Department of Planning, Housing and Infrastructure

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Dubbo Firming Power Station

State Significant Development Assessment Report (SSD-28088034)

March 2024

Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Preface

This assessment report provides a record of the Department of Planning, Housing and Infrastructure's (the Department) assessment and evaluation of the State significant development (SSD) application for the Dubbo Firming Power Station located at 28L Yarrandale Road North Dubbo, lodged by Dubbo Firming Nominees Pty Ltd. The report includes:

- an explanation of why the project is considered SSD and who the consent authority is;
- an assessment of the project against government policy and statutory requirements, including mandatory considerations;
- a demonstration of how matters raised by the community and other stakeholders have been considered;
- an explanation of any changes made to the project during the assessment process;
- an assessment of the likely environmental, social and economic impacts of the project;
- an evaluation which weighs up the likely impacts and benefits of the project, having regard to the proposed mitigations, offsets, community views and expert advice; and provides a view on whether the impacts are, on balance, acceptable;
- an opinion on whether the project is approvable or not, along with the reasons, to assist the Independent Planning Commission in making an informed decision about whether development consent for the project can be granted and any conditions that should be imposed.

Executive Summary

Dubbo Firming Nominees Pty Ltd (the applicant) proposes to construct and operate the Dubbo Firming Power Station (the project) in an area zoned for heavy industry in north Dubbo within Wiradjuri country and the Dubbo local government area (LGA).

The project would comprise a power station, a hydrogen generation plant and ancillary infrastructure, including gas and fuel storage and connections to the electricity and gas networks.

The power station would generate up to 64 megawatts of electricity for short periods when demand exceeds the available supply in the electricity grid – expected to be around 1,000 hours per year. The power station as proposed would operate on natural gas (methane) blended with up to 25% hydrogen. However, approval is also being sought to operate the power station on higher concentrations of hydrogen and/or biofuels as these technologies mature and it becomes commercially viable to do so.

The hydrogen generation plant would comprise an electrolyser that would produce hydrogen from water using electricity supplied by renewable energy when there is excess electricity in the grid.

The project has a capital investment value of approximately $190 million and is expected to generate up to 150 construction jobs and 6 operational jobs. If approved, construction of the project is proposed to commence in late 2024 and be completed by the second half of 2025.

The project would be consistent with the *Climate Change (Net Zero Future) Act 2023* and the *Electricity Infrastructure Roadmap 2020,* as it would:

- help to maintain system reliability by providing an on demand supplementary source of electricity when demand exceeds the supply of renewable electricity;
- help to achieve net zero emissions by supporting the development of renewable energy; and
- be capable of increasing use of hydrogen and biofuels over time to reduce GHG emissions in line with NSW and Commonwealth emissions reduction trajectories.

The Department exhibited the environmental impact statement (EIS) from Wednesday 9 August 2023 until Tuesday 5 September 2023. During the exhibition period, the Department received 12 submissions from the public, all in objection. However, five of these did not comment on the project but rather objected in principle to solar or battery projects.

The Department also engaged with Dubbo Regional Council and a number of government agencies. The applicant responded to all matters raised in its submissions report and additional correspondence provided to the Department during the assessment.

The key potential impacts are associated with the risks from storing and using natural gas and hydrogen and emissions of air pollutants and greenhouse gases (GHGs).

The EIS includes a preliminary hazard analysis that indicates the project could comply with the relevant criteria for tolerable risks to the community and environment from fires and other hazardous events. The project would also be around 4.5 km from the Dubbo regional airport. However, the Civil Aviation Safety Authority has confirmed that it would not pose a threat to aircraft.

The project would produce a range of air pollutants, including particulate matter (PM), nitrous oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO), sulphur dioxide (SO_2) as well as greenhouse gas (GHG) emissions. The emissions would depend on the fuel source and the design of the turbines. However, the air quality impact assessment determined that the concentrations of all pollutants would comply with the relevant criteria in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2022)* at all sensitive receivers for all proposed fuel types.

The project would also generate up to 37.6 kilotonnes (kT) of carbon dioxide equivalent per year (CO_2-e/yr). Approximately 16.8 33.6 kT CO_2-e/yr of this would be Scope 1 emissions from the combustion of fuel for the power stations, with the upper end of this range occurring when the power station is operating on 100% natural gas. Greenhouse gas emissions would be lower if operating on hydrogen or biofuels.

The Department has also undertaken an assessment of other potential impacts associated with the project, including noise, traffic, biodiversity, Aboriginal heritage, water, social and economic factors. The Department has recommended a range of conditions, developed in consultation with Council and relevant Government agencies, to ensure all potential impacts are effectively minimised, managed or offset.

Overall, the Department considers that the project has been designed in a way that avoids and minimises social and environmental impacts as far as practicable and the residual impacts can be managed through conditions of consent.

In addition to contributing to energy security and supporting the transition to renewable energy, the project would provide economic benefits through direct and indirect employment opportunities, capital investment in NSW and contributions to the local community through a voluntary planning agreement.

The Department has carefully weighed up the impacts of the project against the benefits and considers that the benefits of the project would outweigh its costs. Accordingly, the Department considers the project is in the public interest and concludes that the project is approvable, subject to conditions.

Contents

1 Introduction

1. Dubbo Firming Nominees Pty Ltd (the applicant), a wholly owned subsidiary of Squadron Energy, proposes to develop the Dubbo Firming Power Station (the project) in the Dubbo Regional Council local government area (see **Figure 1**). The project is also located on the traditional lands of the Wiradjuri people.

2. The project would comprise a dual fuel (gas and liquid) power station that would generate up to 64 megawatts (MW) of electricity, and a hydrogen generation facility capable of producing 330 kilograms per hour of hydrogen. The project would also comprise ancillary infrastructure including a gas storage pipeline, storage tanks for hydrogen and biofuels, and connections to the broader NSW electricity grid and gas pipeline network.

3. The power station would operate on an as needed basis to provide firming electricity to the NSW electricity grid when the supply of electricity in the grid is insufficient to meet demand. Based on forecast data from the Australian Energy Market Operator and Squadron Energy's renewable network, it is predicted that the power station would be in operation approximately 12% of the time, or around 1,000 hours per year.

4. The power station as proposed would operate on natural gas (methane). However, it would be capable of operating on a hydrogen/ methane gas blend of up to 25% by volume and also on biofuels.

5. Hydrogen produced in the on site hydrogen generation plant would be compressed and stored in tanks on site and blended with the natural gas and fed into the power station as needed.

6. The applicant has committed to only using the electrolyser to produce green hydrogen during periods when there is excess electricity supply from renewable energy.

7. Natural gas for the project would be supplied by the Central West Pipeline (CWP), an existing high pressure gas pipeline that runs adjacent to the project site.

8. Electricity produced by the power station would be fed to the grid via the Yarrandale substation, an existing substation located across the road from the site.

9. The project description and mitigation measures described in the environmental impact statement (EIS), along with subsequent commitments within the submissions report and additional information provided through the course of the assessment, are the subject of this application and will form part of the development consent if the project is approved.

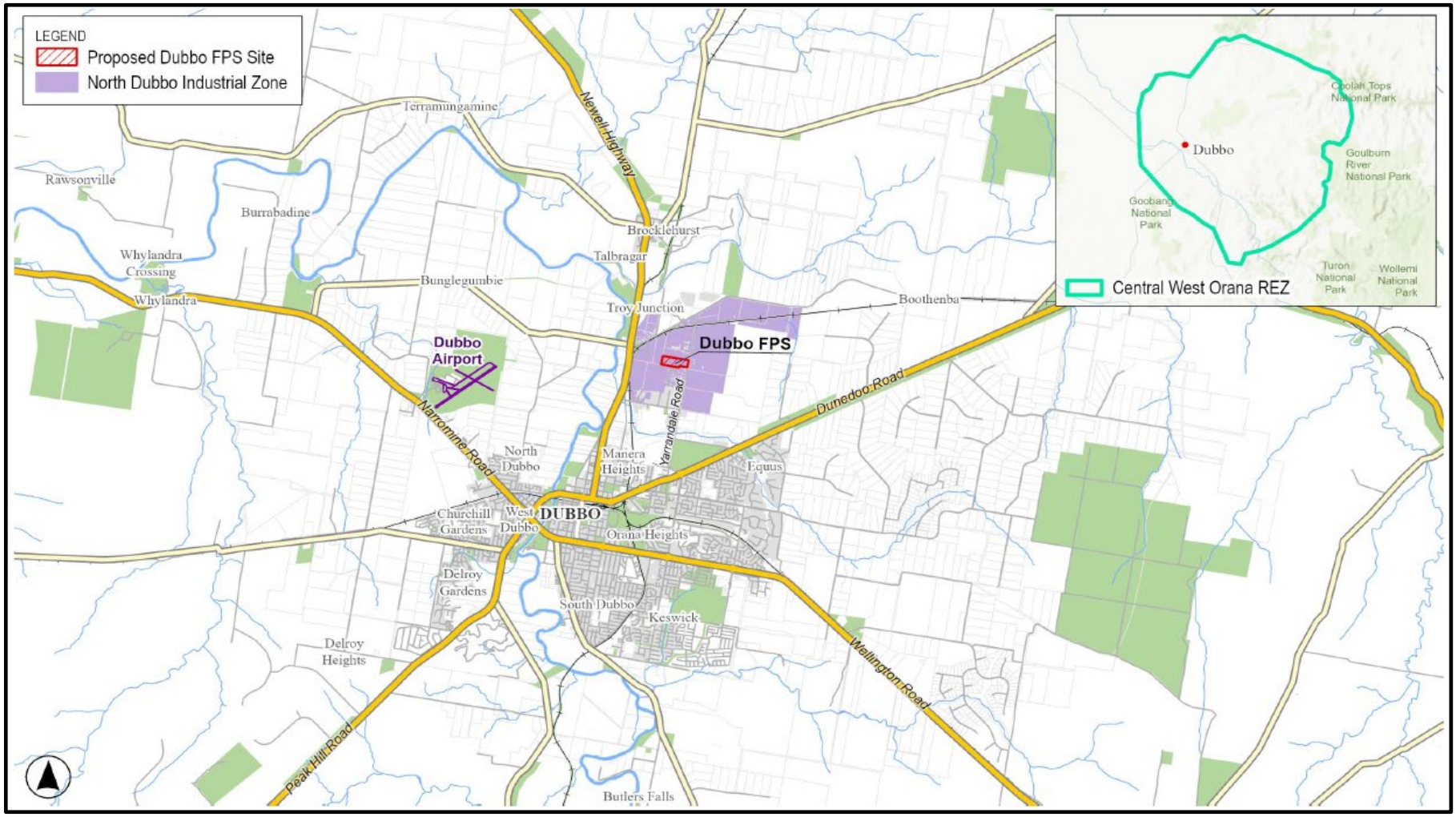

Figure 1 | Regional context map

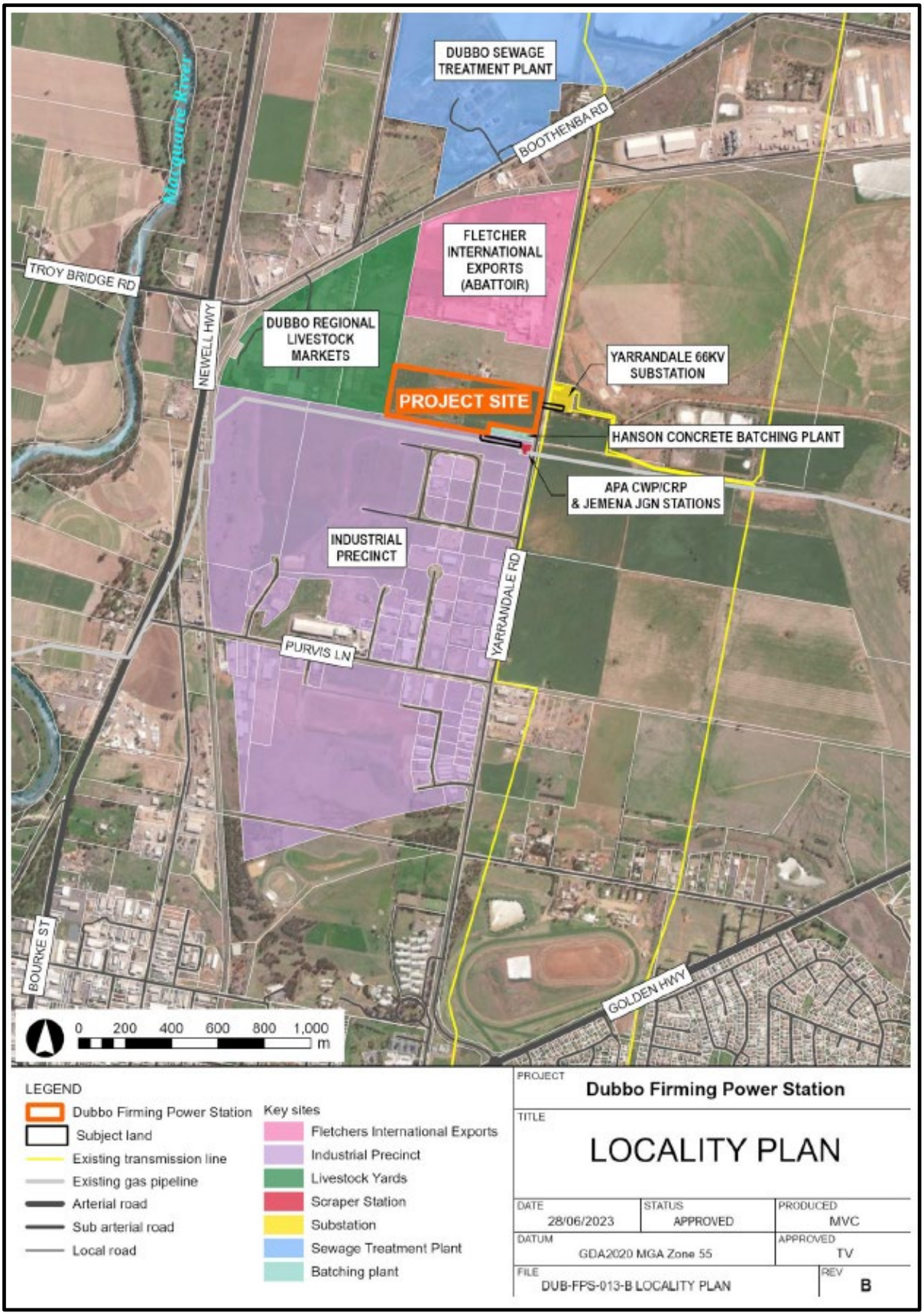

Figure 2 | Local context map

2 Project

2.1 Project overview

10. Key aspects of the project are summarised in **Table 1** and the project layout is shown in **Figure 3** and a detailed project description is included in the EIS (see section 2 of the EIS).

Table 1 | Key aspects of the project

Aspect	Description
Project area	The project area is approximately 14.1 hectares (ha).
Project life	Approximately 40 years, with an additional 13 months for construction.
Power generation facility	Up to three open cycle gas turbine generators with a nominal total output of 64 MW.
Generation fuel	Dual fuel combustion capable of firing on gas (natural gas or hydrogen gas blends) and liquids (biofuels). The EIS is based on operating on a hydrogen blend of up to 25% by volume.
Hydrogen generation facility	Modular hydrogen electrolyser units with a nominal total generating capacity of up to 20 MW. Associated infrastructure, such as hydrogen compression, storage, handling and blending facilities would also be constructed.
Ancillary infrastructure	Ancillary infrastructure to be constructed on site includes: • an approximately 2.5 km long buried high pressure natural gas storage pipeline; • Hydrogen storage tanks; • biofuel storage tanks (240 m^3 capacity for biodiesel and 350 m^3 capacity for ethanol); • gas compression and regulation facilities; • electrical cabling, switching and controls; • truck parking, loading / unloading facilities, and light vehicle parking area; • water supply, treatment, and storage; and • administration, workshop, and storage facilities.
Gas connection pipeline	An approximately 150 m long buried high pressure pipeline between the project site and the adjacent CWP.

Aspect	Description
Electricity transmission line	An approximately 100 m long 66 kV electricity transmission line from the project site to the Yarrandale substation.
Project site access	Site access point (entry and exit) off Yarrandale Road.
Water supply	Water would be sourced from the Dubbo town mains supply on Yarrandale Road. Alternative contingency water supply would be from the neighbouring abattoir owned by Fletcher Industrial Exports (which has a high security water licence). Existing dams on site would be re-conditioned for water storage or removed and replaced with tanks.
Construction hours	7:00 am to 6:00 pm Monday – Friday and 7:00 am to 1:00 pm on Saturday. Pipeline integrity testing would be conducted over 48-72 hrs period (test hold period 24 hrs) near the end of construction.
Operation hours	May operate 24/7 on any given day, depending on demand.
Employment	Construction: a peak of 150 full time equivalent (FTE) jobs. Operation: an average of 5-6 FTE jobs.
Capital investment value	Approximately $190 million.

2.2 Related projects and works

11. The project includes the construction and operation of a 66 kilovolt (kV) electricity line (approximately 100 m in length) that would connect to a Yarrandale substation operated by Essential Energy.

12. The project also includes construction and operation of a 150 m long high pressure buried pipeline that would connect to the CWP. The CWP is the main gas supply line for regional towns in western NSW and is operated by APA Group.

13. The location of existing projects and connection points is shown in **Figure 2**.

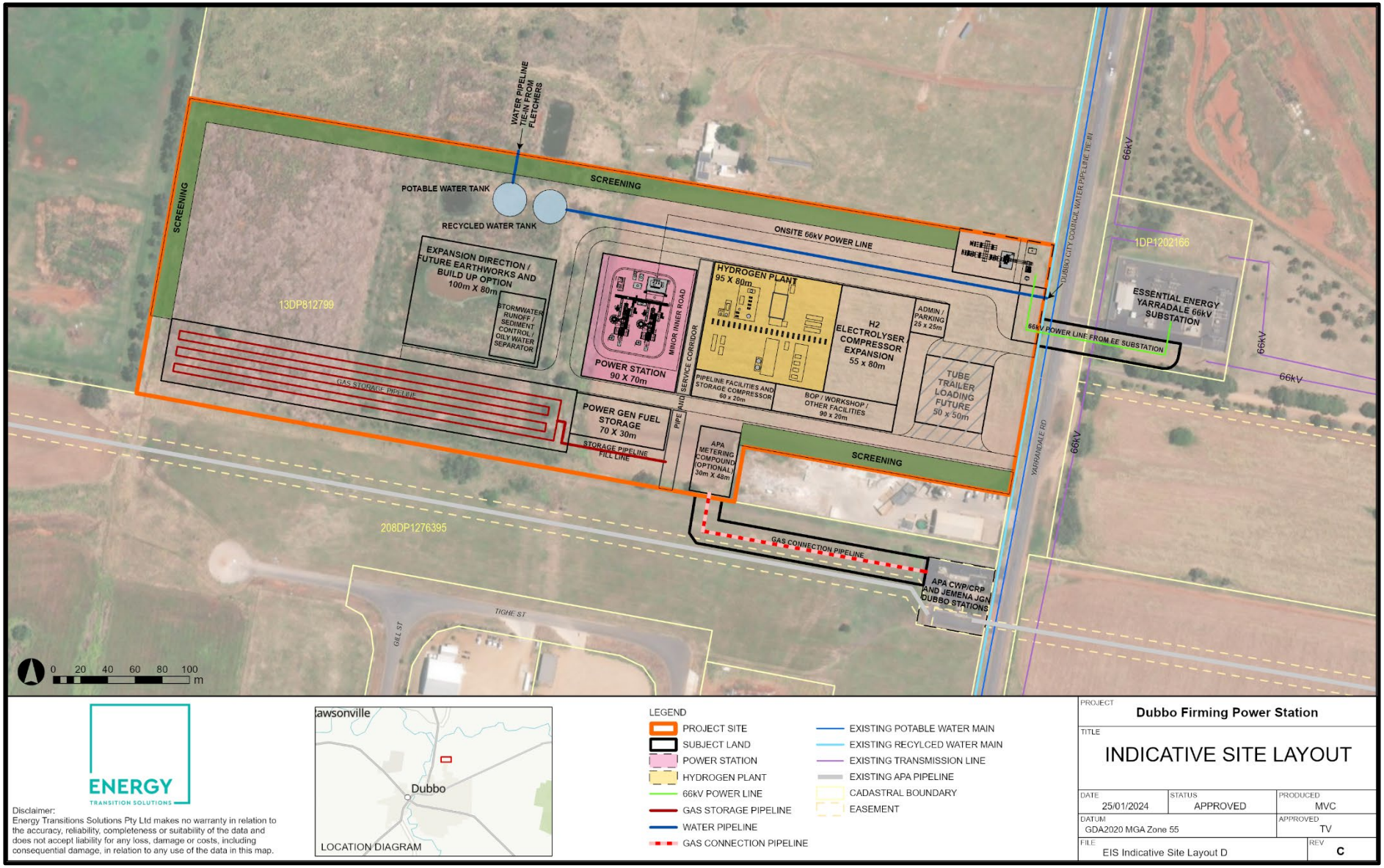

Figure 3 | Site layout

3 Strategic context

3.1 Project location

14. The project would be located within the Central West Orana Renewable Energy Zone (REZ), at 28L Yarrandale Road in a heavy industrial area of north Dubbo (see **Figure 1** and **Figure 2**). The site is surrounded by existing industrial operations, such as Hanson's Dubbo Concrete Batching Plant, Fletcher International Exports, Dubbo Livestock Markets and the Dubbo Sewage Treatment Plant.

15. The CWP runs adjacent to the southern boundary of the site and the Yarrandale electrical substation is directly across Yarrandale Road from the site, which means the project site is suitably located to connect into these nearby key utilities with minimal requirements for additional linear infrastructure.

3.2 Energy Context

16. NSW has set a target of reducing greenhouse gas (GHG) emissions by at least 50% by 2030, at least 70% by 2035, and reaching net zero emissions by 2050.

17. In December 2023, the *Climate Change (Net Zero Future) Act 2023* (Net Zero Act) came into force. This act establishes statutory targets for reducing net GHG emissions in NSW and sets out guiding principles to address climate change.

18. The *Electricity Infrastructure Roadmap 2020* sets out the 20 year plan to transform the NSW electricity system. This is supported by a range of other policies that provide the framework for the transition, including the *NSW Electricity Strategy 2019* that focuses on, amongst other things, maintaining the electricity system's reliability.

19. Much of the reduction in GHG emissions is expected to be realised by transitioning the supply of electricity from coal fired power generation to renewable energy generation, particularly solar and wind.

20. However, solar and wind generators do not operate at 100% capacity. When these generators are producing below maximum capacity, or there are significant maintenance outages or surges in demand for electricity, firming electricity supply is required to maintain stability in the grid.

21. The project would provide that firming electricity as it would be capable of being switched on and off rapidly and generating up to 64 MW of power for short periods of time on an as needed basis.

22. Although the project would generate GHGs, particularly when operating on natural gas, it would complement and support the transition to renewable energy, which would support the Government's goal of reaching net zero. It would also be positioned to produce "green" electricity from hydrogen and/or biofuels when it becomes viable to do so.

23. Overall, the project would be consistent with the NSW and Australian Government's policies and strategies to achieve net zero. The key polices are summarised in **Table 2**.

Table 2 | Summary of government strategies, plans and policies

Strategy, plan or policy	Comments
Australia's Long Term Emissions Reduction Plan (2021)	Sets a pathway to net zero emissions by 2050 and affirms Australia's commitment to meeting its revised 2030 target (43% below 2005 levels). The country's long-term strategy and domestic action outlined in this plan are underpinned by rigorous emissions monitoring and accountability systems, including the National Greenhouse and Energy Reporting Scheme (NGERS) and the associated "Safeguard Mechanism".
NSW Climate Change Policy Framework 2016	The framework aims to maximise the economic, social and environmental wellbeing of NSW through the reduction of carbon emissions and adapting to the impacts of climate change. The project would facilitate the development of renewable energy by providing required firming capacity. The proposed use of hydrogen gas blends would also reduce the greenhouse gas emissions from the project.
Climate Change (Net Zero Future) Act 2023	The objects of the Net Zero Act include principles to address climate change and setting targets to reduce net GHG emissions in NSW by 50% in 2030, 70% in 2035 and net zero by 2050. The project would contribute to achieving net zero emissions by facilitating the development of renewable energy and supplementing energy demands during the transition. The project would not be inconsistent with the principles in the Net Zero Act.
NSW Net Zero Plan Stage 1: 2020-2030	The plan aims to grow the economy, create jobs and reduce emissions, whilst working towards net zero emissions by 2050 and a 50% reduction below 2005 levels by 2030. The project would assist in supporting priorities 1 and 3 (drive emissions reduction technology and invest in emissions reduction innovation). The project would contribute to achieving net zero emissions by supporting renewable energy development in the Central-West Orana REZ.

Strategy, plan or policy	Comments
NSW Electricity Strategy 2019	The strategy sets out the NSW Government's intention to support the market to deliver reliable electricity at lower prices. It focuses on reducing household bills, encouraging new private investment in NSW's electricity system and maintaining the electricity system's reliability.
Electricity Infrastructure Roadmap 2020	The roadmap sets out a 20-year plan to transform the NSW electricity system. The roadmap aims to drive the delivery of 12 gigawatts (GW) of new renewable electricity generation and 2 GW of long-duration storage in NSW by 2030. The roadmap also identifies Renewable Energy Zones (REZ) across NSW aimed at encouraging investment in new electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW.
Electricity Infrastructure Investment Act 2020	The purpose of the *Electricity Infrastructure Investment Act 2020* (EII Act) is to co-ordinate investment in new generation, storage and network infrastructure in NSW. The EII Act gives effect to the *Electricity Infrastructure Roadmap* A central feature of the EII Act is the establishment of a process under which the Minister can declare a REZ and specify the generation, storage or network infrastructure that will be implemented in that zone.
Central West Orana Renewable Energy Zone	The Central West Orana REZ was declared in November 2021. This is the first step in formalising the REZ under the EII Act. Renewable Energy Zones (REZs) are designed to group wind and solar power generation into locations where the electricity can be efficiently stored and transmitted across NSW.
AEMO Gas Statement of Opportunities 2023	The statement notes that electricity from gas generation is expected to play an important role in the National Electricity Market by providing critical power system services during times of low renewable generation or demand exceeds supply, in order to maintain grid security and stability.
AEMO Integrated System Plan 2022	The plan provides guidance on where investments are needed for an affordable and reliable energy supply that also meets net zero emission targets. The plan also provides an actionable roadmap for eastern Australia's power system.
NSW Hydrogen Strategy 2021	The strategy is the NSW Government's policy framework to grow a commercial green hydrogen industry in NSW. The strategy includes a stretch target of 110,000 tonnes of green hydrogen produced per annum in NSW.

Strategy, plan or policy	Comments
Dubbo Regional Council 'Towards 2040' Community Strategic Plan	The plan aims to guide and influence the direction of Dubbo Council, the community and other levels of Government through to 2040. Key objectives of the plan include promoting and increasing the use of renewable energy, partnering with the NSW Government and other industry bodies to provide support for the Central West Orana REZ and creating an investment attraction strategy that targets large scale opportunities related to areas such as renewable energy.

4 Statutory context

4.1 Permissibility and assessment pathway

24. Details of the legal pathway under which consent is sought and the permissibility of the project are provided in **Table 3** below.

Table 3 | Permissibility and assessment pathway

Consideration	Description
Assessment pathway	**State significant development** • Section 2.6(1) of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) declares development as SSD if it is specified in Schedule 1 of the Planning Systems SEPP. • Section 20 of Schedule 1 of the Planning Systems SEPP identifies development for the purpose of electricity generating works with a capital investment value of more than $30 million. • The project satisfies the criteria under section 2.6(1) of the Planning Systems SEPP and consequently is classified as SSD under section 4.36 of the EP&A Act.
Consent authority	**Independent Planning Commission (IPC)** • The IPC is the declared consent authority under section 4.5(a) of the EP&A Act and section 2.7(1) of the Planning Systems SEPP because the applicant disclosed a reportable political donation.

Consideration	Description
Permissibility	**Permissible with consent** • The proposed development is on land zoned E5 Heavy Industrial under the *Dubbo Local Environmental Plan 2022* (LEP). • Energy generating facilities are not prohibited in land zoned E5 under the Dubbo LEP, therefore the proposed development is permissible with consent.

4.2 Other approvals and authorisations

25. The project would require an environment protection licence (EPL) issued by the NSW Environment Protection Authority under section 42 of the *Protection of the Environment Operations Act 1997*.

26. The gas connection pipeline may require a pipeline licence under the *Pipelines Act 1967* as it would not be wholly within the boundaries of the project site.

27. The gas storage pipeline would be wholly contained within the boundaries of the project site and is less than 10 km in length, therefore a pipeline licence would not be required for that pipeline.

28. Under section 4.41 of the EP&A Act, a number of other authorisations required under other legislation are not required for SSD. This is because all relevant issues are considered during the assessment of the SSD application.

29. Under section 4.42 of the EP&A Act, certain approvals cannot be refused if they are necessary to carry out the SSD. These authorisations must be substantially consistent with any SSD development consent for the project.

30. The Department has consulted with and considered the advice of the relevant government agencies responsible for these other authorisations in its assessment of the project (see **Section 5** and **Section 6**). Suitable conditions have been included in the recommended conditions of consent (see **Appendix E**).

4.3 Planning Secretary's environmental assessment requirements

31. The Department's review determined that the EIS addresses each matter set out in the Planning Secretary's environmental assessment requirements (SEARs) issued on 21 November 2022 and is sufficient to enable an adequate consideration and assessment of the project for determination purposes.

4.4 Mandatory matters for consideration

4.4.1 Matters of consideration required by the EP&A Act

32. Section 4.15 of the EP&A Act sets out matters to be considered by a consent authority when determining a development application. The Department's consideration of these matters is addressed in the relevant section of this report as summarised in **Table 4** below.

Table 4 | Matters for consideration

Matter for consideration	Department's assessment
Environmental planning instruments, proposed instruments, development control plans & planning agreements	**Appendix D**
EP&A Regulation	**Appendix D**
Likely impacts	**Section 6** - Assessment
Suitability of the site	**Section 3.1** – Project location, **Section 2.1**- Project overview, **Section 3** - Strategic Context and **Section 6** - Assessment
Public submissions	**Section 5** - Engagement & **Section 6** - Assessment
Public interest	**Section 5** - Engagement, **Section 6** - Assessment & **Section 7** - Evaluation

4.4.2 Objects of the EP&A Act

33. In determining the application, the consent authority should consider whether the project is consistent with the relevant objects of the EP&A Act (s 1.3) including the principles of ecologically sustainable development. Consideration of those factors is described in **Appendix D**.

34. As a result of the analyses in **Appendix D**, the Department is satisfied that the development is consistent with the objectives of the EP&A Act and the principles of ecologically sustainable development (ESD).

4.4.3 Biodiversity development assessment report

35. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all SSD applications to be accompanied by a biodiversity development assessment report (BDAR)

unless the Planning Agency Head and the Environment Agency Head determine that the project is not likely to have any significant impact on biodiversity values (as identified in the BC Act and in the *Biodiversity Conservation Regulation 2017*).

36. The EIS included a BDAR. The Department's consideration of the impact of the project on biodiversity values is assessed in **Section 6**.

5 Engagement

5.1 Preparation of SEARs

37. During the preparation of the Planning Secretary's environmental assessment requirements, the Department consulted with relevant state government agencies and Dubbo Regional Council (Dubbo Council).

5.2 Exhibition of the EIS

5.2.1 Public exhibition of the EIS

38. After accepting the development application and EIS, the Department:
    - publicly exhibited the project from Wednesday 9 August 2023 until Tuesday 5 September 2023 on the NSW planning portal;
    - notified landowners in the vicinity of the site about the public exhibition; and
    - notified and invited comment from relevant government agencies and Dubbo Council.

39. The Department's Executive Director, Energy, Resources and Industry also visited the site on 20 October 2023.

5.2.2 Summary of advice received from government agencies

40. The Department received advice from six government agencies on the EIS. A summary of the agency advice is provided in **Table 5**. A link to the full copy of the advice is provided in **Appendix B**.

Table 5 | Summary of agency advice

Agency	Advice summary
Environment Protection Authority (EPA)	• Initially requested further information and clarification on a range of matters, including the type of biofuels that would be used, aspects of the air dispersion modelling and emissions assumptions, noise associated with start up and shut down events and water quality. • These matters were clarified and resolved to the satisfaction of the EPA in the submissions report and additional information provided by Dubbo Firming. • The EPA recommended conditions to address its area of regulatory responsibility and the Department has included these conditions in the recommended conditions of consent.
Department of Planning, Housing and Infrastructure – Hazards	• Considered the analysis, findings and recommendations of the preliminary hazards analysis are appropriate and that the development could comply with the Department's *Hazardous Industry Planning Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning.* • Provided recommended conditions relating to hazards and risks for the project.
Transport for NSW (TfNSW)	• Initially requested further information on shuttle bus routes and commitments, oversize or over mass (OSOM) vehicles and interactions with surrounding developments. TfNSW also requested traffic volume counts for the Purvis Lane/Newell Highway intersection and a swept path analysis of the intersection. • The submissions report included an updated traffic impact assessment that considered traffic impacts without the use of shuttle buses to transport workers and addressed the other matters raised by TfNSW. Following a review of the additional information TfNSW raised no further concerns.
Heritage NSW (HNSW)	• Requested evidence of consultation with the Registered Aboriginal Parties (RAPs) for the project, survey track logs and confirmation on mapped locations, which was provided by the applicant in the submissions report • Recommended that an Aboriginal Cultural Heritage Management Plan is prepared and implemented for the project.

Agency	Advice summary
NSW Rural Fire Service (RFS)	• Stated that the property surrounding the facility should be maintained as an inner protection area in accordance with the requirements of appendix 4 of *Planning for Bush Fire Protection (2019)*. • Noted that all construction work, internal access roads and utility services must comply with the relevant requirements of Australian Standard AS3959-2018 *Construction of Buildings in Bush Fire-Prone Areas* and requirements of *Planning for Bush Fire Protection* • Requested that the applicant prepare a Bushfire Emergency Management and Evacuation Plan. • The Department has included these requirements in the recommended conditions of consent.
Civil Aviation Safety Authority (CASA)	• Concluded that the project would be unlikely to create a risk to the safety of aircraft operations, provided that aircraft operators are aware of the potential plume rise. • CASA requested they be notified six months prior to the commencement of operations and that a red light be installed atop one of the power station stacks. • The Department has included these requirements in the recommended conditions of consent.
Office of Energy and Climate Change (OECC)	• Noted that the project could contribute to the development of new renewable fuel industries in NSW; support the Central-West Orana REZ by providing system security services such as grid firming; ensure a reliable electricity supply; and contribute to meeting relevant NSW objectives.
Biodiversity and Conservation Division (BCD)	• Did not raised concerns about the project.
SafeWork NSW	• Did not comment on the project.

5.2.3 Summary of Dubbo Council submission

41. Dubbo Council requested that the applicant enter into a voluntary planning agreement (VPA) and has since accepted in principle the key terms of an offer made by the applicant.

The Department has included the agreed terms of the agreement in the recommended conditions of consent.

42. Dubbo Council also requested that the applicant be required to undertake dilapidation surveys on roads prior to construction and maintain any roads damaged by the additional traffic, both during and post construction, and the Department has included these requirements in the recommended conditions.

43. Dubbo Council also noted that easements would be required for the proposed 66 kV electricity transmission line; the applicant would be required to submit a road opening application in accordance with the *Roads Act 1993;* and the applicant would be required to provide detailed hydraulic design calculations and drawings of the project's stormwater drainage system prior to construction.

44. A link to the submissions provided by Dubbo Council is provided in **Appendix B**.

5.2.4 Summary of public submissions

45. The Department received 12 submissions during the public exhibition period, one from a special interest group (Sydney Knitting Nannas) and 11 from individuals. None of these submissions were from the local area.

46. Five submissions raised concerns about solar projects and the use of batteries. As these submissions did not comment on this project, the Department has not considered them further in this assessment. The remaining submissions all objected to the project, with concerns raised about fire, the loss of agricultural land, the cost and feasibility of using hydrogen for power generation, and the need for more affordable and reliable power.

47. The Sydney Knitting Nannas objected to the use of gas (on the grounds of climate change impacts) and recommended that time limits be imposed on the use of gas and the transition to hydrogen.

48. A link to the full submissions is provided in **Appendix A**.

5.3 Response to submissions

49. The applicant provided a submissions report to the Department on 9 November 2023 (see **Appendix A**). The Department published the submissions report on the NSW planning portal and forwarded the submissions report to relevant government agencies and Dubbo Council for comment.

5.4 Request for further information

50. The Department also asked the applicant to provide further information on a range of issues throughout the assessment process. Links to the additional information provided are in **Appendix C**.

6 Assessment

51. The project is suitably sited within an area zoned for heavy industry, close to required gas and power infrastructure and to heavy vehicle transport routes, and with substantial buffers to sensitive receivers. The siting in this location therefore significantly reduces environmental risks and impacts.

52. The Department considers that the key concerns for the project relate to potential hazards and risks from the development and to potential air quality impacts, including greenhouse gas impacts.

53. The Department's consideration of these matters is addressed in **Sections 6.1 and 6.2** below. A summary of the Department's consideration of other issues is provided in **Section 6.3**.

6.1 Hazards and risks

54. The project would involve the storage of hydrogen and natural gas, and the transport and storage of ethanol, all of which are classified as dangerous goods that could pose a risk to individuals or the environment from explosions, fire or toxic plumes.

55. Further, while the site is zoned for industrial land use, it is surrounded by grassland and in a designated bushfire prone area.

56. The project is also located around 4.5 km away from the Dubbo airport, and the plume from the power station stacks could impact aircraft flying overhead.

6.1.1 Explosion, Fire and Toxicity Risks

57. Based on the volume of natural gas and ethanol proposed to be stored and the proximity of the storage to the site boundaries, the project would be classified as potentially hazardous under the Resilience and Hazards SEPP.

58. The EIS includes a preliminary hazards analysis (PHA) prepared by Arriscar Pty Ltd (Arriscar), undertaken in accordance with *Hazardous Industry Planning Advisory Paper*

(HIPAP) No 6 to determine whether the project would pose an unacceptable risk that could not be managed.

59. The PHA does not include an analysis of the ethanol transport risks, as the number of ethanol deliveries required for the project would be well below the thresholds in *Applying SEPP 33*.

60. The PHA compares the risks of the project (from a range of possible hazardous scenarios, including fires, explosions or toxic exposures) with the criteria set out in HIPAP No 4 (*Risk Criteria for Land Use Planning)*. These criteria establish a level of risk that may be considered tolerable because it is lower than the background risk of injury or death.

61. The criteria are different for different types of land uses, reflecting variations such as the likely duration of exposure to the risk, people's vulnerability to the hazard, and people's ability to take evasive actions.

62. The criterion for residential land is lower than for commercial or industrial land because it is assumed residents would be at their place of residence and exposed to the risk every single day for 24 hours of the day. The criterion for hospitals, schools, child care facility and old age housing is lower still, as people in these types of facilities are more vulnerable to hazards and less able to take evasive action.

63. The HIPAP 4 fatality risk criteria for different land uses is shown in **Figure 4** below.

Land Use	Suggested Criteria (risk in a million per year)
Hospitals, schools, child-care facilities, old age housing	0.5
Residential, hotels, motels, tourist resorts	1
Commercial developments including retail centres, offices and entertainment centres	5
Sporting complexes and active open space	10
Industrial	50

Figure 4 | HIPAP 4 fatality risk criteria

64. The PHA concluded that the project would comply with the land use safety risk criteria in HIPAP No 4.

65. The surrounding land is zoned for industrial use. The closest occupied residence is located 790 metres (m) to the west of the project site. Five other residences are locations within 2.5 km of the site. The Dubbo Regional Livestock Market, a commercial facility, is located adjacent to the western boundary of the side. Other land uses around the site are industrial.

66. Individual fatality, individual injury, and property damage risks are presented in the PHA as contours (i.e. points of equal risk around the project). The contours for individual fatality risk are shown in **Figure 5**.

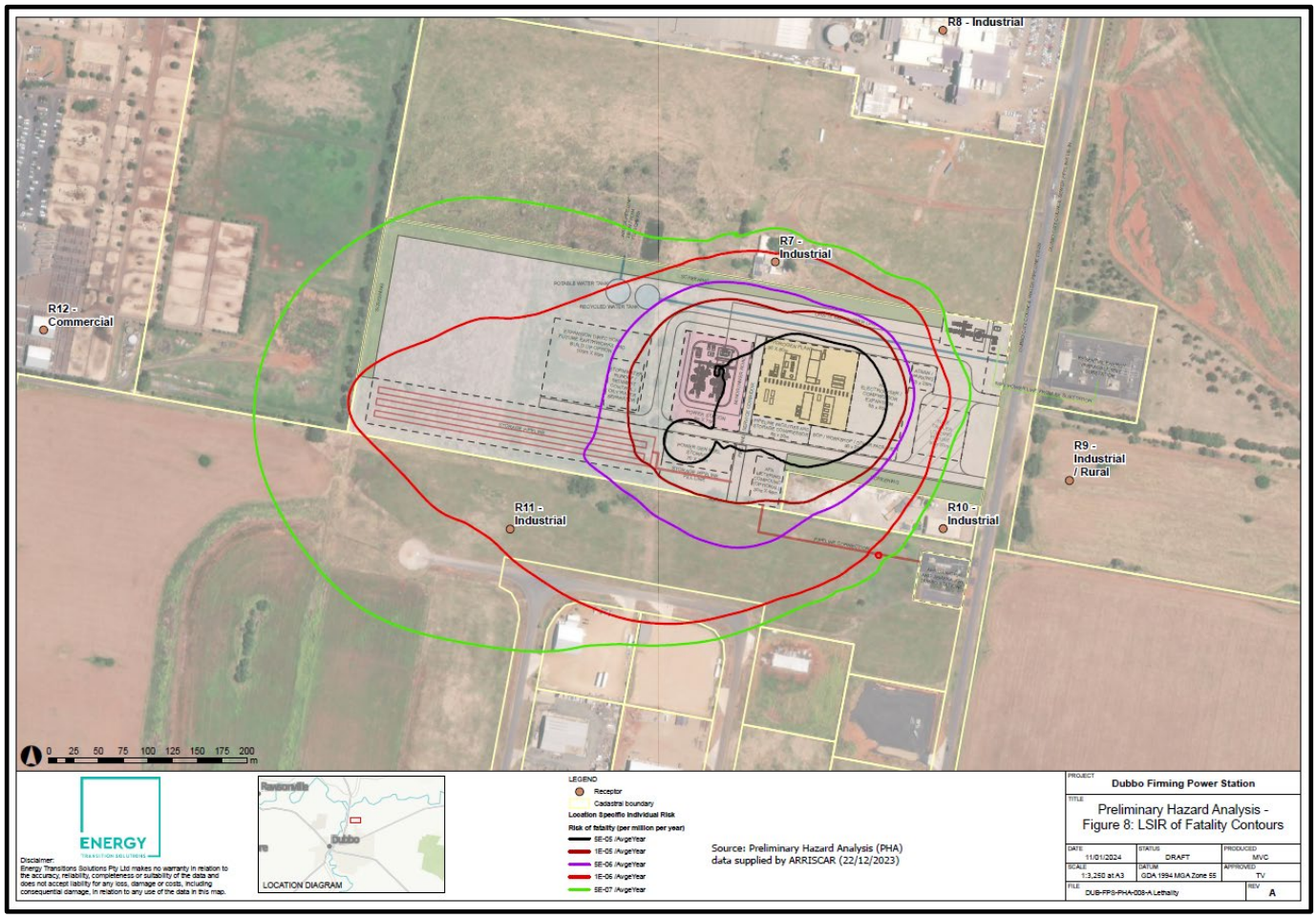

Figure 5 | Individual fatality risk

67. As can be seen from **Figure 5**, the areas of highest risk of fatality (black, brown and purple contours) are fully contained within the site boundaries.

68. The 1 in a million risk contour (red) extends outside the site boundary, as does the 0.5 in a million risk contour (green). These are the respective risk criteria for hospitals, schools, child care facilities and old age housing; and residential, hotels, motels and tourist resorts. However, none of those types of facilities are located within the contour areas or near the project site, also noting the land surrounding the site is zoned heavy industrial.

69. The project would also comply with the HIPAP No 4 criterion for risk of injury from an explosion or heat flux radiation (expressed as no more than 50 chances in a million per year at residential and sensitive use land).

70. The risk of property damage is confined to the project site, with no risks of propagation to any nearby hazardous installations (including the CWP) in the event of an incident such as a fire or explosion.

71. The PHA also determined that the project would comply with the HIPAP 4 criteria for societal risk, which represents the risk of multiple fatalities occurring in one event; and with environmental risks, which is based on ensuring the consequences of accidental emissions would not threaten the long term viability of ecosystem or species in sensitive natural environments.

72. Dubbo Council raised concerns about the potential for oxygen from the hydrogen plant to cause spontaneous ignition and requested details of its intended disposal. The submissions report clarified that oxygen would not be stored on site and would be vented away from combustible materials.

73. The Department's hazards unit reviewed the PHA and concluded that it was satisfactory.

74. The Department also notes that the risk assessment was conservative because it was based on a scenario with the power station operating 100% of the time, whereas in fact the power station is only likely to operate around 12% of the time, or roughly 1,000 hours per year. This would significantly reduce the period of exposure, which would further reduce the risks.

75. The PHA was also based on operation of the power station with no more that 25% hydrogen in the blend and only natural gas storage in the gas storage pipeline (i.e. no hydrogen). Hydrogen would be stored in separate containers and blended in the feed to the power station turbines.

76. Thus, although the applicant has indicated an intention to potentially increase the hydrogen concentration at some point in the future, the Department has recommended conditions limiting the hydrogen concentration in the fuel to 25% by volume, and restricting the use of the storage pipeline to natural gas only to ensure risks would not be greater than predicted.

77. The Department also notes that the design, construction and operating specifications for storage of hydrogen under high pressure are significantly more onerous compared to natural gas.

78. It would be open to the applicant to lodge a future planning application for blending hydrogen gas into the storage pipeline subject to updated assessment.

6.1.2 Bushfire risk

79. The project is surrounded by grassland vegetation and is located within an area designated as bushfire prone land.

80. The EIS included a bush fire assessment in accordance with the document *Planning for Bush Fire Protection* (NSW RFS 2019), which concluded that the project could be designed and managed to satisfy the aims and objectives of that guideline. Key mitigation measures to protect the facility from bush fires include:

- an appropriately sized and maintained asset protection zone between the buildings, hazardous materials stores and the boundaries of the site;
- appropriate access and egress for emergency services personnel and emergency evacuation; and
- adequate provision of water for fire fighting.

81. The RFS made recommendations to minimise the risk of bushfire attack and provide protection for emergency services personnel, including noting the requirements of the document *Planning for Bush Fire Protection* (NSW RFS 2019) in relation to an inner protection zone, water and utilities and internal roads.

82. The RFS also recommended the construction of buildings should be in accordance with Australian Standard *AS3959 2018 Construction of Buildings in Bush Fire Prone Areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas – 2014*; and that the applicant should prepare a bushfire emergency management and evacuation plan.

83. The Department has recommended conditions of consent requiring the applicant to design the facility in accordance with the document *Planning for Bush Fire Protection*, and to prepare a bushfire emergency plan in consultation with the RFS.

6.1.3 Aviation risk

84. The Dubbo City Regional Airport is located around 4.5 km from the project site and the plume from the power station could potentially create a risk to the safety of aircraft.

85. The applicant submitted the proposed stack design to CASA for review and based on the characteristics of the stacks (height, separate distance, diameter) and characteristics of the exhaust (temperature and velocity), CASA confirmed that the project would not pose a risk to the safety of aircraft operations.

86. The applicant has committed to notifying CASA six months prior to the commencement of operations, to ensure the Aeronautical Information Publication and En Route Supplement Australia information packages for Dubbo Airport notifies pilots of the potential plume rise.

87. CASA also recommended the installation of a low intensity steady red obstacle light on the central stack to signal potential plume to pilots, which the Department has included in the recommended conditions of consent.

6.1.4 Conclusion

88. The Department is satisfied that the project could be designed to ensure no unacceptable risk to surrounding land users from fires, explosions or toxic exposures. However, the Department has recommended conditions requiring the applicant to undertake a range of pre construction studies to ensure it appropriately considers and reduces risks, and to prepare a final hazard analysis based on the final design of the project to ensure that the project would not pose an unacceptable risk.

89. The Department has also recommended a requirement for an emergency plan and safety system to be prepared, and for ongoing three yearly hazard audits to ensure the project continues to operate safety.

90. The project is unlikely to jeopardise flight safety from aircraft approaching or departing Dubbo Regional Airport. However, the Department has recommended conditions requiring the applicant to install a red light atop one of the power station stacks and to notify CASA prior to commencing operations so that the relevant documents outlining flight procedures for pilots navigating in the area can be updated.

91. The Department has also recommended conditions requiring buildings to be constructed in accordance with relevant Australian standards for protection from bushfires, and for the facility to be designed in accordance with the RFS's Planning for Bush Fire Protection (NSW RFS 2019) guidance document.

92. Subject to these conditions, the Department considers the risks from the project would not be significant and could be managed.

6.2 Air quality and greenhouse gas emissions

93. During operations, the project would produce a range of air pollutants, including particulate matter (PM), nitrous oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO), sulphur dioxide (SO2) and greenhouse gas (GHG) emissions. The Department's consideration of these emissions is discussed below.

6.2.1 Air pollutants

94. The EIS includes an air quality impact assessment undertaken by Benbow Environmental (Benbow) in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2022)* (Approved Methods).

95. As the emissions would depend on the fuel source and the design of the turbines, Benbow considered emission scenarios assuming the use of either 100% natural gas (noting

blending with up to 25% hydrogen would not significantly change the emissions profile) or 100% biofuel[1], and with different stack heights and exhaust parameters.

96. Sensitive receivers are shown in **Figure 6** below. Receivers R1, R3, R4, R5 and R6 are representative of residential locations. Receiver R2 is a residential location but is considered project related as the landowner rezoned the land to allow industrial development and provided landowner consent for the application to be lodged. The remaining receivers are industrial/ commercial operations.

97. Air quality modelling undertaken was conservative in that it assumed operation of the power station 100% of the time, rather than operation as a peaking power station for around 12% of the year. Initial scenarios presented in the EIS included worst case scenarios where emissions discharged exceeded the *Protection of the Environment Operation (Clean Air) Regulation 2021* (Clean Air Regulation) point source discharge limits. However, as the power station would be required to comply with the Clean Air Regulation discharge limits, further modelling scenarios were undertaken based on compliance with the required discharge limits (and also operating 100% of the time).

Particulate matter

98. The assessment predicted that under the worst case scenario (when using biodiesel), the highest incremental (that is project alone) 24 hour concentrations of finer particulate matter PM_{10} and $PM_{2.5}$ at sensitive receivers would be 1.32 and 1.16 µg/m^3 respectively. This incremental increase is well below the 50 µg/m^3 and 25 µg/m^3 criteria respectively outlined in the Approved Methods. The ambient particulate concentrations are much lower when using natural gas, predicted to be around 0.2 µg/m^3.

99. The air impact assessment also predicted that the project would comply with the annual average criteria concentrations for PM_{10} and $PM_{2.5}$.

100. The assessment also considered whether the project would increase the number of days per year that cumulative impacts (i.e. particulate matter generated by the project combined with background levels) would exceed the criteria and concluded that the project contributions of $PM_{2.5}$ and PM_{10} would not lead to additional days of exceedances. That is, the exceedances are due to external ambient air particulate sources.

1 A number of different biofuels have been proposed as the fuel source, including bioethanol (E100), which can be produced from plant based materials and biodiesel (B100 and HVO100) that can be produced from agricultural green wastes, vegetation oils and or used cooking oils. For the purposes of the air quality assessment, scenarios considering operations using a biofuel assumed B100 was the biofuel fuel source on the basis that this is the most emissions intensive of all the biofuels.

Carbon monoxide

101. The assessment predicted that under the worst case scenarios, CO concentrations from the project at sensitive receivers would be well below all relevant criteria in the Approved Methods.

Oxides of nitrogen

102. Oxides of nitrogen from combustion of fossil fuels consist predominantly of nitric oxide (NO) and nitrogen dioxide (NO_2) (collectively referred to as NOx). The Approved Methods includes limits for NO_2 and requires oxides of nitrogen to be converted to equivalent NO_2 concentrations.

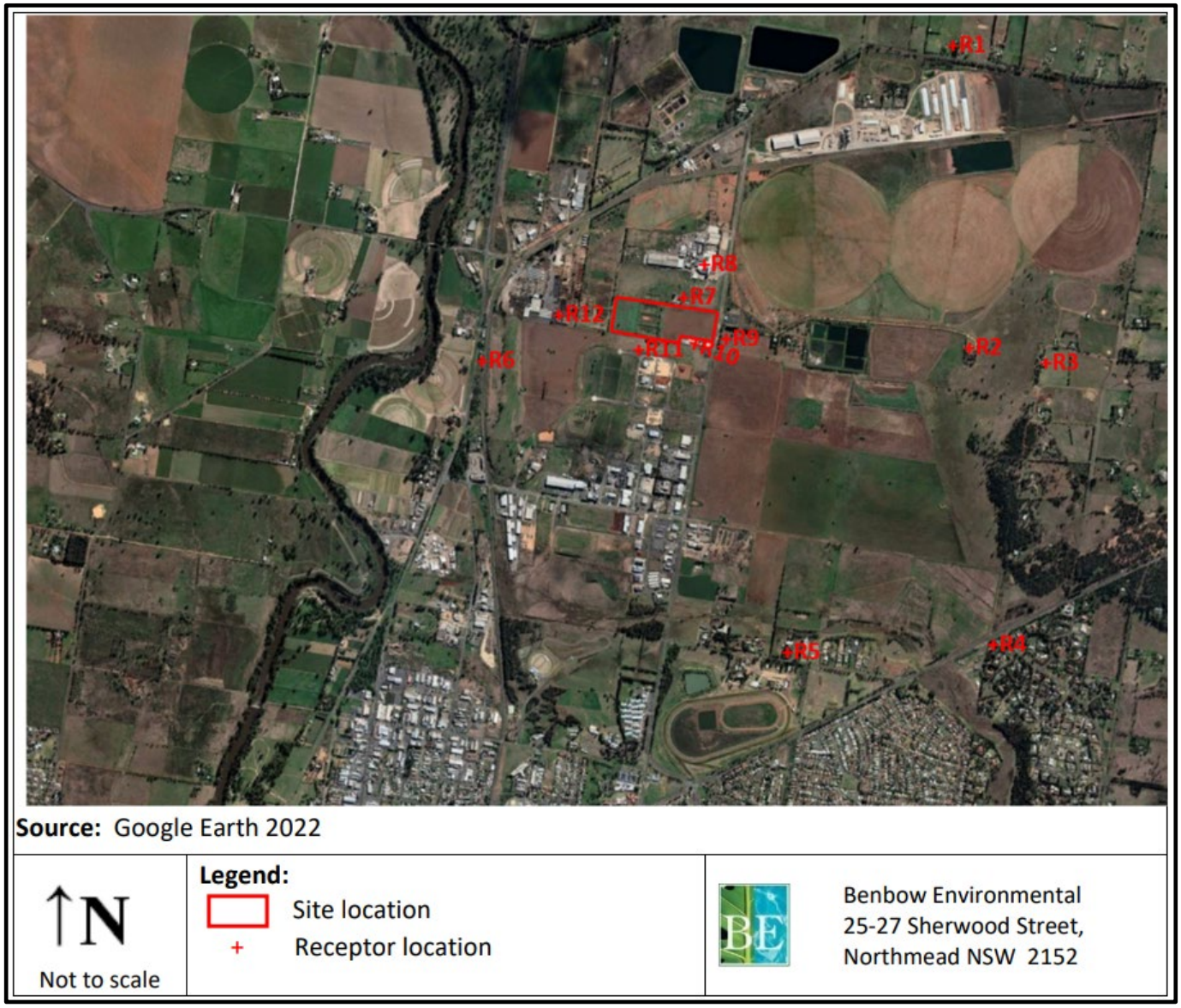

Figure 6 | Nearby receivers

103. There are two different methods to estimate concentrations of NO_2 at sensitive receivers under the Approved Methods. Method 1 is a worst case method as it treats all NOx emissions as NO_2 and adds these to the background concentrations of NO_2. However, in reality not all NO is converted to NO_2 as some NO reacts with atmospheric ozone. Method 2 details a methodology to account for this reaction.

104. Using Method 2, Benbow calculated that there would be no exceedances of the NO_2 1 hour criterion of 164 ug/m^3 when natural gas is used and potentially minor exceedances when biofuel is used.

105. The exceedances under a biofuel use scenario are predicted at three nearby industrial receivers. The calculated exceedances were based on the turbines operating 100% of the time on biofuel, and on that basis exceedances are predicted to occur for 1 2 hours per year. In reality, as the turbines are only expected to be operated for around 6% of the time on biofuels, actual exceedances of NO_2 are highly unlikely to occur.

106. Further, under the scenarios where the discharges from the power station comply with the Clear Air Regulation point source discharge limits, the predicted ambient air concentration complies with the NO_2 criterion including accounting for background concentrations.

107. That is, the Department and the EPA are satisfied that the power station discharges would meet the Approved Methods criteria at sensitive receivers subject to the emissions meeting the Clean Air Regulation. This aspect is discussed further below.

Volatile organic compounds and sulphur dioxide

108. Benbow estimated the emission rates of VOCs and SO_2 from the project using emissions factors from the *Australian Government National Pollutant Inventory Emissions Estimate Technique Manual for Combustion Engines* and compared these with the emission rate criteria.

109. As the ratio of the emission rate to the Approved Methods ambient air criteria for NOx is significantly greater than the VOC and SO_2 ratios (ranging from x83 to x3,800 multiple), the concentrations would comfortably meet the Approved Methods limits.

110. The EPA did not raise any concerns with this qualitative assessment of VOCs and SO_2.

Clean Air Regulation point source limits

111. The *Protection of the Environment Operation (Clean Air) Regulation 2021* (Clean Air Regulation) sets standards for NOx at the source (i.e. within the stacks) and the EPA raised concerns that two of the six modelling scenarios were based on assumptions that emissions within the stacks would exceed those limits.

112. Although those two scenarios were included to provide a worst case assessment of impacts of ground level concentrations at receivers, in its submissions report the applicant clarified that the project would only be operated with stacks that comply with the required discharge limits.

113. The EPA requested additional information to provide sufficient confidence that the turbines being proposed would be able to meet the Clean Air Regulation limits.

114. The applicant clarified that there were two turbine types/configurations currently being considered subject to a financial investment decision: a two unit dual fuel (biodiesel and gas) and a one unit gas turbine only configuration. For the dual fuel option, when using a biofuel selective catalytic reduction (SCR) would be required to ensure the NOx emissions limits could be met.

115. The applicant also undertook additional modelling to confirm that if SCR technology was used, which requires the use of ammonia as a scrubbing agent, the ambient air concentration for ammonia would be well below the Approved Methods criterion.

116. The Department has included a recommended condition of consent requiring SCR technologies to be installed on any turbines operating on biofuels.

117. Given the uncertainties about the final design, the EPA recommended conditions requiring the applicant to prepare a revised air quality impact assessment based on the manufacturer's performance guarantees for the final plant design and to revise the air quality impact assessment, and to ensure the facility is designed and constructed to allow for continuous monitoring of stack emissions through the life of the project. The Department has adopted the EPA's suggestions in the recommended consent.

Greenhouse gas emissions

118. The project would generate up to 37.6 kilotonnes (kT) of carbon dioxide equivalent per year (CO_2^{-e}/yr) from the combustion of fuel to generate electricity and to operate equipment and vehicles (Scope 1 emissions); the consumption of electricity to run the power station (Scope 2 emissions); and downstream/ upstream activities (Scope 3 emissions).

119. Scope 1 emissions would be the largest of these, ranging between approximately 16.8 kT and 33.6 kT CO_2^{-e}/yr depending on the fuel source for the power station. Annual Scope 2 emissions would be around 4 kT CO_2^{-e}/yr and annual Scope 3 emissions would be around 0.6 kT CO_2^{-e}/yr.

120. The upper end of the range in Scope 1 GHG emissions would be when the power station is operating with 100% natural gas, with the lower estimate assuming that 50% of the fuel supply is sourced from biofuels.

121. The key abatement measure proposed by the applicant is to transition to the use of biofuels and/or hydrogen when it becomes technically and commercially viable to do so. However, the applicant notes that currently the ability to source sufficient quantities of eligible biofuels to generate power is uncertain and using hydrogen is not yet economically cost effective

122. While the project includes infrastructure that would allow electricity generation using up to a 25% hydrogen blend, this would still be subject to a financial investment decision by the applicant.

123. The Knitting Nannas recommended that the conditions of consent include a limit on the amount of time the power station could operate on natural gas. However, the Department does not consider it reasonable to require the applicant to transition before it is both technically and economically feasible to do so.

124. Even once technically feasible, it may take longer before the alternative fuel source delivers sustainable competitive electricity prices in comparison to a natural gas or a natural gas/hydrogen blend.

125. Nevertheless, even when operating on natural gas, the project would provide a societal benefit by supporting the transition to renewable energy. In this regard, the Office of Energy and Climate Change confirmed that the project would contribute to meeting the NSW objectives set out in the NSW Electricity Infrastructure Roadmap, be consistent with the NSW Hydrogen Strategy, and support development of the State's Central West REZ by providing system security in the form of grid firming.

126. Although there are some alternative firming technologies such as batteries and pumped hydro, the former currently typically only provide electricity for up to four hours, and the latter must be close to a suitable water source and has significant lead times for approval and construction.

127. Advice from the Department's Net Zero Emissions Modelling team (NZEM) was included in the advice received from the EPA. NZEM requested clarification on the type of fuels proposed to be used and the emissions associated with the proposed fuels, the use of fuel blends and the emission calculations used. The air quality impact assessment was updated to address NZEM advice and also included the Scope 3 emissions predicted for the project.

128. Whilst the power station would initially be operating on either natural gas or a natural gas/hydrogen blend up to 25%, the applicant intends to transition to higher hydrogen blends or biofuel in the future and contribute to the NSW Government goal of achieving net zero emissions by 2050.

129. The project would not compromise the NSW Government's recently legislated targets set out under the *Climate Change (Net Zero Future) Act 2023* with a net zero target of 50% reduction in GHG emissions by 2030, 70% by 2035 while moving to net zero by 2050. Assuming only natural gas is used, the emissions from the power station would be around 0.03% of estimated gross NSW GHG emissions in 2030 and 0.07% by 2035.

130. As biofuel and hydrogen technologies and pricing matures over the next decade there will be increased optionality to use these technologies out to 2050. The Department has included a recommended condition of consent requiring the applicant to provide the department with 3 yearly review of the feasibility of increasing the hydrogen concentration or using biofuels, noting this would still potentially require a modification of the approval.

131. Further, as the site would require an environment protection licence under the *Protection of the Environment Operations Act 1979*, under the EPA's Climate Action Plan, the applicant would be required to prepare and implement a Climate Change Mitigation Plan and demonstrate throughout the project lifecycle measures to reduce GHG emissions.

132. The applicant has also noted that relevant environmental standards and performance measures will be considered during the tender process and awarding of contracts, to further source ways of reducing greenhouse gas emissions.

133. The Department considers that the project is consistent with current NSW and Commonwealth policy settings regarding greenhouse gas emissions. The project also would provide a consistent energy supply during the transition to renewable energy.

6.3 Other issues

134. The Department's consideration of other issues is summarised in **Table 6** below

Table 6 | Assessment of other issues

Issue	Findings and conclusions	Recommended conditions
Biodiversity	• The project is located on land that has largely already been cleared for agricultural and industrial purposes. Small pockets of native vegetation remain (mostly regenerating grassland). • Approximately 14.1 hectares (ha) of land would be disturbed for the project. Most of this comprises exotic grasslands or existing roads and dams. • A small patch (0.12 ha) of Box Gum Woodland identified as plant community type (PCT) 267 and 0.04 ha of scattered trees and regenerating groundcover associated with PCT 78 (River Red Gum Woodland) would be disturbed. • Surveys for threated flora species and fauna habitat were undertaken which did not identify any threated species or habitat features. • PCT 267 is listed as a critically endangered ecological community under the *Biodiversity Conservation Act* (BC Act) and is a candidate species for serious and irreversible impacts (SAII). However, the vegetation on site is degraded derived native grassland, and an assessment of the impacts concluded that the project would be unlikely to result in significant impacts on the species. • BCD did not raise any concerns, and the Department notes that the impacts would need to be offset in accordance with the NSW Biodiversity Offsets Scheme. • Given the low quality and small amount of vegetation that would be cleared, and the requirement to offset these impacts, the Department considers that impacts on biodiversity would be acceptable.	• The impacts on native vegetation must be offset by retiring four ecosystem credits (one for PCT 267 and three for PCT 78).
Aboriginal cultural heritage and European historic heritage	• Landskape Natural and Cultural Heritage Management (Landskape) undertook an Aboriginal cultural heritage assessment for the project, which included a field survey of the site with registered Aboriginal parties (RAPs). • Two Aboriginal cultural heritage sites have previously been recorded near the project area: an axe grinding groove and a scattered stone artefact site comprising five stone artefacts. These sites would not be disturbed by the project.	• The identified Aboriginal object must be collected and managed in consultation with RAPs and the management

Issue	Findings and conclusions	Recommended conditions
	• An isolated stone artefact was also discovered within the project area during field surveys. This site is within the area proposed to be disturbed for construction of the project. However, the site is considered to be of low archaeological significance, and the applicant has committed to collecting, curating and storing the artefact. The Department has recommended a condition giving effect to this commitment, including a requirement to consult with RAPs and record the outcomes of the consultation and management measures in the Government's Aboriginal Heritage Information Management System (AHIMs). • There is a possibility that additional as-yet-undiscovered Aboriginal items could be harmed by the project. Based on the high survey coverage, the previous disturbance of the site for agriculture, and the fact that the project is not located near a water source, Landskape considers it unlikely that any additional artefacts of high significance occur on site. Nevertheless, the recommended conditions include an unexpected finds protocol that requires the applicant to stop work in the area immediately if any suspected Aboriginal objects are encountered, and to manage any confirmed Aboriginal objects in consultation with RAPs. • Heritage NSW did not raise concerns about the impacts or the proposed mitigation measures, and subject to the above conditions , the Department considers the impacts of the project on Aboriginal cultural heritage would be minor. • Landskape also surveyed the project site for items of European historic heritage significance and did not find any within the site. Accordingly, the Department is satisfied that there would be no impacts on European heritage.	actions recorded in AHIMs. • Protocols for managing unexpected finds of Aboriginal objects and suspected human remains.
Noise and vibration	• The noise impact assessment for the project assessed construction noise in accordance with the *Interim Construction Noise Guideline (2009)* and operational noise per the *Noise Policy for Industry (2017).* • The majority of receivers in the immediate vicinity of the project are industrial operations, with the closest occupied residence located 790 m away (receiver R6 – see **Figure 6** above). Background noise monitoring was undertaken at three locations representative of the closest residential receivers to the project. • Receiver R6 is located close to the Newell Highway with the background noise monitoring showing higher noise levels through day/ evening/ night periods as a result of traffic on the highway.	• Construction must occur during standard construction hours (Mondays – Friday 7:00 am to 6:00 pm and Saturdays 8:00 to 1:00 pm) unless an out of

Issue	Findings and conclusions	Recommended conditions
	• Two worst case construction noise scenarios (for earthworks and building works) were developed and modelled for the project. No exceedances of the recommended residential and industrial noise management levels in the interim construction noise guideline are predicted under either scenario during the construction phase (13 months). • Road noise generated during the construction phase is also not predicted to exceed the daytime and night-time noise criteria in the *Road Noise Policy (2011)*. • Given that final detailed design has not yet been completed, modelling of three turbines (located side by side and operating 100% of the time) was undertaken to provide conservative operational noise predictions for the power generation facility. Modelling concluded that predicted noise levels would remain below the relevant operational noise criteria at the residential and industrial receivers. No exceedances of the sleep disturbance criteria are predicted at the residential receivers either. • Potential impacts specifically from low frequency noise was also assessed at all residential receivers. Even after the application a 2 dB penalty in accordance with the *Noise Policy for Industry (2017),* the predicted operational noise levels are expected to comply at all residential receivers during the day, evening and night-time periods. • A sound power level of 114 dB(A) was assumed and modelled for the start-up and shut down activities associated with the power generation facility. Whilst noise generated during start-up and shut down activities would be at slightly higher levels (approximately 1-2 dB(A) higher) than noise generated during general operations, noise levels are still predicted to remain below the relevant criteria at all receivers. • However, to further mitigate the increase, the noise impact assessment did recommend that the start-up and shut down vents are designed with silencers, as a contingency measure for the project. • Potential noise impacts from the hydrogen plant were also modelled, which ultimately concluded that noise generated from the plant would be negligible compared to noise from the power station. • Potential vibration impacts were considered for the project using guidance from the *Assessing Vibration: a technical guideline (DECC, 2006)*, which provides limits for human exposure, and from the British Standard BS7385-Part 2: 1993- *Evaluation and measurement for vibration in building*, which sets out the minimum distances	hours work protocol is separately approved. • Operational noise must comply with limits (based on predicted noise) at representative receivers.

Issue	Findings and conclusions	Recommended conditions
	for the safe use of vibration intensive construction equipment to avoid structural damage to buildings and the distance at which a human response to vibration would be likely. • The "safe" working distance to avoid cosmetic damage to structures for all equipment listed is less than 25 m and to avoid any human response is less than 100 m for all equipment. The project does not include use of the vibration intensive equipment listed in the guideline for construction, the closest building is more than 30 m away and the closest residence is more than 100 m. Consequently, no impacts on building structures or human comfort is expected. • The Department is satisfied that the noise assessments demonstrate that the project could comply with all relevant noise and vibration criteria during construction and operations. The Department has recommended conditions of approval limiting the operational noise to predicted levels at the representative residential receivers, and limiting construction to standard construction hours unless an out of hours work protocol is approved (which would require justification for non-standard construction hours).	
Visual	• The project would be located on land zoned for heavy industry. Land use in the area is currently a mix of industrial and agricultural. • The structures on site would range in height from 4 m to 18.8 m, with up to two exhaust turbines located in the centre of the site being the highest features. • The EIS included a visual impact assessment undertaken by DWC de Witt Consulting (DWC), which undertook a visual impact assessment that used a digital elevation model to identify the areas around the project site that would have theoretical views of the site. This was based on the topography of the area but did not account for vegetation or existing man-made features that would obscure the project. • The visual impact assessment indicates the project would have varying degrees of visibility from roads, public vantage points and residences located further to the north-west, west and south-west of the site. Sensitive receivers located within 1 km of the site would have the greatest visibility of the site. However, based on the sensitivity and magnitude of views, DWC concluded that the impacts at all but two residences would be minor or negligible due to distance, topography and/or obstructions.	• Visual impacts must be minimised and the visual appearance of infrastructure must blend in with the surrounding landscape as far as practicable. • External lighting must comply with Australian Standard *AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting* and does not shine above the horizontal (except for the

Issue	Findings and conclusions	Recommended conditions
	• One residence (R2) located around 1.5 km to the east of the project site would have greater visibility of the site (but still partially obstructed by intervening vegetation) and DWC ranked the significance of the impact as high-moderate. • A second residence located around 500 m to the east of the site would also have views of the site. However, despite DWC taking a conservative approach and ranking this as moderate-low significance, the residence is dilapidated and not occupied. • These two residences are also both owned by the owner of the land upon which the project would be located. • To limit visual impacts, the applicant is proposing to install vegetation screening along the north-west boundary of the site and along the majority of the south-west boundary. • The Department considers the visual impacts would be acceptable, noting that no private residences would be significantly impacted and the project would be in keeping with the emerging industrial nature of the area, noting that the rezoning to heavy industrial took place with the gazettal of the Dubbo LEP 1991 in February 1991. Lighting • The project is located approximately 112 km from the Siding Spring Observatory. However, construction would only occur between 7:00 am and 6:00 pm and security lighting would be the only light source from the project at night during operations and the applicant is proposing to use warm-coloured light bulbs, light shields and the use of non-reflective material to further mitigate potential impacts. • The Department considers the impacts on the observatory would be negligible. However, the Department has recommended a condition requiring all external lighting to comply with *AS/NSW 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting*, which sets limits for lighting to control the adverse effects of outdoor lighting on residences and astronomical observations.	red aviation safety light atop the stack). • Vegetation screening on the southern, western and part of the eastern boundaries of the site must be planted and maintained.
Water	Water supply • The estimated maximum water demand for the project is approximately 11-20 Megalitres per year (ML/yr), with consumption dependant on ambient and operating conditions. Around 2.5-5 ML/yr of this water usage would be	• Install and maintain suitable erosion and sediment control measures on-site in

Issue	Findings and conclusions	Recommended conditions
	for the power station (assuming it operates for 1,000 hours per year) and 8.5-15.1 ML/yr would be for the hydrogen generation facility (assuming it operates for 2,800 hours per year). • Water for the project would be sourced primarily from the mains system on Yarrandale Road and the applicant has confirmed that the required water volumes are available through this source. • Recycled water from the Dubbo sewage treatment plant would also be used if there is insufficient water from the above supplies. This would likely need additional treatment prior to use and the applicant is working with Dubbo Council regarding upgrades at the recycling plant (not the project site) to support water quality requirements for the project and for local community uses. Water quality impacts • Spills or leak from hydrocarbons and other chemicals have the potential to pollute surface and groundwater. To manage these risks, the applicant is proposing to store all chemicals and liquids in sealed bunded areas away from stormwater drainage lines and waterways and to restrict refuelling and maintenance activities to designated areas with appropriate bunding and spill capture controls. • Seven existing shallow dams on site would be reconditioned and used for water storage or removed and replaced with tanks. The applicant has committed to ensuring the reconditioning would meet contemporary standards to prevent pollution of waters. • The stormwater drainage system on site would be designed to separate, contain and treat stormwater and would include stormwater drains to capture non-contaminated runoff and drains to capture and convey potentially contaminated stormwater to an oil and water separation system, with clean water directed to a retarding basin from whence it would be discharged into an adjacent pasture. The retarding basin would be designed for a 1 in 100 year flood event. • Separate closed drains would manage process waste streams. Flows to these drains would be collected and disposed of via approved waste collection facilities. Sewer infrastructure would be designed and constructed in accordance with Dubbo Council standards and connected with the Dubbo sewerage system. • Dubbo Council did not raise concerns with any the proposed water management systems but requested that the full stormwater drainage system design is submitted to Dubbo Council for review and approval. The applicant	accordance with the relevant requirements of the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline.

Issue	Findings and conclusions	Recommended conditions
	has committed to doing this, and has also committed to preparing a soil and water management plan to manage potential risks to water resources and soils. Groundwater impacts • The project area is underlain by Dubbo Basalts and the water table in this aquifer ranges from 5 m to 30 m. As the foundations are likely to be less than that (approximately 3 m in depth for foundation excavations), it is unlikely the project would interfere with the aquifer. Accordingly, no water use license would be required and the project is unlikely to exceed the minimal impact considerations of the *Aquifer Interference Policy* (2012), including any impacts on other groundwater users or groundwater dependent ecosystems in the vicinity. Flooding impacts • The Macquarie River is located approximately 540 m west of the project site. However, the site is outside of the 0.5% annual exceedance probability flood event and the project site is not identified in the Dubbo Regional Local Environmental Plan as a flood planning area. • The project site is located roughly 11 m higher than the maximum extent of the 1-in-200-year flood event and higher than the probable maximum flood event. Given the distance and elevation of the project site, no direct impacts from flooding events in the Macquarie River are expected. • The applicant has demonstrated there is likely to be sufficient water available to operate the project, the project is unlikely to intercept groundwater, and the project includes appropriate measures to manage clean and dirty water to prevent pollution. • The Department is satisfied that impacts to water resources can be managed and has recommended conditions of consent requiring the applicant to install and maintain suitable erosion and sediment control measures.	
Land	• Some submissions objected to the project because it would reduce the land available for agriculture. However, the Department notes that the project would be located on land already zoned for heavy industry, the object of which is to provide areas for industries that must be separated from other land uses, ensure there is land available for industrial uses, and minimise the adverse impacts of heavy industries on other land users.	• No recommended conditions.

Issue	Findings and conclusions	Recommended conditions
	• Neither the land on which the project site is located nor any land within 500 m of the site has been recorded as being contaminated. The project site has previously been used for agricultural purposes, and while the site may hold residual agricultural chemicals from many years of weed and pest control spraying, this likelihood is considered to be negligible. • The applicant would manage any potential construction impacts on the land, including a reduction in soil stability and quality, an increase in erosion, and the risk of contaminant movement/exposure through the preparation of a Soil and Water Management Plan. • At the end of the project life, the applicant would remove all above-ground infrastructure and return the land to pre-existing environmental conditions.	
Transport	• The project site is accessed by Yarrandale Road, with most of the project traffic expected to approach the site from the south end of Yarrandale Road via the Golden Highway. Vehicles travelling to site from the north would use the Newell Highway and connect onto Yarrandale Road via Purvis Lane (see Figure 2). • Golden Highway and Newell Highway are both State roads, managed by TfNSW and are designated B-double routes. Yarrandale Road and Purvis Lane are local roads managed by Dubbo Council and are approved B-double routes. These roads are also listed as an oversize/overmass (OSOM) approved road by TfNSW. • The majority of the project traffic is expected during the 13-month construction period, with peak construction lasting approximately 6 months. • During construction there would be a daily average of 50 heavy vehicle and 90 light vehicle one-way movements generated by project traffic, with peak construction seeing up to 120 heavy vehicle and 260 light vehicle movements a day. A similar number of average vehicle movements would also be expected during the decommissioning phase of the project. • OSOM vehicles would also occasionally be required to transport equipment to site during the construction period, with up to 16 OSOM vehicle deliveries to the project site expected.	• A traffic management plan for the project must be prepared in consultation with Dubbo Council and TfNSW. • Heavy vehicles associated with the project are prohibited from using Boothenba Road. • Dilapidation surveys must be undertaken prior to and following completion of construction, and roads damaged by the project must be repaired.

Issue	Findings and conclusions	Recommended conditions
	• Modelling of the Golden Highway/Yarrandale intersection performance indicates that, with the additional project construction traffic and allowing for a 2% growth in non-project traffic, the intersection would continue to operate at the highest level of service, even during peak hours (i.e. minimal delays to road users). • Project construction traffic is expected to account for less than 1% of existing traffic on Newell Highway and within the daily variation of traffic movements. The intersection already has channelised right and left turn treatments to allow vehicles to safely turn to/from the Newell highway. Consequently, impacts on the road and intersection performance are likely to be minor. • There are a number of renewable energy projects proposed in the area, which are at various stages in the assessments process. If these projects proceed and construction occurs concurrently with the project, there would be a bigger increase in road traffic. However, given the road network is expected to continue to operate with a good level of service and have spare capacity, the combined traffic is not likely to have a significant impact on the road network. • During operations, up to 8 heavy vehicle and 6 light vehicle movements a day are expected. • The project would include separate entry and exit points onto Yarrandale Road that would be designed to accommodate B-double vehicle movements, and visibility on Yarrandale Road would meet the minimum requirements for safe sight distance set out in *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*. • TfNSW did not raise concerns about the impacts of the project on roads and intersections but recommended heavy vehicles coming from Newell Highway should be required to use Purvis Lane rather than Boothenba Road given the high crash history at the intersection of Boothenba Road and Newell Highway. The Department has recommended a condition to this effect. • Dubbo Council also requested financial contributions for maintenance of the roads or for the applicant to pay for any damage to the roads. The Department has recommended a condition requiring the applicant to undertake dilapidation surveys and pay for repairs/maintenance for any damage caused to the roads during construction.	

Issue	Findings and conclusions	Recommended conditions
	• Based on the above, the Department considers impacts to the road network would be minor and traffic impacts can be managed. The Department has recommended a condition requiring the applicant to prepare a Traffic Management Plan in consultation with TfNSW and Dubbo Council.	
Social	• The project would assist with the transition to a low carbon future by providing firming electricity when renewable generators are unable to generate. It would also generate up to 150 FTE jobs during the construction period and provide a range of additional opportunities for local businesses that supply materials, equipment, services and fuel etc. It would also generate around five to six FTE jobs during operations. • However, the project could have some adverse impacts on the local community in the form of amenity and traffic impacts and increasing demand for local services and accommodation. • As discussed above, the impacts on the amenity of the nearby community through noise, air, lighting and/or traffic impacts are unlikely to be significant, largely because the project would be located in an industrial area with few residences nearby. • The operational workforce is small and would potentially be drawn from the local area, and consequently impacts on local services is likely to be minor. • The construction workforce would be larger and some portion of this may travel from further afield. However, the Department considers the impacts on local services such as medical facilities and childcare are also likely to be minor because of the limited construction period and the fact that most of the workforce based away from Dubbo would likely only rely on local providers in an emergency or under exceptional circumstances. That portion of the workforce that is drawn from the local area probably already relies on those services and thus there would be no increase in impacts. • However, the project would increase the demand for accommodation, particularly for short-term accommodation during the construction period. • The EIS identified that the average room availability in the Central NSW region is approximately 26.4%, with approximately 9.9% of private accommodation being generally unoccupied. However, given the project is	• A VPA must be entered into with Dubbo Council. • A construction workforce accommodation strategy must be prepared in consultation with Dubbo Council.

Issue	Findings and conclusions	Recommended conditions
	located in the REZ and there are a number of other large renewable energy projects that might be undergoing construction at the same time, the supply of accommodation may be more constrained. • The applicant has committed to using a local workforce and local suppliers for the construction of the project, as far as practicable and noted that there has already been interest lodged from local contractors to complete the bulk of the construction activities. Nevertheless, to address the potential for accommodation shortages, the applicant has committed to developing a workforce accommodation strategy in consultation with Dubbo Council and other large employers, prior to the commencement of construction for the project. The Department has recommended conditions giving effect to that commitment. • The applicant has also been negotiating with Dubbo Council in relation to a VPA and the parties have reached in principle agreement in relation to the quantum of contributions that the applicant would make under the VPA. The Department has recommended condition requiring a VPA. • Given the project would be situated in an industrial area and traffic and amenity impacts would be minor, the Department considers that adverse social impacts would be minor and would be largely offset by contributions to Dubbo Council under the VPA.	
Economic	• In addition to the proposed 150 FTE jobs during construction, the project would also directly employ an annual average of 6 jobs during operations. • The project would generate ongoing and initial capital investment in the order of $190 million and a range of flow-on economic benefits. The project would also contribute to reducing the cost of making green hydrogen by $4 per kilogram. • OECC noted that the project could contribute to developing new renewable fuels industries in NSW and support the Central-West Orana REZ by providing system security services such as grid firming. It is also noted that this type of infrastructure is needed to ensure a reliable electricity supply after the retirement of Eraring Power Station.	• No recommended conditions.

Issue	Findings and conclusions	Recommended conditions
	• In the Department's view, the project would provide a range of economic benefits, including direct and indirect employment opportunities, a reliable electricity supply for NSW and further investment in the renewable energy market.	
Waste	• In addition to operating on natural gas or a natural gas/hydrogen blend, the power station would also be designed to operate on 100% biofuels, such as Bioethanol (E100) and Biodiesel (B100 and HVO100). The EPA raised concerns over the proposed biofuels, given that if any non-eligible waste fuel types are proposed the project would be considered an energy recovery facility. Following further discussions with the EPA and the Department, the applicant has confirmed it would only use biofuels that meet the criteria set out in part 1 of the *Eligible Waste Fuel Guidelines (2002)*. • The applicant also confirmed it understands that prior to the use of an eligible waste fuel, EPA approval would be required and the eligible waste fuel would need to be listed in the *NSW Energy from Waste Policy Statement (2021)* and a resource recovery order and exemption would need to be obtained. • During construction of the project, waste is expected to be generated from land clearing activities, general construction waste and sewage. Waste generated during operations would include materials from equipment, chemical waste and liquid waste. The applicant has committed to segregating, storing and managing these solid waste streams, with consideration given to the waste hierarchy. • Some liquid waste is expected from the operation of the project and would be managed as trade waste after treatment on site. Small volumes of hazardous waste are also expected to be generated on site. The applicant would separate these for reuse or recycling, and hazardous waste that cannot be reused or recycled, would be disposed of at a suitably licensed waste facility. • The EPA did not raise concerns about these waste types, but recommended conditions requiring waste to be classified, stored and handled in accordance with the EPA's *Waste Classification Guidelines*. The Department has included these conditions in the recommended consent. • Subject to the proposed conditions, the Department considers waste from the project can be appropriately managed.	• Biofuels used to fuel the power station must meet the criteria set out in the EPA's *Eligible Waste Fuel Guidelines*. • Waste generated by the development must be minimised and must be classified, stored and handled in accordance with the EPA's *Waste Classification Guidelines* and that liquid waste must be maintained in accordance with the requirements of all relevant *Australian Standards*, and/or *Storing and Handling of Liquids: Environment Protection-Participants Manual*.

7 Evaluation

135. The Department's assessment has considered the relevant matters and objects of the EP&A Act, including the principles of ecologically sustainable development (Sections 3 & 6), advice from government agencies, Dubbo Council and public submissions (Section 5), and strategic government policies and plans (Section 4).

136. The assessment considered the EIS, matters raised in agency advice and submissions, the applicant's response to these matters and additional information provided by the applicant through the assessment process.

137. The PHA indicates the project would meet the relevant criteria for tolerable risks to the community and environment from fires and other hazardous events, and CASA has indicated the project would not pose a risk to aircraft. The recommended conditions include requirements for a hazard and operability study, final hazard analysis, fire safety study and emergency and safety plans to ensure the final design of the facility would comply and risks would be suitably minimised. The recommendations made by CASA and NSW RFS have also been given effect in the recommended conditions to further reduce the risks.

138. The Department carefully considered the potential GHG emissions from the project, noting the NSW Government's goals to decarbonise the electricity grid. In this regard, although the project would initially be operating on natural gas and there is uncertainty about how quickly the project would transition to a lower emissions fuel, the project would ultimately help to facilitate the transition to renewable energy by providing the firming capacity needed to maintain reliability in the electricity grid.

139. The project would also be capable of transitioning to hydrogen or biofuels to operate the power station as soon as one or more of these options becomes commercially feasible to do so, which would further reduce the GHG emissions from the project.

140. The project site was selected due to its strategic location within the Central West Orana REZ and its close proximity to key supporting infrastructure, such as the existing gas pipeline and the electricity transmission network.

141. Further, the project would be located in an area zoned for heavy industrial use. This would limit any social and amenity impacts as the facility is suitable for the land use and there are few privately owned sensitive receivers in the immediate vicinity.

142. Noise and air emissions are predicted to comply with all relevant criteria at all receivers. There would be some interrupted views of the project from some receivers and public

vantage points. However, the facility would be in keeping with the semi industrial nature of the area and consequently impacts would be relatively minor.

143. The roads that would be used are approved for B double trucks, and there is sufficient capacity on the surrounding road network and nearby intersections to handle the additional traffic generated by the project without a reduction in the level of service.

144. Subject to conditions requiring the applicant to use Purvis Lane rather than Boothenba Road to reduce crash risks and to repair any damage to the local roads caused by construction traffic, the Department considers the impacts on roads and traffic would be minor.

145. The project site has been cleared previously for agricultural purposes, which means impacts on biodiversity and heritage would also be relatively minor. A small amount of additional vegetation clearing would be required, which would be offset in accordance with current policies. One Aboriginal heritage site would be disturbed, but the artefact at the site would be salvaged prior to disturbance.

146. Overall, the Department considers that the project has been designed in a way that avoids and minimises social and environmental impacts as far as practicable and the residual impacts can be managed through the recommended conditions of consent.

147. In addition to contributing to energy security and supporting the transition to renewable energy, the project would provide economic benefits through direct and indirect employment opportunities, and would also deliver an initial capital investment in the order of $190 million.

148. The Department has carefully weighed up the impacts of the project against the benefits and considers that the benefits of the project would outweigh its costs. The Department also considers that the project is in the public interest and is approvable, subject to the recommended conditions of consent.

149. This assessment report is hereby presented to the Commission to determine the application. Recommended conditions of consent are included in **Appendix E** of this report.

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22/3/2024

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22/3/2024

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Appendices

Appendix A – List of referenced documents

A1 – Environmental Impact Statement: Available under the 'EIS' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station

A2 – Submissions: Available under the 'Submissions' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station

A3 – Submissions Report: Available under the 'Response to Submissions' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station

Appendix B – Government agency advice

Available under the 'Agency Advice' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station

Table B17 | Agency advice

Agency	Advice
Environment Protection Authority (EPA)	Advice on EIS Advice on RTS Advice on Assessment Advice on Conditions
Department of Planning, Housing and Infrastructure – Hazards	Advice on EIS Advice on RTS
Transport for NSW (TfNSW)	Advice on EIS Advice on RTS Advice on Conditions
NSW Department of Climate Change, Energy, the Environment and Water	
Biodiversity, Conservation and Science Group (BCS)	Advice on EIS

Agency	Advice
Heritage NSW	Advice on EIS Advice on Conditions
Rural Fire Service	Advice on EIS
Civil Aviation Safety Authority	Advice on EIS Advice on RTS
Office of Energy and Climate Change	Advice on EIS
Dubbo Council	Comments on EIS Comments on RTS Comments on Conditions

Appendix C – Additional information

Available under the 'Additional Information' heading on the 'Assessment' tab on the Department's website at: https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station

Table C18 | Additional information

Additional information	Applicant response
RFI 1 (RFI-63802459) Air quality – VOCs and particulates	7 November 2023 Submissions report
RFI 2 (RFI-64963706) Noise – EPA comments and receivers assessed Water – recycled water treatment Transport – parking and OSOM vehicles	15 December 2023
RFI 3 (RFI-65254961) Project design – option 2A pipeline Water – aquifer interference	18 December 2023

Additional information	Applicant response
RFI 4 (RFI-65500957) Water – project water source Project design – gas storage pipeline and power station stacks Operation – annual capacity, natural gas/hydrogen requirements, project lifespan and costings	15 December 2023
RFI 5 (RFI-65502208) Air quality – VOCs modelling Vibration – assessment impacts	18 December 2023
RFI 6 (RFI-65554468) Visual – vegetation screening and receiver ownership	19 December 2023
RFI 7 (RFI-65596718) Air quality, water and noise – EPA comments Operation – hydrogen usage Social – workforce accommodation strategy	15 December 2023
RFI 8 (RFI-66075237) Voluntary planning agreement CASA advice Air quality – emission limits Visual – vegetation screening	25 January 2024
RFI 9 (RFI-67228975) Voluntary planning agreement	Withdrawn (Dubbo Council provided response separately)
RFI 10 (RFI-67511220) Air quality – sulfur dioxide and modelling results for hydrogen	26 February 2024
RFI 11 Updated air quality impact assessment	18 March 2024

Appendix D – Statutory considerations

Objects of the EP&A Act

A summary of the Department's consideration of the relevant objects (found in section 1.3 of the EP&A Act) are provided in Table C1 below.

Table D19 | Objects of the EP&A Act and how they have been considered

Object	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	• The project would provide both ongoing social and economic benefits to NSW through contributing to energy reliability and employment opportunities. • Consideration has been given to the environmental features at and surrounding the project site.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	• The Department's assessment has sought to integrate all significant environmental, social and economic considerations. • The Department considers that the project can be carried out in a manner that is consistent with the principles of ESD, which have been considered through the project EIS and the Department's assessment.
(c) to promote the orderly and economic use and development of land,	• The project would be carried out on a permissible land use.
(d) to promote the delivery and maintenance of affordable housing,	• The project would provide continued energy supply and contribute to reducing the cost of making hydrogen.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	• The Department considers that the project has been designed to minimise environmental and biodiversity impacts as much as practicable by locating the power station in an area zoned E5 Heavy industrial.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	• The applicant's proposed mitigation measures would ensure that the project's impacts on Aboriginal cultural heritage are acceptable. • The Department considers that the likely impacts of the project on Historic heritage would be negligible.

Object	Consideration
(g) to promote good design and amenity of the built environment,	• The project would be located on land used for industrial purposes and would suit the existing built environment.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	• The project application included a hazard assessment completed in accordance with the requirements of the *State Environment Planning Policy (Resilience and Hazards) 2021* and reviewed in consultation with the Department's Hazards team. • Measures have been proposed to minimise risks from the construction and operation of a firming power station.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	• The Department consulted with Dubbo Regional Council and other NSW government authorities throughout the assessment of the project and carefully considered all responses in its assessment.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	• The Department publicly exhibited the proposal and requested community submissions. All community submissions have been considered by the applicant and the Department during the assessment process.

Ecologically sustainable development

The EP&A Act adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision making processes and that ESD can be achieved through the implementation of:

- the precautionary principle.
- inter generational equity.
- conservation of biological diversity and ecological integrity.
- improved valuation, pricing and incentive mechanisms.

The Department has considered ESD and its related principles and programs as follows:

Precautionary Principle

The Department has assessed the project's threats of serious or irreversible environmental damage using reasonable worst case scenarios, and is satisfied that there is sufficient scientific certainty to enable the decision maker to weigh up the impacts of the project and determine the development application. The Department has considered all the available information presented and consulted closely with key Government agencies to obtain advice on various aspects of the project.

The Department considers that the recommended conditions can provide an appropriate level of protection to environmental values in the area.

Intergenerational equity

The Department recognises that the NSW energy market is in a state of transition from one dominated by coal fired power stations to a renewable energy mix. Whilst this transition is being fuelled by investment in renewable energy, firming power stations play a crucial role in ensuring the continued supply of electricity.

Conservation of Biological Diversity and Ecological Integrity

The projects potential impacts on biodiversity were considered as part of the Department's assessment of the project. As described in section 6.4, the Department considers that direct and indirect impacts on biodiversity are minimal and can be minimised through the proposed mitigation measures and offsets.

Improved Valuation, Pricing, and Incentive Mechanisms

The Department has carefully considered the costs and economic benefits of the project and support the conclusion that it would deliver a significant benefits to the State of NSW.

The Department has also recommended performance based conditions, where possible, to provide incentive to the applicant to achieve environmental outcomes and objectives in the most cost effective way.

EP&A Regulation

The EP&A Regulation requires the applicant to have regard to the *State Significant Development Guidelines* when preparing their application. The Department considers that the applicant prepared the environmental impact statement with adequate regard to the guidelines.

Environmental Planning Instruments (EPIs)

Under section 4.15 of the EP&A Act, the consent authority is required to consider, amongst other things, the provisions of the relevant EPI's, including any exhibited draft EPIs[2]. The Department

[2] Note that due to the effect of clause 11 of the SRD SEPP, development control plans do not apply to SSD.

notes the applicant's consideration of these instruments in its EIS (see section 4.2 of the EIS) and has undertaken its own consideration of the project against the applicable provisions of relevant EPIs.

Dubbo Local Environmental Plan 2022

The project is located in the Dubbo Regional local government area. All subject land is within an area zoned EF Heavy industrial under the *Dubbo Local Environmental Plan 2022.*

The project is permissible with consent in this zone.

State Environmental Planning Policy (Planning Systems) 2021

The proposed development is declared to be State significant development under section 4.36 of the EP&A Act as it satisfies the criteria under section 2.6(1), as specified in section 7 of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021.*

In accordance with section 4.5(a) of the EP&A Act, the Independent Planning Commission is the consent authority for the proposal as the applicant made a political disclosure.

State Environmental Planning Policy (Resilience and Hazards) 2021

Hazardous and offensive development (chapter 3)

Chapter 3 of this SEPP requires persons proposing to carry out development for the purposes of potentially hazardous industry to prepare a Preliminary Hazard Analysis (PHA) and to submit this with the development application. The EIS has considered the potential hazards and risks associated with the project (see section 9 of the EIS).

With the proposed measures in place, the Department considers that the potential hazards associated with the project can be managed. The Department considers that the project would not increase risks to public safety.

Remediation of land (chapter 4)

The applicant has considered the potential land contamination matters associated with the project in its EIS (see section 10.2.5). The project site has previously been used for agricultural purposes, and while the site may hold residual agricultural chemicals from many years of weed and pest control spraying, this likelihood is considered to be negligible.

The Department considers that the project does not have a significant risk of causing contamination and that the land is suitable for the proposed use.

State Environmental Planning Policy (Transport and Infrastructure) 2021

This SEPP requires the consent authority to notify relevant public authorities about developments that may affect public infrastructure or public land. The Department notified Dubbo Regional Council and Transport for NSW about the proposed project.

The Department has consulted with relevant NSW government authorities and considered the matters raised in its assessment of the project (see section 6). Where appropriate, the Department has also developed conditions of consent to address the recommendations and advice of these authorities. The Department considers that such conditions would provide appropriate protection for public infrastructure.

Appendix E – Recommended instrument of consent

Refer to 'Recommendation' folder on the Department's website at:
https://www.planningportal.nsw.gov.au/major_projects/projects/dubbo_firming_power_station