

**Historic Heritage – Line Area Advice
Narrabri Gas Project
EPBC Referral 2014/7376**

Historic Heritage Referral Advice

Narrabri Gas Project, Gunnedah Basin, NSW 2014/7376

The proposed action is for the development, operation and decommissioning of a coal seam gas field in the Gunnedah Basin, south west of Narrabri, NSW. The Project seeks to develop gas wells, gas and water gathering systems, and supporting infrastructure.

World Heritage property

National Heritage place

Commonwealth marine area

Commonwealth land

Commonwealth Action

Other whole of environment matter

Specific matters:

- Siding Spring Observatory, Coonabarabran (approximately 70 km south-east of the proposed action).

Stage: Proposed Approval

Previous Decisions:

[Controlled action decision brief](#)

[Heritage advice provided at the referral stage](#)

[NSW conditions of consent regarding heritage matters](#) (pp. 35)

Nature and extent of impacts on heritage matters as a result of the proposed action

The Historic Heritage Section (HHS) notes there are five Commonwealth properties in the vicinity (within 10 km) of the proposed Coal Seam Gas Project (the Project) at Narrabri, and one Commonwealth property 'the Siding Spring Observatory' (approximately 70 Km from the project area). None of those Commonwealth properties fall within the Project area and none of those properties are included in the Commonwealth Heritage List.

As the Siding Spring Observatory is not on the Commonwealth Heritage List (CHL), there are no identified CHL heritage values against which to undertake an assessment. The Project is considered under 'Matters of National Environmental Significance (MNES)' - to protect the environment (including heritage) on Commonwealth Land.

HHS has previously raised the following concerns in relation to the potential impacts of the Project on the Siding Spring Observatory, in their advice of 21 November 2014 (EPBC Referral 2014/7376) under s26 and s27A of the EPBC Act,

- *The ignition of gas flares may be detrimental to the observatory as these have the potential to be seen from great distance*
- *Both drilling and mining activities produce additional threats of air born dusts which are particularly disruptive in scattering lights at the blue end of the visible spectrum, propagating it over great distance. The effect would greatly reduce the ability of the researcher to carry out world class scientific work at Siding Spring.*

The Australian National University (ANU) engaged Context Pty Ltd in 2015 to undertake an assessment of the heritage values of the Observatory against the Commonwealth Heritage criteria. As the Observatory is not included in the CHL, the HMP was not prepared under the EPBC Act process, however the HMP is consistent with the Commonwealth Heritage management principles.

The heritage values of the Observatory as identified and assessed in the HMP against the Commonwealth Heritage criteria are: (a) Process, (b) Rarity, (c) Research potential, (d) Representativeness, (e) Aesthetics, (f) Creative and Technical Achievement, (g) Social, (h) Association and (i) Indigenous Tradition.

It is also noted that the Observatory was found to have State significance under a heritage assessment prepared by High Consulting (2006) for historical, associative, aesthetic, technical/research significance, rarity and representative.

HHS considers that the proposed work might have potential to impact on the heritage values identified in the HMP in relation to dark night sky,

- (a) - *'the site is significant as one of the foremost international optical observatories in the world and a principle location of Australian astronomical and astrophysical research'*,
- (b) - *'the site was selected as a successor to Mt Stromlo for its atmospheric conditions and continues to be in demand as a site for new telescopes'*
- (e) - *'the views of the Warrumbungle from the SSO evoke a strong human response, augmented by the clear and dark night skies, that evoke feelings of peace, tranquillity and uninterrupted observation aiming the site users, tourism and wide research community'*
- (g) - *'The Observatory Visitor centre is an important public interface with which local residents and specific site users have formed attachment over years of use, and the maintenance of the dark and clear night skies are seen as symbolic of a collective community effort and choice'* and
- (i) - *'The clear and dark night above it represents Aboriginal understandings of seasonal resources, travel routes, song lines and associated intangible traditions.*

The Observatory is located within the Warrumbungle International Dark Sky Park, which is free from light pollution. The Dark Sky committee (on behalf of Siding Spring) considers that the protection of the dark skies of the Warrumbungle region is of great importance for astronomical research purposes. The Dark Sky Region consists of land within a 200km radius of the Observatory.

HHS notes that ANU and Australian Astronomical Observatory has indicated that there were potential lighting impacts of the Project on Siding Spring Observatory.

HHS notes that the main sources of light from the project would be two safety flares at Leewood and Bibblewindi. The safety flares would have a blue flame with an average height of approximately 1.5 meters during normal operations. However, during commissioning and non-routine situation, the flame height may go be up to 30 meters, which would be rare and of limited duration.

There will be up to six small pilot flares operating in the gas field, if required, during well appraisal. Each flare would operate for up to three years. The pilot flares would have a blue flame with an average height of approximately four meters. It is indicated that the night lighting would be in place during the construction of a well, which is expected to take between 10-30 days at each site, depending on the well type. There will be two types of gas wells throughout the gas field: pilot and production. The project involves installation and operation of up to 850 individual production wells from a maximum of 425 well sets.

It is also noted that the night-time traffic movement requirements and associated lighting for the Project would be relatively minor and insignificant in comparison with existing traffic volumes on the Newell Highway.

HHS considers that the proposed Project may contribute artificial skyglow within the Dark Sky Region (land within 200 Km radius of the Observatory) through the pilot and safety flares and may affect astronomical observations which form part of the heritage values of the place. Optical observation is susceptible to skyglow and has the potential to negatively impact the observation. The Observatory is located within 200km of the Project area and therefore falls within the Dark Sky Region. The safety flares at Leewood and Bibblewindi will be located approximately 90 and 100 Kilometres from the Observatory. The management of lights in the Dark Sky Region is important because the telescopes at the Observatory require clear dark nights to operate effectively.

It is indicated in the Landscape and Visual Impact Assessment (LVIA), that safety flares at their full capacity at night may be visible from the Observatory, however the use of safety flares to the full capacity is limited during commissioning and maintenance activities and in non-routine situations. It is considered in the LVIA that the pilot well flares and safety flares are unlikely to cause an impact on the long-term operation of the Observatory.

HHS also understands that the Project would generate air emissions including dust and nitrogen dioxide which has the potential to affect the clarity of the night sky and therefore the observing condition at the Observatory. However, HHS notes that the emissions were assessed to comply with the relevant air quality standard and would generally decrease with distances from the source and therefore impacts to observing conditions at the Observatory are not predicted.

Proposed mitigation measures:

HHS notes that the design and operation of the project would give due consideration to the good lighting design principles in the *Dark Sky Planning Guidelines: Protecting the Observing conditions at Siding Spring* (NSW Department of Planning and Environment 2016), and Australian Standard AS4282-1997 *Control of the obtrusive effects of outdoor lighting* and Australian /New Zealand Standard AS/NZS 1158-2010 *Lighting on roads and public spaces for roadways and part , as applicable*.

Light generated during the construction and operation of the Project would be managed in accordance with the requirements in *Australian Standard AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting*.

- Lighting would be designed to minimise off-site light spill.
- The design and operation of night lighting would also consider the good lighting design principles documented in *Dark Sky Planning Guidelines: Protecting the observing conditions at Siding Spring*.
- Existing roads, tracks and disturbance corridors for construction, operational access and the placement of linear infrastructure, would be utilised where practicable.
- Reasonable and feasible measures would be adopted to minimise light impacts from flaring.
- The decommissioning and rehabilitation plan would be implemented.
- To minimise artificial skyglow, the standard requires no light output above the horizontal plain and the lighting output will be directed downwards to minimise sky glow.
- Working platforms should be lit with full cut-off luminaires rather than flood lights.
- Providing visual screening by vegetation where possible.
- When possible, provide advance warning of the flare events so that observatory users can plan around strategies.

HHS also notes that discussion has been held with representatives of the Observatory in relation to the potential for light impacts affecting observatory activities. It is indicated that due to the small number of flares, the dispersed nature of lit locations and the limited magnitude of the flare height and minimal lighting requirements of operational sites, the potential for impacts can be negligible. It is also indicated that the use of safety flares to its full capacity at night is likely to be rare and of short duration.

NWS Independent Planning Commission Decision

HHS notes NSW Independent Planning Commission's (the Commission) determination as the consent authority on the proposed Project under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Commission has determined to approve the Project subject to strict conditions.

The Commission has considered the *Dark Sky Guidelines* as the Project is approximately 78 km from the Observatory. The Commission has also considered the Applicant's response to public submissions (RtS) which provided a Gas Flare Light Assessment to assess the light impacts of the proposed flares and their potential to contribute to skyglow that would effect observing conditions at the Observatory and agrees with the following:

- the proposed flaring operations during both routine and non-routine scenarios would result in limited vertical light impacts, well below the *Dark Sky Guidelines*. The RtS also indicated that the flaring would contribute to horizontal skyglow within a narrowband, but this would have negligible impacts on the Observatory's operations;
- the safety flares may be visible on occasions from the Observatory but given they are infrequently used above a height of 1.5 meters, that they are unlikely to cause an impact on the long-term operation of the Observatory;
- the flares associated with the pilot wells are not approved by the NSW Department of Planning and Environment;
- air quality impact due to air emissions such as dust associated with the construction and operation phase of the Project, such might have potential impact on the clarity of the night sky. RtS states that these emissions are within regulatory requirements and given the distance of the Project from the Observatory, the observing conditions at the Observatory are likely to be unaffected;
- the response of the Director of the Observatory and the Chair of the Dark Sky Committee that "*if the project follows the dark sky guidelines, then it would be a satisfactory outcome from the perspective of the Observatory*"; and
- As requested by the Observatory, the Applicant should be required to minimise routine flaring when the moon is more than 50% illuminated.

The Commission is satisfied that the conditions imposed will ensure that the Project is unlikely to have a detrimental impact on the operation of the Observatory.

Relevant Management Plan

Name, date and SPIRE Link	Plan covers:	Advise whether the Action proposed may be consistent with this plan
Siding Spring Observatory Heritage Management Plan, 2015	The Siding Spring Observatory	
Name, Click here to enter a date., SPIRE Link	Comonwealth Heritage	DD CHOOSE Consistency

CLICK + TO REPEAT ROW



2014-7376-Siding Spring Observatory

Summary of Advice

The HHS advises that proposed Narrabri Gas project is unlikely to have detrimental impacts on the heritage values of the Observatory identified in the HMP provided the project complies with the *Dark Sky Planning Guidelines*.

HHS agrees with the conditions imposed by the NSW Independent Planning Commission with respect to the Observatory

HHS considers the Project is unlikely to have direct, indirect and 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 Project to the Observatory.

Primary Heritage Contact Officer for ongoing contact through Assessment/Approval stages

s 22(1)(a)(ii)

Senior Policy Officer

13/10/2020

Cleared by
s 22(1)(a)(ii)

Director, Historic Heritage

13/10/2020

[signature]

Sources

- EPBC Referral Advice
- *Dark Sky Planning Guidelines: Protecting the observing conditions at Siding Spring.*
- Narrabri Gas Project – Statement of Reasons for Decision
- Heritage Management Plan by Context
- [EIS Chapter 5 – Commonwealth requirements \(pp.6-9\)](#)
- [EIS Chapter 21 – Historic heritage \(pp.23-24\)](#)
- [EIS Appendix O – Historic heritage impact assessment \(Appendix C\)](#)

Narrabri Gas Project (EPBC 2014/7376) – Line Area Advice – Protected Species and Communities Branch

Request for advice	
EPBC Number:	2014/7376
Project Title:	Narrabri Gas Project, Gunnedah Basin, NSW
Project Stage:	Proposed Approval
Project documentation:	SPIRE folder NSW BCD Advice on MNES (pp.2-3) Ecological Impact Assessment Part 1 Ecological Impact Assessment Part 2 NSW Assessment Report NSW Development Consent (pp. 26-32) NSW Consideration of Commonwealth Matters (pp. 4-5)
Background:	<p>The proposed action is for the construction and operation of a coal seam gas (CSG) field at Narrabri, NSW, including the installation of up to 850 CSG wells and associated infrastructure. The total proposed action area is approximately 95,000 ha, although the upper clearing limit is 988.8 ha, with some additional indirect impacts. The Independent Planning Commission of NSW gave development consent on 30 September 2020, and the NSW Department of Planning, Industry and the Environment (DPIE) provided the Department with the NSW Assessment Report and associated documentation on 6 October 2020 in accordance with the NSW Bilateral Agreement.</p> <p>DPIE determined the proposed action would have a significant impact on the listed threatened species and communities outlined in Table. 2 of this document, which includes upper clearing limits and offset obligations for each. <i>There are three species which the Department considered may be potentially significantly impacted by the proposed action at referral and assessment stages, for which both the proponent and DPIE have determined a significant impact is unlikely.</i> These species and their relevant impacts are discussed below:</p> <p><u>Superb Parrot & Swift Parrot</u></p> <ul style="list-style-type: none"> • Direct impacts to 416.8 ha of foraging habitat

	<ul style="list-style-type: none">• Indirect impacts to 82.02 ha of foraging habitat• Species were not recorded in the study area• The ERT report states that Swift Parrot its habitat <i>may</i> occur within the project area, and the Superb Parrot or its habitat is <i>known</i> to occur within the project area• The distribution of the species in relation to the project area, along with the areas of distribution affected by the 2019-20 summer bushfires can be seen here. It is unclear if these fire impacts would result in these species utilising the available foraging habitat within the project area despite not previously doing so.• Discussion of significance under the EPBC Act can be found at Appendix K of Appendix J1 of the EIS (Superb Parrot pp. 603-605, Swift Parrot pp. 611-614) <p><u>Large-eared Pied Bat</u></p> <ul style="list-style-type: none">• Direct impacts to 885 ha foraging habitat• Indirect impacts to 175.4 ha foraging habitat• Species not recorded in the study area• The ERT report states that the species or its habitat is <i>likely</i> to occur within the project area• The distribution of the species in relation to the project area, along with the areas of distribution affected by the 2019-20 summer bushfires can be seen here. It is unclear if these fire impacts would result in these species utilising the available foraging habitat within the project area despite not previously doing so.• Discussion of significance under the EPBC Act can be found at Appendix K of Appendix J1 of the EIS (pp. 614-616) <p>Supplementary information on the NSW assessment of these species, and the proponent's conclusions can be found at the documents listed above under 'Project documentation'.</p>
<p>Potential issues:</p>	<p>Can you please provide advice on:</p> <ul style="list-style-type: none">• Whether or not you agree with the proponent's and NSW Government's justifications for concluding no significant impact to the above species.• If you disagree with the conclusion of no significant impact, what are the reasons for doing so.• If you consider that the above species would require to be offset for the purposes of the EPBC Act.

Timeframes:

14 October 2020. The due date for a final decision is 17 November 2020.

Response regarding Superb Parrot and Swift Parrot

The global Key Biodiversity Area (KBA) partnership currently recognises the Pilliga as a Key Biodiversity Area (<http://www.keybiodiversityareas.org/site/factsheet/23856>). The KBAs has been identified as important for Painted Honeyeater (Vulnerable) and Diamond Firetail (Least Concern) conservation and to support the long-term persistence of these species. For more information on KBAs visit - <http://www.keybiodiversityareas.org/home>

- Pilliga - The Pilliga Forests, sometimes known as the Pilliga Scrub, constitute over 5,000 km² of semi-arid woodland in temperate north-central New South Wales. It is the largest such continuous remnant in New South Wales. The forest is located near the towns of Baradine and Narrabri and the villages of Pilliga and Gwabegar. Most land within the Pilliga is in crown tenure, either as State Forest (2,416 km²), Nature Reserve, State Conservation Area or National Park (2,770 km²). A 4,909 km² tract of land, including the forest and the nearby Warrumbungle National Park, has been identified as a KBA because it supports populations of Painted Honeyeaters and Diamond Firetails (*Stagonopleura guttata*). It also experiences irregular occurrences of Critically Endangered Swift Parrots (*Lathamus discolor*) and Regent Honeyeaters (*Anthochaera phrygia*), and several other near threatened woodland birds (i.e. Superb Parrot).

Superb Parrot (Vulnerable)

The development envelop is within the known distribution of the species. The Superb Parrot is found in NSW, ACT and northern Victoria, where it occurs on the inland slopes of the Great Divide and on adjacent plains, especially along the major river-systems; vagrants have also been recorded in southern Queensland. The breeding range of the Superb Parrot is divided into three main areas: the first, along the Murray and Edward Rivers; the second, along the Murrumbidgee River; and the third, in a triangle bounded by Molong, Yass and Young in NSW.

The Superb Parrot mainly inhabits forests and woodlands dominated by eucalypts, especially River Red Gums (*Eucalyptus camaldulensis*) and box eucalypts such as Yellow Box (*Eucalyptus melliodora*) or Grey Box (*E. microcarpa*). The species also seasonally occurs in box-pine (*Callitris*) and Boree (*Acacia pendula*) woodlands.

At least part of the population of the Superb Parrot undertakes regular seasonal movements, vacating the breeding area after the conclusion of the breeding season, and then returning in spring, while others remain in the breeding areas throughout the year. Superb Parrots occur throughout the year in the Riverina, but are seldom observed in the South-west Slope Region or northern Victoria during winter, when they appear to disperse to the eucalypt-pine woodlands of west-central and north-central NSW. The exact relationship between breeding and non-breeding ranges is unclear, as there is no strong evidence to differentiate dispersal from migration in this species.

The Superb Parrot forages on many different species of plants, most of which occur in woodlands dominated by gum and box eucalypts, and, in some areas, in woodlands dominated by Boree, native pine, *Callitris*, or box-native pine associations. When foraging on the ground, Superb

Parrots often eat the seeds of plants such as the native Ringed Wallaby-grass (*Danthonia caespitosa*), barley-grasses (*Critesion*), as well as cereal crops including wheat, oats and canola (*Brassica napus*); and spilt grain. They also eat the seed-pods of many understorey species of wattles such as Gold-dust Wattle (*Acacia acinacea*), Silver Wattle (*A. dealbata*) and Deane's Wattle (*A. deanei*) and cultivated Cootamundra Wattle (*A. baileyana*). When foraging in the forest canopy, Superb Parrots eat the flowers and fruits of eucalypts, especially in spring and summer, the berries of mistletoe, such as Box Mistletoe (*Amyema miquelii*) and Grey Mistletoe (*A. quandang*), and, in winter, lerps from the foliage of eucalypts.

Habitat Clearing and Degradation

The most significant threat to the Superb Parrot is widespread clearing, degradation and fragmentation of box woodland throughout the species' range, especially breeding and foraging habitats, and corridors of vegetation used for regular movements. In addition, the Superb Parrot is threatened by clearing of wooded corridors that the species relies on when moving locally to find food, and when moving between breeding and non-breeding habitats.

The direct loss of 416.8 ha of foraging habitat and indirect impacts to 82.02 ha of foraging habitat has the potential to have adverse impacts to the Superb Parrot.

Swift Parrot (Critically Endangered)

The development envelop is within the known distribution of the species. Swift Parrots occur irregularly in the Pilliga Forests. The distribution of Swift Parrots across the landscape will vary depending on the flowering phenology of key foraging species. Due to the variable production of nectar and lerps it is considered critically important to protect and manage a broad range of habitats to provide a range of foraging resources. While the proponent states that Swift Parrots do not occur in the area, it is important to note that due to the species irregular occurrence based on flowering foraging resources, it is critical that sufficient surveys are undertaken to identify the presence of key foraging species as this will determine the Swift Parrot's use of the area.

Swift Parrots spend the winter on mainland Australia. During the non-breeding season the population frequents eucalypt woodlands and forests in South Australia, Victoria, New South Wales, Australian Capital Territory and Queensland. Within these habitats, Swift Parrots preferentially forage in large, mature trees that provide more reliable foraging resources than younger trees.

Key foraging species includes Yellow Gum (*E. leucoxydon*); Red Ironbark (*E. tricarpa*); Mugga Ironbark (*E. sideroxydon*); Grey Box (*E. macrocarpa*); White Box (*E. albens*); Yellow Box (*E. melliodora*); Swamp Mahogany (*E. robusta*); Forest Red Gum (*E. tereticornis*); Blackbutt (*E. pilularis*); and Spotted Gum (*Corymbia maculata*). Swift Parrots are known to rely heavily on lerp for food. Lerps are protective covers made by nymphs (larval stage that resembles adults) of jumping plant lice or psyllids (Family: Psyllidae). Nymphs excrete honeydew on the leaf surface and the sugars and amino acids in the honeydew crystallise in the air to form lerps. Leaves can look black and sooty when moulds grow on the honeydew. Lerp size and shape varies between species of psyllid. On mainland Australia Swift Parrots are regularly found feeding on lerp, with flocks of up to 50 birds feeding on lerp for up to an entire season, sometimes choosing to eat lerp despite the nearby availability of nectar resources.

Where habitat loss continues to occur within foraging habitats on the mainland, it is important to retain trees ≥ 60 cm diameter at breast height (DBH) or greater, together with at least five trees

per hectare from a mixture of other age classes (30-40cm, 40-50cm and 50-60cm DBH) to ensure continuity of food resources over time.

The direct loss of 416.8 ha of foraging habitat and indirect impacts to 82.02 ha of foraging habitat has the potential to have adverse impacts to the Swift Parrot.

Narrabri Gas Project (EPBC 2014/7376) – Line Area Advice – Protected Species and Communities Branch

Request for advice	
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Timeframes:	14 October 2020. The due date for a final decision is 17 November 2020.
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Response regarding Large-eared Pied-bat

- We note that the species was not recorded in the study area. The indicative distribution maps available, generalised from the Department's Species of National Environmental Significance dataset and based on best available knowledge, identifies that the project area overlaps both the areas where large-eared pied bats are "likely to occur" and "may occur".
- We note that the *Survey Guidelines for Australia's Threatened Bat Species: Guidelines for detecting bats listed as threatened under the EPBC Act* (DEWHA 2010; <http://www.environment.gov.au/system/files/resources/2f420bf1-d9e4-44ec-a69c-07316cb81086/files/survey-guidelines-bats.pdf>) are identified in the reference list of the EIA, and are mentioned in the body of the report as being used in the design of fauna surveys. However, we also note the EIA states that "survey effort was not applied in full accordance with [these] guidelines" (EIA p25), with the surveys instead focussing on the identification of all habitat types. The search for Large-eared pied bats was done using echolocation recordings and harp traps. The Large-eared pied bat was "recorded only to a 'possible' confidence level and also recorded in the literature review but has not been included" in the EIA's list of threatened fauna found in the study area (EIA p105).
- A 2011 recovery plan is available for the large-eared pied bat (<http://www.environment.gov.au/system/files/resources/9e59696a-f72f-4332-8eda-25eeb4460349/files/large-eared-pied-bat.pdf>).
 - o This recovery plan identifies that a "known breeding site occurs at a disused gold mine at Barraba, NSW" (p13), (the town of Barraba is a 129km drive east of Narrabri town, with Mt Kaputar lying in between them). The recovery plan also includes that "A maternity roost has been observed in a sandstone cave near Coonabarabran, NSW (Pennay 2008), and another nearby in the Pilliga sandstone (M. Pennay *pers. comm.* 2010)" (p9), with Coonabarabran being found 120km SSW of Narrabri, with the Pilliga East State Forest/Pilliga East SCA being found between them. The recovery plan notes that "any maternity roosts must be considered habitat critical to the survival of the species" (p9).
 - o The Large-eared pied bat is also listed in this recovery plan as being "present in areas of volcanic strata" at Mt Kaputar (p8), which is 50kms from Narrabri, and in Pilliga East State Forest (p8), and that "Small groups of females and young bats have been observed in the Pilliga Scrub" (p9). The project EIA notes that the Pilliga East SCA, which adjoins the Pilliga East State Forest is, at it's closest, "50m from the boundary of the project at the closest point" (EIA p144).
 - o The recovery plan identifies that "Clearing or harvesting of vegetation in or around roosts has the potential to affect foraging resources through habitat loss and fragmentation of the surrounding vegetation. This is likely to be particularly detrimental in the vicinity of maternity roosts where pregnant and lactating females require sufficient food resources to raise young." (p13).
 - o It is not identified in the recovery plan how far away from a roosting site a large-eared pied bat might forage. It does note that "Almost all records of the species are within several kilometres of clifflines or rocky terrain, although extensive trapping and call data indicates that bats do not usually forage in sandstone habitat" (p9) and that "Sandstone cliffs and fertile wooded valley habitat within

close proximity of each other should be considered habitat critical to the survival of the large-eared pied bat" (p9).

- The Threatened Species Scientific Committee listing advice for the large-eared pied bat (<http://www.environment.gov.au/biodiversity/threatened/species/pubs/183-listing-advice.pdf>) identifies a number of relevant issues for the consideration of the significance of impact, including:
 - That females have low fecundity.
 - That suitable roosts are not evenly distributed throughout the species range, and that populations occur where suitable roosts are present. The EIA does not state that any caves are present in the project site, but does list the presence of a number of cave-dwelling bats, possibly implying the presence of such caves.
 - The only confirmed threat is disturbance and damage at primary nursery roosts. Only three maternity roosts have ever been located for this species, all in NSW, despite extensive surveys. Two of these have now been destroyed.
 - Potential threats to the species include long wall mining for coal, loss of foraging habitat and predation.
- It may also be relevant to refer to the recently published light pollution guidelines, available at: <https://www.environment.gov.au/biodiversity/publications/national-light-pollution-guidelines-wildlife>, as light pollution can cause disruption and behavioural changes in bats, especially when close to roosting sites.
- The Department does not hold a record of an existing recovery team for this species.
- A draft updated conservation advice is in progress, but not yet approved for publication.



S 47E (d)

N. Entity ⁽³⁾	Santos NSW (Eastern) Pty Ltd	O. ABN Number/s 11 009 321 662	
P. Alias(es)	Eastern Energy Australia Pty Limited, BVS Resources Pty Ltd, Eromanga Energy Management Pty Ltd	Q. Role	Designated proponent
R. Address (es)	Level 16, 40 Creek Street, Brisbane QLD 4000		
S. Contact information	Neale House, (07) 3838 3861, neale.house@santos.com	T. Other	

S 47E (d)

s 47E(d)

In relation to your request to inform pending approval of conditions, in particular section 136(4) Person's environmental history for Santos NSW (Eastern) Pty Ltd, the Compliance section provides the following advice:

s 47E(d)

identified.

no adverse history has been

s 47E(d)

S 47E(d)

Narrabri Gas Project (EPBC 2014/7376) – Statutory Document Check – Protected Species and Communities Branch (PSCB)

[Request for check on new listings, advices and plans](#)

The proposed decision for Narrabri Gas (2014/7376) is due 17 November 2020. Could you please provide advice as to whether or not there are any new, revised or imminent conservation advices, recovery plans or threat abatement plans that may be relevant to this project?

I've included a list of the species and ecological communities which are likely to be significantly impacted by the project and the CAs, RPs and TAPs that have been considered in the decision.

The last check of SPRAT for new or revised conservation advices, recovery plans or threat abatement plans was done on 14 October 2020.

Let me know if you need anything else and if possible can you please let me know by the end of this week?

The relevant species are:

Listed threatened species and communities (s18 & s18A)

1. Regent Honeyeater (*Anthochaera phrygia*) – Endangered
2. Swift Parrot (*Lathamus discolor*) – Endangered
3. Superb Parrot (*Polytelis swainsonii*) – Vulnerable
4. Spotted-tailed Quoll (*Dasyurus maculatus maculatus* (SE mainland population)) – Endangered
5. Koala (*Phascolarctos cinereus*) (combined populations of Queensland, NSW and ACT) – Vulnerable
6. South-eastern long-eared bat (*Nyctophilus corbeni*) – Vulnerable
7. Large-eared pied bat (*Chalinolobus dwyeri*) – Vulnerable
8. Pilliga mouse (*Pseudomys pilligaensis*) – Vulnerable
9. Brigalow (*Acacia harpophylla* dominant and codominant) – Endangered
10. Weeping Myall (*Acacia pendula*) Woodlands – Endangered
11. Coolabah bertya (*Bertya opposens*) – Vulnerable

12. Spiny peppercress (*Lepidium aschersonii*) – Vulnerable
13. Winged peppercress (*Lepidium monoplacoides*) – Endangered
14. *Androcalva procumbens* – Vulnerable
15. *Tylophora linearis* – Endangered

Approved Conservation Advice

1. 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>
2. 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>
3. 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>
4. Threatened Species Scientific Committee (2020). *Conservation Advice* *Dasyurus maculatus 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>
5. 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>
6. 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>
7. 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>

8. 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>
9. Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Weeping Myall Woodlands ecological community*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/98-conservation-advice.pdf>
10. Threatened Species Scientific Committee (2016). *Conservation Advice Bertya opponens*. Canberra: Department of the Environment and Energy. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/13792-conservation-advice-16122016.pdf>
11. 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>
12. 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>

Recovery Plans

1. 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>
2. 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>
3. 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-dicolor>
4. 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>

5. Department of Environment and Resource Management (2011). *National recovery plan for the large-eared pied bat* *Chalinolobus dwyeri*. Report to the Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-large-eared-pied-bat-chalinolobus-dwyeri>
6. 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>
7. Carter, O. (2010). *National Recovery Plan for the Spiny Peppercress* *Lepidium aschersonii*. Department of Sustainability and Environment, Melbourne. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-spiny-peppercress-lepidium-aschersonii>
8. 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>.

Adopted/Made Threat Abatement Plans

1. Department of the Environment and Energy (2016). *Threat abatement plan for competition and land degradation by rabbits*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/competition-and-land-degradation-rabbits-2016>
2. Department of the Environment (2015). *Threat abatement plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>
3. Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat abatement plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>
4. Department of the Environment and Energy (2017). *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>
5. Department of Sustainability, Environment, Water, Population and Communities (2011). *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by*

cane toads. Canberra, ACT: Commonwealth of Australia. Available from:
<http://www.environment.gov.au/resource/threat-abatement-plan-biological-effects-including-lethal-toxic-ingestion-caused-cane-toads>

Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat abatement plan for competition and land degradation by unmanaged goats*. DEWHA, Canberra. Available from:
<http://www.environment.gov.au/biodiversity/threatened/publications/tap/competition-and-land-degradation-unmanaged-goats>.

Response on check within NSW North Assessments Section and request for PSCB check

I have reviewed the information provided below and the assessment officer has cited all statutory documents correctly.

It appears that the document identified and reference provided is consistent with the documents listed in SPRAT.

Would you be able to please advise if there are any likely changes to these documents or any new, revised or imminent conservation advices, recovery plans or threat abatement plans that may be relevant to this project?

Could you please provide a confirmation for the above request by Friday 16 October 2020?

PSCB Response

On behalf of the Protected Species and Communities Branch, I confirm that we are not anticipating any changes to the documents relating to the threatened species and ecological communities identified by EAD in the email below in the coming six weeks.

Please note that PSCB has not re-checked whether the correct documents are present or that the citation information is correct.



PRIME MINISTER

Reference: MC20-167866

The Hon Sussan Ley MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600

Dear Minister

A handwritten signature in black ink, appearing to read 'Sussan'.

Thank you for your letter of 28 October 2020 regarding your proposed approval of the Narrabri gas project under the *Environment Protection and Biodiversity Conservation Act 1999*.

Affordable gas will play a central role while the economy emerges from COVID-19. The Narrabri gas project has the potential to generate regional employment and supply enough natural gas to meet up to half of New South Wales' (NSW) natural gas demand.

I note the role of the NSW Government in enabling a comprehensive assessment process for this project on the Commonwealth's behalf, and your proposed reliance on NSW's conditions of approval to the greatest extent possible, to reduce duplication. I also note the additional proposed conditions to ensure protection of Matters of National Environmental Significance.

Thank you for your efforts to progress the approval of this project in a robust manner.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Scott Morrison'.

SCOTT MORRISON

From: s 22(1)(a)(ii)
Sent: Thursday, 29 October 2020 5:02 PM
To: s 22(1)(a)(ii)
(Agriculture) s 22(1)(a)(ii)
Cc: s 22(1)(a)(ii) (Agriculture) s 22(1)(a)(ii)
Subject: EPBC 2014/7376 Narrabri Gas Project, Gunnedah Basin, New South Wales
[SEC=UNOFFICIAL]

Dear s 22(1)(a)(ii)

I refer to the letter of 28 October 2020 from the Hon. Susan Ley MP, Minister for the Environment to the Hon. David Littleproud MP, Minister for Agriculture, Drought and Emergency Management, inviting comment on the proposed approval decision for referral EPBC 2014/7376 Narrabri Gas Project, Gunnedah Basin, New South Wales, under the *Environment Protection and Biodiversity Conservation Act 1999*. The Minister has asked the department to reply on his behalf.

The department has **NIL comment** in relation to the proposed approval decision.

Thank you for the opportunity to comment on the proposed decision for EPBC 2014/7367.

Yours sincerely

s 22(1)(a)(ii)

Agriculture Stewardship | Natural Capital and Markets Branch | Climate Adaptation & Resilience Division |

Phone s 22(1)(a)(ii)

Department of Agriculture, Water and the Environment
John Gorton Building, King Edward Terrace, Parkes ACT 2600
GPO Box 786, Canberra ACT 2601

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Senator the Hon Michaelia Cash
Minister for Employment, Skills, Small and Family Business
Deputy Leader of the Government in the Senate

Reference: MC20-026444

The Hon Sussan Ley MP
Minister for the Environment
Member for Farrer
Parliament House
CANBERRA ACT 2600

By email: Minister.Ley@environment.gov.au

Dear Minister

A handwritten signature in blue ink that reads 'Sussan'.

EPBC Ref: 2014/7376 – Invitation to comment on proposed approval decision – Narrabri Gas Project, New South Wales

Thank you for your letter of 28 October 2020 regarding Santos NSW (Eastern) Pty Ltd's coal seam gas proposal and for inviting me to provide comments on your proposed decision.

The Narrabri Gas Project represents a significant project for the state of New South Wales and will increase employment opportunities for the people of Narrabri and its surrounding region.

To facilitate employment opportunities specifically for job seekers in the Narrabri region, I encourage Santos NSW to engage with the New England and North West Local Jobs and Skills Taskforce. As part of the Local Jobs Program, administered by the Department of Education, Skills and Employment, the Taskforce will identify and facilitate employment and training opportunities in the New England and North West region, putting local employer needs at the centre of their actions. More information is available at www.dese.gov.au/local-jobs-program.

I welcome future opportunities to engage in relation to this project and helping to secure strong employment outcomes for the Narrabri region. For engagement on employment matters related to this project, the relevant contact point in the Department is Mr Alistair Beasley, Assistant Secretary, Industry, Regional and International Strategies Branch who can be contacted at alistair.beasley@dese.gov.au.

Yours sincerely

A handwritten signature in blue ink that reads 'Michaelia Cash'.

Senator the Hon Michaelia Cash

11/11/2020



THE HON ANGUS TAYLOR MP
MINISTER FOR ENERGY AND EMISSIONS REDUCTION

MC20-062736

The Hon Sussan Ley MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600

12 NOV 2020

Dear Minister 

Thank you for your letter of 28 October 2020 concerning your proposed decision under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) in respect to EPBC Ref: 2014/7376 Narrabri Gas Project.

As you know, the Australian Government supports the sustainable development of our resources for the benefit of all Australians. This includes natural gas, which plays a key role in supporting domestic industry and jobs, delivering reliable and affordable energy to Australian consumers, and managing the transition to lower emissions.

New South Wales imports the vast majority of its gas from interstate, which is contributing to increased supply costs through transportation. The Narrabri Gas Project has the potential to supply about half of NSW's gas demand. The Australian Energy Market Operator (AEMO) 2020 Gas Statement of Opportunities report estimates Narrabri gas production would help prevent forecast gas shortfalls in southern parts of Australia until 2026.

Due to the importance of unlocking more supply under our gas-fired recovery, I am pleased that you propose to approve the Narrabri Gas Project under the EPBC Act process. I note that there are no inconsistencies, duplication or conflict between your proposed conditions and the NSW conditions.

I also note that there are three additional conditions that relate to National Environmental Significance. I would encourage you to work closely with Santos as to how these additional conditions will be implemented to minimise regulatory burden due to the importance of the project for gas supply, while still upholding the appropriate environmental protections.

Thank you for consulting me on this matter.

Yours sincerely



ANGUS TAYLOR



The Hon Ken Wyatt AM MP
Minister for Indigenous Australians
Member for Hasluck

Reference: MC20-005774

The Hon Sussan Ley MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600


Dear Minister

Thank you for your correspondence of 29 October 2020 regarding the Narrabri Gas Project (EPBC Ref: 2014/7376). I appreciate the opportunity to comment on matters of economic and social concerns in relation to your proposed decision to approve the Narrabri Gas Project (Project), subject to conditions, under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

I understand the Australian Government is working with jurisdictional governments to streamline assessment processes and reduce approval timeframes under the EPBC Act to deliver employment and economic opportunities as quickly as possible. This approach is consistent with the National Cabinet focus on measures to facilitate Covid-19 economic recovery.

I also understand Indigenous heritage is not identified as a matter of national environmental significance under the EPBC Act and cannot be formally considered in your decision-making to approve the Project. I am advised the NSW Government has regulatory responsibility for protecting Aboriginal heritage associated with the Project through the *National Parks and Wildlife Act 1974* and that based on the information provided by NSW officials, the Project proponent appears to have met its Aboriginal consultation obligations under the NSW legislative requirements.

While I support your proposal to approve the Project, as you would be aware, tensions between Indigenous stakeholders in relation to development proposals and projects are increasingly evident and of concern. This Project is no exception and highlights broader issues that governments must address to ensure adequate and comprehensive representation is achieved when consulting with Indigenous stakeholders. This includes recognising and accounting for the differing perspectives of groups from the same country or Nation. There is a very real need to build Indigenous communities' trust in governments.

Following our Ministerial Indigenous Heritage Roundtable in September 2020, it may be appropriate that the *Dhawura Ngilan: A Vision for Aboriginal and Torres Strait Islander Heritage in Australia and the Best Practice Standards in Indigenous Cultural Heritage Management and Legislation* apply to this and other development projects.

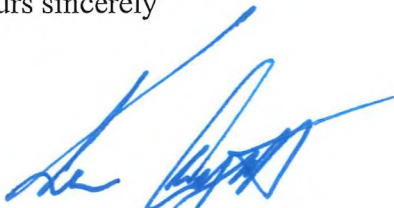
I strongly encourage you to work with NSW to ensure the preservation of Aboriginal cultural heritage materials by applying these best practice standards to the oversight of the Project.

Further, I have asked the National Indigenous Australians Agency (NIAA) to work closely with your Department to strengthen Aboriginal consultation processes and protection of culturally-significant sites, objects and practices. This is particularly important as the Government streamlines processes and approval timeframes to support economic recovery.

With regard to economic outcomes, I note that neither the Commonwealth nor NSW Governments attach any requirement for Indigenous enterprise or employment outcomes to the approval of privately funded projects. I am advised that local traditional owners are seeking such outcomes. The Commonwealth has support mechanisms and frameworks such as the Indigenous Procurement Policy that could be applied. I have asked the NIAA to work with Santos to support the achievement of Indigenous enterprise and employment outcomes.

Again, thank you for the opportunity to comment on this important proposal.

Yours sincerely



The Hon KEN WYATT AM MP
Minister for Indigenous Australians

11 / 11 / 2020

cc: s 22(1)(a)(ii)
s 22(1)(a)(ii)

Acting Director, Northern NSW Assessments Section
epbc.nsw@awe.gov.au



The Hon Karen Andrews MP

Minister for Industry, Science and Technology

MC20-062231

The Hon Sussan Ley MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600

Dear Minister

Thank you for your letter of 28 October 2020 concerning your proposed decision under the EPBC Act in respect to EPBC Ref: 2014/7376 Narrabri Gas Project, New South Wales.

The Narrabri Gas Project will play a key role in providing energy security and reliability as well as supplying a key input for manufacturing. I am pleased to see Santos has signed agreements with manufacturers Perdaman, Natural Soda and Brickworks to supply gas from the project.

I am pleased to support your proposed decision to approve the Narrabri Gas Project.

Yours sincerely



Karen Andrews

17 / 10 / 2020



The Hon Michael McCormack MP

Deputy Prime Minister
Minister for Infrastructure, Transport and Regional Development
Leader of The Nationals
Federal Member for Riverina

Ref: MS20-001792

16 NOV 2020

The Hon Sussan Ley MP
Member for Farrer
Minister for the Environment
Parliament House
CANBERRA ACT 2600

Sussan
Dear Minister

Thank you for your letter of 28 October 2020 inviting comments on the proposed approval decision for the Narrabri Gas Project, NSW.

The Narrabri Gas Project will have significant environmental, social and economic impacts on the local community of Narrabri and the surroundings regions. I thank you for your careful consideration of these impacts, and note that you propose to approve the proposal under the *Environment Protection and Biodiversity Conservation Act (1999)*, subject to a number of conditions.

I understand that officials from our respective agencies have been consulting on this matter. My Department will continue to work collaboratively with the Department of Agriculture, Water and the Environment to provide feedback on the proposed project.

Thank you for bringing this matter to my attention.

Yours sincerely

A handwritten signature in black ink that reads "Michael McCormack".

Michael McCormack



The Hon Keith Pitt MP

Minister for Resources, Water and Northern Australia

MC20-062201

The Hon Sussan Ley MP
Minister for the Environment
Parliament House
CANBERRA ACT 2600


Dear Minister

Thank you for your letter of 28 October 2020 concerning your proposed decision under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in respect to EPBC Ref: 2014/7376 Narrabri Gas Project, NSW.

NSW imports the vast majority of its gas from interstate, which is contributing to increased supply costs. The Narrabri Gas Project has the potential to significantly reduce reliance on interstate gas supply, help alleviate pipeline capacity congestion across the east coast gas market and bring much needed investment and jobs to the local community.

The economic and social benefits expected to flow from the Narrabri Gas Project are anticipated to include:

- a) supply of up to 200 terajoules of natural gas per day, which is equivalent to approximately 70 petajoules per annum and about half of NSW's gas demand;
- b) competitively priced gas supply for NSW consumers, in light of reduced transport costs compared to current interstate gas sources;
- c) creation of up to 1,300 jobs during construction and 200 ongoing positions;
- d) a regional benefit fund of up to \$120 million to ensure that the broader Narrabri Shire community benefits from the project; and
- e) royalties of around \$1.2 billion for the NSW Government.

The Australian Energy Market Operator (AEMO) *2020 Gas Statement of Opportunities* report estimates that if Narrabri gas production proceeds, forecast gas shortfalls in southern parts of Australia could be prevented for another two years until 2026. This would be a significant and tangible step forward to improving gas reliability for Australian businesses and residential consumers in the short term.

Approval of the Narrabri Gas Project is consistent with the outcomes of the Government's \$52.9 million Gas-Fired Recovery package, which is a key component of the Government's JobMaker plan. All future gas production from the Narrabri Gas Project would count towards the 70 petajoule per year gas target in the Commonwealth-NSW Energy and Emissions Reduction Agreement (the Bilateral Agreement).

In considering your request, I have sought advice from Geoscience Australia and the Water Group in the Department of Agriculture, Water and the Environment. I am pleased to support your proposed decision to approve the Narrabri Gas Project subject to compliance with the proposed conditions of approval.

Before granting your approval, however, your department may wish to consider the enclosed comments from Geoscience Australia. Geoscience Australia has examined the draft conditions, with a particular focus on conditions that may be difficult to monitor or enforce, for both the proponent and regulators.

Finally I would like to highlight that government receives consistent feedback from industry regarding the difficulty in complying with overlapping and/or conflicting conditions imposed by different jurisdictions. I would like to encourage your department to avoid any conditions that overlap or conflict with conditions imposed by the NSW Government and the Independent Planning Commission of NSW.

Thank you for consulting me on this matter.

Yours sincerely



Keith Pitt

12/11 /2020

Encl. (1)



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**Onshore Gas Section
Onshore Minerals and Energy Branch
Resources Division
Department of Industry, Science, Energy and Resources**

3 November 2020

Attn: s 22(1)(a)(ii)

Re: Invitation to comment on EPBC Proposed Approval Decision and Conditions – Narrabri Gas Project, near Narrabri, NSW (EPBC 2014/7376)

I refer to the request for comments from the Department of Agriculture, Water and the Environment (DAWE), dated 29 October, on the proposed approval decision for the Narrabri Gas Project (EPBC 2048/7376) (the Project). The Project is located near Narrabri, New South Wales and is proposed by Santos NSW (Eastern) Pty Ltd (the approval holder). Geoscience Australia has reviewed the proposed approval conditions, particularly as they relate to protecting a water resource, as specified under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Geoscience Australia has focused on the conditions addressing the potential for impacts to groundwater resources.

The Project was identified as a controlled action under the EPBC Act, with the water trigger (sections 24D and 24E of the Act) as a controlling provision. The Project was assessed under the bilateral assessment agreement with NSW. Geoscience Australia comments are provided below.

Within the timeframes available for the consideration of these approval conditions, Geoscience Australia has not considered the NSW approval and conditions, including any overlap between the state and Commonwealth conditions, any documents from the Independent Expert Scientific Committee on Coal Seam Gas and Coal Mines, State assessment processes, or the Project Environmental Impact Statement. Geoscience Australia's comments are focussed on conditions relating to the Water Resources Matter of National Environmental Significance (conditions 6 to 15) and relevant definitions and appendices.

Background

The Narrabri Gas Project (the Project) is located approximately 20 to 45 km south of Narrabri, NSW. The Project proposes to extract coal seam gas (CSG) from coal seams within the Maules Creek Formation of the Gunnedah Basin. The project area is approximately 98,000 hectares and operations will involve the installation of up to 850 production wells, well pads, gas and water gathering systems and supporting infrastructure.

The Project is located within the Namoi River Catchment, and the Namoi River and four major ephemeral streams are located within the project area. The approval holder predicts that the Project will impact a number of groundwater systems including the Namoi Alluvium and the Pilliga Sandstone. Potential groundwater dependent ecosystems are identified within and around the project area.

General Comments

It is important to note there can be considerable time lags before the consequences of pumping are realised in groundwater levels and on Groundwater Dependent Ecosystems (GDE). Consequently, an impact in one aquifer (e.g. the coal seams) may not be seen in an overlying aquifer (e.g. Napperby Sandstone) or GDEs for a significant period of time (decades or longer in some cases).

Geoscience Australia has examined the draft approval conditions and considered the practicalities of their implementation, with a particular focus on conditions that might be difficult to monitor or enforce, for both the approval holder and regulators.

Geoscience Australia has identified three main areas which may cause difficulty with regard to the application of the conditions:

- The method for developing reference values will be key for monitoring potential impacts to groundwater resources and for ensuring compliance with the conditions. However, the conditions as written do not specify a method to use. It is recommended that a method to calculate reference values be specified (condition 8).
- It is likely the groundwater limit will be exceeded at some monitoring bores on a regular basis, due to factors not related to the project, such as groundwater extraction for other industries. Separating the different influences affecting groundwater levels is complex. It is recommended that the condition include a mechanism through which the approval holder and regulator agree on methods that will be used for quantifying the impact of the project, and other factors (condition 9).
- A number of the timeframes stipulated in the conditions (conditions 10, 11 and 14) may not be sufficient to enable the approval holder to address the requirements.

These issues are discussed further in the attached table. Where appropriate additional or alternative wording has been proposed that may address the concerns raised.

Kind regards,

s. 47F(1)

Kristina Anastasi

Branch Head
Advice, Investment Attraction and Analysis Branch
Minerals, Energy and Groundwater Division
Geoscience Australia

Attachment A - Further comments: Proposed approval decision and conditions – Narrabri Coal Project (EPBC 2014/7376)

Approval Condition	Comments and Recommendations
<p>Condition 6. For the protection of water resources, the approval holder must comply with conditions A15-A17 and B26-B42 of the NSW approval relating to water management and ensure that all outcomes and sub-outcomes specified in Appendix B are achieved and maintained.</p> <p><i>Note: The approval holder is considered to have achieved and maintained outcomes for water resources if it has achieved and maintained all relevant performance measures.</i></p> <p>The following definitions support this condition: Maintain/ maintaining means the level and quality of groundwater and surface water discharge remains within the bounds of natural variability.</p> <p>Performance measure/s means the water management performance measures specified in Table 7 of the Development Consent of the NSW approval.</p>	<p>Nil comments</p>
<p>Condition 7. The approval holder must provide the Department with the approved Water Management Plan required by condition B41 of the NSW approval within 2 business days of its approval by the NSW Planning Secretary. The approval holder must notify the Department within 2 business days of any proposed changes to the approved Water Management Plan. If the NSW Planning Secretary approves a revised version of the Water Management Plan, the approval holder must provide the Department with the approved revised Water Management Plan within 2 business days of its approval by the NSW Planning Secretary.</p>	<p>Nil comments</p>

Condition 8.

The **approval holder** must, in addition to the monitoring requirements specified in the approved Groundwater Management **Plan** required under condition B41 of the **NSW approval**, provide to the **Department** all groundwater level monitoring data collected for at least 3 years at monitoring bores located in the Namoi Alluvium, Pilliga Sandstone, Napperby Sandstone and Digby Formation aquifers. The **approval holder** must derive a scientifically robust **reference value** for each monitoring bore based on the data provided to the **Department**.

The **approval holder** must not commence **Phase 2** until the **Minister** has provided written advice that the **reference values** are accepted.

The following definitions support this condition:

Reference value means the groundwater elevation in mAHD (metres Australian Height Datum) approved by the **Minister** in writing for a specific monitoring bore.

The protection of water resources and Groundwater Dependent Ecosystems(GDE) relies on the determination of a reference level for groundwater from which trigger/s and a limit can be measured. Therefore, setting and approving this reference value is paramount. Geoscience Australia notes the theory of this approach is sound, however the success of the approach will be dependent on how the reference value will be determined.

There are a number of concerns with regard to this condition:

- Geoscience Australia recommends that the definition of 'reference value' be reworded to include 'groundwater pressure or groundwater elevation' to address both the confined and unconfined groundwater systems.
- It is not clear if this condition requires reference values for all of the monitoring bores (in the relevant formations) in the Groundwater Management Plan, or only a selection of these bores. Geoscience Australia suggests this point be clarified.
- It is not clear if the Department intends the reference value to represent the minimum or average water level/pressure recorded during the monitoring period, or a different method determined by the approval holder. The method used will have significant implications for the application of the groundwater limit (see comments against condition 9).
- 3 years of monitoring data may be insufficient to estimate a scientifically robust reference value in some groundwater systems where water level fluctuations reflect both seasonal and long term influences.
- Statistical analysis of monitoring data is required to derive the reference values. Geoscience Australia recommends that the condition include a requirement that a description of the analytical method be provided to the Minister to inform the approval of the reference values. Alternatively the condition should specify the method to be used to determine the reference values.
- We note the requirement that reference values must be accepted by the Minister, this places a responsibility on the Minister to ensure the reference values are appropriate. To support this decision the Minister may wish to get the reference values reviewed independently (for example by the Independent Expert Scientific Committee on Coal Seam Gas and Coal Mines or an appropriately qualified expert). Geoscience Australia recommends that the condition be amended to provide the Minister with the flexibility to seek an independent review.

Approval Condition

Comments and Recommendations

Condition 9.

The **approval holder** must not exceed the **groundwater limit** for the monitoring bores in the Namoi Alluvium, Pilliga Sandstone, Napperby Sandstone and Digby Formation aquifers.

The following definitions support this condition:

Groundwater limit means the groundwater elevation in mAHD (metres Australian Height Datum) for a specific monitoring bore that is 0.50 metres lower than the **reference value** for that monitoring bore.

- Depending on how reference values are set, and the system to which they apply, groundwater limits may be exceeded due to pre-existing/background variability within the system.

For example, many of the monitoring bores presented in the Environment Impact Statement (EIS) show annual water level variation of more than 10 m. If the 'reference value' represents the average water level in the monitoring record, the groundwater limit will be exceeded regularly, due to background variability alone.

Geoscience Australia recommends that an alternative definition of groundwater limits be considered. This could take a range of forms, for example using a statistical representation of the monitoring data used to determine the reference value, or nominating a timeframe over which the groundwater limit is exceeded, before it is considered a breach.

- Monitoring bores in the Namoi Alluvium (and possibly the other formations) are subject to a range of factors influencing water levels, including cumulative impacts from a number of 'water users' (such as agriculture and town water supplies). The groundwater limits will be exceeded frequently, and each time a limit is exceeded it will be necessary to separate the impact of the project from other factors influencing the groundwater level.

Geoscience Australia recommends that this condition include a mechanism through which the approval holder and regulator agree on methods that will be used for quantifying the impact of the project, and other factors, prior to the first exceedance.

- The definition of 'Groundwater Limit' should be reworded to include '*groundwater pressure or groundwater elevation*' to address both the confined and unconfined groundwater systems being considered.

Approval Condition	Comments and Recommendations
<p>Condition 10. If the approval holder detects that the groundwater limit has been exceeded or there is an incident of non-compliance with condition 6, the approval holder must, in addition to the requirements of condition 35, provide in writing details of the contributing well/s to the Department within 2 business days of the detection.</p> <p>The following definitions support this condition:</p> <ul style="list-style-type: none">• Incident means any event which has the potential to, or does, impact on one or more protected matter/s other than as authorised by this approval.• Impact/s means any measurable direct or indirect harmful change.• Contributing well/s means any coal seam gas development well/s identified as contributing, or likely to be contributing, to the exceedance of the groundwater limit and / or non-compliance with performance measure/s.	<ul style="list-style-type: none">• Geoscience Australia notes the requirement that the approval holder must identify the contributing wells relating to an exceedance of the groundwater limit within 2 business days, may be difficult to meet.• Geoscience Australia has concerns that the condition, as currently worded, may not be successfully met, or enforced, if there is not a clear hydrogeological link between monitoring bores and specific CSG development wells. This creates a risk for both the approval holder and the regulator.

Approval Condition	Comments and Recommendations
<p>Condition 11. Unless otherwise notified by the Minister in writing, the approval holder must cease groundwater extraction associated with any contributing well/s within 10 business days of detecting an exceedance of the groundwater limit.</p> <p><i>Note: The Minister, in determining whether to give notice to the approval holder that it is not required to cease groundwater extraction, will consider all relevant information including but not limited to legislation and policy, information provided by the approval holder and any other information available to the Minister at the time of the decision.</i></p> <p>The following definitions support this condition: Cease groundwater extraction means to promptly discontinue all groundwater extraction from the contributing well/s.</p> <p>Groundwater extraction means the process of extracting groundwater from an aquifer, including as a by-product of coal seam gas production.</p>	<ul style="list-style-type: none">• Geoscience Australia notes the same concerns as for condition 10, with regard to the time available to identify contributing wells, and provide relevant information to the Minister to support an argument against the requirement to cease groundwater extraction.• Groundwater extraction associated with a CSG development will draw water from a range of formations, some of which are defined as 'aquifers' and others which are not. Geoscience Australia recommends that the definition of 'Groundwater extraction' be simplified as follows: 'Groundwater extraction means the process of extracting groundwater from an aquifer, including as a by-product of coal seam gas production'.
<p>Condition 12. If the approval holder has been required to cease groundwater extraction pursuant to condition 11 the approval holder must implement corrective actions so as to achieve the outcomes and sub-outcomes specified in Appendix B.</p>	<p>There is no specific link established between a groundwater limit exceedance and a failure, present or future, to achieve the outcomes and sub-outcomes for GDEs in Appendix B. Consequently, corrective actions may not be required. Geoscience Australia recommends the wording of this condition be changed from '<i>must implement corrective actions</i>' to '<i>where appropriate implement corrective actions</i>'.</p>
<p>Condition 13. The approval holder must not recommence groundwater extraction from any contributing well/s until it can be demonstrated that the outcomes and sub-outcomes specified in Appendix B are being achieved and the Minister approves in writing groundwater extraction from those contributing well/s.</p> <p><i>Note: Approval to recommence groundwater extraction may be subject to conditions that the Minister considers reasonable.</i></p>	<p>Nil Comments</p>

Approval Condition

Condition 14. If, over the life of the action, any groundwater model updates required under condition B39 of the **NSW approval** predict non-compliance with any **performance measure/s**, or an exceedance of any **groundwater limit**, the **approval holder** must provide a site-specific assessment to the **Department** within 9 months of the updated groundwater modelling.

Comments and Recommendations

- Based on possible interpretations of the definition of 'reference value', it appears likely that model updates could predict that many groundwater limits would be exceeded at some point in the predicted period (assuming the modelling includes other groundwater users and is run over the available climate record, as a predictor for future climate).

Geoscience Australia recommends that the wording of the condition be changed to avoid this outcome. For example include the following:

*'...any groundwater model updates required under condition B39 of the **NSW approval** predict that the water level impacts from the project lead to a non-compliance with any performance measure/s, or an exceedance of any groundwater limit, the **approval holder** must provide a site-specific assessment...'*

- The timeframe stipulated for the preparation of the site-specific assessment is short, for the volume of work required (see further comments against Condition 15).

Approval Condition

Comments and Recommendations

Condition 15. Each site-specific assessment must be prepared by a **suitably qualified water resources expert** and include:

- a. conceptual modelling, including a review of all historical monitoring data to determine the stressor-response relationships for **GDEs** and consideration of potential contributing activities;
- b. local scale numerical modelling with consideration of potential contributing activities;
- c. multiple lines of evidence used to support the determination of **GDE** environmental watering requirements;
- d. multiple lines of evidence used to derive, and monitoring proposed to implement, scientifically robust **performance criteria, trigger values and limits**;
- e. how the **trigger values** will be used in the implementation of mitigation measures;
- f. a peer review undertaken by an **independent suitably qualified water resources expert** including details of how the **approval holder** has addressed any inadequacies raised in the peer review.

The following definitions support this condition:

GDE means a groundwater dependent ecosystem.

Performance criteria means specific parameters associated with and relevant to **water resource** function that will be monitored to demonstrate that the outcome of **no adverse effect** is being achieved, as measured at a specific time and place.

Trigger value/s means values specified such that, if they are reached or exceeded (either through modelling or monitoring), the **approval holder** is able to implement management responses to ensure that **limits** are not exceeded.

- Where a site-specific assessment is required due to the exceedance of a groundwater limit (by definition this occurs at a monitoring bore) it is not clear what 'site' this assessment would apply to. This needs to be clarified in the conditions.
- Assessment of the stressor-response relationships (as required under 15.a.) for a GDE is complex and even expert opinion is likely to consist of a range of possible relationships. The science of GDE stressor-response relationships may not meet the standard that these conditions require for effective environmental protection. Stressors will interact and it is difficult to separate the effect of each stressor to identify specific and independent performance criteria. Geoscience Australia therefore notes that whilst a site-specific assessment can be done, the uncertainty associated with outcomes for the GDE will be high.
- The time required to develop a site-specific assessment, addressing the requirements of Condition 15, and being peer reviewed, is likely to exceed 9 months.
- It is not clear what will happen if the site assessment is not submitted in the required timeframe, or is not to the required standard. Geoscience Australia recommends that an interim mechanism be proposed.
- Geoscience Australia notes that the site-specific assessment will require peer review from an independent suitably qualified expert in Groundwater Dependent Ecosystem processes to ensure 15a, c and d are met. This would be in addition to review by the 'suitably qualified water resources expert'.
- It is not clear from the condition if there are any obligations to implement the assessment, if implementation will be monitored or if there are penalties for not implementing it.
- Definition of Trigger value – Geoscience Australia suggests that the definition be reworded to change 'approval holder is able to implement' to 'the approval holder must implement'. The term is only used in condition 15 and so relates to mitigation and management measures that would be undertaken to ensure outcomes and sub-outcomes are met.