

Dubbo Firming Power Station

Independent Planning Commission Briefing

Clay Preshaw
Executive Director Energy, Resources and Industry

10 April 2024

Steve O'Donoghue
Director, Resource Assessments

Contents



The project

Strategic context and evaluation

Submissions and advice

Key issues

Other matters

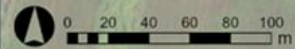
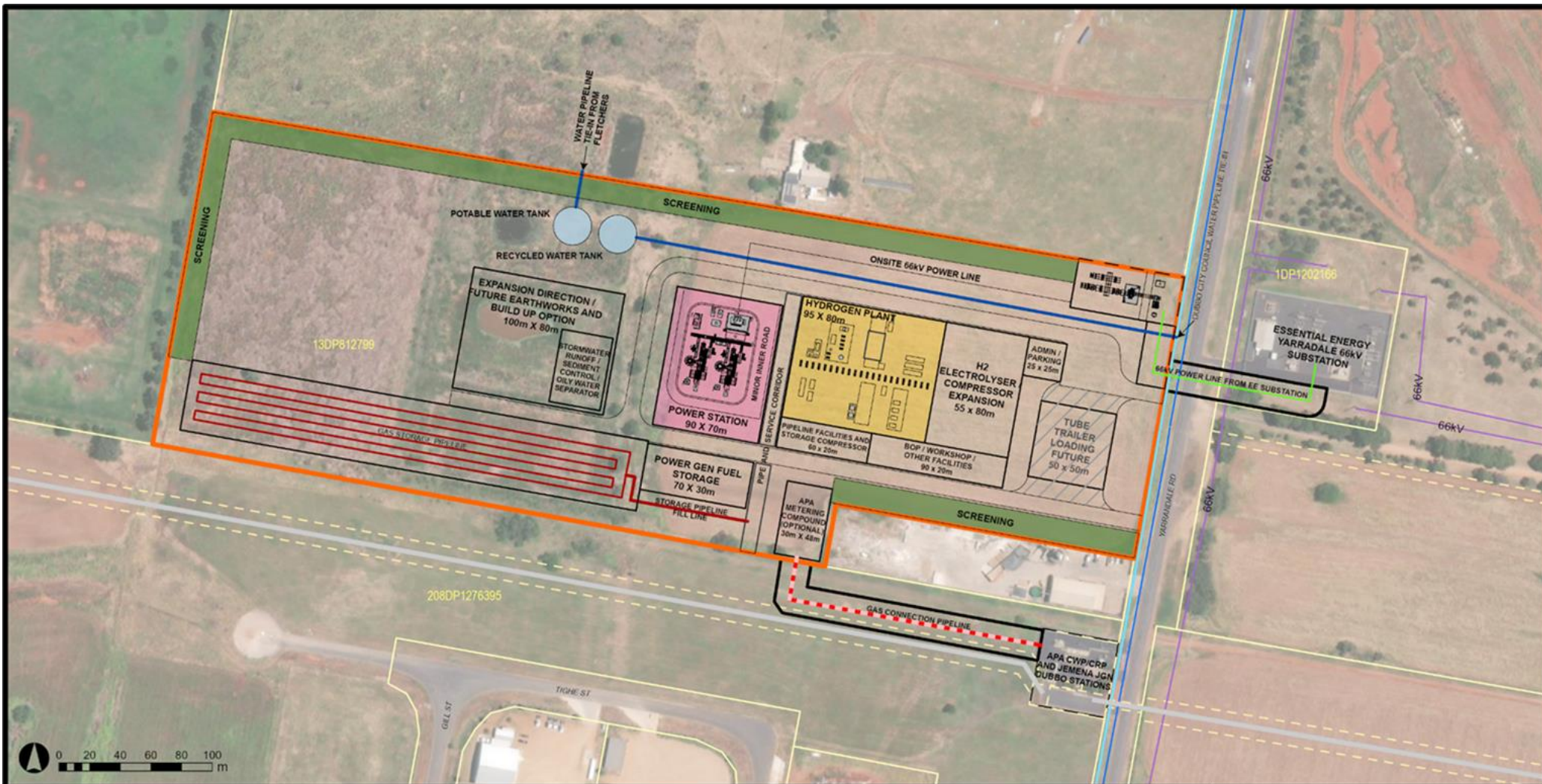
The project

The project would comprise:

- a dual-fuel (gas and liquid) peaking power station that would generate up to 64 MW of electricity
- a hydrogen generation facility capable of producing 330 kilograms per hour of hydrogen
- a gas storage pipeline and storage tanks for hydrogen and biofuels
- connections to the broader NSW electricity grid and gas pipeline network
- a life of approximately 40 years, with an additional 13 months for construction

Project is located:

- at Yarrandale Road (in a heavy industrial area of North Dubbo)
- within the Dubbo Regional Council local government area
- approximately 4.5 km from Dubbo Airport
- within the Central-West Orana Renewable Energy Zone (REZ)
- on the traditional lands of the Wiradjuri people



Disclaimer:
Energy Transitions Solutions Pty Ltd makes no warranty in relation to the accuracy, reliability, completeness or suitability of the data and does not accept liability for any loss, damage or costs, including consequential damage, in relation to any use of the data in this map.



LEGEND

- PROJECT SITE
- SUBJECT LAND
- POWER STATION
- HYDROGEN PLANT
- 66KV POWER LINE
- GAS STORAGE PIPELINE
- WATER PIPELINE
- GAS CONNECTION PIPELINE
- EXISTING POTABLE WATER MAIN
- EXISTING RECYCLED WATER MAIN
- EXISTING TRANSMISSION LINE
- EXISTING APA PIPELINE
- CADASTRAL BOUNDARY
- EASEMENT

PROJECT			Dubbo Firing Power Station		
TITLE			INDICATIVE SITE LAYOUT		
DATE	STATUS	PRODUCED			
25/01/2024	APPROVED	MVC			
DATUM	APPROVED	REV			
GDA2020 MGA Zone 55	TV	C			
FILE	EIS Indicative Site Layout D				

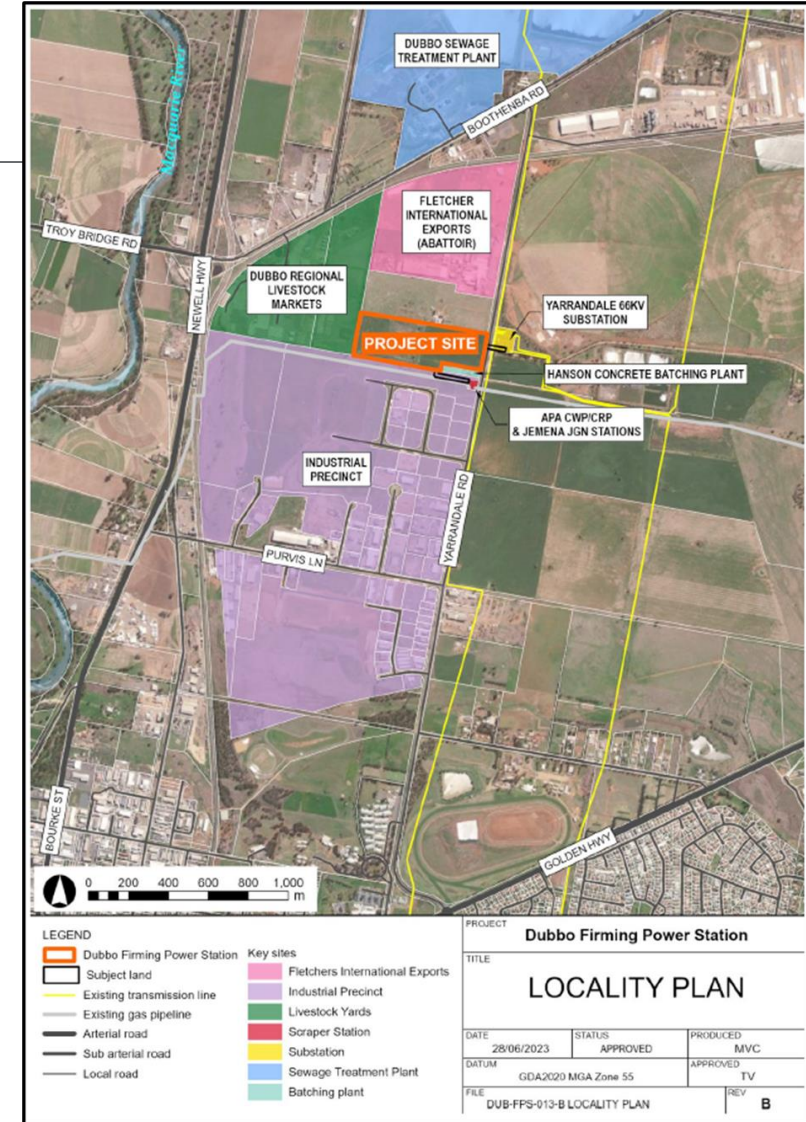
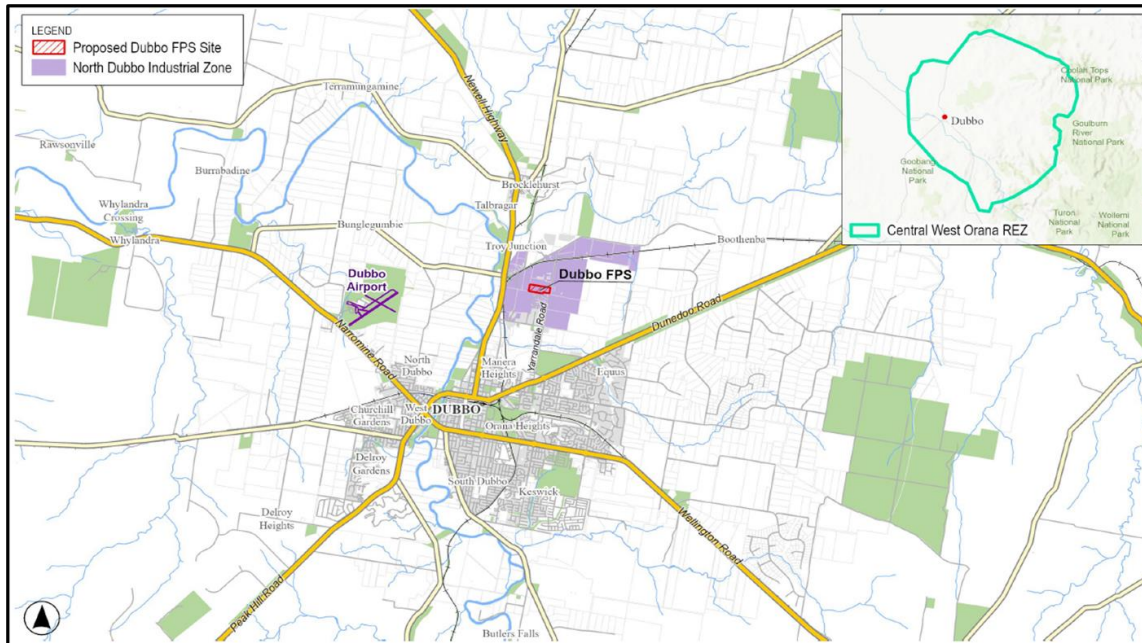
Strategic context – energy and GHG emissions



- NSW has set a target of reducing greenhouse gas emissions by at least 50% by 2030, at least 70% by 2035, and reaching net zero emissions by 2050.
- To meet these targets, the electricity supply sector is transitioning away from fossil fuel fired power stations to renewable energy such as wind and solar.
- However, to support this transition, firming electricity solutions such as batteries, pumped hydro or peaking power plants are required to maintain reliability and stability in the grid.
- The project would be capable of being switched on and off rapidly and providing firming electricity for short periods of time on an as needed basis, particularly during times when renewable energy is not operating at 100%.
- Although the project would generate GHG emissions (particularly when operating on natural gas), it would support the Government's goal of reaching net zero by supporting the transition to renewable energy.
- The project is set up to facilitate adoption and roll out of technologies (hydrogen and/or biofuels) to reduce GHG emissions in line with NSW and Cth GHG emission targets.

Strategic context – site surrounds

- Located within industrial precinct zoned heavy industrial
- Buffers to residential receivers due to zoning
- Short connections to gas, power and water supply



- 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.
- Locating the project in a heavy industrial area limits impacts to residential receivers, as demonstrated in the impact assessment of air, noise and visual impacts in particular.
- The project would contribute to energy security and supporting the transition to renewable energy by providing firming electricity when renewable generators are unable to generate.
- The project would not be inconsistent with NSW and Commonwealth GHG emissions targets and ratcheting down of emissions over time with the adoption of hydrogen and/or biofuel technologies over time.

Submissions and advice

- 12 submissions were received, all in objection to the project (1 from an interest group and 11 from the public)
- 5 submissions raised concerns about renewable projects but did not comment on the project
- Concerns raised about the project related to potential risk of 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
- The special interest group (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
- Relevant agencies were invited to provide advice on the project throughout the assessment

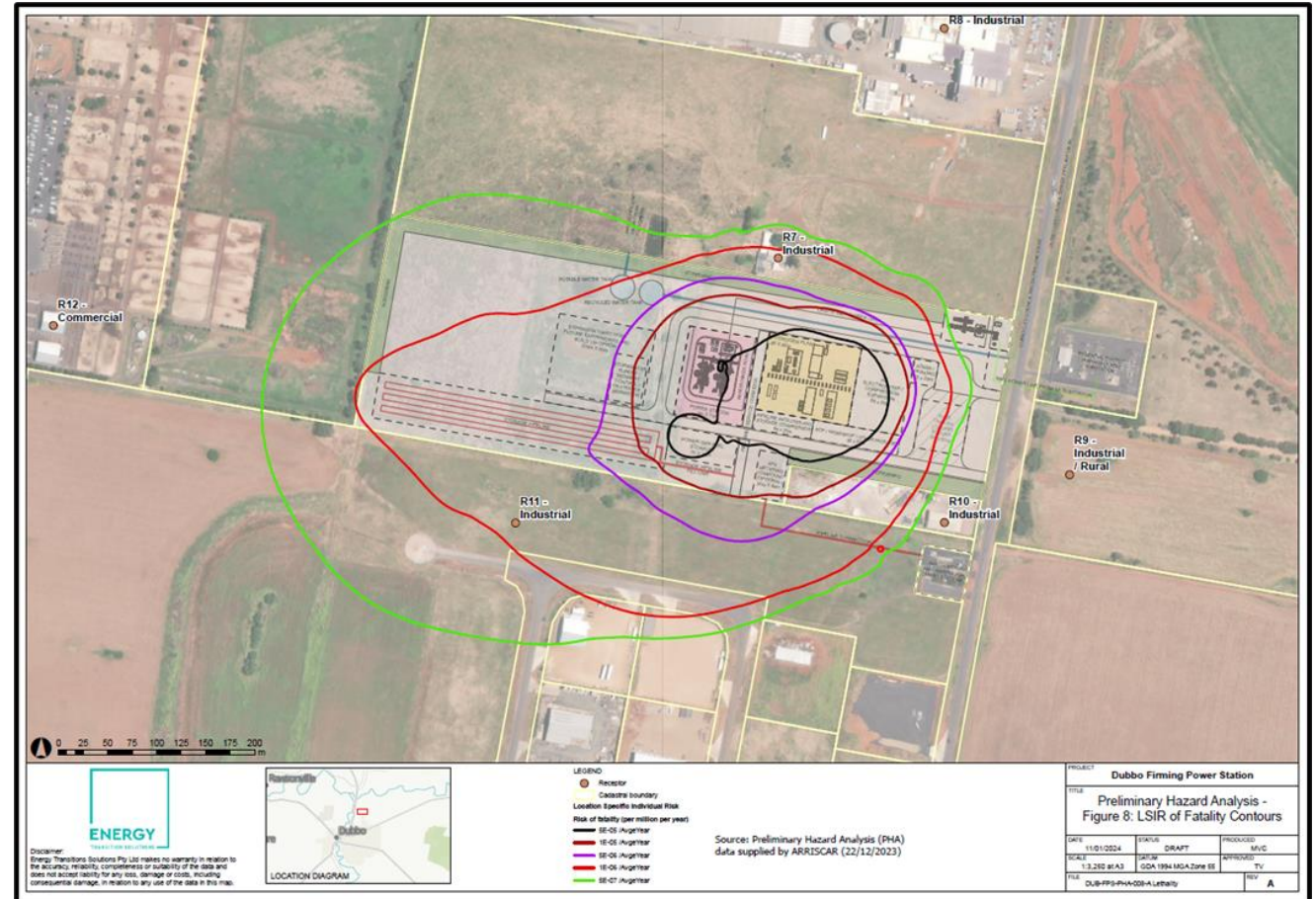
Key issues



- Hazards and risks
- Air quality
- Greenhouse gas emissions

Hazards and risks

- The project is classified as potentially hazardous under the Resilience and Hazards SEPP and a preliminary hazards analysis (PHA) was prepared in accordance with the *Hazardous Industry Planning Advisory Paper (HIPAP) No 6*
- PHA considered plausible explosion, fire and toxicity risks and concluded the project would comply with the land use safety risk criteria in HIPAP No 4
- Under HIPAP 4, the fatality risk criterion (i.e. the tolerable level of risk) for industrial land is 50 deaths per million. This is represented by the black contour. As can be seen, this level of risk does not extend beyond the boundaries of the project site.
- The fatality risk criteria for other more sensitive land uses is lower. However, there are no sensitive land uses in the affected area.



Bushfire

- The bush fire assessment concluded that the project could be designed and managed to satisfy the aims and objectives in the *Planning for Bush Fire Protection (NSW RFS)* guideline
- The RFS recommended conditions, including the requirement for a bushfire emergency plan and the construction of buildings to relevant bushfire standards (included as a recommended condition)

Aviation

- Proposed stack designs were sent to CASA for review. Based on the characteristics of the stacks and exhaust, CASA confirmed that the project would not pose a risk to the safety of aircraft operations
- The applicant has committed to notifying CASA six months prior to the operations commencing (included as a recommended condition) so that relevant documentation for pilots can be updated
- CASA recommended the installation of a low intensity steady red obstacle light on the central stack to signal potential plume to pilots (included as a recommended condition)

- Emissions for the project would depend on the fuel source used, the height of each stack and the exhaust parameters
- Under the worst-case scenario (use of biofuels) 24-hour concentrations and average annual concentrations of PM₁₀ and PM_{2.5} at sensitive receivers would be well below the EPA criteria for particulate matter
- CO and NO₂ concentrations from the project at receivers would also be below relevant criteria
- To ensure compliance with the Clean Air Regulation in relation to Nox emissions, any turbines fired on biofuels would have to be fitted with selective catalytic reduction technology (included as a recommended condition)
- The EPA recommended that the applicant is required to prepare a revised Air Quality Impact Assessment based on the manufacturer's performance guarantees for the final plant design (included as a recommended condition)

Greenhouse gas emissions

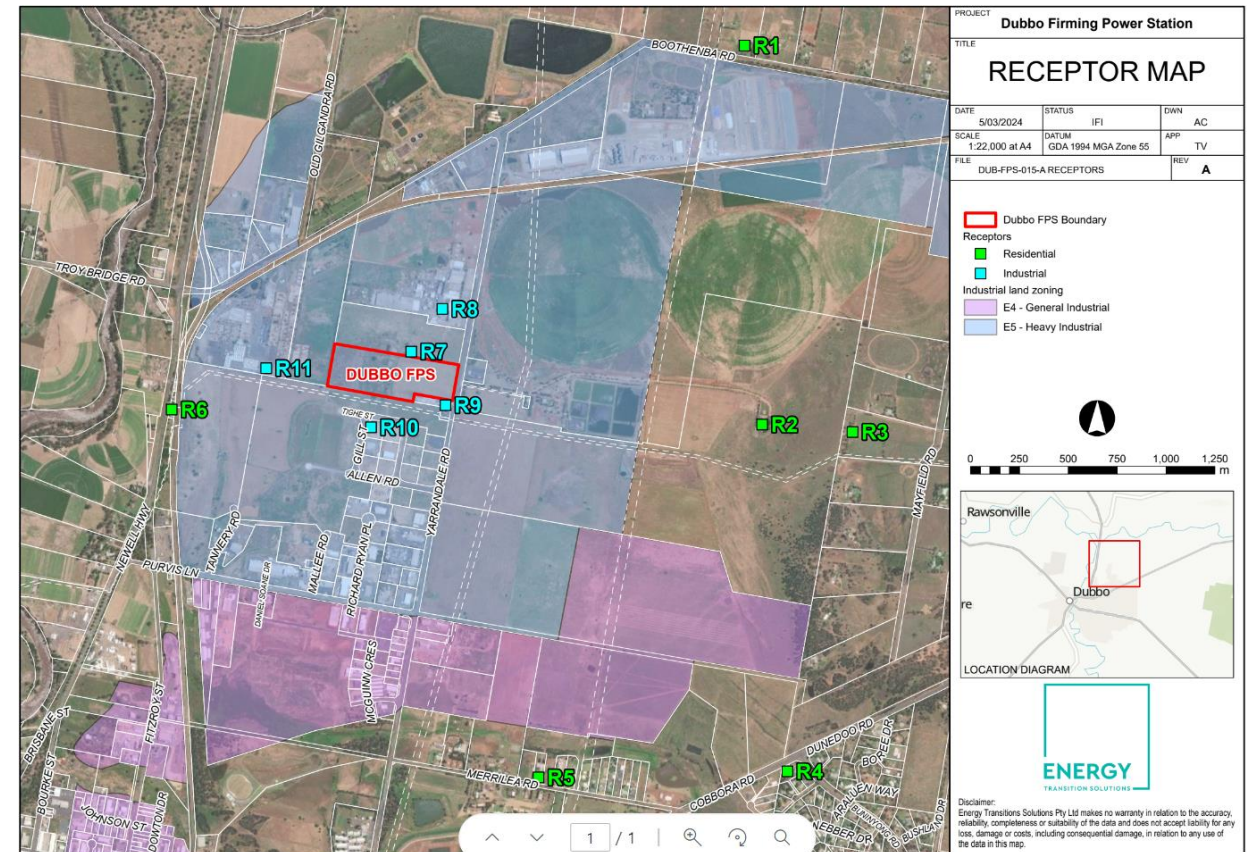
- The project would generate up to 37.6 kT of CO₂-e/yr from Scope 1, 2 and 3 emissions
- Scope 1 emissions range between approximately 16.8 kT and 33.6 kT CO₂-e/yr, annual Scope 2 emissions would be around 4 kT CO₂-e/yr and annual Scope 3 emissions would be around 0.6 kT CO₂-e/yr
- Transitioning to biofuels and/or hydrogen would reduce GHG emissions, but would only occur if and when it is technically and commercially viable
- If only natural gas is used, the emissions from the power station would be around 0.03% of estimated gross NSW emissions in 2030 and 0.07% by 2035.
- The project has been designed to facilitate use of alternative fuels including hydrogen and biofuels – and conditions include a requirement for a 3 yearly power station fuel report to be prepared –including demonstrating
- This would be in conjunction with EPA requirements

Other matters

- Noise and vibration
- Gas supply
- Statutory context
- Transport
- Voluntary planning agreement
- Visual

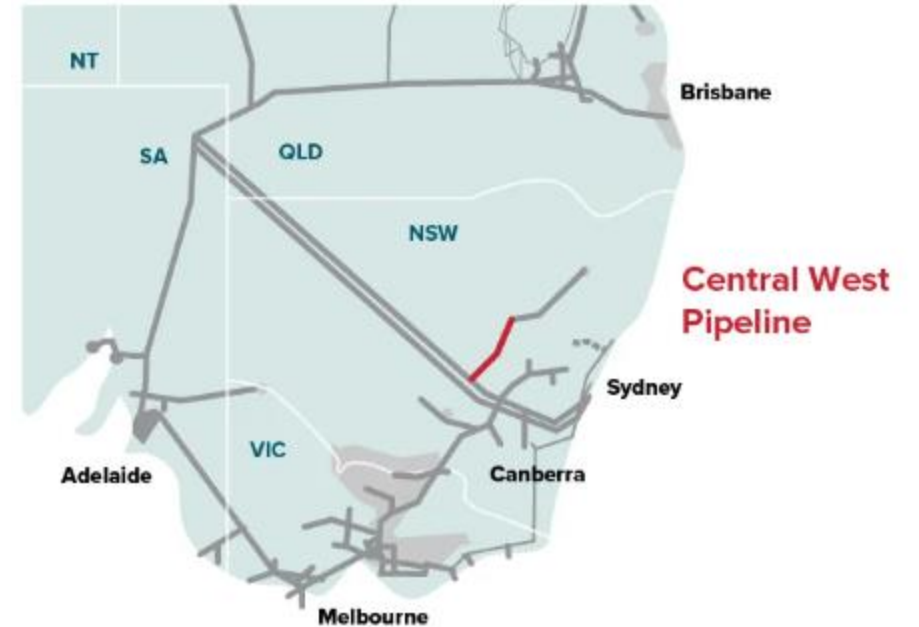
Noise and Vibration

- The majority of receivers in the immediate vicinity of the project are industrial operations, with the closest occupied residence located 790 m away (R6)
- Modelling concluded that predicted noise levels would remain below the relevant operational noise criteria, sleep disturbance criteria and road noise criteria at receivers
- No vibration impacts on building structures or human comfort is expected
- Recommended conditions include limiting operational noise to predicted levels and limiting to standard construction hours (or applying for an out of works protocol)



Gas supply

- Gas for the project would be supplied via a 150m long high-pressure buried pipeline, connecting to the Central West Pipeline (owned by the APA Group).
- The Central West Pipeline transport gas from the Moomba Sydney Pipeline (also owned by the APA Group) to western NSW.

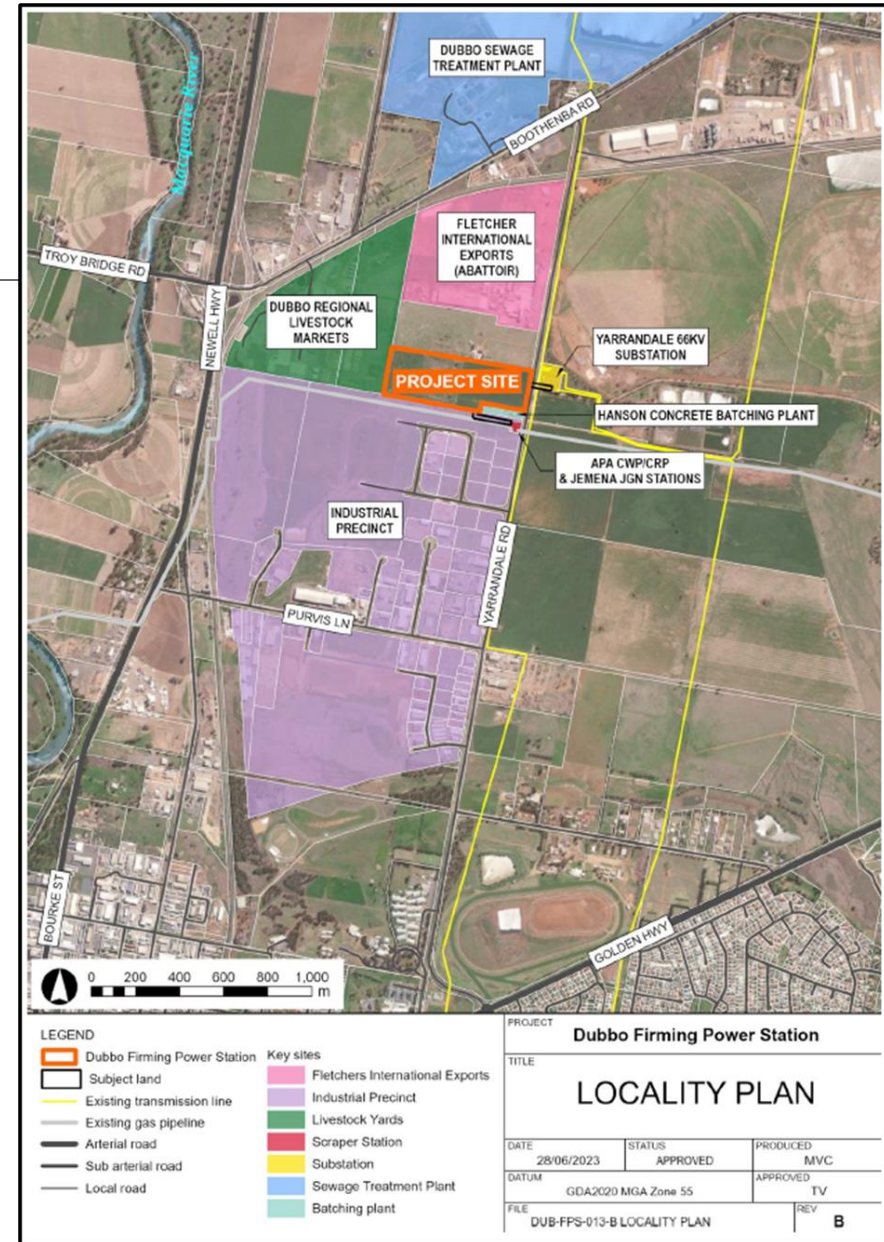


Statutory context

- The development application was lodged on 20 July 2023
- Dubbo Local Environment Plan 2022 was gazetted on 25 March 2022
- Commercial agreements are in place with the APA Group and Essential Energy for gas and electricity connections
- Landowner consent has been obtained from Council and Fletcher International Exports

Transport

- Most project traffic is 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
- Peak construction would see up to 120 heavy vehicle and 260 light vehicle movements a day, and average would be 50 heavy vehicle and 90 light vehicle movements
- Up to 16 OSOM vehicle deliveries expected
- All roads proposed are approved B-double and OSOM routes



- Modelling of the Golden Highway/Yarrandale Road intersection indicated that with construction traffic, the intersection would continue to operate at the highest level of service
- Construction traffic is also expected to account for less than 1% of existing traffic on the Newell Highway
- The project would include separate entry and exit points onto Yarrandale Road that would be designed to accommodate B-double vehicle movements and meet the minimum requirements for safe sight distance on Yarrandale Road
- For safety reasons, TfNSW recommended that heavy vehicles coming from Newell Highway should be required to use Purvis Lane rather than Boothenba Road (included as a recommended condition)
- Council requested financial contributions for road maintenance or for the applicant to pay for any damage. Recommended condition included the requirement to undertake dilapidation surveys prior to construction and pay for any damage caused
- Recommended condition included the preparation of a Traffic Management Plan in consultation with Council and TfNSW

Voluntary planning agreement

- Council requested a VPA for the project
- The applicant has reached an in-principal agreement on a VPA with Council
- Payment timing has yet to be finalised between the applicant and Council
- As VPA has not been executed yet, the Department recommended a condition requiring the applicant to enter into a VPA with Council prior to commencing construction

Council	Payment Details
Dubbo Regional Council	Payment of \$1,425,000 (adjusted annually for CPI), from the commencement of construction. <i>Note: Payment timing to be agreed between the Applicant and Council.</i>

- Surrounding land use is a mix of heavy industrial and agriculture
- Project structures would range from 4 m to 18.8 m in height
- Digital elevation modelling concluded that the project would be visible from various public areas and residences, however all but two residences would have negligible to minor impacts
- The only residence with higher high-moderate views owns the project site and has given permission for the project
- Applicant also proposed screening along the north-west boundary of the site and majority of the south-west boundary (included as a recommended condition)
- Project would be approximately located 112 km from the Siding Spring Observatory, however only security lighting would be required at night (applicant has also proposed warm-coloured lights, light shields and non-reflective material to mitigate further)
- Recommended condition includes requiring all external lighting to comply with the relevant standard