higher risk to surrounding water resources than if the void remained open...Based on the new information provided, the Department accepts that a backfilled Wambo void would result in saline groundwater flowing into the North Wambo Creek alluvial groundwater system.”*
421. The Department’s Response 2 further stated that as requested by the Commission, it sought advice from the Department of Industry, Water Division (**Dol - Water**) and the Natural Resources Access Regulator : “Dol - Water agreed with the predictions of the model, by maintaining salinity with flows towards a final void. Dol - Water also raised no concerns with the model’s outputs regarding groundwater flow directions. Dol - Water noted that the modelled scenarios focussed on void or no void, rather than a full analysis of all options to manage salinity and optimise overall environmental outcomes.”

Post mining land uses

422. The Department's FAR also stated that *"...any potential improvements in the final void designs and land use outcomes must be managed through the development consent and would be most suitably addressed by updating the Rehabilitation Strategy for the Project. The Department has reflected this in the recommended conditions."*
423. In relation to post mining land uses, the Department' FAR stated that it *"...supports this adaptive approach as it is difficult to predict future land use demands and community needs beyond 20 years. The Department considers that this Final Land Use Strategy would be best placed in a Mine Closure Plan, prepared at least five years prior to closure and has recommend a condition accordingly."*

Rehabilitation outcomes and conditions

424. With respect to rehabilitation actions and how the project should be conditioned, the Department's FAR stated that it *"...confirms that the ecological mine rehabilitation would be subject to a rigorous regulatory framework which has a number of levels of control and requires financial guarantees to support the delivery of successful rehabilitation and conservation outcomes. The Department has recommended conditions that reflect the requirements associated with this framework to ensure that rehabilitation is progressively monitored, adaptively managed and if necessary supplemented, to ensure that the ecological outcomes are achieved."*
425. The Department's FAR further stated that if *"...ongoing monitoring of progressive rehabilitation indicate that it is not trending toward the expected completion criteria, the Applicant would be required to implement adaptive management measures (eg supplementary planting, weed control, etc) to improve these rehabilitation areas."*
426. The Department's FAR further stated: *"Under the provisions of the mining authority, if the Applicant fails to achieve the appropriate completion criteria, the NSW Government has the ability to call in all or part of the rehabilitation bond to fund the necessary works. Finally, if it becomes clear that despite adaptive management, the quality of rehabilitation would be insufficient to achieve the required ecological outcomes for which biodiversity credits have been generated, the Applicant would instead have to source and retire an equivalent number and type of biodiversity credits, in consultation with OEH, in order to meet its residual offset requirement."*

Public comments

427. The Commission heard from speakers at the public meeting and received written comments regarding potential impacts from the Project on final landform and rehabilitation. Issues raised included:
- concerns regarding the sterilisation of land a result of final voids in the post mining landscape;
 - final voids are not consistent with the principles of ESD;
 - concerns that the financial viability of the Project depends on the extent of site restoration and rehabilitation;
 - long term impacts resulting from elevated acidity, salinity, potential accumulation of metals and potential contamination of surface water and groundwater systems;
 - final landform and post mining outcomes are compromised due to final voids;
 - economic costs of filling the voids has been deliberately misrepresented;
 - concerns regarding the cumulative impact of final voids in the Upper Hunter landscape; and

- the community cannot be assured of any meaningful rehabilitation when there is no Government policy regarding final voids.

Council comments

428. In its 6 August 2018 letter to the Department, Council set out its concerns with respect to final landform and post mining land uses and that it considers “...*the development of a final land use strategy, ahead of proposed mining, is essential in ensuring that the final land use is achievable, planned for and incorporated into the design of the mining operation. Council appreciates that the life of the mine is likely beyond current strategic land use planning timeframes, and considers that a review timeframe of every two years would be appropriate to ensure the flexibility needed and allow for adequate consideration of all potential final land use options.*”

Commission’s findings

429. The Commission notes that the Applicant’s Review Response did not separately respond to Recommendation 33, however the Commission is satisfied that the Applicant has adequately considered post mining land uses as part of its response to Recommendation 32, as set out in paragraphs 405-409.

Review of final landform design

430. The Commission accepts the Applicant’s Review Response and the additional information including the AGE groundwater modelling. The Commission accepts the Department’s assessment of the final landform and the AGE groundwater modelling, including the DoI - Water’s consideration as the relevant responsible agency, as set out in paragraphs 412-421. The Commission finds that based on the new information, it is satisfied that the final landform, of two voids, would provide the most appropriate outcome, balancing the relevant aspects including mine planning, economic and environmental outcomes, for the reasons set out in paragraphs 398-404.
431. The Commission accepts the Applicant’s Response 1, with respect to the additional predicted time, approximately six years, to backfill the voids and the likely prolonged environmental impact associated with the backfilling the voids, as set out in paragraph 400. The Commission further notes that the proposed final voids represents a reduction in the total voids across both the United Coal Mine and Wambo Coal Mine, which is approved for three final voids under the Wambo and United consents, as set out in paragraph 19.
432. The Commission also notes that the Applicant has estimated the costs associated with environmental impacts and the various potential cost estimates associated with backfilling the voids, as set out in paragraph 459. Further, the Commission accepts the Department’s PAR and the CIE review in relation to these matters, for the reasons set out in paragraphs 401 and 419.

Post mining land uses

433. With respect to consideration of post mining land uses, the Commission accepts the Applicant’s Review Response and its commitment to prepare a final land use strategy in consultation with Council as set out in paragraphs 408 and 409. The Commission notes that Condition B106 ‘Mine closure’ requires preparation of a final land use strategy to investigate potential post-mining beneficial land uses for the site, including the final voids and that:
- “(i) align with local strategic planning instruments;
 - (ii) provide a sustainable future for the local community;
 - (iii) utilise existing mining infrastructure, where practicable; and

(iv) do not compromise ecological rehabilitation requirements.”

The Mine Closure Plan is required to be prepared ‘at least 5 years prior to the cessation of mining operations’, in consultation with the Resources Regulator and Council.

434. The Commission finds that preparation of a final land use strategy, under draft condition B106, with a five-year lead-time would ensure that final land uses are considered appropriately prior to mine closure. The Commission finds that within five years of the cessation of mining operations is appropriate to ensure that any strategy to consider potential future land uses would align with the current local strategic planning framework. The Commission also finds that it is appropriate for Council to be consulted in preparation of the Mine Closure Plan, given Council’s comments in relation to final land use matters (see paragraph 428). See also paragraph 438 below.

Rehabilitation outcomes and conditions

435. The Commission accepts the Applicant’s consideration of progressive rehabilitation, that the staged retirement of credits be done in accordance with the progressive development of the Project, and offset requirements for each stage be required to be secured prior to commencement of each stage of development (see paragraph 410). The Commission also accepts the Department’s assessment at paragraphs 425 and 426, and is satisfied that should the Applicant’s progressive rehabilitation be unsuccessful in meeting the expected completion criteria, there is provision for the NSW Government to require the Applicant to meet its commitments, as set out in paragraph 426.
436. The Commission notes that Condition B97 ‘Rehabilitation objectives’ requires the Applicant to rehabilitate the site to the satisfaction of the Resources Regulator and for the rehabilitation to be generally consistent with the rehabilitation activities described in the Application documentation. The rehabilitation is also required to comply with rehabilitation objectives (Table 6, Condition B97 reproduced in *Table 4* below). The Commission finds that the proposed rehabilitation objectives are suitable and would provide sound basis for guiding and managing rehabilitation activities throughout the course of the Project.

Table 4: Rehabilitation objectives

Feature	Objective
All areas of the site affected by the development	<ul style="list-style-type: none"> • Safe, stable and non-polluting • Fit for the intended post-mining land use/s
Areas proposed for Ecological Mine Rehabilitation under condition B61	<ul style="list-style-type: none"> • Restore self-sustaining native woodland ecosystems that: <ul style="list-style-type: none"> – align with reference sites in the local area; and – use State-recognised plant communities to meet the applicable EPBC Act or BC Act listing criteria for the CEEC or EEC in Table 5
Areas proposed for native woodland	<ul style="list-style-type: none"> • Establish a minimum of 1,300 hectares of Open Woodland Revegetation to satisfy condition B69 • Restore self-sustaining native woodland ecosystems using species found in the local area and complement the areas proposed for Ecological Mine Rehabilitation • Establish areas of self-sustaining: <ul style="list-style-type: none"> – riparian vegetation, within any diverted and/or re-established creek lines and retained water features; – habitat resources for threatened flora and fauna species, particularly the Swift Parrot, Regent Honeyeater, Spotted-tailed Quoll and Koala; and – vegetation connectivity and wildlife corridors, as far as is reasonable and feasible
Areas proposed for agricultural land	<ul style="list-style-type: none"> • Establish/restore grassland areas to support sustainable agricultural activities • Achieve Land and Soil Capability Class IV • Locate adjacent to surrounding agriculture land

Feature	Objective
Final Landform	<ul style="list-style-type: none"> • Stable and sustainable for the intended post-mining land use/s • Integrated with surrounding natural landforms and rehabilitated landforms of surrounding mines, to the greatest extent practicable • Incorporate micro-relief and drainage lines that are consistent with surrounding topography, to the greatest extent practicable • Maximise surface water drainage to the natural environment (excluding final void catchment) • Minimise visual impacts, to the greatest extent practicable
Final voids	<ul style="list-style-type: none"> • Designed as long term groundwater sinks to maximise ground water flows across back filled pits to the final void • Minimise to the greatest extent practicable: <ul style="list-style-type: none"> – the size and depth of final voids; – the drainage catchment of final voids; – any high wall instability risk; and – the risk of flood interaction • Maximise potential for beneficial reuse, to the greatest extent practicable
Surface infrastructure of the development, including the United CHPP and surface infrastructure constructed under DA 410-11-2002-i	<ul style="list-style-type: none"> • To be decommissioned and removed, unless the Resources Regulator agrees otherwise
Rehabilitation materials	<ul style="list-style-type: none"> • Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources, to the greatest extent practicable
Water quality	<ul style="list-style-type: none"> • Water retained on the site is fit for the intended post-mining land use/s • Water discharged from the site is suitable for receiving waters and fit for aquatic ecology and riparian vegetation
Community	<ul style="list-style-type: none"> • Ensure public safety • Minimise adverse socio-economic effects associated with mine closure

Source: Development consent - SSD 7142

437. In addition, draft condition B99 'Progressive rehabilitation' requires the Applicant to rehabilitate the site progressively, as soon as reasonably practicable following disturbance', and to take all reasonable steps to minimise the total area exposed, which the Commission finds appropriate.
438. In addition, draft condition B100 'Rehabilitation strategy' requires preparation of a Rehabilitation Strategy, which is to include a program to review and refine the final landform and final void outcomes to meet rehabilitation objectives, as discussed in paragraph 436. The Commission has amended draft condition B90(c) to require the Applicant to consult with Council and the Resource Regulator every five years, in reviewing and refining final land use, landform and void outcomes. The Commission considers that it is appropriate for Council to be consulted for the reasons set out in paragraphs 428 and 434.
439. The Commission further notes that Condition B103 'Rehabilitation Management Plan' requires the Applicant to prepare a rehabilitation management plan, in consultation with the Department, DoI-Water, OEH and Council and in accordance with DRG Guidelines. The rehabilitation management plan is to describe how rehabilitation of the site would achieve the objectives set out in *Table 4*, the outcomes described in the Rehabilitation Strategy (draft condition B100, see paragraph 438) and be integrated with the measures in the Biodiversity Management Plan (draft condition B71, see paragraph 351). The Rehabilitation Management Plan is to describe measures to be implemented to ensure compliance with the relevant conditions and to ensure all aspects of rehabilitation are addressed, including mine closure, final landform (including final voids), final land use/s and water management in the final landform.

440. In summary, the Commission finds that clause 17 of the Mining SEPP has been adequately addressed and that the suite of conditions proposed to manage rehabilitation activities and to guide final landform objectives are suitable and provide the framework for delivering on the various commitments made by the Applicant, in consultation with the relevant agencies and Council. In addition, as set out in paragraph 356, the Commission has imposed a condition requiring a Conservation Bond with the Department, should the Applicant elect to satisfy part of its required biodiversity offsets using ecological mine rehabilitation.

Conclusion

441. The Commission acknowledges the public's comments in paragraph 427 in relation to final landform and rehabilitation. The Commission finds, having considered the Material, that the IPC Review Report recommendations and the public's comments have been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 393-426.

5.8.7 Visual impacts

IPC Review Recommendations

442. The Commission made one recommendation in relation to visual mitigation, which the Applicant and the Department addressed as set out below.

Applicant's consideration

443. In its response to the Commission's recommendation, the Applicant stated that it had *"...given further consideration to appropriate visual mitigation measures to address potential visual impacts resulting from the Project on private residences and the Golden Highway."*
444. In relation to the closest residences in the areas of Moses Crossing, South Wambo, as well as from the Golden Highway; the Applicant stated in its response that *"...several of the closest residences in Moses Crossing will be afforded voluntary acquisition rights due to noise impacts should the Project be approved...this would negate the need for visual impacts mitigation works on these properties."*
445. The Applicant also indicated that apart from the previously committed visual mitigation measures, it has committed to offering landscaping works to receivers R3, R16, R17, R39, R43, R50 and any other landowners where adverse impacts are identified. A landscape design specialist would be commissioned to advise on appropriate visual mitigation measures should landowners request the works.
446. As to the views of the Project from the Golden Highway, the Applicant has committed to *"...undertaking planting of tree screening in appropriate areas near the road edge to seek to minimise views of the operation from the Golden Highway..."* and for this to be in consultation with the RMS and the satisfaction of the Secretary.

Department's assessment

447. In its FAR, the Department stated that it was *"...satisfied that the Applicant has sufficiently considered all reasonable and feasible visual mitigation measures to minimise the visual impacts of the Project. The Department is satisfied with the additional measures proposed for nearby residences and the Golden Highway and has recommended conditions to reflect these commitments."*
448. In relation to the consideration of all reasonable and feasible visual mitigation measures, the Department's FAR supports the Applicant's Review Response at paragraphs 443-445, and

stated that it was “...satisfied that the Applicant has sufficiently considered all reasonable and feasible visual mitigation measures to minimise the visual impacts of the Project. The Department is satisfied with the additional measures proposed for nearby residences and the Golden Highway and has recommended conditions to reflect these commitments.”

Public comments

449. The Commission heard from speakers at the public meeting and received written comments regarding potential visual impacts from the Project. Issues raised included:
- visual impacts associated with mining and the overburden emplacement as mining progresses closer to properties south of Jerrys Plains;
 - potential for light spill as a result of mining operations; and
 - impacts of mining infrastructure and voids.

Commission's findings

450. The Commission finds that suitable mitigation measures have been proposed by the Applicant to address potential visual impacts of the Project on surrounding residences. The Commission also supports the proposed planting treatments set out at paragraph 446, subject to consultation with RMS and approval by the Secretary.
451. The Commission further finds that proposed draft condition B85 ‘Visual mitigation and lighting’ sets out measures for ensuring potential visual and off-site lighting impacts are minimised. Draft conditions B86-B88 ‘Additional visual mitigation’ set out the terms of potential visual mitigation treatments for residences in the Moses Crossing and South Wambo areas (see paragraphs 444 and 445) should this be required. The Applicant is to consult with the landowner to “...identify appropriate site-specific visual mitigation measures, including tree screens or landscaping.” Condition B79 also provides for dispute resolution measures should the Applicant and landowner not reach agreement.
452. The Commission finds that the suite of conditions proposed to minimise visual impacts of the Project are reasonable and appropriate, for the reasons set out in paragraphs 447 and 448.

Conclusion

453. The Commission acknowledges the public's comments in paragraph 449 in relation to potential visual impacts. The Commission finds, having considered the Material, that the IPC Review Report recommendation and the public's comments have been adequately addressed and appropriately conditioned, for the reasons set out in paragraphs 443-448.

5.8.8 Economic and social impacts

454. The Commission considered economic and social impacts in its IPC Review Report, but did not make any specific recommendations with respect to economic and social impacts. The IPC Review Report provided a review of economic and social impacts, both positive and negative, associated with the Project.

Applicant's consideration

455. The Applicant's EIS was accompanied by an Economic Impact Assessment (EIA), prepared by Deloitte Access Economics (DAE), dated July 2016. The Applicant's EIA included a cost-benefit analysis (CBA), which it stated was prepared in accordance with the NSW Treasury (2007) *Government Guidelines for Economic Appraisal* and the NSW Government (2015) *Guidelines for the economic assessment of mining and coal seam gas proposals*.

456. The Applicant's EIA estimated that the *"...Project is expected to generate net benefits of \$414 million to NSW over its life, assuming a 7% discount rate. This net benefit is comprised of:*
- Net producer surplus attributable to NSW of \$2.1m*
 - Royalties payable to the NSW Government of \$368.6m*
 - Company income tax attributable to NSW of \$66.6m*
 - Environmental, social and transport costs to NSW valued at \$23.8m."*
457. The Applicant's EIA included a Local Effects Analysis (**LEA**), which estimated the social and economic impacts to the communities located near the Project. The EIA stated that the *"...Project is estimated to directly employ an average of 132 people from the locality during the establishment phase and 230 people from the locality during operations, measured in full time equivalents (FTE)... The net local employment effect is estimated as the additional employment income from the Project in excess of average wages in the locality...calculated to be between \$5 million to \$9 million per year over the life of the Project."*
458. The Applicant's EIA considered other local industry effects, including additional expenditure on other non-labour inputs such as fuel, utilities and professional services *"...a share of which will directly contribute to the local economy...the locality is expected to benefit from \$66 million a year during the establishment phase and \$89 million a year during ongoing operations."*
459. The Applicant's EIA also considered environmental and social impacts, that will *"...accrue to the locality. These include impacts on air quality, water and visual amenity."* The Applicant's EIA stated that the most notable costs are attributed to traffic and transport impacts, valued at \$460,000 per year during establishment and \$610,000 per year during operations.
460. With respect to the flow-on impacts expected for the local economy, the Applicant's EIA stated that *"...the Project is estimated to increase gross regional product (GRP) in the locality and in New South Wales by \$2.1 billion and \$3.0 billion respectively... Incremental employment, including direct project employment and flow-on employment effects...is estimated to increase for the life of the Project, peaking at 130 FTE and 99 FTE in the locality and in the rest of NSW."*
461. The Applicant's EIS was accompanied by a Social Impact and Opportunities Assessment (**SIOA**), prepared by Umwelt, dated May 2016. The Applicant's SIOA considered the non-monetary costs and benefits of the Project as well as the potential impacts and opportunities of the Project on communities within the locality. The Applicant's EIS summarised the key outcomes of the SIOA and stated that *"...it is unlikely that the Project will result in significant change across any of the key community capitals (natural, economic, human, physical; and social), thus affording a risk ranking of 'low' for impact on community sustainability."*
462. The Applicant's EIS sets out a number of mitigation measures for managing potential social impacts, noting that a Stakeholder Engagement Plan (**SEP**) would be implemented for the Project. The SEP *"will include a framework to monitor the effectiveness of the proposed strategies in mitigating negative social impacts and/or enhancing positive social impact over time."*
463. The Applicant's EIS stated that the SEP would include the following strategies and management actions:
- "undertaking Project design to minimise impacts to near neighbours, where possible*
 - implementation of visual mitigation works early in the life of the Project (e.g. vegetation screening planted within the first two years of the Project)*

- *incorporation of productive agricultural land through rehabilitation planning*
- *ongoing implementation of a complaints response and management process*
- *ongoing operation of the United CCC*
- *a mechanism for ongoing management of the Project's community contribution program."*

464. The Applicant's EIS further stated that it would negotiate a VPA with Council to "...afford opportunities for the Project to contribute programs designed to improve or address local community issues and perceived impacts."
465. At its 6 December 2018 meeting with the Commission, the Applicant confirmed that a VPA offer had been made to Council. The Applicant stated however that it did not "...agree with the methodology adopted by GLN in their process...[of]...assessing the adequacy of the VPA offer by the Project to Council." The Applicant reiterated this position at its 5 February 2019 meeting with the Commission.

Department's assessment

466. As set out in paragraph 28, the Department's PAR stated that it had commissioned CIE to undertake an independent review of the Applicant's EIA, including the CBA. The Department's PAR stated that CIE's "...review identified that the CBA had been undertaken in a reasonable manner and was broadly consistent with relevant guidelines. However, CIE identified some aspects of the estimated benefits and residual environmental and social impacts that required further consideration." The Department's PAR stated that the Applicant provided additional information in its RtS that addressed the outstanding concerns and the Department's PAR concluded that the "...scale of these impacts has not materially changed from those presented in the EIS."
467. The Department's PAR noted that CIE considered the range of GHGEs costs contained in the Applicant's EIA but found that the "...the Project would still result in a net benefit to the NSW community, even if the full GHGE costs were attributed solely to NSW." The Department's PAR stated that it "...accepts CIE's conclusion that the full cost should be allocated to NSW (\$35 million) [relates to Scope 1 and 2 GHGEs, excluding Scope 3 GHGEs] and notes that, even if the maximum estimated costs are allocated to NSW, the Project still delivers a net benefit."
468. The Department's PAR further stated that "...CIE commented that there is debate regarding whether it is appropriate to apply global social costs of GHGEs (ie Scope 3 emissions) in CBAs. DAE did not include Scope 3 emissions in its CBA. The Department is satisfied with DAE's approach and notes that including Scope 3 emissions could potentially result in 'double counting' of GHGEs that must also be considered in the GHGE inventories of other countries."
469. The Department's PAR considered the Applicant's LEA, noting that it was prepared in accordance with the NSW Guidelines for the economic assessment of mining and coal seam gas proposals (2015). The Department's PAR stated that the "...Lower Hunter Statistical Area 3 (LHSA 3), which includes the centres of Cessnock and Dungog. Mining employs 13.5% of the population in LHSA 3. Unemployment within the LHSA 3 is 11.3%, compared with a Statewide average of 5.9%."
470. With respect to employment, the Department's PAR stated that the Project would offer continued employment for employees whose jobs may end if the Project does not proceed, stating: "The additional jobs the Project would create, both short term (through 120 construction jobs) and long term (through 250 operational jobs), would also have a substantial local impact, given the relatively high percentage of unemployment in the area."

471. The Department's PAR concluded that although the exact quantum of the net benefit that the Project would generate cannot be accurately determined, due to the uncertainty in forecasting coal market demand and pricing, the CIE review shows *"...a benefit around \$258 million is a conservative expectation."*
472. With respect to social impacts, the Department's PAR stated that the Project would impact on the local community and that *"...social dynamics and community cohesion has experienced changes as a result of other mining projects in the area. The Department notes that some benefits have also been identified"* in the form of:
- *"economic benefits - through generation of local employment, opportunities for local commercial contracts and social investment...;*
 - *incoming workforce - anticipated increase in participation in community life through volunteering, schools, sporting and community groups and informal social networks; and*
 - *sense of community - largely limited to Jerrys Plains, perceptions that the Project may improve the sense of community."*
473. While the Department's PAR acknowledges that the Project would have some social impact on the local community, it considers that these impacts can be *"...managed to acceptable levels through management plans and standard conditions that require:*
- *independent review, if a private landowner considers the relevant criteria has been exceeded on their land;*
 - *an Environmental Management Strategy that keeps the local community and relevant agencies informed about the Project's operation, including making information publicly available on the Applicant's website;*
 - *protocols for managing and responding to complaints; and*
 - *operation of a Community Consultative Committee."*
474. The Department's FAR stated that it has recommended that the Applicant prepares a Social Impact Management Plan (**SIMP**) prior to commencement of Phase 1B, to build on the SIOA and to *"...further identify negative social impacts resulting from the Project, specify adaptive management and mitigation measures to avoid, minimise, and/or mitigate negative social impacts, identify opportunities to secure and enhance positive social impacts, include a program to monitor, review, and report on the effectiveness of these measures and include a Stakeholder Engagement Plan to guide the evaluation and implementation of social impact management and mitigation measures."*
475. The Department's FAR provided an overview of the process undertaken by the Applicant in seeking to negotiate a VPA with Council. The Department's FAR stated that on 8 February 2018, the Applicant made an offer of \$1.2 million to Council *"...based on a proposed allocation of 50% towards immediately affected communities of Jerrys Plains and Warkworth and the remaining 50% to be distributed across the wider local government areas."* The Department's FAR provided a list of opportunities for community development, identified in the Applicant's SIOA, including improvements to and maintenance of public spaces, community infrastructure and services, including the following aspects:
- *Jerrys Plains Village Centre - gateway treatment for approach to the village incorporating signage, rural fences and street trees;*
 - *Jerrys Plains Upgrade Recreation Grounds - fencing, street planting, playground shelter, reticulated vehicle (RV) dump point;*
 - *Jerrys Plains Main Street Upgrade - gateway treatment, landscaping, cycleway and pedestrian refuge, RV/truck parking; and*
 - *Warkworth - documentation of the history and heritage of Warkworth, contributions for maintenance of oval, community hall and St Philips Church.*
476. With respect to the VPA, the Department's FAR stated: *"Council is currently reviewing its*

Development Contributions Plan and in November 2017 resolved to calculate mine-related development contributions based on either a cents per tonne or 1% CIV [capital investment value] basis. Based on the CIV for this Project, this would equate to \$3.81 million.” The Department’s FAR further noted that the Applicants’ Review Response revised its CIV to remove a portion of capital associated with mining equipment already in use at Wambo Coal Mine, and that “[t]he Applicant does not support the use of the CIV in assessing the VPA contribution; however, should this methodology be applied moving forward, the Applicant recalculated the capital cost of the Project based on removing this existing mining equipment. This led to a significant \$174 million reduction in CIV.”

477. The Department’s FAR accepted this approach, as it generally aligns with the requirements under the EP&A Regulation and the Department’s 2010 Planning Circular PS10-008, which state that “...costs relating to any part of the development or project that is the subject of a separate development consent or project approval” should be excluded from the CIV calculation.”
478. As set out in paragraph 60, the Department engaged GLN to review the reasonableness and acceptability of the Applicant’s VPA offer, including “...consideration of both the quantum and distribution of funds, having regard to Council’s response to the offer and its November 2017 resolution, community expectations, the predicted impacts of the Project and current VPA policies, guidelines and practice notes.” At the time of the Department’s FAR, the GLN review was ongoing however it confirmed that both the Applicant and Council agreed in principle to come to an agreement based on GLN’s findings. The VPA is discussed further in section 5.7.

Public comments

479. The Commission heard from speakers at the public meeting and received written comments regarding potential economic and social impacts (both negative and positive) as a result of the Project, including:
 - company tax calculations are inaccurate;
 - loss of social amenity and community cohesion due to mining operations;
 - timing of requirement for the SIMP to be prepared and approved;
 - cumulative social impacts, including loss of privately owned land and loss of agricultural land;
 - stress related conditions resulting from the Project and existing mines in the area;
 - the Project will enable the continuation of employment for many employees that may be out of a job if the joint venture is not approved;
 - the Project will generate many direct and indirect employment opportunities for local service providers and businesses;
 - the Project would generate significant financial benefits through royalties and company taxation to NSW;
 - the joint venture partners currently support local community organisations, including sporting teams and events; and
 - the Applicant financially assists community service providers and organisations to support their continued work.

Commission’s findings

480. The Commission acknowledges the public’s comments in paragraph 479 in relation to potential economic and social impacts of the Project and the benefits that would be derived from the Project.
481. The Commission accepts the Applicant’s EIA and SIOA, because the methodologies used to inform the assessments are robust and based on best practice. The Commission agrees

with the Department and CIE that the EIA and CBA are broadly consistent with the relevant guidelines, as set out in paragraphs 455, 461 and 466.

482. The Commission finds that the Project would generate significant benefits through royalties and income tax attributable to NSW, as set out in paragraph 456.
483. The Commission accepts the accuracy of the LEA and its estimation of direct and indirect employment benefits, as set out in paragraph 457. The Commission agrees with the Department's FAR and finds that the LEA was prepared in accordance with the relevant NSW Guidelines, as set out in paragraph 469. Noting the relative high unemployment rate in the LHS 3 of 11.3%, also set out in paragraph 469, the Commission finds that given the mining sector employs 13.5% of the population in the LHS 3, the Project would enable ongoing contribution to provision of employment opportunities within the region and thereby reducing unemployment rates overall.
484. The Commission finds that the Applicant's proposed management measures are suitable and have been appropriately reflected in draft condition B108, which requires the Applicant to prepare a SIMP in consultation with Council, the CCC, affected communities and other interested stakeholders. The SIMP would provide the framework for social impacts to be identified, transparently reported and opportunities to be enhanced through the life of the Project. Draft condition B108 requires the SIMP to identify negative social impacts and specify adaptive management and mitigation measures to avoid, minimise and/or mitigate potential impacts. The SIMP would include a program to monitor, review and report on the effectiveness of these measures and include a SEP (see paragraphs 462 and 463) to guide evaluation and implementation of social impact management measures.
485. The Department recommended that the SIMP be prepared and approved by the Secretary prior to the commencement of Phase 1B. The Commission finds that this timing is appropriate as it coincides with the commencement of open cut mining operations under SSD 7142, as set out in *Table 1* of this SoR (pages 6-7).
486. The Commission acknowledges the finalisation of VPA negotiations between the Applicant and Council and finds that the approach taken by the Department to be appropriate, for the reasons set out in paragraph 478. The Commission finds that the value of the VPA, \$2.65 million, will enable significant community enhancements and benefits to be realised in the areas most affected by the Project, including Jerrys Plains and Warkworth and that the remaining contributions will be distributed across the LGA through the Singleton Community and Economic Development Fund, to benefit the wider LGA. The Commission further notes that the VPA, when finalised must be executed in accordance with the terms set out in *Appendix 9* of the proposed conditions to SSD 7142.
487. Overall, the Commission accepts that the Project would generate significant social and economic benefits, for the reasons set out in paragraphs 456, 467, 471, 475 and 476.

5.8.9 Transition to joint venture

IPC Review Recommendations

488. The Commission made three recommendations in relation to the transition to joint venture. The Applicant and the Department addressed each recommendation. The Department's FAR considered related recommendations collectively and considered in its assessment the phasing of development, EPLs and the CCC.

Applicant's consideration

489. The Applicant's Review Response provided a number of clarifications and further

justification as to the requirement for a transitional phase and a framework for managing the transition to joint venture. The Applicant's Review Response stated:

- *"It is anticipated that the transition will occur...in two phases over approximately 12-15 months...designed to limit the interruption to production at the currently approved Wambo Open Cut and provide sufficient time for the Project to recruit staff, commence construction and transition the mining, safety and environmental systems together with the Wambo Open Cut operational workforce to United management."*
- *Phase 1 of the transition process consists of two parts Phase 1A and Phase 1B, whereby United and Wambo continue to operate two separate operations...Phase 2 represents the point in time when the two separate operations are combined under the single management of the joint venture...The transition through Phases 1 and 2 will be administered through well-defined notification requirements.*
- *United makes the following commitment...*
 - *United will notify the Secretary in writing one week prior to the commencement of each of the Phases (Phase 1A, Phase 1B and Phase 2)..."*

490. The Applicant's Review Response provides the key components and activities associated with each Project phase through the transition to joint venture, as summarised in *Table 1*.

491. With respect to the CCC, the Applicant's Review Response stated that it would operate CCCs for the Project to the satisfaction of the Secretary, *"The CCC will be operated in accordance with the Community Consultative Committee Guidelines (Department of Planning and Environment 2016, or its latest version). The CCCs for United and Wambo may be combined should the CCC members elect to hold combined meetings."*

492. With respect to EPLs and changes to licencing under the Project, the Applicant's Review Response noted that the existing United EPL 3141 and Wambo EPL 529 would be varied to reflect the changes necessary for the Project:

- *"EPL 3141 will apply to the open cut mining activities managed by United on behalf of the Joint Venture; and*
- *EPL 529 will apply to the Wambo Underground Mine, CHPP and train loading facility...EPL 529 will continue to provide for the operation of HRSTS discharge."*

493. The Applicant's Review Response further stated that *"...the Joint Venture provided DPE and EPA with an environmental noise compliance management protocol which demonstrates how environmental monitoring will be used to monitor compliance and how responsibility will be assigned for any breaches of noise criteria."*

494. The Applicant's Review Response stated that it would utilise the existing Wambo and United monitoring systems and commits to additional monitoring locations and equipment to provide appropriate coverage for the Project. The Applicant's Review Response also stated that construction activities would commence under a Construction Environmental Management Plan (**CEMP**) with other key management plans, including the Aboriginal Cultural Heritage Management Plan, required to be in place prior to commencement of construction. The Applicant's Review Response further stated: *"Upon the commencement of Phase 1B all of the remaining environmental management plans required for the Joint Venture Project will be prepared, submitted for approval by relevant government agencies and implemented. Upon commencement of Phase 2, the Wambo Open Cut will come under the management of the Joint Venture Project management plans..."*

Department's assessment

495. The Department's FAR considered the Applicant's Review Response and proposed approach to managing the transition to joint venture. The Department's FAR stated: *"The recommended conditions of consent have been based on the three phases of development*

(Phase 1A/1B, 2 and 3). Key definitions, figures and pre-commencement requirements have been included in the consents to ensure there is a clear division and/or handover of environmental management responsibilities between DA 3057-2003 and SSD 7142.”

496. The Department’s FAR stated that the integration of open cut operations would take approximately 12-15 months “...due to the likely lead times for establishing the new United open cut and then transferring operational, environmental and safety management responsibilities from Peabody to Glencore. This time is also required to gain all necessary pre-commencement approvals and to undertake necessary construction and preparatory works. During this transitional period, Peabody would retain responsibility for the Wambo open cut operations and continue to operate business as usual. The Applicant has termed this stage ‘Phase 1’. Activities at United open cut would be further divided into Phase 1A and Phase 1B to differentiate between low impact construction activities and higher impact mining operations. ‘Phase 2’ would then be the stage when the joint venture commences (ie when Glencore takes over responsibility for Wambo open cut operations).”
497. Table 7 provides a summary of each development phase and the activities associated with each phase.

Table 7: Development phases

Development Consents	Table 1: Development phases			
	Phase 1A	Phase 1B	Phase 2	Phase 3
United Wambo Open Cut Coal Mine SSD 7142	Construction and preparatory works at United open cut	Commencement of open cut mining operations United open cut	Integration of United and Wambo open cut operations	Mine closure (decommissioning and rehabilitation)
	Continuation of approved Wambo open cut mine			
Wambo Coal Mine DA 305-7-2003	Continuation of approved Wambo underground mine			
	Continuation of approved use of Wambo mine infrastructure (including processing of Wambo ROM coal)		Additional processing of United ROM coal	Mine closure (decommissioning and rehabilitation)
Wambo Train Loading Facility DA 177-8-2004	Continuation of approved rail loading (including despatch of Wambo product coal)		Additional despatch of United product coal	Mine closure (decommissioning and rehabilitation)

Source: Department’s FAR

498. The Department's FAR provided a summary of the pre-commencement management plan and approval requirements for each phase of the Project, as summarised in *Table 8*.

Table 8: *Environmental management plan approval requirements*

Development Consents	Phase 1		
	Phase 1A	Phase 1B	Phase 2
<i>United Wambo Open Cut Coal Mine SSD 7142</i>	Pre-commencement management plans: • Construction Environmental • Historic Heritage • Biodiversity • Water • Social Prior to undertaking any blasting: • Blast Prior to undertaking Golden Hwy realignment: • Construction Traffic Management Plan	Pre-commencement management plans: • Noise • Air Quality • Rehabilitation • Environmental Management Strategy	Pre-commencement management plans: • Rehabilitation Management Strategy • Comprehensive update of all management plans and strategies Five years prior to closure: • Mine Closure plan
<i>Wambo Coal Mine DA 305-7-2003</i>	Pre-commencement management plans: • Blast	N/A	Pre-commencement management plans: • Comprehensive update of all management plans and strategies • New traffic Management plan
<i>Wambo Train loading Facility DA 177-8-2004</i>	Within three months of determination of Modification 3: • Environmental Monitoring Program • Environmental Management Strategy		

Source: *Department's FAR*

499. The Department's FAR stated that the EPLs would need to be varied to reflect each development phase and that the proposed 'operational areas' should generally align with the EPL premise boundaries. With respect to continued operation of the CCC, the Department has recommended a draft condition to allow the CCCs to be combined if the Applicant considers this appropriate.

Commission's findings

500. The Commission accepts the Applicant's proposed development phases as set out in *Table 1* and further summarised in the Department's FAR (see *Table 7*) because the process for transitioning the Project through the development phases is robust, with Project milestones contingent on approval of management plans and establishment of certain measures in place prior to a proceeding to the next phase.

501. The Commission further finds that the Department's recommended approach to environmental management plan approval requirements is suitable, because appropriate management plans are required to be prepared and approved by the Secretary prior to the commencement of the relevant development phases under the proposed conditions to SSD 7142, as set out in *Table 8*. The Commission finds that the transition to joint venture arrangements are appropriate. The draft conditions of consent provide sufficient guidance with respect to the outcomes being sought in the management plans (as set out in *Table 8*).

502. The Commission finds that the Applicant's proposed approach to transitioning EPLs (see paragraph 492) and the Department's consideration of this approach is suitable for the reason provided in paragraph 499.
503. The Commission finds that the Applicant's commitment to continuation of the CCC and for the CCC to be established in accordance with the relevant guidelines under the SIMP, as set out in paragraph 491 and 484 is appropriate. The Commission proposes conditions A19 and A20 'Community Consultative Committee' and that under draft condition A20, if considered appropriate, the Applicant may resolve to operate a combined CCC, with the approval of the Secretary (see paragraph 499). The Commission finds that the potential to operate a combined CCC should also be determined following consultation with the affected communities as set out in proposed condition B108, namely Jerrys Plains, Warkworth Village, Maison Dieu and Bulga, so that those most affected by the Project can be involved in how the CCC is constituted and structured. The Commission has therefore amended draft condition A20 to require consultation with the relevant CCCs.

5.9 Conditions of consent - SSD 7142, MOD 16 and MOD 3

504. The Commission has considered the draft conditions of consent for SSD 7142 and the draft notice of modification conditions of consent for MOD 16 and MOD 3 recommended by the Department.
505. In relation to the draft conditions for MOD 16 and MOD 3, the Department has advised that it has become its practice to replace the body of a consent in its entirety when there are a great number of changes required by the modification under consideration and the drafting complexities of integrating new conditions with old become insurmountable. The Commission notes that primary and subordinate legislation may be replaced rather than amended when the drafting becomes overly complex.
506. This practice has the benefit of 'contemporising' consents, in that older forms of drafting of conditions can be updated. These benefits include that doubts and uncertainties in older drafting can be updated, improved or corrected and redundant requirements removed.
507. In this particular case, the operation of the Wambo Mine Complex overlaps in both time and space with the Project. The open cut project has four time-based Phases. The Wambo Mine currently contains both open cut and underground operations however its existing open cut will eventually be absorbed into the proposed United Wambo open cut. It is critical that the time and locational interactions and overlaps between Wambo and United (and three consents) are regulated in an efficient and robust manner throughout the life of both Projects.
508. The Department has further advised that Wambo has agreed to accept the conditions of the revised consents. In doing so, it has accepted that the revised consents provide for the ongoing and efficient operation of its existing developments, as well as their future relationships with the Project.

5.10 Requested changes to draft conditions of consent

509. At its 6 December 2018 meeting with the Commission, the Applicant requested amendments to draft conditions of consent, B76 and B77, 'Aboriginal Cultural Heritage'. Draft condition B67 'Heritage Operating Conditions' states:
- If any previously unknown Aboriginal object or Aboriginal place is discovered on the site, or suspected to be on the site:*
- a) all work in the immediate vicinity of the object or place must cease immediately;
 - b) a 10 metre buffer area around the object or place must be cordoned off; and
 - c) OEHL must be contacted immediately.

Draft condition B77 states:

Work in the immediate vicinity may only recommence if:

- a) the potential Aboriginal object or Aboriginal place is confirmed by OEH, in consultation with the Registered Aboriginal Parties, not to be an Aboriginal object or Aboriginal Place;*
- b) the Aboriginal Cultural Heritage Management Plan is revised to include the Aboriginal object or Aboriginal place and appropriate measures in respect of it; or*
- c) the Planning Secretary is satisfied with the measures to be implemented in respect of the Aboriginal object or Aboriginal place and makes a written direction in that regard.*

510. The Applicant stated that the “...requirements to cease work and immediately notify OEH upon discovery of a previously unknown site is too restrictive and could cause unnecessary delays...” and that the Aboriginal Cultural Heritage Management Plan (**ACHMP**) “...will have a process to manage newly discovered objects, these conditions should be removed or replaced with a requirement to manage in accordance with the ACHMP.”
511. The Commission does not support amendments to B76 and B77 and finds that these conditions of consent should remain as drafted by the Department because they provide the appropriate protection to previously unknown Aboriginal sites should sites be discovered during the Project.
512. In addition, the Applicant requested an amendment to condition B108 to exclude Bulga from the SIMP, due to the fact that Bulga is located adjacent to two large mining operations and that the Bulga community were already consulted significantly under those mining consents. The Applicant further stated that the “...SIOA should be focussed on the nearest communities (Jerrys Plains, Warkworth and Maison Dieu).”
513. The Commission consulted both the Department and Council regarding the Applicant’s request and neither supported or objected to the request, however, the Commission heard from a number of Bulga community members at the public meeting and received written comments in relation to concerns over the Project and therefore finds that it is appropriate the SIMP includes the requirement to consult with the Bulga community in accordance with the requirements of proposed condition B108.

5.11 Suitability of the Site for the Project

Applicant considerations

514. The Applicant’s EIS provided an assessment of the suitability of the Site for the Project, which stated: “*The Project is located in an area that has a long history of coal mining, with the Project Area itself subject to over 55 years of mining activity. The Project Area is also surrounded by a number of other mining operations including the Wambo underground, HVO South and Mount Thorley Warkworth, with the area being a well-established part of the Hunter Valley coalfield which is the largest coal-producing region in NSW.*”
515. The Applicant’s EIS further stated that both the Wambo and United mining operations have provided substantial economic benefits to the local, State and national economies and that the approved Wambo open cut will continue to provide economic benefits until the consent lapses.
516. The Applicant’s EIS also stated: “*The development of a coal mine and associated infrastructure is limited, by its nature, to the location of the coal resource. The Project seeks to maximise resource recovery from an existing operational mining area, limiting the potential for conflicts with other land uses. The Project is adjacent to other major mining operations, with much of the surrounding land owned by mining companies, resulting in substantial*

separation distances to private land being in place. The Project is located within one of the most active mining areas in the Upper Hunter Valley.”

517. The Applicant's EIS further stated: *“Key Project objectives include maximising the use of previously disturbed areas and existing mining infrastructure and further development of existing environmental mitigation and management strategies to mitigate and manage the predicted impacts associated with the Project, thereby limiting potential for conflicts with other land uses.”* The Applicant's EIS also stated: *“Extensive management, mitigation and offset measures have been incorporated into the Project to minimise impacts, including land use impacts and conflicts.”*
518. The Applicant's EIS concluded with respect to site suitability that *“...the land within the additional disturbance area is predominantly comprised of land classes that provide limited opportunity for agricultural uses. It is considered that the use of this land for coal mining purposes provides by far the highest economic returns from the land relative to any other identified permissible uses of the land.”*
519. The Applicant further reiterated its position in the Applicant's Response 2, which set out particular features of the Project and the reasons why the Applicant considers that the Commission *“...can be satisfied, on the material that is before it, that the development application for the Project can be approved.”* Much of the material presented pointed to the reasons that the Applicant considers the site to be suitable for the Project:
- Feature 1: The location of the Project:
 - *“The proposed project is located in an established mining domain where there are very few privately-owned properties within close proximity to the Project's mining...given the fact that the dominant land use in the vicinity of the Project is mining, the potential for land use conflict is relatively insignificant.”*
 - Feature 2: Brownfields operation with high output and low disturbance:
 - *“As a result of the Project utilising already existing mining infrastructure, the extraction of the valuable coal resource will be conducted in an efficient manner involving low disturbance.”*
 - Feature 3: Disturbance footprint:
 - *“The Applicant has committed to minimising the extent of additional disturbance required for the carrying out of the Project and, to the extent that additional disturbance associated with the Project could not be minimised, the Applicant has put forward a biodiversity offset package to compensate for the impacts occasioned to native vegetation.”*
 - Feature 6: Minimal local environmental impacts (see section 5.8):
 - *“...the Project's environmental impacts in the surrounding locality will be minimal as a result of the project being a brownfield's expansion of two already well-established mining projects, which have been designed to utilise existing mining infrastructure to the greatest extent practicable.”*
 - Feature 7: Meeting global demands for coal (see section 5.8.3):
 - *“In a letter dated 29 June 2015, the Division of Resources and Energy confirmed that the resource to be mined by the Project is considered to be a significant resource:*
The Division considered the coal deposit a significant coal resource which will continue to bring economic benefits to the State and the region. The Division supports the proposed Project as a responsible utilisation of the State's valuable coal resources and supports the project proceeding through the State's comprehensive development assessment and approval process.”
 - Feature 8: No increase in voids and avoidance of environmental costs (see section 359):
 - *“The final landform for the land subject to the Project will be a contiguous undulating final landform that seeks to blend with the natural topography of the surrounding land, with the Project not increasing on the number of already approved voids (two).*

- *In designing the Project, the Applicant has explored the option of eliminating final voids...the Applicant determined that there were both unacceptable environmental and economic costs associated with filling the voids.*

Department's assessment

520. The Department's PAR stated that it considered the site suitable for the Project in the preliminary assessment of the Project. The Department did not modify its position between its preliminary assessment and its final assessment.

Commission's findings

521. The Commission accepts the Applicant's consideration of the suitability of the Site, as set out in paragraphs 514-519 and acknowledges the Department's PAR with respect to suitability of the site, as stated in paragraph 520. The Commission finds that the site is suitable for the following reasons:

- the Project is located in an established operational mining area, which is in close proximity to a number of other major mining operations;
- there are few privately-owned properties within close proximity to the Project and the Applicant has recently purchased additional properties, reducing the impacts to neighbouring properties;
- the Project is located on a brownfield site with existing mining infrastructure, which would enable efficiencies in Project set-up and site establishment;
- additional disturbance areas would be subject to a biodiversity offset strategy and management measures in the proposed conditions of consent to minimise, avoid, mitigate and/or manage potential impacts of the additional disturbance areas; and
- the final landform has been designed to provide a contiguous undulating landform which seeks to follow the natural topography of the land.

522. The Commission accepts that the Department's PAR considered suitability of the Site throughout its preliminary assessment of the Project, as set out in paragraph 520. In addition, the Department's FAR has not changed the Department's position. For the reasons set out above in paragraph 521, the Commission finds that the Site is suitable for the Project.

5.12 The public interest

Applicant considerations

523. The Applicant's EIS considered the Project against the principles of ESD. With respect to the precautionary principle, the Applicant's EIS stated: *"The assessment process has involved a detailed study of the existing environment...and the use of engineering and scientific modelling to assess and determine potential impacts as a result of the Project. To this end, there has been careful evaluation to avoid, where possible, irreversible damage to the environment."*

524. With respect to intergenerational equity, the Applicant's EIS stated: *"The design of the Project and commitment to the management of environmental issues as outlined in this EIS will maintain the health, diversity and productivity of the environment for future generations. The Project will also make a significant contribution to maintaining services in the community through the direct and flow on effects of employee and operational expenditure and through development contributions in accordance with the EP&A Act."*

525. The Applicant's EIS identified its commitments to deliver a biodiversity offset strategy that *"...appropriately compensates for the unavoidable loss of ecological values as a result of the Project...The proposed offset sites will be established as BioBank sites under*

BioBanking Agreements, ensuring in-perpetuity conservation and reporting consistent with the NSW BioBanking scheme.”

526. With respect to valuation and pricing of resources, the Applicant's EIS stated: *“The polluter pays principle applies to the Project through the discharge of salt in surface water discharges to the Hunter River catchment through the Hunter River Salinity Trading Scheme...Pricing of resources is also captured in the regulatory regime applying to surface and groundwater extractions... Project considerations have included the costs of management measures to minimise potential environmental and social impacts. There will also be additional costs associated with establishing and managing ecological offsets to reduce the magnitude of ecological impacts. In many cases, operational efficiencies are also associated with improved environmental outcomes. For example, efficient haul routes reduce total noise and dust emissions and diesel use (with associated greenhouse gas and particulate emission reductions).”*
527. The Applicant's Response 2 stated that *“...based on the information that is before the IPC (including the submissions made by the Applicant), the benefits of the Project outweigh the adverse impacts associated with the Project and that it is in the “public interest” for the Project to be approved.”*

Department's assessment

528. The Department's PAR and the Department's FAR assessed the Project against the relevant objects of the EP&A Act. As set out in paragraph 79, the EP&A Act was amended on 1 March 2018, between the Department's PAR and the Department's FAR. The Department's FAR stated: *“In line with the requirements of Section 4.15 of the EP&A Act the Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include:*
- the objects found in Section 1.3 of the EP&A Act; and*
 - the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.”*

529. The Department's FAR stated that *“...the objects of most relevance to the Commission's decision on whether or not to approve the Project are found in Section 1.3(a), (b), (c), (e), (f) and (j) of the EP&A Act.*

The Department is satisfied that objects 1.3(a) and (c) are met as:

- the Project involves permissible land uses on the subject land;*
- the Department's Division of Resources and Geoscience has determined that the targeted coal resource is significant from a State and regional perspective;*
- the targeted coal resource is located almost entirely within existing coal exploration and mining lease areas, in a region that is dominated by coal mining operations, thereby promoting the continued efficient use of the land;*
- the Project can be largely carried out using existing mine site and transport infrastructure;*
- the Project would provide an overall benefit of \$414 million (net present value) to NSW, including substantial royalties of up to \$369 million over the life of the Project; and*
- the Project would provide considerable socio-economic benefits to the region and to NSW.*

The Department is satisfied that object 1.3(b) is met as:

- the four main principles of ecologically sustainable development have been considered through the EIS (Section 9.3) and the Department's PAR (Section 4.3 and Appendix D);*
- the precautionary principle has been applied as the EIS included an environmental risk analysis to identify the likelihood and consequences of the environmental outcomes of*

- the Project; the EIS and Department's PAR identified management and mitigation measures to address potential environmental impacts, and include commitments and requirements to continue to implement monitoring, auditing and reporting mechanisms;*
- inter-generational equity has been addressed through maximising efficiency and coal resource recovery and developing environmental management measures which are aimed at ensuring the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations;*
 - conservation of biological diversity has been applied through avoiding and minimising biological diversity impacts, including setbacks from significant watercourses, avoidance of certain threatened flora (ie Acacia pendula), creation of improved landform and rehabilitation outcomes; and offsetting of residual biodiversity impacts in accordance with the NSW Biodiversity Offset Policy for Major Projects (2014) and the Framework for Biodiversity Assessment;*
 - valuation and pricing of this resource asset has been considered through numerous economic, social and cost-benefit analyses which have been completed and independently reviewed to identify, quantify and weigh up the Project's costs and benefits based on its full range of environmental, social and economic impacts and support the conclusion that the Project would generate a significant net benefit to NSW and the regional economy; and*
 - the proposed Project is able to be carried out in a manner that is consistent with and would facilitate the principles of ESD.*

The Department is satisfied that objects 1.3(e) and (f) are met as:

- the Project has sought to avoid, minimise and manage potential impacts on biodiversity and heritage;*
- the Project has offset residual biodiversity impacts in accordance with NSW and Commonwealth Government policy;*
- the EIS and PAR have confirmed that the Project would not directly impact any Aboriginal cultural heritage items of high scientific significance or historic heritage listed items; and*
- the proposed mitigation and management measures would ensure the Project would have acceptable impacts on Aboriginal cultural and historic heritage.*

The Department is satisfied that object 1.3(j) is met as:

- the Project was exhibited for 44 days with 103 submissions received;*
- the Department commissioned independent peer reviews of certain aspects of the Project, including air quality and economics;*
- a review of the Project, including a public hearing was held by the Independent Planning Commission, with 12 verbal presentations and 22 written submissions, mainly objecting to the Project; and*
- ongoing correspondence and submissions on the Project from individuals and special interest groups have been considered by the Department in this final assessment of the Project."*

530. The Department's FAR concluded that it is "...satisfied that the benefits of the Project outweigh its residual cost and considers that the Project is in the public interest and is approvable, subject to strict conditions of consent."

Public comments

531. The Commission heard from speakers at the public meeting and received written comments asserting that the Project is not in the public interest for the reasons put forward in the previous public comments sections, see paragraphs 56, 148, 200, 275, 277, 278, 282, 283, 344, 380, 427, 449 and 479. Conversely, some public comments asserted that the Project is in the public interest because of the economic and social benefits that would be realised

as a result of the Project, see paragraph 479.

Commission's findings

532. The Commission has had regard to the Material before it and given consideration to the issues raised by speakers at the public meeting and in written comments to the Commission. The Commission has considered the issues raised by the public and whether the Project is in the public interest in its findings contained throughout sections 5.8 and 5.11 of this SoR.
533. The objects of the EP&A Act (in section 1.3), applicable to the Project, are:
- a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
 - b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
 - c) to promote the orderly and economic use and development of land,*
 - e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,*
 - f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),*
 - i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State, and*
 - j) to provide increased opportunity for community participation in environmental planning and assessment.*
534. The Commission accepts and adopts the Department's assessment of consistency of the Project with the objects of the EP&A Act, for the reasons set out in paragraph 529. The Commission notes that objects (a), (b), (c) and (e) also apply to MOD 16 and MOD 3. The Commission finds that object (i) applies to the Project and considers that the Project is consistent with this object of the EP&A Act because assessment of the Project has been undertaken in consultation with Council and consideration has been given to the issues raised by the community and Government agencies, during public exhibition of the Project, as discussed in paragraphs 22-24.
535. The Commission notes that section 6(2) of the *Protection of the Environment Administration Act 1991* (the **POEA Act**) states that ESD requires the effective integration of social, economic and environmental considerations in its decision-making, and that ESD can be achieved through the implementation of:
- a) the precautionary principle;
 - b) inter-generational equity;
 - c) conservation of biological diversity and ecological integrity; and
 - d) improved valuation, pricing and incentive mechanisms.
536. The Commission accepts and adopts the Department's assessment of the principles of ESD, as set out in paragraph 529. The Commission agrees that the precautionary principle has been utilised through the application of appropriate mitigation and management measures set out in the Applicant's EIS and subsequent documentation, in the Department's FAR and in the proposed draft conditions of consent. The Commission has proposed additional measures in relation GHGEs to address Project impacts. The Commission agrees that intergenerational equity has been addressed through maximising efficiency of the coal resource recovery and productivity on an existing brownfield site and considers that use of the Wambo CHPP and associated infrastructure provides for further efficiencies.
537. The Commission agrees that conservation of biological diversity has been applied in avoiding and minimising biological impacts and through the biodiversity offset package. The

Commission also finds that the ecological rehabilitation commitments are sound and provide an appropriate framework for ensuring that the Site is rehabilitated adequately post mining. The Commission also agrees that the valuation and pricing mechanisms have been adequately addressed through the CBA and subject to independent review. The Commission finds that the Project's social and economic impacts and benefits have been appropriately assessed and would be managed through the SIOA during the life of the Project.

538. In summary the Commission finds that the Project is consistent with ESD, because the Project, if approved, would achieve an appropriate balance between relevant environmental, economic and social considerations, for the reasons set out in paragraphs 529, 530, 536 and 537.
539. The Commission finds that the Project is in the public interest because:
- the Project would enable synergies to be achieved through the integration of the United Coal Mine and the Wambo Coal Mine, thereby allowing for the economic recovery of coal resources, while minimising environmental and social impact that would likely be more significant if two separate mining operations were in place, as set out in paragraph 18;
 - the Project would maximise utilisation of existing mining facilitation including the Wambo MIA, CHPP and rail loading facilities, as set out in paragraphs 19;
 - the Project's Scope 1, 2 and 3 GHGEs will be appropriately managed through the proposed conditions of consent, including the condition to require the sale of product coal only to countries that are signatories to the *Paris Agreement* or that otherwise have equivalent domestic policies for reducing greenhouse gas emissions, for the reasons set out in paragraphs 292-313;
 - the Project would allow for the ongoing employment of 250 employees and additional employment for another 250 employees over the life of the Project, contributing to reducing rates of unemployment in the region, as set out in paragraphs 13 and 470;
 - the Project has a robust biodiversity offset strategy that requires credits to be secured before the commencement of any disturbance associated with subsequent stages, as set out in section 5.8.4;
 - the Site would be progressively rehabilitated to establish a native woodland dominated final landform that is integrated with surrounding natural landforms, as set out in section 5.8.6;
 - the predicted Project impacts would be appropriately minimised, managed and/or mitigated through the mitigation measures proposed and the draft conditions of consent, as set out in section 5.8; and
 - the Project would provide \$414 million (net present value) of economic benefits to NSW, including royalties of \$369 million over the life of the Project, as set out in paragraphs 13, 456 and 529.

6. HOW THE COMMISSION TOOK COMMUNITY VIEWS INTO ACCOUNT IN MAKING DECISION

540. The views of the community were expressed through public submissions and comments received (as part of exhibition, during and after the public meeting and as part of the Commission's determination process) as discussed in paragraphs 56, 148, 200, 275, 277, 278, 282, 283, 344, 380, 427, 449 and 479.
541. As set out in paragraph 531, the Commission carefully considered all of the views of the public as part of making its decision and in its consideration of whether the Project is in the public interest. The way in which these concerns were taken into account by the Commission is set out under each issues section (section 5) of this SoR.

7. CONCLUSION: THE COMMISSION'S FINDINGS AND DETERMINATION

542. The Commission has carefully considered the Material before it, as set out in paragraph 74 of section 5 above. The Commission notes that it is obliged to consider the Project that is before it within the current statutory and policy framework, which it has done in this SoR.
543. The Commission has considered the relevant matters for consideration specified under section 4.15 of the EP&A Act, with respect to SSD 7142, as discussed in section 5.2. The Commission has also considered the relevant matters for consideration under section 75W, with respect to MOD 16 and MOD 3, as discussed in section 5.5. The Commission has considered the SSD 7142, MOD 16 and MOD 3 collectively as the Project.
544. Accordingly, the Commission finds that the Project should be approved subject to conditions of consent, because:
- the Site is an existing brownfield site, with existing operational mining infrastructure, as set out in paragraphs 258, 519, 521 and 536;
 - noise, vibration and blasting complies with the INP and NPfI; appropriate mitigation and management measures are proposed through the conditions of consent; and mitigation and acquisition provisions will be applied in accordance with the VLAMP, for the reasons set out in paragraphs 149, 150 and 161;
 - air quality complies with the relevant Approved Methods; has been subject of an independent review by Ramboll; and the Project EPL would be based on current Approved Methods 2016, for the reasons set out in paragraphs 201-205;
 - blasting impacts have been adequately assessed and would be appropriately managed, as set out in paragraphs 157-158;
 - Scope 1 and 2 GHGs have been adequately minimised as far as practicable and within the capacity of the Applicant to control. As identified by the Applicant, Scope 3 GHGs would also be minimised as far as practicable, as the most likely export destinations for the Project's coal will be to countries that are a party to the *Paris Agreement* or that otherwise have equivalent domestic policies for reducing GHGs. Accordingly, the proposed Scope 3 Conditions are imposed to implement this, as set out in paragraph 306. The Commission has considered GHGs within the relevant statutory framework and notes that there is no policy framework nor are there prescriptive carbon targets for reducing GHGs, nor mechanisms to assess the Applicant's responsibilities, for the reasons set out in paragraphs 208-213 and 287-313;
 - land-based biodiversity offsets have been secured by the Applicant to protect high value biodiversity land in the locality; and MNES matters have been adequately addressed by the Applicant, for the reasons set out in paragraph 323 and 354;
 - water resources have been adequately assessed and the IESC's advice has been appropriately considered and incorporated in the conditions of consent. Potential impacts are appropriately managed and mitigated, with trigger levels imposed for identifying potential adverse impacts and a Water Management Plan to manage potential impacts, for the reasons set out in paragraphs 381-391;
 - final landform and rehabilitation outcomes are appropriate and the proposed two-void solution is acceptable having balanced the environmental, economic and social considerations. The final land use strategy would be prepared in consultation with Council, for the reasons set out in paragraphs 430-441;
 - up to 20% of biodiversity offsetting requirements may be provided on site utilising ecological mine rehabilitation, as set out in paragraph 354;
 - should the Applicant elect to satisfy part of its required biodiversity offsets using ecological mine rehabilitation, a Conservation Bond would provide the financial assurance to ensure this is successfully achieved, as set out in paragraphs 355 and 357;
 - visual impacts are relatively minor overall and are adequately addressed through the proposed mitigation measures, for the reasons set out in paragraphs 450-453;
 - social and economic impacts have been adequately assessed and peer reviewed by

CIE, which found the CBA to be generally consistent with relevant policy guidelines. The Project would generate significant economic and social benefits as a result of employment opportunities and revenue to the State. A VPA would be entered into by the Applicant and Council which would provide further benefits locally, for the reasons set out in paragraphs 480-487;

- the transition to a joint venture is appropriate and a comprehensive plan has been proposed that provides clarity and accountability in the transitional phase. The proposed approach to phasing and preparation and approval of management plans is appropriate, for the reasons set out in paragraphs 500-503;
- the Applicant has adequately addressed the recommendations in the IPC Review Report, for the reasons set out in section 5.8;
- predicted impacts of the Project have been appropriately assessed and minimised through the application of suitable mitigation, management measures and conditions of consent; and
- the Project is in the public interest, for the reasons listed above.

545. The Commission has determined that the Project should be approved subject to conditions. These conditions are designed to:

- prevent, minimise and/or offset adverse social and environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

546. The reasons for this Decision are given in this Statement of Reasons for Decision dated 29 August 2019.



Tony Pearson (Chair)
Member of the Commission



Robyn Kruk AO
Member of the Commission



Dr Peter Williams
Member of the Commission