



**THE HON SUSSAN LEY MP
MINISTER FOR THE ENVIRONMENT
MEMBER FOR FARRER**

Statement of Reasons for Approval under the *Environment Protection and Biodiversity Conservation Act 1999*

I, Sussan Ley, Minister for the Environment, provide the following statement of reasons for my decision of 24 November 2020 under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to approve the Narrabri Gas Project subject to conditions (EPBC 2014/7376).

Legislation

1. Relevant legislation is set out in Annexure A.

Background

Description of Proposed Action

2. Santos NSW (Eastern) Pty Ltd (**Santos**) proposes to progressively develop, operate and decommission a new coal seam gas (**CSG**) field and associated infrastructure across a 95,000 hectare (**ha**) area south-west of Narrabri, in north-western NSW (the **proposed action**).
3. The proposed action will be developed on around 1,000 ha of the proposed action area, in Pilliga State Forest and adjoining privately-owned agricultural grazing land.
4. The proposed action is located within the 'Pilliga', an area of over 500,000 ha of semi-arid native vegetation around Coonabarabran and Narrabri. Nearly half of the Pilliga is protected under the NSW national park and reserve system and most of the remaining area is State forest.
5. The proposed action is in a region that has traditionally been a major producer of agricultural goods. Situated in the Namoi River Catchment, which is part of the Murray Darling Basin, the region has seen significant land use change and degradation as a result of large-scale irrigated cropping and grazing on the alluvial floodplains of the Namoi River and associated tributaries.
6. The region has significant groundwater resources in shallow aquifers that form part of the Great Artesian Basin (**GAB**). A number of ephemeral creeks occur across the proposed action area.
7. Land use in Narrabri Shire has seen a recent shift toward extractive activities such as coal and coal seam gas, which is creating significant community concerns about competing land uses.

8. Two-thirds of the proposed action area is in an area of Pilliga State Forest that has been designated for forestry, recreation and mineral extraction. It provides for mining, petroleum production and extractive industry.
9. Gas exploration has been undertaken in the proposed action area by various title holders since the 1960s. Existing gas-related infrastructure in the proposed action area includes drill pads, gas wells, and the Bibblewindi and Leewood processing facilities.
10. The life of the proposed action is 25 years, which includes exploration and appraisal activities and 20 years of natural gas production. Up to 200 terajoules (TJ) of unconventional natural gas (methane) will be produced per day for the domestic market, which is approximately half of NSW's gas demand.
11. The proposed action includes four distinct phases, noting some may occur concurrently rather than sequentially:
 - Phase 1 – exploration and appraisal activities, including seismic surveys, drilling pilot wells and installing supporting ancillary infrastructure.
 - Phase 2 – development of the gas field and related infrastructure over approximately 1000 ha.
 - Phase 3 – operation of the gas field and production for the domestic market.
 - Phase 4 – progressive decommissioning of the gas field and infrastructure, and rehabilitation.
12. The proposed action involves:
 - i. The construction of 850 gas wells on up to 425 well pads over the life of the proposed action and associated ancillary infrastructure such as access tracks.
 - Each well pad will be up to one ha in area during construction and reduce to a quarter of the area during operation.
 - While the layout of the gas wells is subject to refinement and micro-siting, there will be an equivalent of one well pad per 225 ha within the proposed action area.
 - The proposed action area will be progressively rehabilitated.
 - ii. Upgrading associated gas and water processing facilities, including the existing Bibblewindi and Leewood facilities.
 - Gas safety flares at each facility.
 - Produced water treatment (reverse osmosis) facility and storage ponds.
 - Ancillary infrastructure such as offices, workshops, chemical storage and utilities.
 - An infrastructure corridor for gas and water pipelines and utilities connecting the Bibblewindi and Leewood facilities to the existing Wilga Park power station.

- iii. Extraction of gas resources from the Maules Creek Formation (800-1200 m deep) and Black Jack Group (500 m deep) coal seams of the Gunnedah Basin.
 - Up to 200 TJ of gas will be produced a day for the domestic gas market.
 - Due to the geology of the region, gas production will not require fracking (fracturing of the bedrock by injected pressurised liquid mixture to allow gas to flow into the well).
 - iv. The production and management of produced water and waste:
 - Extraction of up to 37.5 gigalitres (GL) of produced water (saline groundwater extracted from the coal seams) over the life of the proposed action and up to 10 megalitres (ML) per day.
 - Water treatment for reuse on site, crop irrigation or discharge into Bohena Creek in favourable conditions if reuse is not available.
 - Extraction and disposal of up to 840,000 tonnes of salt from the produced water.
 - Production and waste of 1.1 million cubic metres of drill cuttings.
 - Disposal of drilling fluids and chemicals, cement slurry and other waste to licenced waste facilities.
13. The proposed action has a capital investment value of \$3.6 billion and will create 1,300 jobs during construction and 200 jobs during operations.

Procedural History

- 14. On 28 October 2014, Santos referred the proposed action under the EPBC Act.
- 15. On 1 December 2014, the delegate determined that the proposed action is a controlled action under the EPBC Act as it is likely to have a significant impact on listed threatened species and communities (sections 18 and 18A), water resources (sections 24D and 24E), and Commonwealth land (sections 26 and 27A).
- 16. On the same date, the delegate agreed that the proposed action would be assessed by the NSW Government under the Bilateral agreement between the Commonwealth of Australia and the State of New South Wales relating to environmental assessment (bilateral agreement).
- 17. On 30 September 2020, following assessment and public hearings, the proposed action was approved by the Independent Planning Commission (**IPC**) under the *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**) subject to conditions.
- 18. The Department was formally advised of the outcome on 6 October 2020 and provided with the NSW assessment of Commonwealth matters (**MNES report**). In summary:
 - The NSW Department of Planning, Industry and Environment (**DPIE**) concluded that the likely impacts of the proposed action on protected matters would not be unacceptable, provided the action was taken in a manner consistent with the

avoidance, mitigation and offset measures proposed by Santos, and in accordance with the NSW conditions.

- DPIE recommended that the Commonwealth endorse the NSW conditions relating to the management of biodiversity, water resources, and light impacts (for Commonwealth land).
19. On 28 October 2020, I proposed to approve the proposed action. I wrote to Santos, relevant Commonwealth Ministers and NSW relating to the proposed decision.
 20. On 3 November 2020, my delegate wrote to Santos requesting further information under section 136(4) about the environmental history of Santos, its parent body, and executive officers from the last ten years.
 21. On 9 November 2020, the Department received correspondence from Greenpeace advising that it had further information about possible hydrogeological impacts from the project. Santos was provided the opportunity to comment on the material, which it did on 17 November 2020.
 22. On 24 November 2020, I decided to approve the proposed action, pursuant to ss 130(1) and 133(1) of the EPBC Act, subject to conditions.

Evidence or other material on which my findings were based

23. My decision to approve the proposed action under sections 130(1) and 133(1) of the EPBC Act was based on consideration of the final approval decision brief prepared by the Department.
24. The brief contained the following attachments:
 - A. Finalised proposed decision briefing package, which in turn comprised the proposed approval decision brief and attached:
 - a. Department's assessment documentation
 - i. Legal considerations report
 - ii. IESC Advice and proposed conditions
 - iii. Maps and figures
 - b. Proposed decision notice
 - c. Letters to Santos, Prime Minister, Minister for Agriculture, Drought and Emergency Management, Minister for Employment, Skills, Small and Family Business, Minister for Energy and Emissions Reduction, Minister for Indigenous Australians, Minister for Industry, Science and Technology, Minister for Infrastructure, Transport and Regional Development, Minister for Regional Health, Regional Communications & Local Government, Minister for Resources, Water and Northern Australia, and NSW Minister for Planning and Public Spaces.
 - d. Material from DPIE:
 - i. Recommendation letter
 - ii. IPC statement of reasons for decision

- iii. DPIE assessment report
- iv. DPIE consideration of Commonwealth Matters
- v. NSW Biodiversity and Conservation Division (**BCD**) advice on MNES
- vi. BCD advice on statutory documents
- vii. IPC development consent (conditions of approval – 30 September 2020)
- viii. DPIE Responses to IPC Questions
- e. Internal Departmental Advice
 - i. Heritage and species and communities line area advice
 - ii. Environmental history check
 - iii. Statutory document check
- f. Santos' assessment documents:
 - i. Environmental Impact Statement (**EIS**)
 - ii. Response to Submissions report (**RTS**)
 - iii. Additional information
 - iv. Responses to IPC questions
 - v. Submission to the IPC following public hearing
- g. Recovery Plans:
 - i. Superb Parrot
 - ii. Regent Honeyeater
 - iii. Spotted-tail Quoll
 - iv. Swift Parrot
 - v. *Bertya opponens*
 - vi. Spiny Pepper-cress
 - vii. Winged Pepper-cress
- h. Threat Abatement Plans:
 - i. Cane toads
 - ii. Feral Pigs
 - iii. Goats
 - iv. Rabbits
 - v. Feral Cats

- vi. European Red Fox
- i. Conservation advices
 - i. Koala
 - ii. Pilliga Mouse
 - iii. South-easter Long-eared Bat
 - iv. Superb Parrot
 - v. Regent Honeyeater
 - vi. Spotted-tailed Quoll
 - vii. Swift Parrot
 - viii. *Androcalva procumbens*
 - ix. *Bertya oppositifolia*
 - x. *Tylophora linearis*
 - xi. Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community
- j. IESC advice
- k. Namoi subregion bioregional assessment reports
- l. Siding Spring Observatory Heritage Management Plan
- B. Updated legal considerations report
 - i. Consideration of IESC Advice in final conditions
- C. Responses to invitation for comment on the proposed decision from Santos, Prime Minister, Minister for Agriculture, Drought and Emergency Management, Minister for Minister for Employment, Skills, Small and Family Business, Minister for Energy and Emissions Reduction, Minister for Indigenous Australians, Minister for Industry, Science and Technology, Minister for Infrastructure, Transport and Regional Development, and Minister for Resources, Water and Northern Australia
- D. Santos environmental history report
- E. Final decision notice
- F. Letters notifying Santos, relevant Commonwealth Ministers, and the NSW Government of the approval decision
- G. Greenpeace correspondence
 - i. Proponent comments on Greenpeace correspondence
- H. Additional Recovery Plans and Threat Abatement Plans
 - i. Large-eared Pied Bat - Recovery Plan

- ii. Box Gum Woodland - Recovery Plan
- iii. Malleefowl - Recovery Plan
- iv. Booroolong Frog - Recovery Plan
- v. Brush-tailed Rock-wallaby - Recovery Plan
- vi. Murray Cod - Recovery Plan
- vii. Chytrid fungus - Threat Abatement Plan
- viii. *Phytophthora cinnamomic* - Threat Abatement Plan

Findings on material questions of fact

- 25. My findings are set out below in relation to relevant controlling provisions for the proposed action and other matters which I was required to take into account in making my decision.
- 26. My decision and findings on the material questions of fact were based on the information outlined at paragraph [24].

Protected matters

- 27. Section 136(1)(a) of the EPBC Act requires me, in deciding whether or not to approve the taking of an action and what conditions to attach to an approval, to consider matters relevant to any matter protected by a provision of Part 3 that is a controlling provision for the action, so far as they are not inconsistent with any other requirement of Subdivision B of Division 1 of Part 9 of the EPBC Act.
- 28. As outlined above, the controlling provisions for the proposed action are sections 18 and 18A (listed threatened species and communities), 24D and 24E (water resources), and 26 and 27A (Commonwealth land).

Matters relevant to protection of water resources from coal seam gas development and large coal mining development

IESC advice

- 29. On 15 June 2017, my delegate sought advice from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (**IESC**) on the impacts of the proposed action on local water resources. On 8 August 2017, the IESC provided advice indicating that key potential risks from the proposed action included:
 - salt and chemical management and disposal;
 - groundwater depressurisation and drawdown in aquifers within the proposed action area and surrounds; and
 - changes to surface water flow and quality from discharges to Bohena Creek.
- 30. The IESC advice also identified several knowledge gaps, uncertainties and data limitations in the proponent's EIS.
- 31. The Department advised me that it was satisfied that the NSW conditions of consent addressed the IESC's concerns in relation to discharges to Bohena Creek, as they relate to the management of impacts to surface flow and quality.

32. However, the Department considered that additional conditions were required to fully address the IESC's concerns relating to the management of:
- groundwater resources;
 - impacts to groundwater dependent ecosystems (GDEs); and
 - risks to water resources from chemicals used in CSG drilling.
33. I accepted the Department's recommendation that additional conditions address these outstanding issues, so that adverse impacts to water resources are avoided and appropriately managed.

Groundwater

Overview

34. Gas production in the proposed action area will target the Rutley, Namoi, Parkes and Bohena coal seams within the Maules Creek Formation and the Hoskissons Seam of the Black Jack Group. The target coal seams are very deep, generally between 800 and 1,200 metres below ground although some target seams (5 per cent) are located around 500 metres below ground, and at least 350-650 metres deeper than most (97 per cent) of the productive groundwater bores in the shallower aquifers overlying the proposed action area. The NSW assessment report noted that the coal seams and associated aquifers targeted by the proposed action are deeper and more saline than many contemporary CSG projects. Consequently, they are not used for beneficial purposes such as agriculture and town water supply.
35. The CSG wells will be drilled through the Namoi Alluvium and Pilliga Sandstone aquifers to reach the deeper target coal seams.
36. The Namoi Alluvium and Pilliga Sandstone aquifers are relatively shallow, productive, have good quality water and are heavily relied on by the agricultural industry. There are approximately 4,682 registered water bores within 30 km of the proposed action area. About 97 percent of these are located within the Namoi Alluvium and Pilliga Sandstone aquifers, less than 150 m deep. The proposed action will not directly extract any groundwater from these shallow aquifers. However, there is the possibility that depressurisation of the target coal seams could cause groundwater drawdown in the shallow aquifers.
37. Up to 37.5 GL of water will be extracted from the Gunnedah Oxley Basin, which lies under the GAB.
38. The NSW assessment report noted that a substantial body of work had been undertaken to model and assess whether indirect impacts could occur through induced drawdown or contamination. This work included groundwater modelling undertaken by the NSW Government, peer reviewed modelling undertaken by Santos, assessment by an independent Water Expert Panel (WEP), and additional groundwater modelling undertaken by CSIRO.
39. The NSW assessment report summarised this work, noting:

Based on this work, the relevant NSW Government agencies and the WEP believe that the groundwater modelling work is 'fit for purpose' and is adequate and appropriate to assess the broad land and water-related impacts of the proposed action.

The assessment indicates that, due to the depth of the target coal seams and the overlying aquitards, the impacts on the highly valued aquifers would be minimal and would not occur until many years after mining commences. Ultimately, the water extracted for the proposed action (37.5 GL) would be replenished by downward induced flows from overlying water sources. Aquifer recharge rates are naturally slow and this recovery is expected to occur over a period of approximately 1,500 years.

Peak drawdown (i.e. groundwater level lowering) in both the Namoi Alluvium and the Pilliga Sandstone (GAB) is predicted to be less than 0.5 m, which is within the range of natural fluctuation and the minimal harm considerations in the NSW Aquifer Interference Policy, and therefore meets the applicable nondiscretionary development standard for aquifer interference under the Mining State Environment Planning Policy. The changes are unlikely to be noticed by groundwater users in the area.

Peak groundwater take (i.e. volumetric groundwater loss through induced drawdown) from these groundwater sources is also predicted to be minor, at well below one percent of the Sustainable Diversion Limits (or long term annual average extraction limits) for each of the relevant water sources.

The WEP and the NSW Government have considered the proposed action's potential to contaminate or otherwise affect groundwater resources in a number of other ways, such as subsurface contamination from drilling fluids, below ground methane or carbon dioxide leakage, cross contamination of aquifers, and long-term legacy issues following well decommissioning.

The WEP and the NSW Government have considered these potential impacts in detail and found that the risks are able to be effectively managed and are unlikely to result in any significant impacts to regional land and water resources.

The WEP concluded that the current regulatory framework for coal seam gas well integrity provides reassurance that the likelihood for potential harm to humans and the environment is low.

Potential impacts and NSW conditions

Groundwater extraction

40. The EIS predicts that groundwater depressurisation will occur rapidly in the deeper target coal seams once groundwater extraction commences but that propagation (groundwater drawdown in overlying aquifers through a hydrological connection) to the shallow aquifers would be limited by the intervening aquitards (a geological formation that restricts the flow of groundwater from one aquifer to another).
41. Groundwater base case modelling predicted that drawdown for the shallow aquifers will be less than 0.5 m. This is below the minimal harm criteria of the NSW Aquifer Interference Policy.
42. Proposed groundwater extraction is estimated to be 1.8 percent of the sustainable diversion limit for the Gunnedah Oxley Basin. For the Namoi Alluvium and Pilliga Sandstone aquifers, extraction is estimated to be less than 1 percent of their sustainable diversion limit. DPIE and the WEP considered that there is adequate water available in the market for this take to be accommodated.
43. The Department noted that sustainable diversion limits are set by NSW water sharing plans and restrict how much water can be extracted by the proponent through licenses.

44. The NSW assessment report states that the groundwater extracted from the Gunnedah Oxley Basin is predicted to be replenished by downward induced flows from overlying aquifers over a period of approximately 1,500 years.
45. DPIE and the WEP concluded that the predicted groundwater take is low relative to long term annual extraction limits for the high value aquifers. The IPC accepted this finding.
46. The IPC noted that the NSW Environment Protection Authority (**EPA**), IESC and WEP all found the proponent's groundwater model fit for purpose. The Department considered that, while the risks and impacts associated with groundwater drawdown were generally well understood, there were still inherent uncertainties with modelling outcomes.
47. To reduce these uncertainties, the WEP and IESC made several recommendations to improve the groundwater model. These were reflected in the NSW conditions of consent and include:
 - consideration of the impact of GAB pressure levels from Great Artesian Basin Sustainability Initiative (GABSI) programs;
 - developing a transient groundwater flow model and regularly updating the new model;
 - obtaining and using additional data to improve parameterisation and model verification;
 - improving confidence in the model through regular updates based on monitoring data.
48. The WEP accepted the groundwater modelling and concluded that appropriate conditions, together with adaptive management and regulation could be applied to the development to successfully manage risks associated with geological uncertainties. The IPC also agreed.

Geology

49. The IPC report noted that information gaps exist relating to the local geology. These related particularly to the deeper stratigraphic layers and create uncertainties in how water resources will react to CSG development, especially at a local scale where depressurisation may affect overlying shallow aquifers.
50. The WEP considered that while smaller scale geological fault structures (fractures in the rock) could have a significant local impact on groundwater resources, faulting is unlikely to constitute a major risk. Therefore, the proposed action would be unlikely to have a major impact on groundwater flow. The IPC acknowledged that more knowledge could ultimately be obtained, and it accepted the views and advice of the WEP.

Groundwater contamination

51. While the WEP considered that there is potential for cross contamination of aquifers due to geological faults or well integrity failure, the WEP noted that this risk would be reduced due to depressurisation of the coal seams. This would prevent upward movement of saline deep-groundwater to the high value aquifers. The IPC accepted

this and concluded that the risk of methane migration into overlying aquifers was also low.

52. The WEP considered that the risk of groundwater contamination could be adequately managed. Further, provided that the gas wells would be constructed according to the NSW Code of Practice for Coal Seam Gas Well Integrity, the WEP considered that significant subsurface migration of gases would be unlikely to occur. The IPC accepted this finding.

Groundwater dependent ecosystems (GDEs)

53. Several GDEs and potential GDEs occur in the region. Groundwater depressurisation and drawdown of the shallow aquifers that provide water to these GDEs could result in decreased water availability and adverse impacts to the health and structure of these ecological communities.
54. GDEs are protected under the NSW Aquifer Interference Policy (Aquifer Policy) and water sharing plans. Groundwater drawdown is predicted to be below the minimal harm criteria of the Aquifer Policy. DPIE were satisfied that compliance with the minimal harm criteria and policy would ensure the protection of any high-value GDEs in the proposed action area and protect from unacceptable cumulative impacts.
55. The Department noted that the minimal harm criteria of the Aquifer Policy would only apply to high-value GDEs as defined in the relevant water sharing plan, meaning that protection of all GDEs was not ensured.
56. The WEP considered that further studies needed to be undertaken to improve the groundwater model and allow early detection of impacts to GDEs. The Department's assessment, by the Office of Water Science and Water Resources Regulatory Support, supported this conclusion. As such, the Department recommended that I adopt additional conditions to address this, discussed below.

Avoidance and mitigation measures

57. The proponent proposed a number of avoidance and mitigation measures relevant to groundwater. These were incorporated into the NSW conditions. They included:
- The location of project infrastructure will be determined in the Field Development Protocol and as a result of further field surveys to micro-site infrastructure. Development and implementation of the protocol is a NSW condition of consent and restricts the placement of:
 - i. surface infrastructure within 200 m of Yarrie Lake;
 - ii. non-linear infrastructure near watercourses based on the stream order; and
 - iii. ponds and dams relative to the 100-year flood extent.
 - No hydraulic fracturing (fracking) will be undertaken.
 - The extraction of groundwater from aquifers not currently utilised by other users in the region will be capped at 37.5 GL over the life of the proposed action.
 - All well construction, maintenance and rehabilitation will be undertaken in accordance with the NSW Well Integrity Code, which contains provisions to

prevent interconnection of aquifers and gas leakage, ensure isolation of aquifers, and to not introduce substances that may cause environmental harm.

- Lined pits will be used during drilling. Drilling fluids and cuttings that cannot be beneficially reused on site will be removed.
- A groundwater monitoring network and Water Management Plan will be implemented.
- Produced water will be treated via reverse osmosis to meet or exceed either Australian drinking water, irrigation or stock watering guidelines.
- Discharges to Bohena Creek will be managed and occur only under appropriate flow conditions where beneficial reuse is not available.
- Water and gas gathering lines below ground will be installed with leak detection units.
- Incident protocols will be established that include the option of well shutdown should an incident occur.
- If impacts exceed those predicted for the base case scenario, mitigation measures including water monitoring plans and the implementation of make good protocols in accordance with the Aquifer Policy are proposed.

NSW conditions

58. The WEP did not identify any land or water issues that were considered likely to result in significant impacts to the environment or people which could not be managed.
59. The IPC was also satisfied that potential groundwater impacts could be effectively managed through conditions, and accepted DPIE's recommended conditions. The IPC also imposed additional conditions to increase the transparency of the development's operations, improve groundwater modelling and data acquisition, increase expert involvement and strengthen protective measures for affected stakeholders, including the environment.
60. The NSW conditions include the following:
 - **NSW conditions A15-A17** relate to limits on groundwater extraction, ensure gas well integrity in accordance with relevant industry codes of practice and Australian standards, and prohibit fracking.
 - **NSW conditions B27-B35 and B37-B42** relate to:
 - i. limits on groundwater take;
 - ii. compensatory water supply measures for affected landholders;
 - iii. compliance with water management performance measures to minimise impacts to water resources and associated users. Table 7 of the NSW conditions requires compliance with the water management performance measures identified for:
 - general water management;
 - Namoi alluvial aquifers and Great Artesian Basin aquifers;

- Gunnedah Oxley Basin aquifers;
 - riparian and aquatic ecosystems;
 - well integrity;
 - produced water management;
 - irrigation and beneficial reuse management;
 - Bohena Creek water discharge;
 - salt management; and
 - chemical and hydrocarbon storage.
- iv. the establishment of a Water Technical Advisory Group;
- v. updating the groundwater model for the development;
- vi. preventing the proponent from commencing Phase 2 (development of the gas field) if the updated groundwater model predicts any exceedance of the water management performance measures in Table 7; and
- vii. implementation of a Water Management Plan to ensure compliance with the water management performance measures in Table 7. The Water Management Plan includes the following sub-plans that outline monitoring, management, reporting and mitigation:
- Erosion and Sediment Control Plan;
 - Site Water Balance;
 - Surface Water Management Plan;
 - Groundwater Management Plan
 - Produced Water Management Plan;
 - Irrigation Management Plan;
 - Dust Suppression Protocol;
 - Management Release Protocol;
 - Salt Management Plan;
 - Pollution Incident Response Management Plan; and
 - a protocol to report on measures, monitoring results and performance criteria as identified in these reports in the Annual Review.

EPBC Act conditions

61. The Department accepted the NSW assessment of groundwater impacts and noted that the avoidance and mitigation measures would contribute to the protection of water resources and users.

62. I accepted the Department's advice that I require the proponent to comply with NSW conditions A15-17, B27-B35 and B37-42. I was satisfied that these conditions are necessary and convenient to ensure the protection of water resources.
63. The Department also recommended that I impose additional conditions to the approval to ensure there are no significant adverse effects on water resources and ensure appropriate management and mitigation of any potential impacts, by providing an early warning of any such impacts.
64. The additional conditions set evidence-based cease-work limits and establish clear protocols and consequences if those limits are exceeded.
- The approval holder is required to establish an early-warning monitoring system in the Napperby Sandstone and the Digby Formation. This network will be used to detect potential impacts to the productive shallow aquifers and GDEs prior to impacts being realised.
 - The approval holder must undertake groundwater monitoring and modelling in accordance with NSW conditions. Particular hydrogeological strata must be monitored. Both the monitoring and modelling are early-warning systems of potential impacts, before any impacts in productive aquifers are realised.
 - The Department, or I, will become involved if there is an actual incident of non-compliance of groundwater performance measures specified in the NSW conditions, or the groundwater model predicts an exceedance of performance measures.
 - In such instances, the approval holder must report the incident, implement mitigation measures as per NSW conditions, and undertake mitigation and/or corrective actions. This gives the approval holder an opportunity to, over a period of six months, investigate the incident, run further models, and determine whether the incident will actually have an adverse impact on protected matters.
 - If those mitigation and/or corrective actions still do not achieve the desired environmental outcomes (i.e. there is non-compliance or a predicted exceedance), or I determine that the desired outcomes cannot or will not be achieved, the approval holder must undertake site-specific assessments to derive a scientifically-robust cease-work limit within a three month period. This limit will be based on the approval holder's own updated modelling and monitoring data. I may set an interim cease-work limit if not satisfied that the approval holder's limit will achieve the desired environmental outcomes.
 - The approval holder must automatically cease groundwater extraction at any gas wells identified as contributing to the exceedance of the cease-work limit and implement corrective actions. Gas extraction from those gas wells cannot recommence without my approval.
65. I was satisfied that these conditions were necessary and convenient to ensure the protection of water resources. I was also satisfied that the proposed action would be unlikely to have significant groundwater impacts, if carried out in accordance with the relevant conditions.

Surface water / produced water

Overview

66. The proposed action is located within the Namoi River catchment, which is part of the Murray Darling Basin. Creeks draining the area include Bohena, Jacks, Bundock and Mollee creeks, which are ephemeral.
67. Bohena Creek is the main watercourse in the proposed action area. Bohena Creek flows in a northerly direction joining the Namoi River approximately 10 km north of the proposed action area. It flows only following heavy rainfall events but can contribute significant flood inflows during prolonged wet conditions. Water quality is generally fresh with neutral pH.
68. Surface water extracted from the Namoi River is an important water supply for farmers in the Narrabri region.
69. The NSW assessment report noted that the WEP reviewed Santos' proposed produced water treatment system in detail and was satisfied that the system represented best current international practice. The WEP was also satisfied that risks could be appropriately managed, allowing for treated water to be beneficially reused or released to Bohena Creek without any significant adverse impacts.
70. The water treatment system would produce general solid waste in the form of salt. Around 35,000 tonnes of salt per year would be produced, which could be disposed of at a licensed waste facility. Santos committed to investigating beneficial reuse options for the salt produced.
71. The proposed action could also cause potential impacts through contamination / impacts on surface water and land resources, such as surface spills and leaks, and via irrigation and/or discharge of treated water.
72. The WEP and NSW Government considered potential impacts to surface water / produced water, and found that the risks could be effectively managed. The WEP and NSW Government were satisfied that harm to humans and the environment would be low.

Impacts

73. Impacts to surface water from the proposed action could include changes to the flow regime and water quality in Bohena Creek due to controlled or uncontrolled discharges of treated or untreated produced water. Spills and leaks of stored produced water could also impact water quality within Bohena Creek.

Avoidance and mitigation measures

74. The EIS included a range of monitoring systems in wells and storage ponds to enable the rapid detection and rectification of spills and leaks. These included continuous pressure monitoring of produced water gathering lines and leak detection and monitoring bores for produced water ponds. The EIS concluded that, with these systems in place, any spills would remain localised and unlikely to be significant spill events.
75. Treated produced water is proposed to be beneficially reused for irrigation and stock watering, dust suppression, construction and drilling. Discharge to Bohena Creek will be managed, and only occur when beneficial reuse options are unavailable.

76. Produced water infrastructure at the Leewood and Bibblewindi facilities would be constructed according to applicable Australian standards and codes.
77. A Produced Water Management Plan would be implemented, including a Trigger Action Response Plan and Pollution Incident Response Management Plan.
78. Saline water from the treatment process will be crystallised to a solid product for disposal at a licensed offsite landfill.

NSW conditions

79. The IPC was satisfied that potential surface water impacts can be effectively managed through conditions. The IPC accepted DPIE's recommended conditions.
80. The NSW conditions relevant to protecting surface water resources include:
 - **Condition B26** relates to the installation and maintenance of suitable erosion and sediment control measures in accordance with state guidance.
 - **Condition B36** requires surface water discharges to comply with relevant environmental protection licence limits and the *Protection of the Environment Operations Act 1997* (NSW).
 - **Conditions B37, B38, B41 and B42** require:
 - i. compliance with water management performance measures to minimise impacts to water resources and associated users, including for produced water and salt management and Bohena Creek water discharge.
 - ii. the establishment of a Water Technical Advisory Group;
 - iii. implementation of a Water Management Plan to ensure compliance with the water management performance measures in Table 7. The Water Management Plan includes sub-plans that outline monitoring, management, reporting and mitigation, and a protocol to report on measures, monitoring results and performance criteria as identified in these reports in annual reporting.
 - **Conditions B67-B71** relate to the effective management of waste, including produced water.
81. The Department noted that several of the performance measures outlined in the NSW conditions specify 'negligible impacts' or 'negligible changes'. The Department considered that these are not easily quantifiable and will rely on the development of triggers and limits for suitable variables that can be measured in the field. However, the Department noted that more detailed measures will be established through the Water Management Plan required by NSW condition B41.
82. The WEP considered that the measures for spill management were appropriate and impacts from spills unlikely. The IPC accepted this finding. The WEP also considered that constituents of potential concern and other possible contaminants could be effectively treated with the proposed osmosis treatment facility. The system represented best current international practice and was adaptable to address risks.

83. The WEP concluded that treated water discharges would be unlikely to have adverse impacts to humans and the environment. The Department agreed with this conclusion.

EPBC Act conditions

84. I accepted the NSW assessment of surface water impacts and found that the avoidance and mitigation measures contributed to protecting water resources and users.
85. I accepted the Department's advice that most impacts to surface water could be effectively managed through the NSW conditions. I was satisfied that it was appropriate that I impose conditions requiring the proponent to comply with conditions B26, B36, B37, B41, B42 and B67-71 of the NSW conditions.
86. The Department recommended that I impose additional conditions to protect surface water resources from contamination by CSG drilling fluid chemicals. I was satisfied that these conditions were necessary and convenient to manage potential impacts of chemicals to surface water. These conditions are discussed in more detail below at [97]-[100].

Waste management / chemicals / salt management

Overview

87. The EIS states that approximately 400,000 m³ of rock-based drill cuttings and 720,000 m³ of coal-based drill cuttings will be generated by the proposed action. The coal-based drill cutting will require off-site disposal.
88. The EIS predicts that approximately 430,500 tonnes of salt will be produced over the life of the proposed action. However, the WEP considers up to 850,000 tonnes could be produced and the IPC indicates that 840,000 tonnes of crystallised salt and 178,000 m³ of drilling fluid will be generated.

Impacts and NSW conclusions

89. Waste and salt generated by the proposed action and chemicals used for drilling the gas wells have the potential to contaminate groundwater and surface water resources if these are not adequately stored and disposed of, or if storage facilities leak.
90. The WEP concluded that salt waste would be low in heavy metals and other pollutants meaning it is likely to be able to be classified as general solid waste and could be disposed of at licensed waste facilities.
91. The WEP considered that hazards and risks to land and water resources are similar to those posed from other large industrial facilities. The measures in place for spill management were found to be appropriate. While spills could have a significant localised impact, the WEP considered that significant impacts to regional water resources would be unlikely given the potential low spill volume and composition.

Avoidance and mitigation measures

92. To avoid and minimise spills, leaks or uncontrolled discharges from surface facilities, key infrastructure will be designed to comply with best practice and codes of practice. In addition, a Trigger Action Response Plan, Produced Water Management Plan,

Pollution Incident Response Management Plan, Irrigation Management Plan and Dam Safety Emergency Plan will be prepared and implemented to manage any risks.

93. Proposed drilling fluids will be water-based with non-hazardous constituents and would meet drinking water guidelines for benzene, toluene, ethylbenzene and xylene (BTEX) compounds.
94. The proponent proposed to temporarily store salt onsite in a weather-proof structure before off-site disposal at an appropriately licenced waste facility. As noted above, the salt waste was also considered by the WEP to have potential for beneficial reuse and the proponent agreed to consider reuse options.

NSW conditions

95. The NSW conditions relevant to protecting water resources from chemicals and waste are outlined below.
 - **Condition A17** prohibits hydraulic fracturing of the coal seams in the proposed action area at any time.
 - **Conditions B37, B38, B41 and B42** require:
 - i. compliance with water management performance measures to minimise impacts to water resources and associated users, including for produced water and salt management and chemical and hydrocarbon storage;
 - ii. the establishment of a Water Technical Advisory Group;
 - iii. implementation of a Water Management Plan to ensure compliance with the water management performance measures in Table 7. The Water Management Plan includes sub-plans that outline monitoring, management, reporting and mitigation, and a protocol to report on measures, monitoring results and performance criteria as identified in these reports in the Annual Review.
 - **Conditions B67-B71** relate to the effective management, reuse and disposal of waste, including produced water, drilling-related waste, salt and chemicals. The conditions require agreements with appropriately licensed waste facilities to be in place prior to Phase 1 (exploration and appraisal activities) commencing.
96. The IPC noted that the lead environmental pollution regulator in NSW, the EPA, was satisfied that the conditions were reasonable and enforceable and would address and mitigate any potential impacts.

EPBC Act conditions

97. I accepted the Department's advice that the disposal of produced water and salt waste would be satisfactorily managed through the NSW conditions. I was satisfied that it was necessary and convenient that I impose conditions requiring the proponent to comply with conditions A17, B37, B38, B41, B42 and B67-B71 of the NSW conditions to manage the impacts to water resources from chemicals and waste.
98. However, I noted that the IESC concerns relating to the need for rigorous and transparent assessment of the hazards and risks posed by the drilling chemicals were not fully addressed in the NSW conditions.

- Conditions B67-71 of the NSW conditions provide for the management of the chemicals used at the proposed action site once they become a waste stream, but not prior to this.
- Additionally, the hazards and risks of chemical used during CSG operations are not clearly addressed and managed considering site-specific factors such as the volumes and concentrations of chemicals used.

99. I therefore accepted the Department's recommendation to impose additional conditions addressing the IESC concerns. The Department recommended conditions focussed on a risk-based assessment framework for all chemicals used for the proposed action (specifically drilling chemicals) to prevent significant adverse impacts to water resources. The Department outlined these conditions as follows:

- The approval of the chemical risk assessment framework by the Department will ensure that the proponent must undertake an assessment of all drilling chemicals before use, appropriate to the nature of the chemical, and outlines a process to undertake purpose-specific assessments to identify high risk chemicals and provide further information on mitigation and management required to prevent impacts to water resources.
- The framework will outline how the purpose-specific assessments for chemicals will be provided to the Department before use. Assessment of low risk chemicals do not require approval by the Minister but must be peer reviewed and endorsed by an independent chemical expert. Assessment of high risk chemicals, including specific mitigation and management, will require Ministerial approval before the chemical can be used.
- The framework will also outline procedures for registering assessed chemicals before use; monitoring and reporting of ongoing chemical use; and incident response actions for accidental spills to provide assurance to the Department that impacts to water resources are being managed in a manner that ensures the risk to water resources is low.
- The approval holder must maintain a register of all assessed chemicals used for drilling and undertake a 5-year review of assessed chemical to ensure adaptive management.

100. I was satisfied that these conditions were necessary and convenient to manage potential impacts to water resources.

Conclusion on impacts on water resources (s 24D and s 24E)

101. On the basis of the above, I was satisfied that the proposed action would not have unacceptable impacts on water resources, provided it is carried out in accordance with the relevant conditions. I approved the proposed action for the purposes of ss 24D and 24E of the EPBC Act.

Matters relevant to listed threatened species and ecological communities

Listed threatened species and communities

Species impacted

102. The Department's Environmental Reporting Tool (ERT), dated 14 October 2020, identified 28 threatened species and 7 ecological communities that may occur within 10 km of the proposed action area.
103. Based on the location of the action, the likely habitat present in the proposed action area, and the findings of the NSW assessment process, the proposed action is likely to have a significant impact on the below:
 - i. Fauna:
 1. Koala (combined populations of Qld, NSW and the ACT) (*Phascolarctos cinereus*) – vulnerable
 2. Pilliga Mouse (*Pseudomys pilligaensis*) – vulnerable
 3. South-eastern Long-eared Bat (*Nyctophilus corbeni*) – vulnerable
 4. Superb Parrot (*Polytelis swainsonii*) – vulnerable
 5. Regent Honeyeater (*Anthochaera phrygia*) – endangered
 6. Spotted-tail Quoll (*Dasyurus maculatus maculatus*) – endangered
 7. Swift Parrot (*Lathamus discolor*) – endangered
 - ii. Flora
 1. *Androcalva procumbens* – vulnerable
 2. *Bertya oppositifolia* – vulnerable
 3. Spiny Pepper-creep (*Lepidium aschersonii*) – vulnerable
 4. *Tylophora linearis* – endangered
 5. Winged Pepper-creep (*Lepidium monophloeoides*) – endangered
 - iii. Ecological community
 1. Brigalow (*Acacia harpophylla* dominant and co-dominant) – endangered
104. I am aware that some of these species have undergone a change in listing status since the controlled action decision in 2014. In particular, the Regent Honeyeater was up-listed to critically endangered, effective 8 July 2015, and the Swift Parrot was up-listed to critically endangered, effective 5 May 2016. In accordance with section 158A of the EPBC Act, as these listing events occurred after the controlled action decision was made under section 75, I have disregarded these listing events for present purposes.
105. **Impact of 2019/20 bushfires:** Due to the extent of the 2019/20 bushfires, the Department appointed a wildlife and threatened species bushfire recovery expert panel to assist in prioritising recovery actions for impacted native species and ecological communities. This included a provisional list of species and communities requiring urgent management intervention to support their protection and recovery:

- Commonwealth-listed species and communities that occur on the provisional list that will also be impacted by the proposed action include Koala, Regent Honeyeater, and Spotted-tail Quoll.
- Mapping available to the Department showed that only a small amount of the Narrabri LGA was burnt, almost entirely within the Mount Kaputar National Park, around 30 km from the proposed action area.
- While the Narrabri region was not impacted by the 2019/20 fires, the Department's advice to me has considered bushfire impacts at a local, regional and national scale for the relevant species. These are discussed below.

106. The NSW assessment report notes that the upper clearing limits identified for listed threatened species and ecological communities are conservative estimates and are likely to be reduced through pre-clearance measures. As such, the NSW conditions of consent require the proponent to retire¹ 70 percent of the biodiversity offset liability prior to commencement of Phase 2 (the development of project infrastructure) and to retire the residual offset liability only if further clearing is required. This is to provide the proponent with an incentive to reduce vegetation clearing and habitat removal during the detailed design of the proposed action. I accepted the Department's recommendation that I adopt this approach in applying conditions to this approval.

Koala

Species information

107. The Koala is a medium-sized, arboreal marsupial endemic to Australia. Koalas inhabit a range of temperate, sub-tropical and tropical forest and woodland dominated by eucalypt species, and their habitat can be broadly defined as any forest or woodland containing Koala food trees².
108. The Koala was listed as vulnerable under the EPBC Act in 2012 due to the substantial decline of the combined populations of Queensland, NSW and the ACT.
109. SPRAT states that the Koala population experienced a 33 percent decline between 1990 and 2010 and is continuing to decline³. The approved conservation advice for the Koala identifies loss and fragmentation of habitat as key threats to the species. Drought and incidences of extreme heat are also known to cause significant mortality.²

¹ The retirement of offset credits must be carried out in accordance with the requirements of the NSW Development Consent, 30 September 2020. Options to retire credits include land-based offsets, payment into the Biodiversity Conservation Fund and/or retiring credits through Ancillary Rules for biodiversity conservation actions. The approval holder may also retire ecosystem or species credits using rehabilitated land, if specific criteria outlined in the NSW Development Consent is met.

² Department of Sustainability, Environment, Water, Population and Communities, 2012, *Approved Conservation Advice for Phascolarctos cinereus (combined populations in Queensland, New South Wales and the Australian Capital Territory)*, Canberra

³ Department of Agriculture, Water and the Environment, 2020, Koala (combined populations of Qld, NSW and the ACT) (*Phascolarctos cinereus*) SPRAT Profile [website], http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104

110. Substantial areas of Koala habitat across the east coast were burnt during the 2019/20 summer bushfires and the species is on the Department's provisional list of species requiring urgent management intervention.⁴
111. Having had regard to the aims and management actions outlined in the Department's technical report on the bushfires,⁵ I noted that the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of habitat. That being said, the Department advised that management actions discussed below such as the management of feral predators, will contribute to identified priority actions in the report.
112. The Department further advised that, at a local level, aside from a small patch of low to moderately burnt vegetation within the proposed action area, the closest impacts of the main fires are approximately 30 km away from the proposed action. Regionally and nationally, the fires were more severe in other areas of eastern Australia and, as a result, has reduced overall habitat for the Koala as a whole. Given the proposed offset measures, the Department considers that the extent of the impact of the bushfires does not require additional avoidance, mitigation or offset measures, even in light of the decline in koala habitat following the bushfires.

Impacts

113. No individuals were recorded within the proposed action area during surveys undertaken for the proposed action. However, the species is considered likely to occur in the proposed action area due to the availability of suitable habitat and the species' known occurrence in the Pilliga and surrounding areas.
114. The NSW Assessment report states that up to 989 ha of habitat for the species would be directly impacted (cleared) by the proposed action, while a further 181.1 ha would be indirectly impacted by habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
115. Santos considered that the habitat within the proposed action area constitutes habitat critical to the survival of the species in accordance with the Department's EPBC Act referral guidelines for the vulnerable Koala. However, it stated that the impact is unlikely to be significant as the Koala was not recorded in the proposed action area and 98 percent of potential habitat within the proposed action area will not to be impacted.
116. DPIE disagreed with this conclusion and considered that impacts to the species are likely to be significant in accordance with the Department's *Matters of National Environmental Significance, Significant Impact Guidelines 1.1* (Significant Impact Guidelines).⁶

⁴ Department of Agriculture, Water and the Environment, 2020, *Provisional list of animals requiring urgent management intervention*, <https://www.environment.gov.au/system/files/pages/ef3f5ebd-faec-4c0c-9ea9-b7dfd9446cb1/files/provisional-list-animals-requiring-urgent-management-intervention-20032020.pdf>

⁵ Department of Agriculture, Water and the Environment, 2020, *Rapid analysis of impacts of the 2019-20 fires on animal species, and prioritization of species for management response*, <http://www.environment.gov.au/system/files/pages/ef3f5ebd-faec-4c0c-9ea9-b7dfd9446cb1/files/assessments-species-vulnerability-fire-impacts-14032020.pdf>

⁶ Department of the Environment, 2013, *Matters of National Environmental Significance, Significant Impact Guidelines 1.1*, http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf

117. The Department's analysis, which I accepted, concurred that direct impacts of up to 989 ha of Koala habitat, and indirect impacts to a further 181.11 ha, as a result of the proposed action are likely to be significant as the proposed action is likely to adversely affect habitat critical to the survival of the species.

Avoidance and mitigation

118. The NSW conditions require the proponent to prepare and implement:
- a Field Development Protocol (**FDP**) to avoid, mitigate or manage environmental impacts during the planning, design and construction phases of the proposed action, including through surveys to inform micro-siting of wells and other infrastructure.
 - A Biodiversity Management Plan (**BMP**), including best-practice pre-clearance controls, weed and pest management, and measures to enhance the quality of habitat and vegetation connectivity within the proposed action area.
 - A Rehabilitation Management Plan (**RMP**) that addresses all aspects of rehabilitation including progressive rehabilitation and final closure, which would be approved by the NSW Resources Regulator.
119. The areas of direct and indirect impact to Koala are conservative estimates that will be refined through further on-ground surveys pre-construction, as required by these plans and protocol.
120. The NSW conditions also require that a Biodiversity Advisory Group of biodiversity experts must be established to advise on the implementation of the FDP and BMP.
121. The Department advised that these measures are suitable and necessary to reduce impacts to the Koala and remaining habitat. The Department will be consulted during the development of the BMP and was satisfied that the expertise and oversight that will be provided by the Biodiversity Advisory Group, including the NSW Biodiversity and Conservation Division (BCD), provides suitable assurance that mitigation and management measures will be implemented thoroughly and in accordance with the NSW conditions, to minimise impacts to MNES.
122. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

123. Despite the proposed avoidance and mitigation measures, the direct clearance of 989 ha of habitat for the Koala will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
124. The NSW Government has confirmed that the proponent has calculated the offset liability for the Koala in accordance with the NSW Biodiversity Offsets Policy for Major Projects (Major Projects Offset Policy) and underlying Framework for Biodiversity Assessment (FBA), which have been endorsed by the Commonwealth.
125. The offset liability for the Koala is 30,454 species credits. The NSW conditions require the proponent to retire:

- 70 percent of species credits (22,005) to compensate for the clearance of 692 ha of Koala habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (8,449) based on any exceedance of the 692 ha of clearance.
 - The species credits through land-based offsets where possible.
126. The NSW assessment report states that Santos has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy⁷.
127. Santos has also proposed a Koala research proposal which includes targeted surveys for Koala across 500,000 ha of the Pilliga Forest and modelling of density estimates. The NSW conditions of consent require that this research program is designed to determine the location and size of remnant Koala populations in the Pilliga Forest, and to guide adaptive management of the species' population in the proposed action area and land-based offset areas.
128. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

129. I considered the approved conservation advice for the Koala.⁸
130. The key threatening processes for this species are loss and fragmentation of habitat, vehicle strike, disease, and predation by dogs.
131. Key actions recommended in the conservation advice include implementing protocols to prevent loss of important habitat, populations or connectivity options, mitigating vehicle strike where development occurs, monitoring progress of recovery and management actions, identifying populations of high conservation priority and engaging with private landholders to contribute to implementation of conservation management actions.
132. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Conclusion

133. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Koala.

⁷ Department of Sustainability, Environment, Water, Population and Communities, 2012, *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Commonwealth of Australia, Canberra

⁸ Department of Sustainability, Environment, Water, Population and Communities (2012), *Approved Conservation Advice for Phascolarctos cinereus (combined populations in Queensland, New South Wales and the Australian Capital Territory)*. Canberra: Department of Sustainability, Environment, Water, Population and Communities. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/197-conservation-advice.pdf>.

Pilliga Mouse

Species information

134. The Pilliga Mouse is a small rodent known only to occur in the Pilliga region. It inhabits mixed *Eucalyptus*, *Acacia*, and *Callitris* open forests on sandy soil and sandstone ridges, with a preference for sparse understorey vegetation. It is a terrestrial species and lives in burrows.⁹

Impacts

135. There are existing records of the species within the proposed action area. The EIS confirms that the species is known to occur in the area.
136. The MNES report states that 889.3 ha of habitat for the species will be directly impacted (cleared) by the proposed action and a further 162.9 ha would be subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
137. The EIS states that the proposed action will impact habitat critical to the survival of the species necessary for foraging, breeding and dispersal. However, it also states that the species is unlikely to be significantly impacted by the proposed action as 98 percent of the habitat within the proposed action area would not be impacted, the removal of habitat would not isolate remaining patches of suitable habitat, and it is unlikely that the proposed action would introduce invasive species or disease likely to threaten the species.
138. DPIE disagreed with this conclusion and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines, as the proposed action is likely to adversely affect habitat critical to the survival of the species.
139. The Department's analysis, which I accepted, concurred with the NSW assessment that direct impacts to up to 889.3 ha of Pilliga Mouse habitat and indirect impacts to a further 162.9 ha are likely to be significant.

Avoidance and mitigation

140. The measures set out in paragraph [118] above are relevant to the Pilliga Mouse. The Department advised that these measures are suitable and necessary to reduce impacts to the Pilliga Mouse and remaining habitat. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

141. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 889.3 ha of habitat for the Pilliga Mouse will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.

⁹ Department of Agriculture, Water and the Environment, 2020, *Pseudomys pilligaensis – Pilliga Mouse, Poolkoo SPRAT Profile* [website], http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=99

142. The NSW Government has confirmed that the proponent has calculated the offset liability for the Pilliga Mouse in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
143. The offset liability for the Pilliga Mouse is 62,533 ecosystem credits. The NSW conditions require the proponent to retire:
- 70 percent of ecosystem credits (43,773) to compensate for the clearance of 622.5 ha of Pilliga Mouse habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual ecosystem credits (18,760) based on any exceedance of the 622.5 ha of clearance.
 - The ecosystem credits through land-based offsets where possible.
144. The NSW assessment report states that Santos demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.⁷
145. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

146. I considered the approved conservation advice for the Pilliga Mouse.¹⁰
147. The approved conservation advice for the Pilliga Mouse identifies key threats to the species as loss or degradation of habitat through inappropriate fire regimes or forestry operations, predation by feral cats and foxes, and competition with other species.
148. The conservation advice also notes that priority actions for the species include the prevention of clearing habitat, monitoring, control and eradication of feral predators and competitors and investigating formal conservation arrangements.
149. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Threat abatement plans

150. The Department advised that the following threat abatement plans were relevant to the Pilliga mouse:
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs
 - Threat abatement plan for predation by feral cats
 - Threat abatement plan for predation by the European red fox.

¹⁰ Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Pseudomys pilligaensis (Pilliga Mouse)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/99-conservation-advice.pdf>.

151. I noted that the relevant area is not identified as a priority area for any of these threat abatement plans. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increased feral animal activity and instead may assist with the management of these species.
152. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with any threat abatement plans relevant to the proposed action.

Conclusion

153. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Pilliga Mouse.

South-eastern Long-eared Bat

Species information

154. The South-eastern Long-eared Bat is a relatively large, solid bat with a broad, robust skull, long ears and light to dark brown fur. It is found in central Queensland, central western NSW, north-western Victoria and eastern South Australia, with a patchy distribution. Most records are from inland of the Great Dividing Range.¹¹
155. The conservation advice for the species states that the South-eastern Long-eared Bat occurs throughout much of inland NSW, with at least 50 percent of the species' distribution occurring in that state.
156. Habitat for the species includes inland woodland vegetation types, such as box, ironbark and cypress pine woodlands and various types of tree mallee. The conservation advice also states that the Pilliga scrub region is a distinct stronghold for the species.
157. A key threat to the species is habitat loss and fragmentation, as identified in both the Department's Action Plan for Australian Bats and the CSIRO Action Plan for Australian Mammals. The conservation advice states that 75 percent of the eastern part of the species range has been cleared in NSW.
158. Agriculture has been a significant cause for the above land clearing, however extractive industries are increasingly targeting the remaining areas.

Impacts

159. The South-eastern Long-eared Bat is known to occur in the proposed action area. Eight individuals were recorded within the proposed action area during surveys for the proposed action, with an additional 20 records identified through a literature review.
160. The MNES report states that 885 ha of foraging and breeding habitat for the species would be directly impacted (cleared) by the proposed action, and an additional

¹¹ Threatened Species Scientific Committee, 2015, *Nyctophilus corbeni* – Corben's Long-eared Bat, South-eastern Long-eared Bat SPRAT Profile [website], http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=83395

175.4 ha would be subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.

161. Santos considers that the proposed action is likely to reduce the area of occupancy of an important population of the species as the proposed action is likely to result in the removal of occupied habitat, and is likely to adversely affect habitat critical to the survival of the species. However, it states that the proposed action is unlikely to have a significant impact on the South-eastern Long-eared Bat as 98 percent of the habitat within the proposed action area would not be impacted, the removal of habitat would not isolate remaining patches of suitable habitat, and it is unlikely that the proposed action would introduce invasive species or disease likely to threaten the species.
162. DPIE disagreed with this conclusion and considers that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines⁶.
163. The Department's analysis, which I accepted, concurred with the NSW assessment that direct impacts to 885 ha of South-eastern Long-eared Bat habitat, and further indirect impacts to 175.4 ha of habitat, are likely to be significant, as the proposed action is likely to adversely affect habitat critical to the survival of the species, and to reduce the area of occupancy of an important population of the species.

Avoidance and mitigation

164. The measures set out in paragraph [118] above are relevant to the South-eastern Long-eared Bat. The Department advised that these measures are suitable and necessary to reduce impacts to the South-eastern Long-eared Bat and remaining habitat. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

165. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 885 ha of habitat for the South-eastern Long-eared Bat will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
166. The NSW Government has confirmed that the proponent has calculated the offset liability for the South-eastern Long-eared Bat in accordance with the Major Projects Offset Policy and underlying FBA, which have been endorsed by the Commonwealth.
167. The offset liability for the South-eastern Long-eared Bat is 65,847 ecosystem credits. The NSW conditions require the proponent to retire:
 - 70 percent of ecosystem credits (46,093) to compensate for the clearance of 620 ha of South-eastern Long-eared Bat habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual ecosystem credits (19,754) based on any exceedance of the 620 ha of clearance.
168. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.

169. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

170. I considered the conservation advice for the South-eastern Long-eared Bat.¹²
171. Major threats to the species include habitat loss and fragmentation, fire and grazing, reduction in hollow availability, exposure to agrichemicals and predation by feral animals.
172. Priority recovery actions include conservation and management actions to prevent habitat loss, invasive species and impacts of domestic species and fire, stakeholder engagement, increased surveying and monitoring, and further research.
173. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Conclusion

174. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the South-eastern Long-eared Bat.

Superb Parrot

Species information

175. The Superb Parrot is a medium-sized parrot, with bright green plumage and a long tail, occurring only in south-eastern Australia¹³.
176. In NSW, it mostly occurs west of the Great Dividing Range, where it mainly inhabits the Riverina, the South-west Slope and Southern Tableland regions. Its range extends north to around Narrabri and Wee Waa in the North-west Plain Region, from a line joining Coonabarabran and Narrabri.
177. The species mainly inhabits forests and woodlands dominated by eucalypts, especially River Red Gums (*Eucalyptus camaldulensis*), and box eucalypts such as Yellow Box (*E. melliodora*) or Grey Box (*E. microcarpa*).

Impacts

178. No individuals were recorded in the proposed action area during surveys undertaken for the proposed action. However, the species is considered to potentially occur due to the availability of suitable habitat.
179. The MNES report states that up to 416.8 ha of Superb Parrot habitat will be directly impacted (cleared) by the proposed action, and an additional 82.02 ha would be

¹² Threatened Species Scientific Committee (2015). Conservation Advice *Nyctophilus corbeni* south-eastern long-eared bat. Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/83395-conservation_advice-01102015.pdf.

¹³ Department of Agriculture, Water and the Environment, 2020, *Polytelis swainsonii* – *Superb Parrot* SPRAT Profile [website], http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=738

subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.

180. The EIS states that potential foraging habitat for the species within the proposed action area aligns with the definition for habitat critical to the survival of the species described in the recovery plan. However, it states that the proposed action is unlikely to have a significant impact on Superb Parrot as over 98 percent of foraging habitat in the proposed action area would not be impacted, the removal of habitat within the area would not isolate patches such that movement could not occur between patches, and it is unlikely that invasive species or disease would be introduced as a threat to the species as a result of the proposed action. DPIE accepted this assessment in the MNES report.
181. Contrary to this, the Department's advice was that the most significant threat to the Superb Parrot is widespread clearing, degradation and fragmentation of breeding and foraging habitat throughout the species' range, including corridors of vegetation used for regular movements. The advice further states that the direct clearance of up to 416.8 ha of habitat is likely to have adverse impacts to the Superb Parrot. On that basis, I found that impacts to the species as a result of the proposed action are likely to be significant in accordance with the Significant Impact Guidelines, as the proposed action is likely to adversely affect habitat critical to the survival of the species.

Avoidance and mitigation

182. The measures set out in paragraph [118] above are relevant to the Superb Parrot. Although the NSW Government did not determine impacts to Superb Parrot as a result of the proposed action to be significant, the same avoidance and mitigation measures would apply to the Superb Parrot and its habitat within the proposed action area.
183. The Department advised that these measures are suitable and necessary to reduce impacts to the Superb Parrot and remaining habitat. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

184. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 416.8 ha of habitat for the Superb Parrot will likely result in a residual significant impact to the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
185. I noted that the NSW conditions do not require the proponent to provide offsets for the Superb Parrot. However, the Superb Parrot is an ecosystem credit species under the FBA and the offset liability will be met through the retirement of ecosystem credits required by the NSW conditions.
186. The offset liability for the Superb Parrot is 31,233.6 ecosystem credits. The Department recommended that I attach conditions to the approval of the proposed action to require the proponent to retire:
 - 70 percent of ecosystem credits (22,984.1) to compensate for the clearance of 291.8 ha of Superb Parrot habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.

- Residual ecosystem credits (8,249.5) based on any exceedance of the 291.8 ha of clearance.
 - The ecosystem credits through land-based offsets where possible.
187. The NSW assessment report states that Santos has demonstrated that suitable sites with like-for-like offsets are likely to be available, based on PCTs associated with Superb Parrot, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
188. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

189. I considered the approved conservation advice for the Superb Parrot.¹⁴
190. The conservation advice for the Superb Parrot identifies key threats to the species as loss and degradation of habitat, competition for nesting hollows, road kills, climate change, disease, and illegal removal of wild birds.
191. Priority management actions identified in the approved conservation advice include revegetation of critical breaks in flight corridors, reducing firewood collection from areas occupied by the species and encouraging private landholders to engage in regeneration and ecological management of existing / potential nest trees and foraging trees.
192. The Department advised, and I accepted, that while there are no priority management actions identified in the advice relevant to the proposed action, the NSW conditions require the proponent to undertake mitigation measures in accordance with the conservation advice.

National recovery plan

193. I considered the national recovery plan for the Superb Parrot.¹⁵
194. In addition to the key threats identified in the conservation advice, the recovery plan identifies major threats to include irrigation and regulated flows and firewood collection and timber production.
195. The overall strategy for recovery detailed in the recovery plan focuses on locating and protecting nest colonies, improving habitat quality, controlling recreational impacts near nesting colonies and preventing illegal trapping, and reducing road kills.
196. Of particular relevance to the proposed action is the impact of habitat loss and degradation. Relevant recovery actions are the improvement of foraging habitat quality and involvement of the community in the recovery program.

¹⁴ Threatened Species Scientific Committee (2016). *Conservation Advice* *Polytelis swainsonii superb parrot*. Canberra: Department of the Environment. Available from:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/738-conservation-advice-05052016.pdf>.

¹⁵ Baker-Gabb, D. (2011). *National Recovery Plan for the Superb Parrot* *Polytelis swainsonii*. Department of Sustainability and Environment, Melbourne. Available from:

<http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-superb-parrot-polytelis-swainsonii>.

197. The Department noted that, while the proposed action would result in the loss and degradation of habitat for the Superb Parrot, proposed avoidance and mitigation measures and recommended conditions, including offsetting measures, would contribute to the improvement of foraging habitat quality, and provide opportunities for community involvement in the recovery of the species. In particular:

- Condition 25 requires the proponent to comply with NSW condition B43 which sets an upper limit on clearing of habitat for the species at 416.8 ha. The proponent is also required to comply with NSW conditions B49-B52 which require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan.
- Conditions 26 and 27 require the proponent to provide like-for-like offsets to compensate for impacts to the species, in accordance with NSW policies and legislation.

198. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Conclusion

199. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Superb Parrot.

Regent Honeyeater

Species information

200. The Regent Honeyeater is a striking black and yellow bird with a patchy distribution between south-east Queensland and central Victoria. It primarily occurs in box-ironbark woodland, but also occurs in other forest type. The species primarily feeds on nectar, and to a lesser extent, insects. It mainly feeds on nectar from eucalypt species and mistletoes, and it prefers taller and larger diameter trees for foraging.¹⁶

201. Substantial areas of Regent Honeyeater habitat across the east coast were burnt during the 2019/20 summer bushfires and the species is on the Department's provisional list of species requiring urgent management intervention.

202. The Department advised that the proposed action area is not considered a priority area in the Department's technical report on the bushfires, as it is not adjacent to largely burnt areas of habitat. The Department considered that management actions discussed below such as the management of feral predators, will contribute to identified priority actions in the report.

203. The Department advised that, at a local level, aside from a small patch of low to moderately burnt vegetation within the proposed action area, the closest impacts of the main fires are approximately 30 km away from the proposed action. The Department noted that regionally and nationally the fires were more severe in other areas of eastern Australia, and, as a result, had reduced overall habitat for the Regent Honeyeater as a whole. However, given the proposed offset measures, the

¹⁶ Department of Agriculture, Water and the Environment, 2020, *Anthochaera phyrgia – Regent Honeyeater SPRAT profile* [website], http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82338

Department considered that the extent of the impact of the bushfires was not sufficient to justify additional avoidance, mitigation or offset measures, even in light of the decline in Regent Honeyeater habitat following the bushfires. On this basis, I agreed that the existing avoidance, mitigation and offset measures were sufficient.

Impacts

204. No individuals were recorded in the proposed action area during surveys undertaken for the proposed action. However, due to the availability of potential habitat, and scattered records of the species in the proposed area, the species is considered to potentially occur.
205. The EIS stated that up to 796.8 ha of foraging habitat for the species would be removed as a result of the proposed action with an additional 157.8 ha subject to indirect impacts. Following consultation with BCD, this estimate was revised as BCD advised that some areas of potential habitat identified are not associated with the species. Up to 48 ha of foraging habitat will be directly impacted (cleared) as a result of the proposed action and a further 9.5 ha of foraging habitat will be subject to indirect impacts. Indirect impacts include habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
206. The proponent considered that the proposed action would be unlikely to have a significant impact on the Regent Honeyeater as the species is not considered to use habitat in the proposed action area as a reliable foraging resource, 98 percent of potential foraging habitat in the area would not be impacted, and the nature and scale of habitat removal would not isolate patches such that movement could not occur between patches.
207. However, DPIE disagreed with that conclusion and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines. The Department agreed with the NSW assessment.
208. I accepted the advice of the Department and found that impacts to the species as a result of the proposed action are likely to be significant in accordance with the Significant Impact Guidelines, as the proposed action is likely to adversely affect habitat critical to the survival of the species.

Avoidance and mitigation

209. The measures set out in paragraph [118] above are relevant to the Regent Honeyeater. The Department advised that these measures are suitable and necessary to reduce impacts to the Regent Honeyeater and its potential habitat. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

210. Despite the proposed avoidance and mitigation measures, the Department advised that the direct clearance of up to 48 ha of habitat for the Regent Honeyeater would be likely to result in a residual significant impact for the species. Therefore, offsets are required to ensure the proposed action does not have an unacceptable impact on the species.

211. The NSW Government confirmed that the proponent has calculated the offset liability for the Regent Honeyeater in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
212. The offset liability for the Regent Honeyeater is 4,255 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (3,035) to compensate for the clearance of 34 ha of Regent Honeyeater habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (1,220) based on any exceedance of the 34 ha of clearance.
 - The species credits through land-based offsets where possible.
213. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
214. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

215. I considered the conservation advice for the Regent Honeyeater.¹⁷
216. The conservation advice states that the species is thought to have undergone a population decline of greater than 80 percent in 24 years. The main cause of the decline is thought to be clearance of its habitat.
217. Key identified threats to the species include the clearing, fragmentation and degradation of suitable habitat, and competition for that habitat with other nectarivorous and non-nectarivorous birds. The rapid decline of the once large population also means that a severe loss of genetic variability is also a threat.
218. Priority conservation and management actions to assist in the recovery of the species include reversing the long-term population decline and increasing the population to support a viable wild breeding population, improving the extent and quality of habitat, maintaining key habitat and maintaining community awareness.
219. I accepted the Department's advice that the NSW conditions require mitigation measures that address major threats to the species identified in the conservation advice. Additionally, I considered that the requirement for offsets of residual significant impacts will provide for conservation actions in accordance with the advice, by contributing to the improvement of the extent and quality of Regent Honeyeater habitat.

¹⁷ Department of the Environment (2015). *Conservation Advice Anthochaera phrygia regent honeyeater*. Canberra: Department of the Environment. Available from:
<http://www.environment.gov.au/biodiversity/threatened/species/pubs/82338-conservation-advice.pdf>

National recovery plan

220. I considered the national recovery plan for the Regent Honeyeater.¹⁸
221. The recovery plan identifies major threats to the species as small population size, habitat loss, fragmentation and degradation, and competition.
222. The overall strategy for recovery of the species is to improve the extent and quality of habitat, bolster the wild population, increase understanding of the wild population and maintain and increase community awareness, understanding and involvement in the recovery program.
223. The Department considered that habitat loss, fragmentation and degradation are relevant threats of the proposed action. The relevant recovery actions are improving the extent and quality of habitat and increasing understanding of the wild population.
224. The Department noted that, while the proposed action would result in habitat loss, fragmentation and degradation, proposed avoidance and mitigation measures and recommended conditions, including offsetting measures, would contribute to the improvement of extent and quality of habitat.
225. In particular, the conditions impose an upper limit on clearing of habitat (48 ha), require like-for-like offsets to compensate for impacts to the species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan. The conditions also include requirements for micro-siting and pre-construction ecological scouting to further inform understanding of the species' presence and habitat in the region. The required survey efforts would also contribute to an increased understanding of the wild population of the species.
226. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plans

227. The Department advised that the threat abatement plan for competition and land degradation by rabbits is relevant to the Regent Honeyeater.
228. I noted that the relevant area is not identified as a priority area for this threat abatement plan. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with this threat abatement plan to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
229. On this basis, I considered that the approval of the proposed action, subject to the recommended conditions, would not be inconsistent with this threat abatement plan.

¹⁸ Department of the Environment (2016). *National Recovery Plan for the Regent Honeyeater* (*Anthochaera phrygia*). Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-regent-honeyeater-anthochaera-phrygia-2016>.

Conclusion

230. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Regent Honeyeater.

Swift Parrot

Species information

231. The Swift Parrot is a slim, medium-sized parrot that is mostly bright green in colour, with dark-blue patches on the crown, a prominent red face, and the chin and throat are narrowly bordered with yellow.
232. The species breeds in Tasmania during the summer and the entire population migrates to mainland Australia for the winter. Whilst on the mainland, the Swift Parrot disperses widely to forage on eucalypt species, with the majority being found in Victoria and NSW. The area of occupancy has declined significantly since European settlement, as can be inferred from the extent of habitat loss.
233. The species recovery plan states that the majority of Swift Parrot foraging in NSW occurs outside of conservation reserves, and therefore those areas continue to be vulnerable to loss, fragmentation or disturbance.
234. The species was listed due to a significant reduction in population size.

Impacts

235. No individuals were recorded within the proposed action area. However, the species is considered to potentially occur in the area due to the availability of suitable habitat.
236. The MNES report states that up to 796.8 ha of foraging habitat for the species would be directly impacted (cleared) as a result of the proposed action, and an additional 157.48 ha would be subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
237. The EIS states that the proposed action is unlikely to have a significant impact on the Swift Parrot as 98 percent of potential foraging habitat within the proposed action area would not be impacted. Additionally, the removal of habitat is not likely to isolate patches such that movement could not occur between patches, and it is unlikely that the proposed action would result in the introduction of invasive species or disease that would pose a threat to the species.
238. DPIE accepted the EIS assessment in the MNES report.
239. The Department sought internal advice from the Department's Threatened and Migratory Birds section. This section advised that it is considered critically important to protect and manage a broad range of habitat and foraging resources for the Swift Parrot due to the variability of Swift Parrots across the landscape. Further, where habitat loss continues to occur within foraging habitat on the mainland, it is also important to retain mature trees to ensure continuity of food resources over time.
240. On the basis of this internal advice, the Department disagreed with the EIS and MNES report and advised that the proposed action is likely to have a significant impact on the species, as it is likely to reduce the area of occupancy of the species, in accordance with the Significant Impact Guidelines.

241. I accepted the Department's advice that the proposed action was likely to have a significant impact on the Swift Parrot.

Avoidance and mitigation

242. The measures set out in paragraph [118] above are relevant to the Swift Parrot. The Department advised that these measures are suitable and necessary to reduce impacts to the Swift Parrot and remaining habitat.
243. Although the NSW Government did not determine impacts to Swift Parrot as a result of the proposed action to be significant, the same avoidance and mitigation measures would apply to the Swift Parrot and its habitat within the proposed action area.
244. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensation

245. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 796.8 ha of habitat for the Swift Parrot will likely result in a residual significant impact to the species. Therefore, offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
246. The NSW conditions do not require the proponent to provide offsets for the Swift Parrot. However, under the FBA the Swift Parrot is an ecosystem credit species. By retiring ecosystem credits required by the NSW conditions, the offset liability for the Swift Parrot will be met.
247. The Department recommended that I attach further offset conditions relevant to the Swift Parrot. The offset liability for the Swift Parrot is 61,433.5 ecosystem credits. The Department recommended that I attach conditions requiring the proponent to retire:
- 70 percent of ecosystem credits (44,434) to compensate for the clearance of 557.8 ha of Swift Parrot habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual ecosystem credits (16,999.5) based on any exceedance of the 557.8 ha of clearance.
 - The ecosystem credits through land-based offsets where possible.
248. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
249. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

250. I considered the conservation advice for the Swift Parrot.¹⁹
251. The conservation advice for the Swift Parrot indicates that 70 percent of the principal wintering habitat for the species has been cleared in NSW. Key threats to the species include habitat loss and alteration, predation by sugar gliders, competition, disease and illegal wildlife capture.
252. Priority conservation and management actions include implementing strategies to reduce predation from sugar gliders, installing nesting boxes suitable for Swift Parrots, raising public awareness of the risk of collisions, developing a Disease Risk Assessment and revising forestry prescriptions to reflect recent habitat information.
253. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

National recovery plan

254. I considered the national recovery plan for the Swift Parrot.²⁰
255. The major threats identified in the plan are habitat loss and alteration, climate change, collision mortality, competition, disease, illegal wildlife capture and trade, and cumulative impacts.
256. The overall strategy for the recovery of the species is to identify the extent and quality of habitat, manage and protect habitat at the landscape scale, monitor and manage the impact of collisions, competition and disease, and monitor population and habitat.
257. The Department considered that habitat loss and alteration, and cumulative impacts are relevant threats of the proposed action. Relevant recovery actions are the identification of the extent and quality of Swift Parrot habitat, the management and protection of Swift Parrot habitat at the landscape scale, and the monitoring of population and habitat.
258. The Department considered that, while the proposed action would result in habitat loss and alteration, and potentially result in cumulative impacts to the species, the proposed avoidance and mitigation measures, and recommended conditions, including offsetting measures, would contribute to the management and protection of Swift Parrot habitat at a landscape scale.
259. In particular, the conditions impose an upper limit on clearing of habitat (796.8 ha), require like-for-like offsets to compensate for impacts to the species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan. The conditions also include requirements for micro-siting and pre-construction ecological scouting to further inform understanding of the species' habitat at a landscape scale.

¹⁹ Threatened Species Scientific Committee (2016). *Conservation Advice Lathamus discolor swift parrot*. Canberra: Department of the Environment. Available from:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/744-conservation-advice-05052016.pdf>.

²⁰ Saunders, D.L. & C.L. Tzaros (2011). *National Recovery Plan for the Swift Parrot (Lathamus discolor)*. Birds Australia, Melbourne. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-swift-parrot-lathamus-discolor>.

The required survey efforts would also contribute to the monitoring of Swift Parrot populations and habitat.

260. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plan

261. The Department advised that the threat abatement plan for predation by feral cats was relevant to the species.
262. I noted that the relevant area is not identified as a priority area for this threat abatement plan. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with this threat abatement plan to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
263. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with this threat abatement plan.

Conclusion

264. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Swift Parrot.

Spotted-tail Quoll

Species information

265. The Spotted-tail Quoll is a nocturnal, cat-sized, carnivorous marsupial with reddish-brown fur, and distinctive white spots over its back and tail.
266. The species was previously widely distributed throughout south-east Queensland, eastern NSW, Victoria, south-east Australia and Tasmania. The subspecies' mainland range has reduced by 50-90 percent since European settlement.
267. The Spotted-tail Quoll is a mainly forest dependent species, although occurs in a variety of habitats including closed forests, temperate and sub-tropical rainforest, tall eucalypt forests, open woodlands, drier rain shadow woodlands and coastal heathlands.
268. Substantial areas of Spotted-tail Quoll habitat across the east coast were burnt during the 2019/20 summer bushfires and the species is on the Department's provisional list of species requiring urgent management intervention.
269. The Department considered the aims and management actions outlined in the Department's technical report on the bushfires, and advised that the proposed action area is not considered a priority area as it is not adjacent to largely burnt areas of habitat. The Department advised that management actions discussed below such as the management of feral predators, would contribute to identified priority actions in the report.
270. Aside from a small patch of low to moderately burnt vegetation within the proposed action area, the closest impacts of the main fires are approximately 30 km away from

the proposed action. However, as a result of more severe fires regionally and nationally, the overall habitat for the Spotted-tail Quoll has been reduced as a whole. Given the proposed offset measures, the Department considered, and I accepted, that the extent of the impact of the bushfires was not sufficient to justify additional avoidance, mitigation or offset measures, even in light of the decline in Spotted-tail Quoll habitat following the bushfires.

Impacts

- 271. No individuals were recorded in the proposed action area during surveys undertaken for the proposed action. However, the species is considered to potentially occur due to the presence of suitable habitat.
- 272. The MNES report states that up to 989 ha of foraging and 885 ha of breeding habitat would be directly impacted (cleared) as a result of the proposed action, and further 181 ha of foraging habitat and 175 ha of breeding habitat would be subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
- 273. The proponent considered that the proposed action is unlikely to have a significant impact on the Spotted-tail Quoll as the species is not considered to use habitat in the proposed action area as a reliable foraging resource, 98 percent of potential foraging habitat in the area would not be impacted, and the nature and scale of habitat removal would not isolate patches such that movement could not occur between patches.
- 274. DPIE disagreed with that conclusion and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
- 275. The Department agreed with the NSW assessment that direct impacts to 989 ha of habitat for the species, and indirect impacts to a further 181 ha, are likely to be significant, as the proposed action is likely to adversely affect habitat critical to the survival of the species. On that basis, I accepted the Department's advice that the proposed action is likely to result in a significant impact on the Spotted-tail Quoll.

Avoidance and mitigation

- 276. The measures set out in paragraph [118] above are relevant to the Spotted-tail Quoll. Additionally, the NSW conditions include upper clearing limits for plant community types within the proposed action area which are commensurate with habitat for the species. The Department advised that these limits are equivalent to an upper clearing limit of 989 ha of habitat for the Spotted-tail Quoll.
- 277. The Department advised that these measures are suitable and necessary to reduce impacts to the Spotted-tail Quoll and remaining habitat. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensation

- 278. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 989 ha of habitat for the Spotted-tail Quoll will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.

279. The NSW Government confirmed that the proponent calculated the offset liability for the Spotted-tail Quoll in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
280. The offset liability for the Spotted-tail Quoll is 59,068 ecosystem credits. The NSW conditions require the proponent to retire:
- 70 percent of ecosystem credits (41,348) to compensate for the clearance of 692 ha of Spotted-tail Quoll habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (17,720) based on any exceedance of the 692 ha of clearance.
 - The species credits through land-based offsets where possible.
281. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
282. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

283. I considered the approved conservation advice for the Spotted-tail Quoll.²¹
284. Key threats to the species identified in the conservation advice include habitat loss and fragmentation, invasive species, fire and purposeful killing.
285. Priority conservation and management actions to assist in the recovery of the species include developing guidelines on minimum habitat requirements, evaluating the effectiveness of habitat retention and controlling introduced predators.
286. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

National recovery plan

287. I considered the national recovery plan for the Spotted-tail Quoll.²²
288. The major threats identified in the plan are habitat loss, fragmentation and modification, timber harvesting, poison baiting and poisoning from cane toads, competition and predation from introduced predators, road kills and deliberate killing, fire and climate change.

²¹ Threatened Species Scientific Committee (2020). *Conservation Advice* *Dasyurus maculatus (southeastern mainland population) Spotted-tailed Quoll, south eastern mainland*. Canberra: Department of Agriculture, Water and the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/75184-conservation-advice-01092020.pdf>.

²² Department of Environment, Land, Water and Planning (2016). *National Recovery Plan for the Spotted-tailed Quoll* *Dasyurus maculatus*. Australian Government, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/spotted-tailed-quoll>.

289. The overall strategy for the recovery of the species is to determine the distribution and status of Spotted-tail Quoll population throughout the range, identify key threats and implement threat abatement management practices, gain a greater understanding of the Spotted-tail Quoll to aid recovery, reduce the rate of habitat loss and fragmentation on private land, evaluate and manage the risk posed by silvicultural practice, determine and manage threats from introduced predators and control practices and fire regime, reduce deliberate killings and road mortality, assess the threat of Cane Toads and take actions if necessary, determine the likely impact of climate change and increase community awareness of the Spotted-tail Quoll and involvement in the Recovery Program.
290. The Department considered that habitat loss, fragmentation and modification, and competition and predation from introduced predators are relevant threats to the proposed action. The Department considered that further understanding of the distribution and status of Spotted-tail Quoll, the reduction of habitat loss and fragmentation, and the management of threats posed by introduced species are relevant recovery actions to the proposed action.
291. The Department considered that while the proposed action would result in habitat loss, fragmentation and modification, the proposed avoidance and mitigation measures, and recommended conditions, including offsetting measures, would contribute to the reduction of habitat loss. The required pest management measures would also contribute to the management of threat to the Spotted-tail Quoll.
292. In particular, the conditions impose an upper limit on clearing of habitat (989 ha), require like-for-like offsets to compensate for impacts to the species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan. The conditions also include requirements for micro-siting and pre-construction ecological scouting to further inform understanding of the species' distribution in the Pilliga region. Pest animal control will also be required under the BMP for both the proposed action area and land-based offsets.
293. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plans

294. The Department advised that the threat abatement plans for predation by feral cats and predation by the European red fox were relevant to the Spotted-tail Quoll.
295. I noted that the relevant area is not identified as a priority area for this threat abatement plan. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with this threat abatement plan to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
296. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with this threat abatement plan.

Conclusion

297. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Spotted-tail Quoll.

Androcalva procumbens

Species information

298. *Androcalva procumbens* is a prostrate shrub with slender trailing stems, recorded in an area bounded by Nymagee, Dubbo, Narrabri and the Pilliga in NSW. The species occurs on sandy sites, often along roadsides, with Mugga Ironbark, Tumble-down Red Gum (*Eucalyptus dealbata*), and Broombush (*Melaleuca uncinata*).

Impacts

299. Approximately 240,274 individuals of the species are known to occur within the proposed action area, according to the MNES report. Up to 3,716 individuals would be removed or indirectly impacted from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
300. The EIS notes that the breeding cycle of the species can be impacted by habitat removal undertaken during important stages of the species' lifecycle, or which reduce habitat quality, preventing the regeneration of the population. The EIS states that the breeding cycle will still be successfully completed in the study area during all stages of the proposed action.
301. The proposed action will also result in linear fragmentation of the species' habitat. There is no evidence of disease caused by soil-borne water mould, *Phytophthora cinnamomi*, in the study area, however, there is potential for the pathogen to be introduced or spread as a result of the proposed action.
302. The proponent considers that the proposed action is unlikely to have a significant impact on *Androcalva procumbens* as over 98 percent of individuals within the proposed action area would not be impacted, it is unlikely that the breeding cycle would be disrupted, the removal of habitat is unlikely to isolate patches, and it is unlikely that the proposed action would introduce invasive species or disease that would likely pose a threat to the species.
303. However, DPIE disagreed with that conclusion and considers that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
304. The Department agreed with the NSW assessment and advised that direct impacts to up to 3,716 individuals of *Androcalva procumbens* is likely to be significant, as the proposed action is likely to adversely affect habitat critical to the survival of the species. On that basis, I found that impacts to the species as a result of the proposed action are likely to be significant in accordance with the Significant Impact Guidelines.

Avoidance and mitigation

305. The measures set out in paragraph [118] above are relevant to *Androcalva procumbens*.

306. Additionally, the Department noted that the proponent has committed to staged clearing and rehabilitation across the proposed action area to allow for the recovery of individuals and completion of the lifecycle of the species. Rehabilitation is proposed following clearance of vegetation for the construction of well pads and linear infrastructure.
307. The potential risk of introduction or spread of *Phytophthora cinnamomi* will be managed by controlling soil transportation in the area. Measures for controlling soil transportation will be incorporated into the FDP and/or BMP.
308. The Department advised that these measures are suitable and necessary to reduce impacts to *Androcalva procumbens*. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

309. The Department advised that despite the proposed avoidance and mitigation measures, the direct clearance of up to 3,176 individuals of *Androcalva procumbens* will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
310. The NSW Government has confirmed that the proponent has calculated the offset liability for *Androcalva procumbens* in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
311. The offset liability for *Androcalva procumbens* is 55,740 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (39,018) to compensate for the clearance of 2,601 individuals of *Androcalva procumbens* habitat, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (16,722) based on any exceedance of the clearance of 2,601 individuals.
 - The species credits through land-based offsets where possible.
312. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
313. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

314. I considered the approved conservation advice for *Androcalva procumbens*.²³

²³ Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Rulingia procumbens*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/12903-conservation-advice.pdf>.

315. The conservation advice for the species identifies its key threats as the clearing of native vegetation, competition from woody shrubs, and inappropriate fire regimes.
316. Priority conservation and management actions to assist in the recovery of the species include monitoring of known populations, identifying and managing roadside populations to ensure forestry operations do not have adverse impacts, investigating formal conservation arrangements and developing and implementing a suitable fire management strategy.
317. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Conclusion

318. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on *Androcalva procumbens*.

Bertya opposens

Species information

319. *Bertya opposens* is a slender shrub that grows to 4 m tall, and can be multi-stemmed or have a single trunk. Branches and stems are densely covered with intertwined hairs, and flowers are yellow-brown. *Bertya opposens* occurs in Queensland and NSW with a wide distribution. In NSW it occurs in the Pilliga Scrub and north-east of Cobar.
320. Habitat for the species includes mixed shrubland, lancewood woodland, mallee woodland, eucalypt and acacia open forest with shrubby understorey, and eucalypt and callitris open woodland and semi-evergreen vine-thicket.
321. The EIS states that the population within Jack's Creek State Forest and adjoining private land, adjacent to the proposed action area, is the most significant population of the species in NSW, with an estimated 5,000,000 individuals.

Impacts

322. The species is known to occur within the proposed action area, and 20 percent of the population within Jack's Creek State Forest and adjoining private land occurs within the proposed action area. Up to 10,309 individuals would be impacted by the proposed action, being approximately 6.37 ha of occupied habitat.
323. The EIS states that the breeding cycle of the species can be impacted by habitat removal undertaken during important stages of the species' lifecycle and that in this case, the germination of seedlings and the regeneration of the population would be prevented. It continues to say that the breeding cycle would still be able to be successfully completed in the proposed action area during all stages of the proposed action.
324. Linear fragmentation of the species' habitat would also occur. The EIS states that there is no evidence of disease caused by the soil-borne water mould *Phytophthora cinnamomi* and the risk of the pathogen occurring in the study area is considered to be low. However, there is potential for the pathogen to be introduced or spread as a result of the movement of contaminated soil or vehicles.

325. The proponent considers that the proposed action is unlikely to have a significant impact on *Bertya opposens* on the basis that over 98 percent of individuals within the proposed action area would not be impacted, it is unlikely that the breeding cycle would be disrupted, the removal of habitat is unlikely to isolate patches, and it is unlikely that the proposed action would introduce invasive species or disease that would likely pose a threat to the species.
326. However, DPIE disagreed with that conclusion and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
327. The Department agreed with the NSW assessment and advised that direct impacts to up to 10,309 individuals of *Bertya opposens* are likely to be significant, based on the importance and extent of the impacted population, and the large scale of the impacts.
328. I accepted the Department's advised that the proposed action is likely to significantly impact *Bertya opposens* as the proposed action is likely to adversely affect habitat critical to the survival of the species.

Avoidance and mitigation

329. The measures set out in paragraph [118] above are relevant to *Bertya opposens*.
330. Additionally, the Department noted that the proponent has committed to staged clearing and rehabilitation across the proposed action area to allow for the recovery of individuals and completion of the lifecycle of the species. Rehabilitation is proposed following clearance of vegetation for the construction of well pads and linear infrastructure.
331. The potential risk of introduction or spread of *Phytophthora cinnamomi* will be managed by controlling soil transportation in the area. Measures for controlling soil transportation will be incorporated into the FDP and/or BMP.
332. The Department advised that these measures are suitable and necessary to reduce impacts to *Bertya opposens*. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

333. Despite the proposed avoidance and mitigation measures, the Department advised that the direct clearance of 10,309 individuals of *Bertya opposens* will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
334. The NSW Government confirmed that the proponent has calculated the offset liability for *Bertya opposens* in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
335. The offset liability for the *Bertya opposens* is 144,326 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (101,028) to compensate for the clearance of 7,216 individuals of *Bertya opposens*, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.

- Residual species credits (43,298) based on any exceedance of the clearance of 7,216 individuals.
 - The species credits through land-based offsets where possible.
336. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
337. I also accepted the Department's advice that these conditions should be incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

338. I considered the approved conservation advice for *Bertya opposens*.²⁴
339. The conservation advice for the species identifies its key threats as inappropriate disturbance regimes, including fire and land clearing.
340. Priority conservation and management actions to assist in the recovery of the species include fire management, avoiding land clearing, investigating formal conservation arrangements and monitoring the impacts of goat browsing on the species.
341. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

National recovery plan

342. I considered the recovery plan for *Bertya opposens*.²⁵
343. The recovery plan identifies the major threats to be grazing, inappropriate fire and disturbance regimes, and clearing.
344. The overall strategy for the recovery of the species is to examine the impacts of grazing pressures, increase certainty of species distribution in the Cobar-Coolabah area, further understand the biology of germination and seedling survival, improve survival prospects for senescent populations, and increase community awareness and support for conservation.
345. The Department considered that inappropriate disturbance regimes and clearing are relevant threats to the proposed action. The Department considered that there are no recovery actions listed in the recovery plan that are specifically relevant to the proposed action.
346. The Department noted that, while the proposed action would result in disturbance and clearing of the species, the proposed avoidance and mitigation measures, and

²⁴ Threatened Species Scientific Committee (2016). *Conservation Advice Bertya opposens*. Canberra: Department of the Environment and Energy. Available from:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/13792-conservation-advice-16122016.pdf>.

²⁵ NPWS (2002). *Bertya* sp. Cobar-Coolabah (Cunningham & Milthorpe s.n., 2/8/73) Recovery Plan. NSW National Parks and Wildlife Service, Hurstville NSW. Available from:

<http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-bertya-sp-cobar-coolabah-cunningham-milthorpe-sn-2873>.

recommended conditions, including offsetting measures, would not limit the recovery of the species or recovery actions outlined in the recovery plan.

347. In particular, the conditions impose an upper limit on clearing of habitat (10,309 individuals), require like-for-like offsets to compensate for impacts to the species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan. The conditions also include requirements for micro-siting allowing the proponent to avoid inappropriate or unnecessary disturbance or clearing. Staged clearing and rehabilitation also allows for the recovery of impacted individuals and rehabilitation.
348. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plans

349. The Department advised that the threat abatement plan for competition and land degradation by unmanaged goats was relevant to *Bertya opposens*.
350. I noted that the relevant area is not identified as a priority area for this threat abatement plan. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with this threat abatement plan to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
351. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with this threat abatement plan.

Conclusion

352. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on *Bertya opposens*.

Spiny Pepper-cress

Species information

353. Spiny Pepper-cress is a branched perennial herb which grows to 30 cm, occurring in NSW, Victoria and Western Australia. Habitat for the species includes wet sites such as gilgai depressions and the margins of freshwater and saline marshes and shallow lakes, usually on heavy clay soil.
354. Key threats to the species include weed invasion, grazing, altered hydrology, habitat destruction and roadworks. Destruction and degradation of habitat through agricultural development has been the major cause of the species' decline in distribution.
355. According to the recovery plan, and prior to targeted surveys for the project, the species was thought to be close to extinction in NSW, with an estimated of 25,000-100,000 plants remaining across 30 wild populations. The recovery plan states that the Spiny Pepper-cress has been recorded at 14 locations in NSW over the last 20 years. The population in Brigalow Park Nature Reserve near Narrabri may be the largest remaining population of the species.

356. Targeted surveys found a total of 4,643 individuals at 113 discrete locations, both inside and outside of the proposed action area, indicating an estimated population of 8,264,623 occurs within the proposed action area.
357. The results of this study indicate that there are considerable populations of the species in the Pilliga region, potentially an 8,000 percent increase of the known population of the species from literature.

Impacts

358. The species is known to occur within the proposed action area, and based on occupied habitat and average densities of occurrence, up to 77,691 individuals would be removed or indirectly impacted as a result of the proposed action. This assessment is based on the abovementioned targeted surveys, indicating a higher population than was previously known.
359. The EIS identified that habitat removal undertaken during important stages of the species' lifecycle can impact the germination of seedlings and regeneration of the population. However, the EIS considered that the breeding cycle would be successfully completed in the proposed action area during all stages of the proposed action.
360. Linear fragmentation of the species' habitat would also occur. Again, no evidence of disease caused by the soil-borne water mould *Phytophthora cinnamomi* was identified in the study area and the risk was assessed as low. However, there is potential for the pathogen to be introduced or spread as a result of the movement of contaminated soil or vehicles.
361. The proponent considered that the proposed action is unlikely to result in a significant impact to Spiny Pepper-creep as the upper disturbance limit represents 0.94 percent of the population estimated within the proposed action area, it is unlikely that the breeding cycle would be disrupted, the removal of habitat is unlikely to isolate patches, and it is unlikely that the proposed action would introduce invasive species or disease that would likely pose a threat to the species.
362. DPIE disagreed with this conclusion, considering that the impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
363. The Department agreed with the NSW assessment, and advised that direct impacts to 77,691 individuals area likely to be significant.
364. I accepted the Department's advice that the proposed action is likely to result in a significant impact to the species, on the basis that it will adversely affect habitat critical to the survival of the species and reduce the area of occupancy of an important population (potentially the largest population of the species).

Avoidance and mitigation

365. The measures set out in paragraph [118] above are relevant to the Spiny Pepper-creep.
366. Additionally, the Department noted that the proponent has committed to staged clearing and rehabilitation across the proposed action area to allow for the recovery of individuals and completion of the lifecycle of the species. Rehabilitation is proposed

following clearance of vegetation for the construction of well pads and linear infrastructure.

367. The potential risk of introduction or spread of *Phytophthora cinnamomi* will be managed by controlling soil transportation in the area. Measures for controlling soil transportation will be incorporated into the FDP and/or BMP.
368. The Department advised that these measures are suitable and necessary to reduce impacts to the Spiny Pepper-creep. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

369. Despite the proposed avoidance and mitigation measures, the direct clearance of 77,691 individuals of Spiny Pepper-creep will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
370. The NSW Government has confirmed that the proponent has calculated the offset liability for Spiny Pepper-creep in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
371. The offset liability for Spiny Pepper-creep is 1,087,674 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (761,372) to compensate for the clearance of 54,384 individuals of Spiny Pepper-creep, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (326,302) based on any exceedance of the clearance of 54,384 individuals.
 - The species credits through land-based offsets where possible.
372. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
373. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

National recovery plan

374. I considered the recovery plan for Spiny Peppercreep.²⁶
375. The recovery plan identifies the major threats to be grazing, weed invasion, altered hydrology, habitat destruction and roadworks.
376. The overall strategy for the recovery of the species is to determine distribution, abundance, population structure and habitat requirements, identify and manage

²⁶ Carter, O. (2010). *National Recovery Plan for the Spiny Peppercreep* *Lepidium aschersonii*. Department of Sustainability and Environment, Melbourne. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-spiny-peppercreep-lepidium-aschersonii>.

threat to population, identify key biological functions, determine growth rates and viability of populations, establish a seedbank in storage, and build community support for conservation.

377. The Department considered that weed invasion, and habitat destruction are relevant threats to the proposed action. The Department considered that further understanding distribution, abundance and population structure, managing threats to populations, and determining growth rates and viability of populations are relevant recovery actions to the proposed action.
378. The Department noted that while the proposed action would result in the clearance of habitat and individuals of the Spiny Pepper-creep, the proposed avoidance and mitigation measures, and recommended conditions, including offsetting measures, would contribute to further understanding the species distribution and population viability, as surveys for the project have already shown.
379. In particular, the conditions impose an upper limit on clearing of habitat (77,691 individuals), require like-for-like offsets to compensate for impacts to the species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan. The BMP will include best-practice pre-clearance controls, including weed and pest management.
380. The conditions also require pre-clearance micro-siting which would further inform the understanding of the species' population. This understanding has already been assisted by the surveys undertaken to inform the proposed action, discussed above.
381. Compliance with relevant threat abatement plans and weed and pest management measures would also contribute to the management of threats to Spiny Pepper-creep populations.
382. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plans

383. The Department advised that the threat abatement plans for predation, habitat degradation, competition and disease transmission by feral pigs and competition and land degradation by rabbits were relevant to the Spiny Pepper-creep.
384. I noted that the relevant area is not identified as a priority area for these threat abatement plans. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
385. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with these threat abatement plans.

Conclusion

386. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on the Spiny Pepper-cress.

Tylophora linearis

Species information

387. *Tylophora linearis* is an herbaceous climber, with clear latex that grows to around 2 m long, with dark green, linear leaves and clustered, olive-green and dark purple flowers. The species grows in dry scrub, open forest and woodlands associated with melaleuca, eucalypt and callitris species.
388. The proposed action area supports approximately 33,154 individuals of *Tylophora linearis*, which the proponent has determined to be the largest population of the species in NSW based on population data presented by the NSW Scientific Committee.

Impacts

389. The species is known to occur within the proposed action area. Based on occupied habitat and average densities of occurrence, up to 513 individuals would be removed or indirectly impacted by habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
390. The EIS identified that habitat removal undertaken during important stages of the species' lifecycle can impact the germination of seedlings and regeneration of the population. However, the EIS considered that the breeding cycle would be successfully completed in the proposed action area during all stages of the proposed action.
391. Linear fragmentation of the species' habitat would also occur. No evidence of disease caused by the soil-borne water mould *Phytophthora cinnamomi* was identified in the study area and the risk was assessed as low. However, there is potential for the pathogen to be introduced or spread as a result of the movement of contaminated soil or vehicles.
392. The proponent considered that the proposed action is unlikely to have a significant impact on *Tylophora linearis* as over 98 percent of individuals within the proposed action area would not be impacted, it is unlikely that the breeding cycle would be disrupted, the removal of habitat is unlikely to isolate patches, and it is unlikely that the proposed action would introduce invasive species or disease that would likely pose a threat to the species.
393. DPIE disagreed and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
394. The Department agreed with the NSW assessment and considered that direct impacts to up to 513 individuals of *Tylophora linearis* are likely to be significant, on the basis that the impacted population of the species is the largest in NSW, and as the proposed action is likely to adversely affect habitat critical to the survival of the species. I accepted the Department's advice that the proposed action was likely to result in a significant impact on the species.

Avoidance and mitigation

395. The measures set out in paragraph [118] above are relevant to *Tylophora linearis*.
396. Additionally, the Department noted that the proponent has committed to staged clearing and rehabilitation across the proposed action area to allow for the recovery of individuals and completion of the lifecycle of the species. Rehabilitation is proposed following clearance of vegetation for the construction of well pads and linear infrastructure.
397. The potential risk of introduction or spread of *Phytophthora cinnamomi* will be managed by controlling soil transportation in the area. Measures for controlling soil transportation will be incorporated into the FDP and/or BMP.
398. The Department advised that these measures are suitable and necessary to reduce impacts to *Tylophora linearis*. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

399. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 513 individuals of *Tylophora linearis* will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.
400. The NSW Government has confirmed that the proponent has calculated the offset liability for *Tylophora linearis* in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
401. The offset liability for the *Tylophora linearis* is 7,722 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (5,721) to compensate for the clearance of 359 individuals of *Tylophora linearis*, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (2,001) based on any exceedance of the clearance of 359 individuals.
 - The species credits through land-based offsets where possible.
402. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
403. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

404. I considered the approved conservation advice for *Tylophora linearis*.²⁷
405. Key threats to the species include forestry activities, disturbances such as grazing and fire, and invasion of habitat by introduced weeds. Regional and local priority actions identified in the conservation advice include protecting all known sites from disturbance until recovery actions are better developed.
406. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Conclusion

407. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on *Tylophora linearis*.

Winged Pepper-cress

Species information

408. Winged Pepper-cress is a small annual herb, growing to about 20 cm tall, with narrow, linear leaves, tiny green-brown flowers, and circular fruit. The species is widely distributed on the inland plains of south-eastern Australia, occurring from northern NSW to western Victoria.
409. Habitat for the species includes sparsely vegetated sites on heavy clay, or clay-loam soils, usually on sites that are seasonally flooded or prone to waterlogging. Vegetation types in which the species occurs include grasslands, wetlands and floodplain wetlands dominated by eucalypt species.
410. The recovery plan states that the Winged Pepper-cress is currently known from 13 locations in Victoria, and total population size is estimated at less than 3,000 individuals.
411. However, targeted surveys for the species undertaken for the proposed action identified 2,268 individuals across 65 discrete locations, both within and outside of the proposed action area. An estimated 218,265 individuals were determined to occur within the proposed action area
412. The results of this study indicate that there are considerable populations of the species in the Pilliga region, potentially an 8,000 percent increase of the known population of the species from literature.

Impacts

413. The species is known to occur within the proposed action area, and based on the abovementioned surveys, up to 1,116 individuals would be removed or indirectly impacted as a result of the proposed action.

²⁷ Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Tylophora linearis*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/55231-conservation-advice.pdf>.

414. The EIS identified that habitat removal undertaken during important stages of the species' lifecycle can impact the germination of seedlings and regeneration of the population. However, the EIS considered that the breeding cycle would be successfully completed in the proposed action area during all stages of the proposed action.
415. Linear fragmentation of the species' habitat would also occur. No evidence of disease caused by the soil-borne water mould *Phytophthora cinnamomi* was identified in the study area and the risk was assessed as low. However, there is potential for the pathogen to be introduced or spread as a result of the movement of contaminated soil or vehicles.
416. The proponent considered that the proposed action is unlikely to result in a significant impact to Winged Pepper-creep as over 98 percent of the population estimated within the proposed action area would not be impacted, it is unlikely that the breeding cycle would be disrupted, the removal of habitat is unlikely to isolate patches, and it is unlikely that the proposed action would introduce invasive species or disease that would likely pose a threat to the species.
417. However, DPIE disagreed with this conclusion and considered that impacts to the species are likely to be significant in accordance with the Significant Impact Guidelines.
418. The Department agreed with the NSW assessment. The Department advised that direct impacts to 1,116 individuals of Winged Pepper-creep are likely to be significant as the proposed action is likely to adversely affect habitat critical to the survival of the species, and reduce the area of occupancy of an important population. I accepted the Department's advice and found that the proposed action is likely to result in a significant impact on the species.

Avoidance and mitigation

419. The measures set out in paragraph [118] above are relevant to Winged Pepper-creep.
420. Additionally, the Department noted that the proponent has committed to staged clearing and rehabilitation across the proposed action area to allow for the recovery of individuals and completion of the lifecycle of the species. Rehabilitation is proposed following clearance of vegetation for the construction of well pads and linear infrastructure.
421. The potential risk of introduction or spread of *Phytophthora cinnamomi* will be managed by controlling soil transportation in the area. Measures for controlling soil transportation will be incorporated into the FDP and/or BMP.
422. The Department advised that these measures are suitable and necessary to reduce impacts to Winged Pepper-creep. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into the conditions of my EPBC Act approval.

Offsets and compensatory measures

423. Despite the proposed avoidance and mitigation measures, the direct clearance up to 1,116 individuals of Winged Pepper-creep will likely result in a residual significant impact for the species and offsets are required to ensure that the proposed action does not have an unacceptable impact on the species.

424. The NSW Government confirmed that the proponent has calculated the offset liability for Winged Pepper-cress in accordance with the Major Projects Offset Policy and FBA, which have been endorsed by the Commonwealth.
425. The offset liability for Winged Pepper-cress is 16,740 species credits. The NSW conditions require the proponent to retire:
- 70 percent of species credits (11,718) to compensate for the clearance of 781 individuals of Winged Pepper-cress, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - Residual species credits (5,022) based on any exceedance of the clearance of 781 individuals.
 - The species credits through land-based offsets where possible.
426. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
427. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

National recovery plan

428. I considered the recovery plan for the Winged Pepper-cress.²⁸
429. The recovery plan states that the Winged Pepper-cress has suffered a widespread decline in both range and abundance since European settlement. Key identified threats to the species include altered hydrology, increasing salinity, weed invasion, grazing, physical damage, drought and climate change.
430. The overall strategy for the recovery of the species is to determine distribution, abundance and population structure, determine habitat requirements, manage threats, identify key biological functions, determine growth rates and viability of populations, establish a seed bank, and build community support for conservation.
431. The Department considered that weed invasion and physical damage are relevant threats to the proposed action. The Department considered that determining distribution, abundance and population structure, managing threats to populations, and determining viability of populations are relevant recovery actions to the proposed action.
432. The Department noted that while the proposed action would result in physical damage to individual Winged Pepper-cress, the proposed avoidance and mitigation measures, and recommended conditions, including offsetting measures, would contribute to further understanding the species distribution and population viability, as surveys for the project have already shown.
433. In particular, the conditions impose an upper limit on clearing of habitat (1,116 individuals), require like-for-like offsets to compensate for impacts to the

²⁸ Mavromihalis, J. (2010). *National Recovery Plan for the Winged Peppercress* *Lepidium monoplocoides*. Department of Sustainability and Environment, Melbourne. Available from: <http://www.environment.gov.au/resource/national-recovery-plan-winged-peppercress-lepidium-monoplocoides>.

species, and require the establishment and facilitation of a Biodiversity Advisory Group, Field Development Protocol, Rehabilitation Management Plan and Biodiversity Management Plan (**BMP**). The BMP will include best-practice pre-clearance controls, including weed and pest management.

- 434. The conditions also require pre-clearance micro-siting which would further inform the understanding of the species' population. This understanding has already been assisted by the surveys undertaken to inform the proposed action, discussed above.
- 435. Compliance with relevant threat abatement plans and weed and pest management measures would also contribute to the management of threats to Winged Pepper-cress populations.
- 436. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, would not be inconsistent with the recovery plan.

Threat abatement plans

- 437. The Department advised that the threat abatement plans for predation, habitat degradation, competition and disease transmission by feral pigs and competition and land degradation by rabbits were relevant to the Winged Pepper-cress.
- 438. I noted that the relevant area is not identified as a priority area for these threat abatement plans. Additionally, the conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. I agreed with the Department's conclusion that the proposed action is unlikely to contribute to increasing feral animal activity and instead may assist with the management of these species.
- 439. On this basis, I considered that the approval of the proposed action subject to the recommended conditions would not be inconsistent with these threat abatement plans.

Conclusion

- 440. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on Winged Pepper-cress.

Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community

Ecological community information

- 441. The Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (Brigalow), occurs in both Queensland and NSW, and is commonly dominated by *Acacia harpophylla*, a distinctive silver-foliaged wattle shrub or tree.
- 442. Brigalow is found mostly west of the Great Dividing Range in semi-arid areas, stretching in a broad swathe east of Blackall, Charleville and Cunnamulla, north to Townsville in Queensland and south to Narrabri. In NSW, remnants of the community mostly occur north of Bourke and west of Narrabri.

Impacts

443. The MNES report states that 2,468 ha of the ecological community is known to occur within the proposed action area, confined to the north. It further states that 19.3 ha of Brigalow would be directly impacted as a result of the proposed action, and a further 3.9 ha would be subject to indirect impacts from habitat fragmentation, weed and feral animal incursion, noise, light and previously approved gas activities.
444. The EIS states that all patches of Brigalow occurring within the proposed action area are considered habitat critical to the survival of the community, as they meet the key diagnostic characteristics defined in the conservation advice. It also states that the proposed action is likely to increase fragmentation of the ecological community to a degree that it is likely that new patches would be formed. Fragmentation to the ecological community would be as a result of clearing vegetation for both linear infrastructure and well pads. While up to 1 ha of contiguous vegetation would be cleared for each well pad, any linear fragmentation of the community would not be greater than an average width of 10 m, which would be rehabilitated to 5 m of linear fragmentation immediately after impact.
445. The proponent considers that the proposed action is unlikely to significantly impact Brigalow due to the small area of impact, despite the potential for the proposed action to adversely affect habitat critical to the survival of the community.
446. DPIE disagreed with this conclusion and considered that the impacts to Brigalow as a result of the proposed action are likely to be significant in accordance with the Significant Impact Guidelines.
447. The Department agreed with the NSW assessment. I accepted the Department's advice that direct impacts to 19.3 ha of the ecological community is likely to be significant, as the proposed action will adversely affect habitat critical to the survival of the ecological community and increase fragmentation.

Avoidance and mitigation

448. The measures set out in paragraph [118] above are relevant to Brigalow.
449. Additionally, the Department noted that the proponent has committed to rehabilitation following clearance of vegetation for the construction of well pads and linear infrastructure. Linear fragmentation would also be rehabilitated by 50 percent of its average width, and areas cleared for the installation of well pads would be rehabilitated by approximately 75 per cent. Rehabilitation would be informed by the RMP required in the NSW conditions.
450. The Department advised that these measures are suitable and necessary to reduce impacts to Brigalow. I accepted the recommendation that I incorporate the relevant NSW conditions relating to these measures into conditions of my EPBC Act approval.

Offsets and compensatory measures

451. Despite the proposed avoidance and mitigation measures, the direct clearance of up to 19.3 ha of Brigalow will likely result in a residual significant impact for the ecological community and offsets are required to ensure that the proposed action does not have an unacceptable impact on the ecological community.

452. The offset liability for Brigalow is 1,303.5 ecosystem credits. The NSW conditions require the proponent to retire:
- 100 percent of ecosystem credits (1,303.5) to compensate for the clearance of 19.3 ha of Brigalow, prior to the commencement of Phase 2 and the development of the CSG field and related infrastructure.
 - The ecosystem credits through land-based offsets where possible.
453. The Department advised that the proponent is required to retire 100 percent of ecosystem credits for the loss of Brigalow prior to the commencement of Phase 2 as there are no further opportunities for avoidance of the ecological community and therefore the 70 percent credit retirement approach applied for species is not suitable in this instance.
454. The NSW assessment report states that the proponent has demonstrated that suitable sites with like-for-like offsets are likely to be available, and DPIE is satisfied that the biodiversity impacts can be offset in accordance with the EPBC Act Environmental Offsets Policy.
455. I also accepted the Department's advice that these conditions are incorporated into the conditions imposed under the EPBC Act.

Approved conservation advice

456. I considered the approved conservation advice for Brigalow.²⁹
457. Key threats to the ecological community include clearing, fire, invasive species, inappropriate grazing regimes and climate change. The conservation advice states that the ecological community has undergone severe decline in extent, to approximately 10% of its former area, as a result of clearing for agricultural use in Queensland and NSW.
458. Priority conservation and management actions include protecting and conserving remnant and regrowth areas, preventing clearing of the ecological community and nearby vegetation, managing areas of Brigalow, managing weeds, foxes and cats, encouraging landholders to conserve native flora and fauna and undertaking regeneration action.
459. The Department advised, and I accepted, that the NSW conditions require the proponent to undertake mitigation measures and provide offsets in accordance with the conservation advice.

Threat abatement plans

460. The Department considered that the threat abatement plan for the biological effect, including lethal toxic ingestion, caused by cane toads, was relevant to the proposed action due to threats posed to the Brigalow ecological community.
461. The Department considered that cane toads are unlikely to have any impacts on the conservation and regeneration of Brigalow, and advised that the proposed mitigation measures and conditions, including measures for weed and pest management, are

²⁹ Department of the Environment (2013). *Approved Conservation Advice for the Brigalow (Acacia harpophylla dominant and co-dominant) ecological community*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/028-conservation-advice.pdf>.

such that the approval of the proposed action would not be inconsistent with this threat abatement plan. I agreed with this conclusion.

Conclusion

462. I accepted the Department's advice that, if the proposed action were approved subject to the conditions it recommends, it would not have an unacceptable impact on Brigalow.

Other listed threatened species and ecological communities

463. The Department considered at referral stage that there was a real chance or possibility that the proposed action would result in significant impacts to the listed threatened species discussed below.
464. Based on the information provided in the assessment documentation and NSW Assessment Report, the Department advised that the proposed action is unlikely to have a significant impact to these species and ecological communities. I accepted the Department's advice.
465. I have also considered the relevant recovery plans for the species and ecological communities that were considered unlikely to be significantly impacted by the proposed action and relevant threat abatement plans.

Large-eared Pied Bat

466. The proposed action would result in the clearance of up to 885 ha of foraging habitat for the species, with indirect impacts to an additional 175.4 ha. No individuals were recorded in the proposed action area during surveys and the species is considered unlikely to occur in the area. Avoidance and mitigation measures discussed above are also applicable to this species.
467. The Department advised that, given the significant impact criteria for the species, the proposed action is unlikely to have a significant impact on the Large-eared Pied Bat. The proposed action area does not contain habitat critical to the survival of the species, or an important population. I accepted the Department's advice that the proposed action was unlikely to have a significant impact on the Large-eared Pied Bat.
468. The national recovery plan for the Large-eared Pied Bat³⁰ identifies the major threats to include, relevantly, predation by introduced predators. Other major threats identified in the plan were not considered relevant to the proposed action. The Department considered that the relevant recovery actions were identifying priority roost sites, and priority sites for protection, and further understanding the species' distribution are relevant recovery actions to the proposed action.
469. While the NSW conditions do not include specific like-for-like offsets for the species, the retirement of ecosystem credits would contribute to increased habitat for the species.

³⁰ Queensland Department of Environment and Resource Management (2011), *National recovery plan for the large-eared pied bat* *Chalinolobus dwyeri*. Queensland Government, Brisbane. Available from: <http://www.environment.gov.au/system/files/resources/9e59696a-f72f-4332-8eda-25eeb4460349/files/large-eared-pied-bat.pdf>.

470. The Department noted that, while the proposed action would result in vegetation clearance, this would not occur in the proximity of any known roosts, and the required pre-clearance procedures would contribute to the broader understanding of the species' distribution and dynamics at a regional level. Compliance with relevant weed and pest management measures would also contribute to the management of threats to the Large-eared Pied Bat.
471. I considered that my approval of the proposed action, subject to conditions, would not be inconsistent with the national recovery plan.

Weeping Myall Woodlands ecological community

472. The proposed action would result in the clearing of up to 0.1 ha of the Weeping Myall Woodlands ecological community, which was identified in the proposed action area. This 0.1 ha was identified in the EIS as habitat critical to the survival of the ecological community.
473. The NSW assessment report states that the proposed action is unlikely to have a significant impact due to the small area of disturbance. The NSW conditions include an upper clearing limit of 0.1 ha and require the proponent to offset impacts to the community. The proponent has calculated that 5 ecosystem credits are required.
474. The Department advised that given the small area of the community that would be impacted, along with the proposed avoidance and mitigation measures discussed above at [118] and offset conditions, the proposed action is unlikely to result in a significant impact. I accepted the Department's conclusion.

White Box-Yellowed Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland ecological community (Box Gum Woodland)

475. At the time of the referral decision, the abovementioned ecological community was considered to potentially occur within the proposed action area and be impacted by the proposed action.
476. Further assessment of field data concluded that the assemblage of species and soil type within the proposed action area is not consistent with the listing advice for the ecological community. DPIE accepted this assessment and noted that the FDP includes further on-ground surveys to be carried out pre-construction allowing a further opportunity to assess the presence of the ecological community. If found in the proposed action area, the proponent would be required to avoid any impact to the ecological community or seek separate approval for that clearing under the EPBC Act.
477. On this basis, I accepted the Department's advice that it is unlikely the ecological community is present in the proposed action area, and it is therefore unlikely that it would be significantly impacted by the proposed action.
478. I considered the national recovery plan for Box Gum Woodland.³¹ I accepted the Department's advice that, given the ecological community is considered unlikely to

³¹ Department of Environment, Climate Change and Water NSW (2010), National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Available from: <https://www.environment.gov.au/system/files/resources/386f395f-b2c6-4e10-8fc3-e937ad277bfe/files/white-and-yellow-box.pdf>.

occur in the proposed action area, there were no relevant threats identified in the national recovery plan specifically relevant to the proposed action.

479. The Department considered that relevant recovery actions identified in the recovery plan included improving baseline information, compliance and regulatory activities. During the NSW assessment process, further assessment of field data and vegetation plots was undertaken, contributing to the baseline understanding of the distribution of the ecological community. The requirement for pre-construction ecological scouting will further contribute to this understanding.
480. If Box Gum Woodland was determined to be present within the proposed action area during ecological scouting, Santos would be required to avoid any impacts or seek approval under the EPBC Act. This would contribute to compliance and regulatory activities that protect the ecological community.
481. On this basis, I was satisfied that my approval of the proposed action, subject to conditions, is consistent with the recovery plan for Box Gum Woodland.

Other listed threatened species and ecological communities

482. The Department considered at the referral stage that there was a real chance or possibility that the proposed action would result in significant impacts to the following listed threatened species and ecological communities:
- Australasian bittern (*Botaurus poiciloptilus*) – endangered
 - Australian Painted Snipe (*Rostratula australis*) – endangered
 - Malleefowl (*Leipoa ocellata*) – vulnerable
 - Silver Perch (*Bidyanus bidyanus*) – critically endangered
 - Murray Cod (*Maccullochella peelii*) – vulnerable
 - Booroolong Frog (*Litoria booroolongensis*) – endangered
 - Brush-tailed Rock Wallaby (*Petrogale penicillate*) – vulnerable
 - Five-clawed Worm-skink (*Anomalopus mackayi*) – vulnerable
 - Pink-tailed Worm-lizard (*Aprasia parapulchella*) – vulnerable
 - Border Thick-tailed Gecko (*Uvidicolus sphyrurus*) – vulnerable
 - *Cadellia pentastylis* – vulnerable
 - *Philotheca ericifolia* – vulnerable
 - Prasophyllum sp. Wybong – critically endangered
 - Austral Toadflax (*Thesium australe*) – endangered
 - Coolibah-black box woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions ecological community – endangered
 - Grey box (*Eucalyptus macrocarpa*) grassy woodlands and derived native grasslands of south-eastern Australia ecological community – endangered

- Natural grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Queensland ecological community – critically endangered.

483. I accepted the Department's advice that, based on the information in the EIS and the NSW Assessment report, any anticipated impacts on these protected matters are unlikely to be significant, in accordance with the Significant Impact Guidelines.

484. I accepted the Department's advice that the proposed action is unlikely to result in a significant impact on any of these species and therefore it is not necessary for me to impose specific EPBC conditions for these species and communities.

National recovery plans

485. The Department also considered that recovery plans were relevant to the following listed species and ecological communities:

- Malleefowl
- Booroolong Frog
- Brush-tailed Rock-wallaby
- Murray Cod

486. The recovery plan for Malleefowl³² identifies the major threats to the species as vegetation clearing, fragmentation and isolation, grazing, predation, fire, disease, inbreeding and chemical exposure, and climate change. The overall strategy for the recovery of the species is to protect and revegetate habitat and habitat connectivity, control feral predators, monitor Malleefowl distribution and population trends, understand longevity and population turnover, understand habitat requirements, captive breeding programs, rapid survey techniques, and education.

487. I agreed with the Department's advice that, given it is unlikely that the species, or its habitat, is present within the proposed action area, and that management actions required by the NSW conditions would contribute broadly to the relevant recovery actions identified in the recovery plan, approving the proposed action subject to the recommended conditions, would not be acting inconsistently with this recovery plan.

488. The recovery plan for the Booroolong Frog³³ identifies major threats to the species as: disease, habitat degradation, stream drying, predation by exotic predatory fish, and herbicide use. The overall objectives for the recovery of the species are to determine the species distribution in areas that have not been the focus of targeted surveys, determine the taxonomic status of northern and southern populations, reduce impacts of known or perceived threats, determine population trends, identify potential impacts of climate change, identify other potentially threatening processes, increase community awareness and involvement in recovery, and achieve effective implementation of the recovery plan.

³² Benshemesh, J. (2007), *National Recovery Plan for Malleefowl* *Leipoa ocellata*. Department of Environment and Heritage, South Australia. Available from: <http://www.environment.gov.au/system/files/resources/dd346674-08ab-403d-8c11-5b88e8247e8f/files/malleefowl.pdf>.

³³ Hunter, D. (2012), *National Recovery Plan for the Booroolong Frog* *Litoria booroolongensis*. NSW Office of Environment and Heritage, NSW. Available from: <http://www.environment.gov.au/system/files/resources/bb38ec60-bdea-43db-8fbd-4b28a0af6fca/files/litoria-booroolongensis.pdf>.

489. I agreed with the Department's advice that, given that there is no suitable habitat for the Booroolong Grog present in the proposed action area, none of the relevant threats are specifically relevant to the proposed action. I considered that in approving the proposed action, I would not be acting inconsistently with this recovery plan.
490. The recovery plan for the Brush-tailed Rock-wallaby³⁴ identifies the major threats to the species as hunting and persecution, habitat degradation and loss, predation and competition, and genetic decline. The overall strategy for the recovery of the species is to determine and manage threats to the species and its habitat, determine distribution, abundance, population trends and viability, establish and maintain separate viable captive populations, undertake translocations, investigate key aspects of species biology and ecology, and increase community awareness and support for conservation.
491. I agreed with the Department's advice that, given that the species is considered unlikely to occur in the proposed action area, none of the relevant threats are specifically relevant to the proposed action. I considered that in approving the proposed action, I would not be acting inconsistently with this recovery plan.
492. The recovery plan for the Murray Cod³⁵ identifies major threats to the species as flow regulation, habitat degradation, lowered water quality, barriers, invasive species, commercial, recreational and illegal fishing, stocking and translocations, diseases, and climate change. The overall strategy for the recovery of the species is to determine distribution, structure and dynamics of populations and devise management and monitoring programs, identify and quantify environmental parameters driving recruitment and population growth, identify, protect and repair key aquatic and riparian habitats, manage recreational fishing, and encourage community awareness and support for Murray Cod management.
493. I agreed with the Department's advice that, given that there is no suitable habitat for the Murray Cod present in the proposed action area, none of the relevant threats are specifically relevant to the proposed action. I considered that in approving the proposed action, I would not be acting inconsistently with this recovery plan.

Threat abatement plans

494. The Department considered that the following threat abatement plans were relevant to other listed species and ecological communities:
- Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads
 - Threat abatement plans for, predation, habitat degradation, competition, and disease transmission by feral species including pigs, goats, rabbits, cats and foxes

³⁴ Hynes, E. & Menkhorst, P. (2011), *National Recovery Plan for the Brush-tailed Rock-wallaby* *Petrogale penicillate*. Victorian Government Department of Sustainability and Environment, Melbourne. Available from: <http://www.environment.gov.au/system/files/resources/55148790-484f-4413-9a06-90e6d985c267/files/brush-tailed-rock-wallaby.pdf>.

³⁵ Koehn et al. (2010), *National Recovery Plan for the Murray Cod* *Maccullochella peelii*. Victorian Government Department of Sustainability and Environment, Melbourne. Available from: <http://www.environment.gov.au/system/files/resources/bcc0fbf6-279b-4c52-88c5-42ce4d44b864/files/murray-cod.pdf>.

- Threat abatement plan for the infection of amphibians with chytrid fungus resulting in chytridiomycosis
 - Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*
495. The Department considered that cane toads are unlikely to have any impacts on any other listed species and communities, and considered that the proposed mitigation measures and recommended conditions, including measures for weed and pest management within the required BMP, are such that the approval of the proposed action would not be inconsistent with this threat abatement plan. I accepted this conclusion.
496. In relation to the threat abatement plans concerning feral species, advice provided to DPIE by BCD as part of the NSW assessment process noted that the Pilliga is not identified as a priority area for any of the above threat abatement plans. The NSW Assessment Report also stated that further pest animal control would be required for both the proposed action area and land-based offsets required under the BMP.
497. The Department considered that the proposed action is unlikely to contribute to increasing feral animal activity within the proposed action area, and instead is likely to assist with the management of these species through the proposed mitigation measures and recommended conditions. The Department considered that the recommended conditions require the proponent to undertake mitigation measures in accordance with these threat abatement plans to reduce threats from pests and predators. On this basis, I accepted the Department's advice that the approval of the proposed action subject to the recommended conditions would not be inconsistent with any threat abatement plans relevant to the proposed action.
498. The threat abatement plan for the infection of amphibians with chytrid fungus resulting in chytridiomycosis is relevant to the proposed action due to threats to the Booroolong Frog. However, as the Ecological Impact Assessment identified that there is no suitable habitat for the Booroolong Frog within the proposed action area, I agreed with the Department that the proposed action was unlikely to increase the risk of infection. Additionally, there are suitable measures for weed and pest management within the BMP. On this basis, I accepted the Department's advice that the approval of the proposed action would not be inconsistent with this threat abatement plan.
499. The Department noted that the threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* is relevant to the proposed action due to threats posed to Box Gum Woodland, and other flora species, or their habitat, susceptible to dieback. However, the EIS found no evidence of dieback caused by *Phytophthora cinnamomi* in the study area and considered the risk of the pathogen occurring as low. Nevertheless, to minimise risks, vehicle wash down stations and inspections of transported soil will be implemented and incorporated in the FDP or BMP. The Department and Biodiversity Advisory Panel will review the BMP to ensure environmental risks, including the risk of introduction or spread of the pathogen are appropriately managed. On this basis, I accepted the Department's advice that the approval of the proposed action would not be inconsistent with this threat abatement plan.

NSW conditions and EPBC Act conditions relevant to threatened species and communities (s 18 and 18A)

500. NSW approved the proposed action subject to conditions.
501. The Department considered conditions **B43-B52** of the NSW conditions of approval relate to avoidance, mitigation and offsetting measures for listed threatened species and communities.
502. NSW conditions **B43-B49** relate to the retirement of biodiversity credits to compensate for impacts to biodiversity as a result of the proposed action, in accordance with the Department endorsed NSW Biodiversity Offsets Scheme.
503. NSW conditions **B50-B52** relate to the formation of a Biodiversity Advisory Group, and the subsequent preparation and implementation of a Biodiversity Management Plan. NSW condition B51 (a-l) specifies the necessary inclusions in that plan, such as a Biodiversity Offset Strategy, Koala Research Program, measures to manage invasive species, grazing and agriculture and measures to minimise impacts to biodiversity.
504. The NSW Assessment Report states that the conditions relating to offsetting are consistent with the NSW Major Projects Offsetting Policy, and with the NSW Biodiversity Offsetting Scheme. As such, the conditions are consistent with the EPBC Act Offsets Policy.
505. I accepted the Department's advice that the conditions it recommended relevant to EPBC Act protected matters were necessary or convenient for the protection of those matter.
506. Conditions 25-27 reflect the NSW conditions of approval relating to listed threatened species and ecological communities.
507. The upper clearing limits identified in Tables 8-10 at condition B43 of the NSW conditions are considered appropriate in limiting the clearance of habitat or individuals of Commonwealth-listed impacted species and ecological communities.
508. The offset liability for each listed threatened species or ecological community discussed above would be met through the retirement of the ecosystem credits identified at Tables 8-10 of NSW condition B43.
509. The NSW biodiversity assessment and offset framework, which has been endorsed by the Commonwealth, calculates offset credits based on plant community types which act as surrogates for species habitat. The NSW conditions set clearance limits based on the maximum clearance for each plant community type, instead of for each species. Despite this difference in the methodology, the Department considers that the NSW conditions would achieve the same result as conditions that are based on species habitat. On that basis, I was satisfied that as long as the proponent complies with the NSW conditions, and retires all necessary ecosystem credits, impacts to listed threatened species and communities will be offset. I therefore accepted the Department's advice that additional EPBC Act conditions for clearance limits and offset credit requirements for each protected matter were not necessary.

Conclusion on impacts on threatened species and communities (s 18 and 18A)

510. On the basis of the above, I was satisfied that the proposed action would not have unacceptable impacts on threatened species and ecological communities, provided it is taken in accordance with the relevant conditions. I approved the proposed action for the purposes of ss 18 and 18A of the EPBC Act.

Commonwealth Land (ss 26 and 27A)

Siding Spring Observatory

511. Siding Spring Observatory (the Observatory) is Australia's largest and premier optical and infrared observatory. It was built in the 1960s as a field station of the Mt Stromlo Observatory, away from the increasing light pollution of Canberra. It has over 20 telescopes and is an operating research facility for local and international astronomical science.
512. The Observatory is located on the traditional lands of the Kamilaroi people. It is situated on Mount Woorut and adjacent to the eastern boundary of Warrumbungle National Park, which is a listed National Heritage Place for its geomorphology. It also sits within the Warrumbungle International Dark Sky Park, which is free from light pollution.
513. It is 20 km west of Coonabarabran and approximately 80 km south-west of the proposed action's southern boundary. The Observatory is on approximately 151 ha of Commonwealth land owned and primarily managed by the Australian National University (ANU).
514. The Dark Sky Planning Guideline – protecting the observing conditions at Siding Spring (Dark Sky Guidelines) was published by the then NSW Department of Planning and Environment in 2015. It provides guidance and technical information to reduce and manage artificial light from development in the Dark Sky Region, a 200 km radius area around the Observatory.

Heritage values

515. The Observatory is not listed on the World, National, Commonwealth or State heritage lists. However, the heritage values and local significance of the Observatory contribute to the general values of the 'environment' on Commonwealth land.
516. ANU, as a Commonwealth entity and manager of the Observatory, has committed to identifying, protecting, conserving and managing the Observatory's heritage values through its Heritage Strategy and the Siding Spring Observatory Heritage Management Plan. The Plan recognises that the historical, social, Indigenous and natural heritage values of the Observatory are embodied in the landscape and campus and its various elements. It also indicates that the Observatory is significant for its rarity, research potential, community aesthetic and representation of creative and technical achievement.

Impacts

517. As the Observatory is located on Commonwealth land, impacts to these values are taken into consideration as part of a 'whole of environment' assessment during the referral.

518. The Department advised that the social, economic, aesthetic and cultural values of the Observatory were unlikely to be impacted, given the distance of the proposed action from the Observatory. However, artificial light spill and increased dust emissions from construction and/or operation of the proposed action could result in a significant impact on the Observatory. I accepted the Department's conclusion that light and dust impacts may result in significant impacts on the Observatory.
519. The main sources of light would be from gas well flaring at proposed pilot wells and safety flares at the Bibblewindi and Leewood processing facilities.

Avoidance and mitigation

520. During the NSW assessment process, the impacts of gas well flaring was raised by the Observatory, Gilgandra Shire Council, the former Australian Astronomical Observatory (AAO; previously a division of the Commonwealth Department of Industry), and members of the public.
521. The proponent consulted with the Observatory and AAO and undertook a Gas Flare Light Assessment. The assessment noted that:
- flaring would result in some vertical and horizontal light impacts but these were below the Dark Sky Guideline thresholds and would have a negligible impact on the Observatory's operations.
 - Safety flares may be visible on occasion from the Observatory but were unlikely to impact its long-term operation as they were used infrequently above 1.5 m.
 - Air quality could be impacted by dust and nitrogen dioxide but the proposed emissions are within regulatory thresholds.
522. The AAO and Observatory both acknowledged that the proposed action was unlikely to adversely affect operations of the Observatory. The AAO suggested that visual and lighting impacts could be minimised by undertaking scheduled flaring activities during a gibbous (more than 50 percent full) moon. The Observatory considered the potential for impacts to be negligible.
523. The NSW conditions do not allow flares associated with pilot wells, reducing the potential light impacts to the two safety flares at the Bibblewindi and Leewood processing facilities.
524. NSW concluded that impacts would not be unacceptable if undertaken in accordance with the NSW conditions, which require the proponent to:
- Minimise lighting and sky glow impacts on the Observatory;
 - Consult with relevant parties on monitoring light levels;
 - Undertake scheduled flaring activities during a gibbous moon; and
 - Ensure compliance with the Dark Sky Guidelines and give due consideration to good lighting design principles.
525. The Department agreed that these conditions are appropriate, and advised me to adopt the NSW conditions.

526. The Department's Historic Heritage Section advised that the proposed action is unlikely to have detrimental impacts on the heritage values of the Observatory, provided it complies with the Dark Sky Guidelines. They also advised that the proposed action is unlikely to have direct, indirect or cumulative impacts upon the observing environment of the Commonwealth land on which the observatory is situated, due to the nature and significant distance of the proposed action to the Observatory.

Conclusion on Commonwealth land

527. I accepted the Department's advice that I adopt the relevant NSW conditions as they are suitable and necessary to mitigate any impacts on the values of the Observatory. I also accepted that the proposed action is not likely to otherwise have a significant impact on the environment of the Commonwealth land on which the Observatory stands. If undertaken in accordance with these conditions, the proposed action is unlikely to result in a residual significant impact on the environment on Commonwealth land.
528. I found that the proposed action will not have an unacceptable impact on Commonwealth land.

Greenhouse Gas Emissions

529. The proposed action will produce greenhouse gas (GHG) emissions. These include the direct Scope 1 emissions (direct emissions including fugitive emissions from the gas field) and indirect Scope 2 (electricity) and Scope 3 emissions (downstream gas use).
530. The NSW assessment notes that the proposed action's Scope 1 GHG emissions will be small, representing less than 0.2 percent of total Australian emissions. The total project emissions (scope 1, 2 and 3) would be approximately 0.9 percent of the nation's total emissions. On a global scale, these emissions would represent 0.009 percent of current global GHG emissions (i.e. 53.5 GT CO₂-e).
531. The bulk of emissions associated with the proposed action are indirect emissions associated with the downstream burning of the gas resource (Scope 3 emissions), which account for some 75 percent to 80 percent of the total direct and indirect GHG emissions generated by the proposed action.
532. Public submissions on the EIS raised concerns that the GHG assessment omitted or underestimated emissions, particularly fugitive emissions of methane and CO₂ from gas extraction and processing operations. Public submissions during the IPC process also raised the contribution of the GHG emissions to climate change.
533. The IPC agreed that substantial exceedance of predicted emissions would jeopardise the expected GHG advantages arising from using CSG over coal, which was a strategic justification presented in the NSW assessment. Therefore, the IPC determined that the proposed action should not be permitted to exceed its predicted Scope 1 and 2 emissions.
534. The NSW approval conditions require that reasonable measures are employed, so that greenhouse gas emissions (scope 1 and 2) generated by the development do not exceed defined limits identified in the NSW conditions. Where greenhouse gas limits are exceeded, the proponent will be required to offset in compliance with the offset

integrity principles set out in the Commonwealth Government's *Carbon Neutral Organisation: Climate Active Carbon Neutral Standards for Organisations* (July 2020).

535. The NSW approval conditions also require the establishment of a Greenhouse Gas Emissions Advisory Group to inform the proper management and reporting of the proposed action's greenhouse gas emissions.

Conclusion on GHG emissions

536. I noted the relevant NSW approval conditions and accepted the Department's advice that further conditions are not necessary to protect listed threatened species and ecological communities, the Siding Spring Observatory, the environment on Commonwealth land, and water resources.

Economic and social matters (s 136(1)(b))

Economic matters

537. The NSW assessment report states that the Narrabri Gas Project will provide major economic benefits for Narrabri, the North West region and NSW. In particular:

- a direct capital investment of \$3.6 billion, and a further \$5.5 billion in operating costs over the life of the proposed action
- generating 1,300 jobs during peak construction, 200 jobs at the proposed action during operations
- over 500 direct and indirect jobs in the surrounding region and NSW
- increasing NSW real economic output by approximately \$12 billion
- generating more than \$3 billion in direct revenue for the NSW Government through royalties and taxes
- providing significant funding for local infrastructure and community service projects over the life of the proposed action, including via a Community Benefit Fund with a value of around \$120 million, and also a Voluntary Planning Agreement and Road Maintenance Agreement with Narrabri Council, with a value of approximately \$14.5 million.

538. DPIE engaged an independent economic consultant, Dr Brian Fisher of BAEconomics, to undertake a review of the economic assessment and economic impact associated with the proposed action. The review confirmed that the assessment had been undertaken in accordance with applicable economic guidelines and gave reasonable estimates of the likely impacts of the action.

539. Public submissions provided varied views on the economic impacts of the proposed action, including questioning: the long-term viability of the farming economy and agricultural land, the small number of net jobs gained from the proposed action would be offset by the loss of jobs in other sectors, the independence of the independent economist engaged by NSW DPIE to review the economic assessments and impacts associated with the project, that Narrabri gas is expensive compared to other gas sources and therefore the project would be uneconomic and that the revised economic modelling contained misleading claims and a flawed analysis that overstated the case for the Project.

540. The IPC was satisfied that the proposed action, subject to the conditions of consent imposed by the IPC, was consistent with the intent of the NSW Energy Package Memorandum of Understanding (MoU) entered into on 31 January 2020 as part of the goals of the NSW Gas Plan. Under the MoU, the NSW Government will set a target to inject an additional 70 PJ of gas per year into the NSW market.
541. The IPC considered that the proposed action would provide a net economic benefit for the local community, region and state.
542. The EIS cost benefit analysis, noted the costs of the proposed action included:
- Capital project construction;
 - Operating costs;
 - Decommissioning and rehabilitation;
 - Loss of agricultural production;
 - Loss of forestry production;
 - Public infrastructure maintenance and renewal;
 - Biodiversity offsetting;
 - Noise and vibration impacts; and
 - Greenhouse gas impacts.
543. Nevertheless, the EIS concluded that the proposed action's economic benefits would significantly outweigh its costs with a net economic benefit of between \$1.5 and \$1.6 billion.
544. The IPC accepted DPIE's summary of the costs and benefits, and found that the project would have a significant net economic benefit for the local community, region and State. It would also secure existing and future industries through providing a local gas supply, and job creation.

Social matters

545. The EIS included a detailed social assessment of the social impacts of the proposed action. The NSW assessment report stated that the proposed action would generate a range of major positive social impacts in the local community, wider region and State. In particular, by creating jobs, economic opportunities, facilitating flow-on local economic development, bolstering domestic and industrial gas supplies, and generating significant tax and royalty revenues.
546. The IPC concluded the social benefits to include:
- 1,300 construction jobs;
 - 200 operational jobs (includes approximately 50 existing project-related jobs);
 - Opportunities for skills training for Aboriginal employees;
 - Diversification of local industry and jobs – multiplier flow on in employment generation;

- Increase in local procurement;
- Small increase in the population of Narrabri;
- Compensation to landholders for the duration of the proposed action;
- Community Benefit Fund grants (no more than \$500,000 per project);
- Voluntary Planning Agreement with Council worth \$14.5 million; and
- Catalyst for Inland Port Employment Precinct.

547. However, the NSW assessment report and IPC report also acknowledged that the proposed action has the potential to have negative social impacts in the local community and the wider area, by putting pressure on local services and facilities and affecting social dynamics and other land users. Other costs and risks identified were:

- Increased traffic generation around Narrabri;
- Increase in potential traffic incidents;
- Decrease in Narrabri's housing availability and affordability;
- Masculinisation of Narrabri during construction;
- Potential loss of jobs from agriculture to the proposed action;
- Continuing social conflict and division;
- Increased demand on social infrastructure and services;
- Potential distributional inequity of benefits;
- Potential increased cost of living; and
- Potential decline in mental health indicators from perceived CSG impacts.

548. Consultation was undertaken with Professor Deanna Kemp, Director of the University of Queensland's Centre for Social Responsibility in Mining Sustainable Minerals Institute. Professor Kemp identified issues with aspects of the proponent's social assessment, but considered that overall the negative social impacts of the proposed action could be appropriately managed, and many of the residual issues could be dealt with through a Social Impact Management Plan and appropriate conditions of consent.

549. Public submissions also raised several issues including concerns about vulnerable groups, community fears and health, impacts associated with a fly-in-fly-out (FIFO) workforce, and impacts following closure of the proposed action.

550. The IPC concluded that the proposed action would result in a range of positive and negative social risks and/or impacts, but also found that the negative social risks associated with the proposed action could be appropriately monitored, managed and mitigated through the conditions imposed.

Indigenous and cultural matters

551. The proposed action area is located within Kamilaroi Country. The proposed action area is located predominantly within the administrative area of the Narrabri Local Aboriginal Land Council (LALC).
552. An Aboriginal Cultural Heritage Assessment (ACHA) was undertaken as part of the EIS, and the NSW Government arranged an independent review of both that assessment, and the associated Aboriginal Cultural Heritage Management Plan (ACHMP). That review did not raise any significant concerns about the ACHA, subject to a number of recommendations which have been reflected in the NSW conditions.
553. Both the ACHA and ACHMP were undertaken in consultation with relevant Aboriginal stakeholders, including over 550 Registered Aboriginal Parties (RAPs). An independent reviewer, BCD, and the NSW government reviewed the consultation process and were satisfied that it was undertaken in accordance with applicable guidelines.
554. The Minister for Indigenous Australians also responded to an invitation to comment on the proposed decision, and noted that the proponent has met its Aboriginal consultation obligations under NSW legislation. The Minister provided general support for the proposed action, but noted tensions between stakeholders in relation to development proposals and encouraged the Department to work closely with the NSW Government ensure the preservation of Aboriginal cultural heritage.
555. The Department advised that it has encouraged such working relationships between the proponent, NSW Government and National Indigenous Australians Agency in relation to consultation and management of Aboriginal cultural heritage.
556. 90 known Aboriginal cultural heritage sites were identified within the proposed action area during the ACHA, and associated landscape mapping identifies potential cultural heritage sensitivity zones within the proposed action area.
557. The proponent committed to implementing buffers to culturally sensitive areas, such as watercourses, and to avoid all known Aboriginal sites within the proposed action area, which have been reflected in the NSW conditions.
558. The Department advised that the NSW conditions reflect the proponent's commitment and recommendations in the independent review of the ACHA and ACHMP.
559. The conditions require the proponent to avoid all direct and indirect impacts to known Aboriginal sites, and higher significance sites identified through micro-siting surveys.
560. The conditions also require the proponent to finalise and implement the ACHMP, and to establish and maintain an Aboriginal Cultural Heritage Advisory Group for the proposed action, including representatives from DPIE, suitably qualified archaeologists, the Narrabri LALC, Wee Waa LALC and the Gomeroi native title claimants.
561. The IPC concluded that the NSW conditions were appropriate and preparation of the ACHMP would ensure that the proponent will have proper regard to items and areas of Aboriginal cultural significance.

Conclusion on economic and social impacts

562. The Department advised that it accepted the conclusion in the NSW assessment report, that the proposed action would generally meet all relevant health and amenity criteria and result in major socio-economic benefits for the locality, region and the State. However, the proposed action does have the potential to result in some negative social impacts, particularly at the local level.
563. The Department agreed with the NSW assessment, that these residual impacts can be appropriately minimised and managed. I accepted this conclusion.
564. The Department also agreed with the IPC conclusion that the implementation of both an ACHMP and associated advisory group will ensure that the potential disturbance to Aboriginal cultural heritage will be suitably managed. I also accepted this conclusion.
565. I agreed with the Department's advice that the negative economic and social impacts can be managed to achieve the benefits of the proposed action.

Additional considerations

566. In considering the above matters, I must take into account:

- the principles of ecologically sustainable development (set out in section 3A of the EPBC Act), including the precautionary principle (set out in sections 3A(b) and 391(2) of the EPBC Act) (section 136(2)(a));
- the NSW assessment report, being the assessment report relating to the proposed action (section 136(2)(b));
- any other information I have on the relevant impacts of the proposed action (section 136(2)(e));
- any relevant comments given to me by another Minister in accordance with an invitation under section 131, 131AA or 131A ((section 136(2)(f) and section 131AA(6)); and
- any information given to me in accordance with a notice under section 132A (section 136(2)(g)).

Principles of ecologically sustainable development (s 136(2)(a))

567. In approving the proposed action subject to conditions, I took into account the principles of ecologically sustainable development, including the precautionary principle (s 391(2)) in the following ways.

- a) *Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.*

568. In approving the proposed action, I have considered the long and short-term economic, environmental, social and equitable impacts in accordance with section 3A(a) of the EPBC Act. The proposed action has gone through an environmental impact assessment process involving economic, environmental, social and equitable considerations, and included a public consultation process.

569. I considered that the documents provided to me were sufficient to allow me to conclude that the decision-making process has effectively integrated both short and long term social, economic and environmental considerations.
570. As noted above, the proposed action will result in positive economic benefits, including attracting \$3.5 billion of capital investment to the region and \$5.5 billion of spending during operations. This will create approximately 1,300 construction jobs and help to reduce gas prices. The proposed action is expected to produce up to 200 TJ of gas per day for the domestic market, which is approximately half of NSW's gas demand, and will help address any forecast shortfalls in gas supply on the east coast.
571. Targeted ecological surveys of the existing environment within the proposed action area were undertaken to increase the understanding of the potential impacts of the proposed action on the environment. The Department advised that the ecological surveys were undertaken in accordance with the Commonwealth-endorsed NSW biodiversity offsets policy for major projects and Framework for Biodiversity Assessment.
572. Data on groundwater and surface water quality and quality, and core sampling, was also collected to better understand the geology, hydrology and hydrogeology of the proposed action area and surrounds. The data was used to inform predictive modelling to also understand the nature and extent of potential impacts on the environment.
573. A social impact assessment was also included in the EIS, which recognised that some negative impacts will occur on the 'way of life' of nearby communities, but numerous beneficial social impacts are also expected. DPIE engaged an independent expert to provide advice on the social assessment and impacts of the proposed action. The NSW assessment also concluded that the proposed action would result in both positive and negative social impacts, but overall, any adverse social impacts can be mitigated through community engagement and transparent public reporting on the proposed action; promoting local economic development through jobs and training opportunities; and providing significant funding for local public infrastructure and essential services.
574. I accepted the Department's advice that the likely impacts on the environment as a result of the proposed action are satisfactory in terms of the long-term and short-term economic, environmental, social and equitable impacts. I agreed that all short-term and long-term impacts on protected matters would be managed through the recommended conditions for approval under the EPBC Act, and the conditions imposed by the NSW Government.
575. On this basis, I found that the proposed action, if undertaken in accordance with the recommended approval conditions, would be consistent with this principle of ecologically sustainable development.
- b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (also the precautionary principle - section 391(2))*
576. In approving the proposed action, I found that there is sufficient scientific information to know of, and understand, the likely impacts of the proposed action on matters protected by the controlling provisions of the proposed action.

577. The proponent has taken a precautionary approach in determining its biodiversity impacts and based its offset liability on a worst-case scenario of up to 989 ha of vegetation clearance. The proponent expects to impact less than 70 percent of this amount.
578. The IPC report also considered the precautionary principle in its determination, particularly regarding groundwater contamination, water security, bushfire risk, greenhouse gas emissions, biodiversity and Aboriginal cultural heritage impacts. The IPC concluded that the risk of the proposed action causing serious or irreversible environmental harm is low. The Department agreed with this conclusion, having regard to the proposed avoidance, mitigation and offset measures. I also agreed with this conclusion.
579. I noted that there is a lack of certainty regarding the risk or severity of impacts around groundwater drawdown on GDEs as the impacts are based on modelling and the location of wells has not been finalised. However, to account for this uncertainty, the Department recommended, and I adopted, additional conditions to ensure that the proposed action complies with relevant performance measures and thresholds, ongoing monitoring and updated modelling is undertaken, and response mechanisms are in place to manage those impacts in a timely manner. The conditions include a cease-work condition and the requirement for corrective actions to be undertaken to prevent any adverse impacts to GDEs resulting from exceedances in groundwater drawdown.
- c) *The principle of intergenerational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.*
580. In approving the proposed action, I have taken into account the intergenerational equity principle.
581. The IPC report considered that intergenerational equity has been appropriately addressed by the proponent and noted that impacts to the region's natural resources would be relatively low. The IPC was satisfied that potential risks could be identified, avoided and managed through the conditions of approval.
582. The Department agreed with the IPC's conclusion and advised that the conditions of approval would ensure the protection and management of listed threatened species and ecological communities, water resources, and the heritage values of the Observatory on Commonwealth land. I accepted the Department's advice that the conditions are sufficient to ensure that the proposed action will be implemented in a sustainable way and protect the environment for future generations.
583. On this basis, I found that the proposed action, if undertaken in accordance with the recommended approval conditions, would be consistent with this principle of intergenerational equity.
- d) *The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.*
584. In approving the proposed action, I have considered the conservation of biodiversity and ecological integrity in relation to relevant MNES in deciding whether the proposed action be approved.

585. I agreed with the Department's advice that the proponent's commitments to avoid, mitigate and manage the impacts of the proposed action, including through the implementation of management plan objectives, and the recommended conditions of approval, allow for the proposed action not to have serious or irreversible impacts on biological diversity and ecological integrity.

586. I also agreed with the Department's advice that the NSW assessment report and EIS also took the conservation of biological diversity and ecological integrity into account as a fundamental consideration in assessing the proposed action. This documentation included a review of the land use in the Pilliga to balance values, land-uses and formal conservation reserves and ultimately aim to protect the biological diversity values of the Pilliga.

e) Improved valuation, pricing and incentive mechanisms should be promoted.

587. In approving the proposed action, I have taken into account the promotion of improved valuation, pricing and incentive mechanisms. I accepted the Department's advice that the costs of avoidance, mitigation and management measures for any relevant impacts provide appropriate pricing and incentive mechanisms for the protection of matters of environmental significance and the environment.

588. I also agreed with the Department's view that the NSW conditions provide a financial incentive to further reduce impacts to biodiversity by including the opportunity for the proponent to reduce the biodiversity offset liability amount if the final disturbance footprint is reduced.

NSW assessment report (s 136(2)(b))

589. As will be apparent from this statement of reasons, I have had regard to the NSW assessment report.

Any other information I have on the relevant impacts of the proposed action (section 136(2)(e)), including comments from other stakeholders

590. I have considered all the information I have on the relevant impacts of the proposed action, as attached to my brief. This included the proponent's assessment documents (EIS, RTS, which included public comments, and additional information), and material from NSW agencies in considering relevant impacts of the proposed action.

591. I have also considered information from relevant line areas within the Department on the potential impacts of the proposed action on protected matters.

592. There are no strategic assessment reports that are relevant to the proposed action, and all other information relevant to the proposed action is attached to the brief.

593. There are no bioregional plans relevant to this proposed action, as these relate to marine regions.

594. The Australian Government's Bioregional Assessment Program (completed in 2018) assessed the potential impacts of coal seam gas and large coal mining developments on surface water and groundwater, and ecosystems or assets that depend on them. Six bioregions across Queensland, New South Wales, Victoria and South Australia were assessed.

595. The Narrabri Gas Project is located in the Namoi subregion of the Northern Inland Catchments bioregion.

- The Namoi subregion bioregional assessment was considered as part of the NSW assessment process and by the Department in preparing my brief.
- The Namoi subregion bioregional assessment included regional-scale hydrological modelling of how new or expanding coal resource developments in the region could affect groundwater and surface water resources.
- The model predicted that none of the main aquifers of the GAB would be impacted by coal resource development in the region.

596. The Department considered that the extensive site specific water impact assessments undertaken during the NSW assessment of the proposed action and the IESC advice, provided a finer scale assessment of the proposed action's impacts on water resources and therefore can provide greater certainty with regard to decision making in respect to impacts on water resources.

597. As outlined above, I was satisfied that the proposed action would not have an unacceptable impact on water resources, provided it is undertaken in accordance with the recommended conditions of approval.

Any relevant comments given to the Minister by another Minister in accordance with an invitation (s 136(2)(f) and s 131AA(6))

598. In considering the matters set out in s 136(1) of the EPBC – matters relevant to protected matters and economic and social matters – I took into account any relevant comments given to me under sections 131 (from other Commonwealth Ministers) and 131A (from members of the public).

599. In deciding whether or not to approve the proposed action, I also took into account relevant comments provided by the proponent and person proposing to take the action under s 131AA.

600. I informed other Ministers who I believed had administrative responsibilities relating to the action of the decision I proposed to make, and invited comments within 10 business day, in accordance with s 131 of the EPBC Act.

601. I invited comments on my proposed decision from:

- The Prime Minister, the Hon Scott Morrison MP;
- The Deputy Prime Minister and Minister for Infrastructure, Transport and Regional Development, the Hon Michael McCormack MP;
- The Minister for Employment, Skills, Small and Family Business, Senator the Hon Michaelia Cash;
- The Minister for Energy and Emissions Reduction, the Hon Angus Taylor MP;
- The Minister for Indigenous Australians, the Hon Ken Wyatt AM MP;
- The Minister for Industry, Science and Technology, the Hon Karen Andrews MP;
- The Minister for Regional Health, Regional Communications and Local Government, the Hon Mark Coulton MP;
- The Minister for Resources, Water and Northern Australia, the Hon Keith Pitt MP;

- The Minister for Agriculture, Drought and Emergency Management, the Hon David Littleproud MP; and
- The proponent, Santos.

602. I also notified the NSW Minister for Planning and Public Spaces, the Hon Rob Stokes MP, of my proposed decision.

603. The Department advised me that seeking public comments under s 131A of the EPBC Act is discretionary and recommended that I did not seek public comments in this case. I agreed that public consultation would be unlikely to raise any new issues, noting that the views of the public in relation to the proposed action were well understood and extensive consultation have been undertaken in the NSW assessment process.

Comments from the Prime Minister

604. The Prime Minister's response, dated 6 November 2020, noted the central role of affordable gas to support economic recovery, and the project's role in generating regional employment and helping meet NSW's gas demand. The Prime Minister also noted the streamlined and robust assessment process undertaken for the project, and the additional conditions to protect Commonwealth matters.

Comments from the Minister for Agriculture, Drought and Emergency Management

605. On 29 October 2020, the Department replied on behalf of Minister Littleproud and stated that it had no comments on the proposed decision.

Comments from the Minister for Employment, Skills, Small and Family Business

606. Senator Cash responded on 11 November 2020. She provided general support for the project and noted that it is significant for NSW and will increase employment opportunities for the Narrabri region.

Comments from the Minister for Energy and Emissions Reduction

607. Minister Taylor responded on 12 November 2020 and noted the economic benefits of the project, including that it will support local industry and jobs, help deliver reliable and affordable energy to domestic consumers, and help prevent forecast gas shortfalls.

608. Minister Taylor supported my proposed approval of the project and encouraged working closely with Santos to minimise any regulatory burden arising from the implementation of additional conditions, while still upholding protections. The Department advised that it had done so.

Comments from the Minister for Indigenous Australians

609. Minister Wyatt responded on 11 November 2020 and supported my proposed approval of the action. As discussed earlier, Minister Wyatt highlighted the need for adequate and comprehensive representation with consulting with Indigenous stakeholders.

610. Minister Wyatt also noted the lack of Commonwealth and NSW conditions requiring Indigenous enterprise or employment outcomes, and has asked the National Indigenous Australians Agency (NIAA) to work with Santos to support such outcomes.

The Department advised me that the letter to Santos includes this advice and encourages ongoing Indigenous stakeholder consultation. The details of a relevant contact at NIAA had also been provided to help facilitate this engagement.

Comments from the Minister for Industry, Science and Technology

611. Minister Andrews responded on 17 November 2020, supporting my proposed approval and noting the project's key role in providing energy security and reliability, and supplying a key input for manufacturing.

Comments from the Deputy Prime Minister and Minister for Infrastructure, Transport and Regional Development

612. On 16 November 2020, the Minister for Infrastructure, Transport and Regional Development noted the proposed approval of the project and the conditions, and encouraged Department officer-level consultation

Comments from the Minister for Regional Health, Regional Communications and Local Government

613. On 11 November 2020, the Department of Infrastructure advised that Minister Coulton had a nil response and would not be formally responding.

Comments from the Minister for Resources, Water and Northern Australia

614. On 12 November 2020, Minister Pitt responded to my letter, advising that he supported my proposed approval of the project subject to compliance with the proposed conditions. Minister Pitt suggested that Geoscience Australia (GA) comments (discussed below) are taken into consideration and encouraged streamlining of Commonwealth and NSW conditions to avoid any conflict or overlap of conditions. GA commented on the proposed conditions relating to groundwater, particularly the practicalities of their implementation and enforceability.
615. GA identified three main issues with the proposed conditions (and provided recommendations to address those issues):
- the method of developing reference values to monitor potential groundwater impacts should be specified;
 - the Department and Santos should agree on the methods to quantify groundwater impacts as exceedances at monitoring bores may be due to factors external to the project, like extraction by other industries; and
 - the timeframes for the approval holder to undertake certain actions may not be sufficient, and may need to be revised.
616. The Department and Santos agreed to revised groundwater conditions that address GA's concerns. I accepted the Department's advice that the final conditions enable robust monitoring and compliance, and set appropriate timeframes for the approval holder to undertake management actions.

Further information received from Greenpeace

617. On 9 November 2020, the Department received correspondence from Greenpeace advising that it had further information about possible hydrogeological impacts from the project.
618. Their key concern was that evidence of groundwater and/or gas migration (from the deep target coal seams through geological faults and fractures into the shallower Namoi Alluvium) had not been adequately considered in Santos' groundwater modelling, or in the NSW Department of Planning, Industry and Environment's (DPIE) or the Independent Planning Commission of NSW's (IPC) assessments. The submission stated that the presence of faults and fractures and interconnectivity could result in greater impacts from the project than those currently predicted.
619. The submission included:
- an expert report on the risks to groundwater from the project, by Dr Matthew Currell, an Associate Professor of environmental engineering at RMIT University. This report was provided to the IPC for its consideration, is publicly available on the IPC website, and was considered by the Department in its assessment and proposed decision recommendation.
 - a journal article by Gurba and Weber (2001), a presentation by Currell to the IPC about the project, and a review by Currell of Santos' final submission to the IPC. The presentation and review of Santos' final submission to the IPC, while not previously seen by the Department, were substantially based on Currell's expert report and published research (Iverach et al. 2020 and Iverach et al. 2017). The Department reviewed both Iverach et al. papers during its assessment.
620. The proponent commented on the issues raised in Greenpeace's correspondence, noting that:
- The attachments provided by Greenpeace contain information that was put before the IPC during the public hearing process, on which Santos made submissions at that time.
 - The matters considered in those attachments were considered by the Independent Water Expert Panel. The Panel's report was included in the NSW assessment process, and the Panel were also engaged by the IPC.
 - The proponent does not accept the issues raised by Greenpeace. Santos did not identify any new information in the attachments relevant to the assessment of the proposed action that were not considered during the assessment process.
621. Consistent with the information received from Greenpeace, both the NSW assessment report and the IPC statement of reasons acknowledged that uncertainty remained about the role of faults and fractures on groundwater and contaminant movements.
622. I accepted the Department's advice that the conclusions of the NSW assessment and relevant NSW conditions are appropriate to manage groundwater impacts. The Department's recommended conditions, which I adopted, require the proponent to comply with all NSW conditions relating to water management. I also adopted the additional conditions recommended by the Department relevant to the protection of water resources. The conditions require compliance with relevant performance

measures and thresholds; an early-warning system and ongoing monitoring to be undertaken and published; binding protocols identifying corrective actions, and cease-work provisions at gas wells where a groundwater exceedance is predicted.

623. As outlined above, I was satisfied that there was sufficient scientific information to know and understand the likely impacts of the proposed action and combined with the conditions I have put in place, I have taken the precautionary principle into account.

624. I agreed that the recommended conditions are suitable to meet the concerns and uncertainties raised by Greenpeace.

Any relevant advice obtained by the Minister from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development in accordance with s 131AB (s 136(2)(fa))

625. In deciding whether or not to approve the proposed action, subject to conditions, I have taken into account relevant advice obtained from the IESC. Discussion of such advice is contained above in relation to water resources, in relation to coal seam gas development and coal mining development.

Any information given to the Minister in accordance with a notice under s 132A (s 136(2)(G))

626. Section 132A of the EPBC Act does not apply to the proposed action as there has been no request for a notice from the relevant State Minister.

Person's environmental history (s 136(4))

627. In deciding whether to approve the taking of an action, and what conditions to attach to the approval, I may consider whether the person proposing to take the action is a suitable person to be granted an approval, having regard to:

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

628. Santos NSW (Eastern) Pty Ltd (the proponent and person proposing to take the action; ACN 009 321 662) is a wholly-owned subsidiary of Santos NSW (Narrabri Energy) Pty Ltd. Santos NSW (Narrabri Energy) Pty Ltd is a wholly owned subsidiary of Santos Limited (ABN 80 007 550 923), which is the ultimate holding company.

629. The proponent's 2014 referral included information about its environmental record, including that Santos NSW (Eastern) Pty Ltd had been subject to the following proceedings:

- June 2013 – reporting failures under the *Petroleum (Onshore) Act 1991* (NSW) in relation to natural gas operations in the Pilliga. The proponent pleaded guilty and was fined \$52,500 by the NSW Land and Environment Court.
- February 2014 – water pollution at Bibblewindi Pond 3, which was used to manage existing produced water at the Bibblewindi Water Treatment Facility. A penalty infringement notice and \$1500 fine from the NSW EPA were issued.

630. On 6 October 2020, the Compliance Section of the Department's Office of Compliance advised that a search of the Department's compliance and enforcement databases and records held by the Department indicated that there was no adverse compliance history under the EPBC Act for the person proposing to take the action.
631. Given the outdated information on the proponent's environmental history (from the referral), on 3 November 2020, the Department requested additional information from the proponent in relation to section 136(4). Environmental history from the last 10 years was requested as it was considered a reasonable timeframe for the purposes of my consideration of whether the person proposing to take the action is a suitable person for approval.
632. On 10 November 2020, Santos advised that:
- Santos NSW (Eastern) Pty Ltd had three incidents in the past 10 years, including the two already outlined in the 2014 referral. The most recent incident was in October 2018 and related to using produced water for irrigation. A penalty infringement notice and \$1500 fine from the NSW EPA were issued and the NSW EPA acknowledged that the incident did not result in actual or potential environmental harm;
 - The only record of any conviction or fine against a parent company of Santos NSW (Eastern) Pty Ltd (Santos NSW (Narrabri Energy) Pty Ltd or Santos Limited), under any Commonwealth, State or Territory legislation in the past 10 years was in February 2014 and related to a water bore Work Approval and the applicable Water Access License. A penalty infringement notice and \$1500 fine from the NSW Office of Water Science were issued; and
 - Enquiries were made about the environmental history of each of the directors and company secretaries of Santos NSW (Eastern) Pty Ltd, Santos NSW (Narrabri Energy) Pty Ltd, and Santos Limited, and the members of the executive committee of Santos Limited. Each of those people confirmed that they have never been convicted of any offence or had civil penalties awarded against them under Commonwealth, State or Territory law in the past 10 years, either in their capacity as a Santos executive officer, or the executive officer of another organisation.
 - Santos's management system integrates technical and engineering requirements with personal health and safety requirements to comprehensively manage health, safety and environmental risks within Santos's operations. Santos attached its Environmental Health and Safety Policy, Incident and Crisis Management Standard, Compliance Management Standard, and Compliance Procedure.
633. Having regard to the nature and scale of the incidents outlined above, the Department noted that these incidents did not result in significant environmental harm. Most of the penalties imposed were at the low end (i.e. \$1,500). The \$52,500 fine was a relatively large penalty. The Department noted that Santos, or its parent body, accepted and acknowledged these infringements and penalties. The Department considered that this represented Santos's commitment to taking responsibility for incidents that result in environmental harm.
634. Having regard to the company policies provided in the referral documentation and in its response of 10 November 2020, the Department considered that Santos has

environmental management systems in place to manage any environmental incidents that could arise.

635. On that basis, I concluded that the proponent is a suitable person to be granted an approval.

Bioregional plans (s 176(5))

636. Under section 176(5), I am required to have regard to a bioregional plan in making any decision under the EPBC Act to which the plan is relevant. The proposed action is not located within or near an area designated by a bioregional plan. The Department's advice is that there is no bioregional plan relevant to my decision.

Requirements for decisions about threatened species and endangered communities (s 139)

637. Under section 139(1) of the EPBC Act, in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, I must not act inconsistently with:

a. Australia's obligations under:

- i. the Convention on Biological Diversity (Biodiversity Convention); or
- ii. the Convention on the Conservation of Nature in the South Pacific (Apia Convention); or
- iii. the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); or

b. a recovery plan or threat abatement plan.

638. Section 139(2) states, if:

- a. the Minister is considering whether to approve, for the purposes of a section of section 18 or section 18A, the taking of an action; and
- b. the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community;

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

The Biodiversity Convention

639. The objectives of the Biodiversity Convention,³⁶ to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

640. The Biodiversity Convention requires Contracting Parties, as far as possible and as appropriate, to introduce procedures requiring environmental impact assessments of projects that are likely to have significant adverse effects on biological diversity to

³⁶ Available at <http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1993/32.html>

avoid and minimise such impacts, and requires Parties to introduce appropriate arrangements to ensure that the environmental consequences of their programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account. The proposed action was subject to an environmental impact assessment process under the NSW EP&A Act.

641. The NSW assessment report identifies the likely impacts of the proposed action on listed threatened species and communities, and recommends measures to avoid, mitigate and offset those impacts. These measures are reflected in the NSW conditions.
642. The Department advised that approval of the proposed action will have been carried out in accordance with an EIS, and there are arrangements in place to ensure that the significant adverse impacts of the proposed action on biological diversity are taken into account. The Department also considered, and I accepted, that the proposed action will not have unacceptable impacts on biodiversity, including Commonwealth-listed threatened species and communities, if it is taken in accordance with the recommended conditions.
643. On the basis of the above, I was satisfied that approving the proposed action, subject to conditions that avoid, mitigate and offset impacts to biodiversity, is not inconsistent with Australia's obligations under the Biodiversity Convention.

CITES

644. The aim of CITES³⁷ is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. As the proposed action does not involve international trade in specimens of wild animals and plants, I was satisfied that approving the proposed action, subject to conditions, is not inconsistent with Australia's obligations under CITES.

Apia Convention

645. The Apia Convention³⁸ encourages the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations, and regions and objects of aesthetic interest or historic, cultural or scientific value.
646. The Apia Convention was suspended with effect from 13 September 2006.
647. While this Convention has been suspended, the Department's advice includes consideration of whether the proposed action would be consistent with the Apia Convention.
648. The proposed action has undergone an environmental assessment which concluded that the proposed action will not have an unacceptable impact on biodiversity, geological formations and objects of aesthetic interest or historic, cultural or scientific value, subject to the proposed conditions.
649. The proposed conditions of approval place restrictions on the extent of impacts the action can have on biodiversity and water assets, and how they are managed in the

³⁷ Available at <http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1976/29.html>

³⁸ Available at <http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1990/41.html>

long-term. The proposed conditions also require ongoing monitoring of potential impacts and obligations for the person taking the action to implement mitigation and corrective actions, and to offset significant residual impacts.

650. As Australia currently has no international obligations under the Apia Convention, it cannot act inconsistently with them. Nevertheless, I am satisfied that approving the proposed action, subject to conditions would not be inconsistent with the Convention.

Recovery Plans and Threat Abatement Plans

651. When deciding whether to approve the taking of an action for the purposes of sections 18 and 18A, and what conditions to attach to any approval, I must not act inconsistently with a recovery plan or a threat abatement plan. The relevant plans which I have considered are set out above in this statement, as they relate to specific species or communities. I was satisfied that the approval of the action would not be inconsistent with any of the recovery plans or threat abatements plans.

Conservation advices

652. When deciding whether to approve the taking of an action for the purposes of sections 18 and 18A, and what conditions to attach to any approval, I must have regard to any approved conservation advice for a listed threatened species or community that is likely to be significantly impacted by the proposed action.
653. The relevant conservation advices which I have considered are set out above in this statement, as they relate to specific species or communities.

Setting the conditions of approval (s 134)

654. Under subsection 134(1) of the EPBC Act, I may attach a condition to the approval of an action if I am satisfied that the condition is necessary or convenient for:
- protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action); or
 - repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage has been, will be or is likely to be caused by the action).
655. Under subsection 134(2) I may attach a condition to the approval of an action if I am satisfied that the condition is necessary or convenient for:
- protecting from the action any matter protected by a provision of Part 3 for which the approval has effect; or
 - repairing or mitigating damage that may or will be, or has been, caused by the action to any matter protected by a provision of Part 3 for which the approval has effect.
656. I was satisfied that the relevant NSW conditions in the EPBC Act approval were necessary to protect matters protected by a provision of Part 3 of the EPBC Act for which the proposed approval had effect. I was satisfied that the recommended additional conditions will strengthen the NSW conditions to protect or mitigate damage to protected matters.

657. Subsection 134(3A) states certain conditions cannot be attached to the approval of an action unless the holder of the approval has consented to the attachment of the condition. Following the proposed decision, the Department engaged with Santos to amend and finalise the conditions set. Santos agreed to the final conditions on 13 November 2020.
658. Subsection 134(3)(c) states that the conditions that may be attached to an approval include conditions requiring a person taking the action to comply with conditions specified in an instrument made or granted under a State law, such as conditions imposed on the proposed action through the State assessment process. The Department has recommended conditions of this nature.
659. Under s 134(4), I am also required to consider:
- any relevant conditions that have been imposed, or are likely to be imposed, under a law of a State or self-governing Territory or another law of the Commonwealth on the taking of the action,
 - information provided by the person proposing to take the action or by the designated proponent of the action,
 - the desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.

NSW conditions

660. NSW approved the proposed action on 30 September 2020, subject to conditions. I accepted the Department's advice that Santos should be required to comply with NSW conditions which are relevant to EPBC Act protected matters, where such conditions are necessary and convenient for their protection. These are set out in Conditions 4, 5, 18, 25 & 28 of my approval.

Additional conditions

661. I also accepted the Department's recommendation that additional conditions were required that strengthen the NSW conditions to protect or mitigate damage to protected matters. These related to:
- notifying the Department of the details of final biodiversity offsets;
 - the establishment of an early-warning monitoring bore system to detect any groundwater changes, and ongoing monitoring, public reporting, assessment of impacts to groundwater dependent ecosystems, and any necessary corrective actions;
 - cease-work provisions should performance measures for water resources (e.g. groundwater drawdown from shallow aquifers) be exceeded after the implementation of any necessary mitigation and management measures; and
 - the assessment and management of drilling fluid chemicals.
662. As discussed above, I agreed that these conditions were necessary or convenient for protecting the matters protected by the provisions of Part 3 for which the approval would have effect. Conditions relevant for the protection of water resources, listed

threatened species and communities, and Commonwealth land are discussed in their respective sections above.

Information from the proponent

663. I have considered the information provided by the proponent, including the EIS, RTS and additional information.
664. Comments from Santos on the proposed conditions were largely focused on: removing conditions that duplicated NSW conditions; aligning additional Commonwealth conditions more closely with the monitoring and reporting requirements of NSW conditions; and to clarify the intent of some conditions. The Department's advice, which I accepted, was that the overall intent of the conditions to protect matters of national environmental significance had not changed. Where appropriate, Santos' suggested comments were incorporated into the conditions imposed.

Cost effectiveness

665. The Department recommended that I attach approval conditions that will require the proponent to comply with NSW conditions that are relevant to EPBC Act protected matters. This approach avoids unnecessary duplication of NSW conditions (which the Department considered were largely adequate to protect relevant matters of national environmental significance) but will allow the Department to retain an ongoing compliance role for the proposed action.
666. I agreed with the Department's advice that the conditions proposed are a cost-effective means for the Commonwealth and the person taking the action to achieve the object of the condition.

Consideration of condition-setting policy

667. I have had regard to the EPBC Act Condition-setting Policy (the Policy). The Policy outlines the Australian Government's approach to considering state and territory approval conditions when approving a project under the EPBC Act. The NSW Biodiversity Offsets Policy for Major Projects is listed in the Policy as an endorsed state policy which is consistent with the standards of a non-statutory Australian Government policy.
668. In accordance with the Policy, the Department considered that it was appropriate to propose conditions that require the proponent to comply with relevant NSW conditions where they relate to offsetting arrangements for EPBC Act protected matters. These conditions avoid unnecessary duplication of State and Australian Government conditions and allow the Department to retain an ongoing compliance role to ensure the outcomes for the significantly impacted EPBC Act matters are delivered. I agreed with this approach.

Reasons for decision

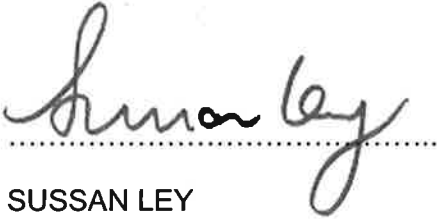
669. In light of the findings in paragraphs [25]-[668], and not having considered any matter which I am not required or permitted to consider,³⁹ I decided to approve, subject to conditions, the taking of the proposed action for the purposes of sections 18 and 18A (listed threatened species and communities), sections 24D and 24E (a water

³⁹ Section 136(5).

resource, in relation to coal seam gas development and large coal mining development) and sections 26 and 27A (Commonwealth land) of the EPBC Act.

670. My approval will remain valid until 31 December 2045, which aligns with the approval timeframe in the NSW conditions. This time period accounts for the construction period, proposed operational lifespan, and site rehabilitation.

Signed

A handwritten signature in black ink, appearing to read 'Susan Ley', is written over a horizontal dotted line.

SUSSAN LEY

Date: 13/5/21

Annexure A – Relevant Legislation

3A Principles of ecologically sustainable development

The following principles are ***principles of ecologically sustainable development***:

- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (c) the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;
- (e) improved valuation, pricing and incentive mechanisms should be promoted.

18 Actions with significant impact on listed threatened species or endangered community prohibited without approval

Species that are extinct in the wild

- (1) A person must not take an action that:
 - (a) has or will have a significant impact on a listed threatened species included in the extinct in the wild category; or
 - (b) is likely to have a significant impact on a listed threatened species included in the extinct in the wild category.

Civil penalty:

- (a) for an individual—5,000 penalty units;
- (b) for a body corporate—50,000 penalty units.

Critically endangered species

- (2) A person must not take an action that:
 - (a) has or will have a significant impact on a listed threatened species included in the critically endangered category; or
 - (b) is likely to have a significant impact on a listed threatened species included in the critically endangered category.

Civil penalty:

- (a) for an individual—5,000 penalty units;
- (b) for a body corporate—50,000 penalty units.

Endangered species

(3) A person must not take an action that:

- (a) has or will have a significant impact on a listed threatened species included in the endangered category; or
- (b) is likely to have a significant impact on a listed threatened species included in the endangered category.

Civil penalty:

- (a) for an individual—5,000 penalty units;
- (b) for a body corporate—50,000 penalty units.

Vulnerable species

(4) A person must not take an action that:

- (a) has or will have a significant impact on a listed threatened species included in the vulnerable category; or
- (b) is likely to have a significant impact on a listed threatened species included in the vulnerable category.

Civil penalty:

- (a) for an individual—5,000 penalty units;
- (b) for a body corporate—50,000 penalty units.

Critically endangered communities

(5) A person must not take an action that:

- (a) has or will have a significant impact on a listed threatened ecological community included in the critically endangered category; or
- (b) is likely to have a significant impact on a listed threatened ecological community included in the critically endangered category.

Civil penalty:

- (a) for an individual—5,000 penalty units;
- (b) for a body corporate—50,000 penalty units.

Endangered communities

(6) A person must not take an action that:

- (a) has or will have a significant impact on a listed threatened ecological community included in the endangered category; or
- (b) is likely to have a significant impact on a listed threatened ecological community included in the endangered category.

Civil penalty:

- (a) for an individual—5,000 penalty units;

- (b) for a body corporate—50,000 penalty units.

18A Offences relating to threatened species etc.

- (1) A person commits an offence if:
 - (a) the person takes an action; and
 - (b) the action results or will result in a significant impact on:
 - (i) a species; or
 - (ii) an ecological community; and
 - (c) the species is a listed threatened species, or

Note: Chapter 2 of the *Criminal Code* sets out the general principles of criminal responsibility.

- (1A) Strict liability applies to paragraph (1)(c).

Note: For strict liability, see section 6.1 of the *Criminal Code*.

- (2) A person commits an offence if:
 - (a) the person takes an action; and
 - (b) the action is likely to have a significant impact on:
 - (i) a species; or
 - (ii) an ecological community; and
 - (c) the species is a listed threatened species, or the community is a listed threatened ecological community.

Note: Chapter 2 of the *Criminal Code* sets out the general principles of criminal responsibility.

- (2A) Strict liability applies to paragraph (2)(c).

Note: For strict liability, see section 6.1 of the *Criminal Code*.

- (3) An offence against subsection (1) or (2) is punishable on conviction by imprisonment for a term not more than 7 years, a fine not more than 420 penalty units, or both.

Note 1: Subsection 4B(3) of the *Crimes Act 1914* lets a court fine a body corporate up to 5 times the maximum amount the court could fine a person under this subsection.

Note 2: An executive officer of a body corporate convicted of an offence against this section may also commit an offence against section 495.

Note 3: If a person takes an action on land that contravenes this section, a landholder may commit an offence against section 496C.

- (4) Subsections (1) and (2) do not apply to an action if:
 - (a) the listed threatened species subject to the significant impact (or likely to be subject to the significant impact) is:
 - (i) a species included in the extinct category of the list under section 178; or
 - (ii) a conservation dependent species; or

- (b) the listed threatened ecological community subject to the significant impact (or likely to be subject to the significant impact) is an ecological community included in the vulnerable category of the list under section 181.

Note 1: The defendant bears an evidential burden in relation to the matters in this subsection. See subsection 13.3(3) of the *Criminal Code*.

Note 2: Section 19 sets out other defences. The defendant bears an evidential burden in relation to the matters in that section too. See subsection 13.3(3) of the *Criminal Code*.

24D Requirement for approval of developments with a significant impact on water resources

- (1) A constitutional corporation, the Commonwealth or a Commonwealth agency must not take an action if:
 - (a) the action involves:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
 - (b) the action:
 - (i) has or will have a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Civil penalty:

- (a) for an individual—5,000 penalty units;
 - (b) for a body corporate—50,000 penalty units.
- (2) A person must not take an action if:
 - (a) the action involves:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
 - (b) the action is taken for the purposes of trade or commerce:
 - (i) between Australia and another country; or
 - (ii) between 2 States; or
 - (iii) between a State and Territory; or
 - (iv) between 2 Territories; and
 - (c) the action:
 - (i) has or will have a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Civil penalty:

- (a) for an individual—5,000 penalty units;
 - (b) for a body corporate—50,000 penalty units.
- (3) A person must not take an action if:
- (a) the action involves:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
 - (b) the action is taken in:
 - (i) a Commonwealth area; or
 - (ii) a Territory; and
 - (c) the action:
 - (i) has or will have a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Civil penalty:

- (a) for an individual—5,000 penalty units;
 - (b) for a body corporate—50,000 penalty units.
- (4) Subsections (1) to (3) do not apply to an action if:
- (a) an approval of the taking of the action by the constitutional corporation, Commonwealth, Commonwealth agency or person is in operation under Part 9 for the purposes of this section; or
 - (b) Part 4 lets the constitutional corporation, Commonwealth, Commonwealth agency or person take the action without an approval under Part 9 for the purposes of this section; or
 - (c) there is in force a decision of the Minister under Division 2 of Part 7 that this section is not a controlling provision for the action and, if the decision was made because the Minister believed the action would be taken in a manner specified in the notice of the decision under section 77, the action is taken in that manner; or
 - (d) the action is an action described in subsection 160(2) (which describes actions whose authorisation is subject to a special environmental assessment process).
- (5) A person who wishes to rely on subsection (4) in proceedings for a contravention of a civil penalty provision bears an evidential burden in relation to the matters in that subsection.

24E Offences relating to water resources

- (1) A constitutional corporation, or a Commonwealth agency that does not enjoy the immunities of the Commonwealth, commits an offence if:
- (a) the corporation or agency takes an action involving:

- (i) coal seam gas development; or
 - (ii) large coal mining development; and
- (b) the action:
 - (i) results or will result in a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Penalty: Imprisonment for 7 years or 420 penalty units, or both.

Note 1: An executive officer of a body corporate convicted of an offence against this subsection may also commit an offence against section 495.

Note 2: If a person takes an action on land that contravenes this subsection, a landholder may commit an offence against section 496C.

(2) A person commits an offence if:

- (a) the person takes an action involving:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
- (b) the action is taken for the purposes of trade or commerce:
 - (i) between Australia and another country; or
 - (ii) between 2 States; or
 - (iii) between a State and Territory; or
 - (iv) between 2 Territories; and
- (c) the action:
 - (i) has or will have a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Penalty: Imprisonment for 7 years or 420 penalty units, or both.

Note 1: An executive officer of a body corporate convicted of an offence against this subsection may also commit an offence against section 495.

Note 2: If a person takes an action on land that contravenes this subsection, a landholder may commit an offence against section 496C.

(3) A person commits an offence if:

- (a) the person takes an action involving:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
- (b) the action is taken in:
 - (i) a Commonwealth area; or

- (ii) a Territory; and
- (c) the action:
 - (i) has or will have a significant impact on a water resource; or
 - (ii) is likely to have a significant impact on a water resource.

Penalty: Imprisonment for 7 years or 420 penalty units, or both.

Note 1: An executive officer of a body corporate convicted of an offence against this subsection may also commit an offence against section 495.

Note 2: If a person takes an action on land that contravenes this subsection, a landholder may commit an offence against section 496C.

- (4) Subsections (1) to (3) do not apply to an action if:
 - (a) an approval of the taking of the action by the constitutional corporation, Commonwealth agency or person is in operation under Part 9 for the purposes of this section; or
 - (b) Part 4 lets the constitutional corporation, Commonwealth agency or person take the action without an approval under Part 9 for the purposes of this section; or
 - (c) there is in force a decision of the Minister under Division 2 of Part 7 that this section is not a controlling provision for the action and, if the decision was made because the Minister believed the action would be taken in a manner specified in the notice of the decision under section 77, the action is taken in that manner; or
 - (d) the action is an action described in subsection 160(2) (which describes actions whose authorisation is subject to a special environmental assessment process).

Note: The defendant bears an evidential burden in relation to the matters in subsection (4). See subsection 13.3(3) of the Criminal Code.

26 Requirement for approval of activities involving Commonwealth land

Actions on Commonwealth land

- (1) A person must not take on Commonwealth land an action that has, will have or is likely to have a significant impact on the environment.

Civil penalty:

- (a) for an individual—1,000 penalty units;
- (b) for a body corporate—10,000 penalty units.

Actions outside Commonwealth land affecting that land

- (2) A person must not take outside Commonwealth land an action that:
 - (a) has or will have a significant impact on the environment on Commonwealth land; or
 - (b) is likely to have a significant impact on the environment on Commonwealth land.

Civil penalty:

- (a) for an individual—1,000 penalty units;
- (b) for a body corporate—10,000 penalty units.

Exceptions to prohibitions

- (3) Subsection (1) or (2) does not apply to an action if:
 - (a) an approval of the taking of the action by the person is in operation under Part 9 for the purposes of the subsection; or
 - (b) Part 4 lets the person take the action without an approval under Part 9 for the purposes of the subsection; or
 - (d) there is in force a decision of the Minister under Division 2 of Part 7 that the subsection is not a controlling provision for the action and, if the decision was made because the Minister believed the action would be taken in a manner specified in the notice of the decision under section 77, the action is taken in that manner; or
 - (e) the action is an action described in subsection 160(2) (which describes actions whose authorisation is subject to a special environmental assessment process); or
 - (f) the person taking the action is the Commonwealth or a Commonwealth agency.

Note 1: This section protects (among other things) the Commonwealth Heritage values of a Commonwealth Heritage place on Commonwealth land, because the heritage values of a place are part of the environment. See the definition of environment in section 528.

Note 2: Section 28 regulates actions by the Commonwealth or a Commonwealth agency with a significant impact on the environment.

27A Offences relating to Commonwealth land

- (1) A person commits an offence if:
 - (a) the person takes an action; and
 - (b) the action is taken on Commonwealth land; and
 - (c) the action results or will result in a significant impact on the environment.

Note: Chapter 2 of the Criminal Code sets out the general principles of criminal responsibility.

- (1A) Strict liability applies to paragraph (1)(b).

Note: For strict liability, see section 6.1 of the Criminal Code.

- (2) A person commits an offence if:
 - (a) the person takes an action; and
 - (b) the action is taken on Commonwealth land; and
 - (c) the action is likely to have a significant impact on the environment.

Note: Chapter 2 of the Criminal Code sets out the general principles of criminal responsibility.

- (2A) Strict liability applies to paragraph (2)(b).

Note: For strict liability, see section 6.1 of the Criminal Code.

(3) A person commits an offence if:

- (a) the person takes an action; and
- (b) the action is taken outside Commonwealth land but in the Australian jurisdiction; and
- (c) the action results or will result in a significant impact on the environment in an area; and
- (d) the area is Commonwealth land.

Note: Chapter 2 of the Criminal Code sets out the general principles of criminal responsibility.

(3A) Strict liability applies to paragraphs (3)(b) and (d).

Note: For strict liability, see section 6.1 of the Criminal Code.

(4) A person commits an offence if:

- (a) the person takes an action; and
- (b) the action is taken outside Commonwealth land but in the Australian Jurisdiction; and
- (c) the action is likely to have a significant impact on the environment in an area; and
- (d) the area is Commonwealth land.

Note: Chapter 2 of the Criminal Code sets out the general principles of criminal responsibility.

(4A) Strict liability applies to paragraphs (4)(b) and (d).

Note: For strict liability, see section 6.1 of the Criminal Code.

(5) An offence against subsection (1), (2), (3) or (4) is punishable on conviction by imprisonment for a term not more than 2 years, a fine not more than 120 penalty units, or both.

Note 1: Subsection 4B(3) of the Crimes Act 1914 lets a court fine a body corporate up to 5 times the maximum amount the court could fine a person under this subsection.

Note 2: An executive officer of a body corporate convicted of an offence against this section may also commit an offence against section 495.

Note 3: If a person takes an action on land that contravenes this section, a landholder may commit an offence against section 496C.

(6) Subsection (1), (2), (3) or (4) does not apply to an action if:

- (a) an approval of the taking of the action by the person is in operation under Part 9 for the purposes of the subsection; or
- (b) Part 4 lets the person take the action without an approval under Part 9 for the purposes of the subsection; or
- (c) there is in force a decision of the Minister under Division 2 of Part 7 that the subsection is not a controlling provision for the action and, if the decision was

made because the Minister believed the action would be taken in a manner specified in the notice of the decision under section 77, the action is taken in that manner; or

- (d) the action is an action described in subsection 160(2) (which describes actions whose authorisation is subject to a special environmental assessment process); or
- (e) the person taking the action is a Commonwealth agency.

Note 1: The defendant bears an evidential burden in relation to the matters in this subsection. See subsection 13.3(3) of the Criminal Code.

Note 2: This section protects (among other things) the Commonwealth Heritage values of a Commonwealth Heritage place on Commonwealth land, because the heritage values of a place are part of the environment. See the definition of environment in section 528.

Note 3: Section 28 regulates actions by the Commonwealth or a Commonwealth agency with a significant impact on the environment.

130 Timing of decision on approval

Basic rule

- (1) The Minister must decide whether or not to approve, for the purposes of each controlling provision for a controlled action, the taking of the action.
- (1A) The Minister must make the decision within the relevant period specified in subsection (1B) that relates to the controlled action, or such longer period as the Minister specifies in writing.

*What is an **assessment report**?*

- (2) An **assessment report** is a report given to the Minister as described in:
 - (a) subsection 47(4) (about assessments under a bilateral agreement); or
 - (b) subsection 84(3) (about assessments in a manner specified in a declaration); or
 - (c) subsection 87(4) (about assessments by accredited assessment processes).

131 Inviting comments from other Ministers before decision

- (1) Before the Minister (the **Environment Minister**) decides whether or not to approve, for the purposes of a controlling provision, the taking of an action, and what conditions (if any) to attach to an approval, he or she must:
 - (a) inform any other Minister whom the Environment Minister believes has administrative responsibilities relating to the action of the decision the Environment Minister proposes to make; and
 - (b) invite the other Minister to give the Environment Minister comments on the proposed decision within 10 business days.
- (2) A Minister invited to comment may make comments that:

- (a) relate to economic and social matters relating to the action; and
- (b) may be considered by the Environment Minister consistently with the principles of ecologically sustainable development.

This does not limit the comments such a Minister may give.

131AA Inviting comments before decision from person proposing to take action and designated proponent

- (1) Before the Minister decides whether or not to approve, for the purposes of a controlling provision, the taking of an action, and what conditions (if any) to attach to an approval, he or she must:
 - (a) inform the person proposing to take the action, and the designated Proponent of the action (if the designated Proponent is not the person proposing to take the action), of:
 - (i) the decision the Minister proposes to make; and
 - (ii) if the Minister proposes to approve the taking of the action-any conditions the Minister proposes to attach to the approval; and
 - (b) invite each person informed under paragraph (a) to give the Minister, within 10 business days (measured in Canberra), comments in writing on the proposed decision and any conditions.
- ...
- (6) In deciding whether or not to approve, for the purposes of a controlling provision, the taking of the action, the Minister must take into account any relevant comments given to the Minister in response to an invitation given under paragraph (1)(b).

131AB Minister must obtain advice from Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development

- (1) This section applies if:
 - (a) the taking of an action, for the purposes of a controlling provision, involves:
 - (i) coal seam gas development; or
 - (ii) large coal mining development; and
 - (b) the Minister believes that the taking of the action:
 - (i) is likely to have a significant impact on water resources, including any impacts of associated salt production and/or salinity; and
 - (ii) may have an adverse impact on a matter protected by a provision of Part 3.
- (2) Before the Minister decides whether or not to approve, for the purposes of the controlling provision, the taking of the action, the Minister must obtain the advice of the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development.

131A Inviting public comment before decision

Before the Minister decides whether or not to approve, for the purposes of a controlling provision, the taking of an action, and what conditions (if any) to attach to an approval, he or she may publish on the internet:

- (a) the proposed decision and, if the proposed decision is to approve the taking of the action, any conditions that the Minister proposes to attach to the approval; and
- (b) an invitation for anyone to give the Minister, within 10 business days (measured in Canberra), comments in writing on the proposed decision and any conditions.

132A Requesting notice from appropriate State or Territory Minister about certain actions

- (1) This section applies to an action that is to be taken in a State or self governing Territory only if the action:

- (a) is to be taken by a person for the purposes of trade or commerce:
 - (i) between Australia and another country; or
 - (ii) between 2 States; or
 - (iii) between a State and a Territory; or
 - (iv) between 2 Territories; or
- (b) is to be taken by a constitutional corporation; or
- (c) is an action whose regulation is appropriate and adapted to give effect to Australia's obligations under an agreement with one or more other countries.

Note: This section also applies in relation to actions to be taken in an area offshore from a State or the Northern Territory. See section 157.

- (2) However, this section does not apply to an action if:

- (a) the action:
 - (i) is a nuclear action; or
 - (ii) is to be taken entirely in a Commonwealth marine area; or
 - (iii) is to be taken entirely on Commonwealth land; or
 - (iv) is to be taken by the Commonwealth or a Commonwealth agency; and
- (b) the relevant impacts of the action have been assessed under Part 8.

- (3) Before the Minister (the **Environment Minister**) decides whether or not to approve for the purposes of a controlling provision the taking of the action, and what conditions (if any) to attach to an approval, the Environment Minister may request the appropriate Minister of the State or Territory to give the Environment Minister a notice stating the method that has been used to assess the certain and likely impacts of the action on things other than matters protected by the controlling provisions for the action.

133 Grant of approval

Approval

- (1) After receiving the assessment documentation relating to a controlled action, or the report of a commission that has conducted an inquiry relating to a controlled action, the Minister may approve for the purposes of a controlling provision the taking of the action by a person.
- (1A) If the referral of the proposal to take the action included alternative proposals relating to any of the matters referred to in subsection 72(3), the Minister may approve, for the purposes of subsection (1), one or more of the alternative proposals in relation to the taking of the action.

Content of approval

- (2) An approval must:
 - (a) be in writing; and
 - (b) specify the action (including any alternative proposals approved under subsection (1A)) that may be taken; and
 - (c) name the person to whom the approval is granted; and
 - (d) specify each provision of Part 3 for which the approval has effect; and
 - (e) specify the period for which the approval has effect; and
 - (f) set out the conditions attached to the approval.

Note: The period for which the approval has effect may be extended. See Division 5.

Persons who may take action covered by approval

- (2A) An approval granted under this section is an approval of the taking of the action specified in the approval by any of the following persons:
 - (a) the holder of the approval;
 - (b) a person who is authorised, permitted or requested by the holder of the approval, or by another person with the consent or agreement of the holder of the approval, to take the action.

Notice of approval

- (3) The Minister must:
 - (a) give a copy of the approval to the person named in the approval under paragraph 133(2)(c); and
 - (b) provide a copy of the approval to a person who asks for it (either free or for a reasonable charge determined by the Minister).

...

Notice of refusal of approval

- (7) If the Minister refuses to approve for the purposes of a controlling provision the taking of an action by the person who proposed to take the action, the Minister must give the person notice of the refusal.

Note: Under section 13 of the Administrative Decisions (Judicial Review) Act 1977, the person may request reasons for the refusal, and the Minister must give them.

134 Conditions of approval

Condition to inform persons taking action of conditions attached to approval

- (1A) An approval of the taking of an action by a person (the first person) is subject to the condition that, if the first person authorises, permits or requests another person to undertake any part of the action, the first person must take all reasonable steps to ensure:
- (a) that the other person is informed of any condition attached to the approval that restricts or regulates the way in which that part of the action may be taken; and
 - (b) that the other person complies with any such condition.

For the purposes of this Chapter, the condition imposed by this subsection is attached to the approval.

Generally

- (1) The Minister may attach a condition to the approval of the action if he or she is satisfied that the condition is necessary or convenient for:
- (a) protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action); or
 - (b) repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage has been, will be or is likely to be caused by the action).

Conditions to protect matters from the approved action

- (2) The Minister may attach a condition to the approval of the action if he or she is satisfied that the condition is necessary or convenient for:
- (a) protecting from the action any matter protected by a provision of Part 3 for which the approval has effect; or
 - (b) repairing or mitigating damage that may or will be, or has been, caused by the action to any matter protected by a provision of Part 3 for which the approval has effect.

This subsection does not limit subsection (1).

Examples of kinds of conditions that may be attached

- (3) The conditions that may be attached to an approval include:
- (aa) conditions requiring specified activities to be undertaken for:
 - (i) protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action); or

- (ii) repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage may or will be, or has been, caused by the action); and
- (ab) conditions requiring a specified financial contribution to be made to a person for the purpose of supporting activities of a kind mentioned in paragraph (aa); and
- (a) conditions relating to any security to be given by the holder of the approval by bond, guarantee or cash deposit:
 - (i) to comply with this Act and the regulations; and
 - (ii) not to contravene a condition attached to the approval; and
 - (iii) to meet any liability of a person whose taking of the action is approved to the Commonwealth for measures taken by the Commonwealth under section 499 (which lets the Commonwealth repair and mitigate damage caused by a contravention of this Act) in relation to the action; and
- (b) conditions requiring the holder of the approval to insure against any specified liability of the holder to the Commonwealth for measures taken by the Commonwealth under section 499 in relation to the approved action; and
- (c) conditions requiring a person taking the action to comply with conditions specified in an instrument (including any kind of authorisation) made or granted under a law of a State or self-governing Territory or another law of the Commonwealth; and
- (d) conditions requiring an environmental audit of the action to be carried out periodically by a person who can be regarded as being independent from any person whose taking of the action is approved; and
- (e) if an election has been made, or is taken to have been made, under section 132B in respect of the approval—conditions requiring:
 - (i) an action management plan to be submitted to the Minister for approval, accompanied by the fee (if any) prescribed by the regulations; and
 - (ii) implementation of the plan so approved; and
- (f) conditions requiring specified environmental monitoring or testing to be carried out; and
- (g) conditions requiring compliance with a specified industry standard or code of practice; and
- (h) conditions relating to any alternative proposals in relation to the taking of the action covered by the approval (as permitted by subsection 133(1A)).

This subsection does not limit the kinds of conditions that may be attached to an approval.

Note: Paragraph (e)—an election is taken to have been made if an approval is varied to add a condition requiring an action management plan, see subsection 143(1A).

Certain conditions require consent of holder of approval

- (3A) The following kinds of condition cannot be attached to the approval of an action unless the holder of the approval has consented to the attachment of the condition:
- (a) a condition referred to in paragraph (3)(aa), if the activities specified in the condition are not reasonably related to the action;
 - (b) a condition referred to in paragraph (3)(ab).
- (3B) If the holder of the approval has given consent, for the purposes of subsection (3A), to the attachment of a condition:
- (a) the holder cannot withdraw that consent after the condition has been attached to the approval; and
 - (b) any person to whom the approval is later transferred under section 145B is taken to have consented to the attachment of the condition, and cannot withdraw that consent.

Conditions attached under paragraph (3)(c)

- (3C) A condition attached to an approval under paragraph (3)(c) may require a person taking the action to comply with conditions specified in an instrument of a kind referred to in that paragraph:
- (a) as in force at a particular time; or
 - (b) as is in force or existing from time to time;

even if the instrument does not yet exist at the time the approval takes effect.

Conditions attached under paragraph (3)(e)

- (3D) When making a decision whether to approve an action management plan, if the Minister believes on reasonable grounds that the Minister does not have enough information to make a decision, the Minister may request the holder of the approval to provide specified information relevant to making the decision.

Considerations in deciding on condition

- (4) In deciding whether to attach a condition to an approval, the Minister must consider:
- (a) any relevant conditions that have been imposed, or the Minister considers are likely to be imposed, under a law of a State or self-governing Territory or another law of the Commonwealth on the taking of the action; and
 - (aa) information provided by the person proposing to take the action or by the designated proponent of the action; and
 - (b) the desirability of ensuring as far as practicable that the condition is a cost-effective means for the Commonwealth and a person taking the action to achieve the object of the condition.

Effect of conditions requiring compliance with conditions specified in another instrument

- (4A) If:
- (a) a condition (the principal condition) attached to an approval under paragraph (3)(c) requires a person taking the action to comply with conditions

(the other conditions) specified in an instrument of a kind referred to in that paragraph; and

- (b) the other conditions are in excess of the power conferred by subsection (1);

the principal condition is taken to require the person to comply with the other conditions only to the extent that they are not in excess of that power.

Validity of decision

- (5) A failure to consider information as required by paragraph (4)(aa) does not invalidate a decision about attaching a condition to the approval.

136 General considerations

Mandatory considerations

- (1) In deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, the Minister must consider the following, so far as they are not inconsistent with any other requirement of this Subdivision:
 - (a) matters relevant to any matter protected by a provision of Part 3 that the Minister has decided is a controlling provision for the action;
 - (b) economic and social matters.

Factors to be taken into account

- (2) In considering those matters, the Minister must take into account:
 - (a) the principles of ecologically sustainable development; and
 - (b) the assessment report (if any) relating to the action; and
 - (ba) if Division 3A of Part 8 (assessment on referral information) applies to the action—the finalised recommendation report relating to the action given to the Minister under subsection 93(5); and
 - (bc) if Division 4 of Part 8 (assessment on preliminary documentation) applies to the action:
 - (i) the documents given to the Minister under subsection 95B(1), or the statement given to the Minister under subsection 95B(3), as the case requires, relating to the action; and
 - (ii) the recommendation report relating to the action given to the Minister under section 95C; and
 - (c) if Division 5 (public environment reports) of Part 8 applies to the action:
 - (i) the finalised public environment report relating to the action given to the Minister under section 99; and
 - (ii) the recommendation report relating to the action given to the Minister under section 100; and
 - (ca) if Division 6 (environmental impact statements) of Part 8 applies to the action:

- (i) the finalised environmental impact statement relating to the action given to the Minister under section 104; and
- (ii) the recommendation report relating to the action given to the Minister under section 105; and
- (d) if an inquiry was conducted under Division 7 of Part 8 in relation to the action—the report of the commissioners; and
- (e) any other information the Minister has on the relevant impacts of the action (including information in a report on the impacts of actions taken under a policy, plan or program under which the action is to be taken that was given to the Minister under an agreement under Part 10 (about strategic assessments)); and
- (f) any relevant comments given to the Minister in accordance with an invitation under section 131 or 131A; and
- (fa) any relevant advice obtained by the Minister from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development in accordance with section 131AB; and
- (g) if a notice relating to the action was given to the Minister under subsection 132A(3)—the information in the notice.

Note: The Minister must also take into account any relevant comments given to the Minister in response to an invitation under paragraph 131AA(1)(b). See subsection 131AA(6).

Person's environmental history

- (4) In deciding whether or not to approve the taking of an action by a person, and what conditions to attach to an approval, the Minister may consider whether the person is a suitable person to be granted an approval, having regard to:
 - (a) the person's history in relation to environmental matters; and
 - (b) if the person is a body corporate—the history of its executive officers in relation to environmental matters; and
 - (c) if the person is a body corporate that is a subsidiary of another body or company (the parent body)—the history in relation to environmental matters of the parent body and its executive officers.

Minister not to consider other matters

- (5) In deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, the Minister must not consider any matters that the Minister is not required or permitted by this Division to consider.

139 Requirements for decisions about threatened species and endangered communities

- (1) In deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, the Minister must not act inconsistently with:
 - (a) Australia's obligations under:
 - (i) the Biodiversity Convention; or

(ii) the Apia Convention; or

(iii) CITES; or

(b) a recovery plan or threat abatement plan.

(2) If:

(a) the Minister is considering whether to approve, for the purposes of a subsection of section 18 or section 18A, the taking of an action; and

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

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

158A Approval process decisions not affected by listing events that happen after section 75 decision made

(1) In this section:

approval process decision means any of the following decisions:

(a) a decision under section 75 whether an action is a controlled action;

(b) a decision under section 75 whether a provision of Part 3 is a controlling Provision for an action;

(c) a decision under section 78 in relation to a decision referred to in paragraph (a) or (b) of this definition;

(d) a decision under section 87 on the approach for the assessment of the impacts of an action;

(e) a decision under section 133 whether to approve an action;

(f) a decision under section 134 to attach conditions to an approval of an action;

(g) a decision under section 143 to revoke, vary or add to conditions attached to an approval of an action;

(h) any other decision made under a provision of this Chapter that is specified in the regulations.

listing event means any of the following events:

(a) a property becoming a declared World Heritage property;

(b) a change in the world heritage values of a declared World Heritage property;

(c) a place becoming a National Heritage place;

(d) a change in the National Heritage values included in the National Heritage List for a National Heritage place;

(e) a place becoming a Commonwealth Heritage place;

- (f) a change in the Commonwealth Heritage values included in the Commonwealth Heritage List for a Commonwealth Heritage place;
 - (g) a wetland becoming a declared Ramsar wetland;
 - (h) a change in the boundaries of any of the following:
 - (i) a World Heritage property;
 - (ii) a National Heritage place;
 - (iii) a Commonwealth Heritage place;
 - (iv) a declared Ramsar wetland;
 - (v) the Great Barrier Reef Marine Park;
 - (i) a species becoming a listed threatened species;
 - (j) an ecological community becoming a listed threatened ecological community;
 - (k) a listed threatened species or a listed threatened ecological community becoming listed in another category representing a higher degree of endangerment;
 - (l) a species becoming a listed migratory species;
 - (m) any other event of a kind specified in the regulations.
- (2) This section applies if:
- (a) the Minister has, before or after the commencement of this section, decided under section 75 (the **primary decision**) whether an action (the **relevant action**) is a controlled action (whether the decision is that the action is a controlled action, or that the action is not a controlled action); and
 - (b) at a time that is after the commencement of this section and after the primary decision was made, a listing event occurs.
- (3) The validity of the primary decision, or any other approval process decision made in relation to the relevant action before the listing event occurred, is not affected by the listing event, nor can it be revoked, varied, suspended, challenged, reviewed, set aside or called in question because of, or for reasons relating to, the listing event.
- (4) After the listing event occurs, the listing event is to be disregarded:
- (a) in making any further approval process decision in relation to the relevant action; and
 - (b) in doing anything under this Chapter, in relation to the relevant action, because of the making of an approval process decision in relation to the relevant action (whether that approval process decision is or was made before or after the listing event occurred).
- (5) This section has effect despite any other provision of this Act and despite any other law.

176 Bioregional plans

- (1) The Minister may prepare a bioregional plan for a bioregion that is within a Commonwealth area. In preparing the plan, the Minister must carry out public consultation on a draft of the plan in accordance with the regulations.
- (2) The Minister may, on behalf of the Commonwealth, co-operate with a State or a self-governing Territory, an agency of a State or of a self-governing Territory, or any other person in the preparation of a bioregional plan for a bioregion that is not wholly within a Commonwealth area.
- (3) The co-operation may include giving financial or other assistance.
- (4) A bioregional plan may include provisions about all or any of the following:
 - (a) the components of biodiversity, their distribution and conservation status;
 - (b) important economic and social values;
 - (ba) heritage values of places;
 - (c) objectives relating to biodiversity and other values;
 - (d) priorities, strategies and actions to achieve the objectives;
 - (e) mechanisms for community involvement in implementing the plan;
 - (f) measures for monitoring and reviewing the plan.
- (4A) A bioregional plan prepared under subsection (1) or (2) is not a legislative instrument.
- (5) Subject to this Act, the Minister must have regard to a bioregional plan in making any decision under this Act to which the plan is relevant.

391 Minister must consider precautionary principle in making decisions

Taking account of precautionary principle

- (1) The Minister must take account of the precautionary principle in making a decision listed in the table in subsection (3), to the extent he or she can do so consistently with the other provisions of this Act.

Precautionary principle

- (2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.

Decisions in which precautionary principle must be considered

- (3) The decisions are:

Decisions in which precautionary principle must be considered		
Item	Section decision is made under	Nature of decision
1	75	whether an action is a controlled action
2	133	whether or not to approve the taking of an action

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Item	Section decision is made under	Nature of decision
1	75	whether an action is a controlled action
2	133	whether or not to approve the taking of an action