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Leisa Dowling

Chief Executive Officer

Gladstone Regional Council

Via Email: leisa.dowling@gladstone.qld.gov.au

Dear Ms Dowling

I am pleased to provide the attached summary outlining the range of independent and expert evidence demonstrating the safety of Hydrogen Park Gladstone (HyP) at the proposed site, including the project being consistent with all relevant planning criteria. We understand this work has been reviewed and is supported by relevant safety authorities within the Queensland Government.

Australian Gas Networks is a part of the Australian Gas Infrastructure Group, which owns significant gas infrastructure across Australia, including gas pipelines, gas storage facilities and gas distribution networks. We have a long track record of delivering a safe and reliable supply of gas to the communities that we serve, including in Gladstone.

We are the most experienced provider of renewable hydrogen blending projects in Australia. Located in metropolitan Adelaide adjacent to a residential estate, TAFE SA and a university campus, Hydrogen Park South Australia (HyP SA) is more than 7 times the size of the proposed HyP Gladstone facility and currently providing a safe, carbon-free hydrogen supply to nearby residential customers on the Adelaide gas distribution network.

HyP Gladstone is proudly supported by the Queensland Government with grant funding of up to $1.78 million from the Hydrogen Industry Development Fund. We believe HyP Gladstone will spotlight the region to the world as a key player in delivering renewable energy projects for the community. This has been the case with HyP SA, which has received significant global stakeholder attention.

We have proactively engaged with the community and have experienced broad community support. The community expects and is excited by low carbon projects like HyP Gladstone, as is also evidenced through Hydrogen Park South Australia where around 90% of the community have been surveyed as either positive or neutral to the project.

We do understand the concerns raised by a small number of the community that mostly relate to project location and public safety. In addition to the summary of the expert technical assessments, the attached summary also provides further information regarding the comprehensive safety systems that are proposed and how the small scale of HyP Gladstone compares to other existing energy storage embedded throughout the community.

We have also committed to a range of improvements to the amenity of the site, such as improved fencing, additional landscaping and sealing the common access track. We are proud to put forward this project for Gladstone having provided extensive information to confirm that it complies with all relevant planning requirements. Please contact either Mark Beech (0412 672 361) or myself (0403 309 940) if there is any further information you require in support of Hydrogen Park Gladstone.

Yours sincerely

Craig de Laine

Chief Executive Officer

Australian Gas Infrastructure Group

Hydrogen Park Gladstone

Safety Summary for Gladstone Regional Council
March 2022

Dampier Bunbury Pipeline | Multinet Gas Networks | Australian Gas Networks

Our Vision

Our vision is to be the leading gas infrastructure business in Australia.
In order to deliver this we aim to achieve top quartile performance on our targets.

Delivering for customers

- Public safety
- Reliability
- Customer service

A good employer

- Health and safety
- Employee engagement
- Skills development

Sustainably cost efficient

- Working within industry benchmarks
- Delivering profitable growth
- Environmentally and socially responsible

Our Values

They drive our culture, how we behave and how we make decisions.

Perform

We are accountable to our customers and stakeholders, we are transparent on our performance and we deliver results. We continously improve by bringing fresh ideas and constructive challenge.

Trust

We act with integrity, we do the right thing, we are guardians of essential Australian infrastructure. We act in a safe and professional manner and we take a 'no surprises' approach.

Respect

We treat our customers and our colleagues the way we would want to be treated, and we embrace and respect diversity.

One Team

We communicate well and support each other, and we are united behind our shared vision.

LEGEND

- Transmission pipelines
- Distribution networks
- Gas distribution area
- Storage
- Renewable hydrogen production facility
- Renewable hydrogen production facility under development

Customers
2.0+ million

Distribution
34,996 km

Transmission
4,319 km

Storage Facilities
60PJ

Area
National

Asset Value
$8.6 billion

2020 Year in Review Video

Western Australia

- 37 shippers
- Transmission 2,337km
- 60PJ gas storage

Note: Penetration rate is an estimate of the percentage of homes connected to the gas in areas served by our networks

South Australia

- 463,983 customers
- 17GJ per annum average residential consumption
- 90%+ penetration
- Distribution 8,239km
- Transmission 480km

Northern Territory

- 1,156 customers
- Distribution 40km
- Transmission 601km

Queensland

- 107,517 customers
- 8GJ per annum average residential consumption
- 30%+ penetration
- Distribution 3,150km
- Transmission 314km

New South Wales

- 60,885 customers
- 38GJ per annum average residential consumption
- 90%+ penetration
- Distribution 2,005km
- Transmission 84km

Victoria

- 1,429,667 customers
- 52GJ per annum average residential consumption
- 90%+ penetration
- Distribution 21,562 km
- Transmission 503km

Overview

- We have safely and reliably distributed natural gas in the Gladstone area for decades.
- Our customers expect that we invest in ways to decarbonise gas supply.
- Hydrogen Park Gladstone (HyP Gladstone) is a globally leading project that starts this process, and will put the spotlight on Gladstone as a leader in this substantial new industry.
- The project has the benefit of relocating the current gas city gate from Breslin St to an improved location with greater separation from sensitive land uses.
- Comprehensive independent assessments of hazard and risks demonstrate the project is very safe at its proposed location.
- This summary outlines key safety findings related to HyP Gladstone and should be read in conjunction with the relevant technical reports submitted to Council.

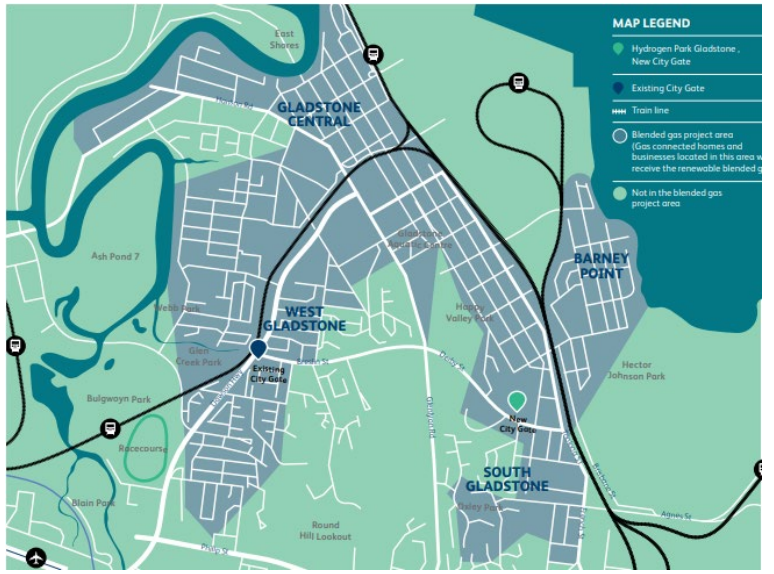

Image Reference: About HyP Gladstone Fact Sheet

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Case Study | Hydrogen Park South Australia

Launched 19 May 2021 by SA Gov and Marion Council officials

Since project commencement, awareness, interest and knowledge of the project has increased, as has interest and knowledge of renewables generally and the role of renewable hydrogen

- **An Australian-first project of type and scale**
- **1.25MW (>7x larger than Gladstone)**
- **A 5% renewable H_2 blend to >700 homes (Gladstone is 10%)**
- **Project appeal and satisfaction are strong**
- **Located adjacent to TAFE SA (~140m) with nearby homes (~230m)**
- **Building new industry and jobs for Australia**

Refer HyP SA Case Study submission for further information

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Independent Safety Studies

We are a very experienced gas infrastructure provider, including delivery of hydrogen blending facilities.

We have undertaken significant work to demonstrate that the facility will not impact public safety and these findings have been verified by independent experts.

The independent studies submitted to Council have included:

Study	Author	Scope	Findings
Quantitative Risk Assessment (QRA)	Thornton Tomasetti	A formal and systematic risk analysis approach to quantifying risks	Confirms HyP Gladstone can be developed safely at proposed site in compliance with all relevant risk criteria. Confirms potential hazard effects do not extend to nearby sensitive land uses
Peer Review of QRA	Advisian	Review and advise on the outcomes of QRA	Confirms that the approach adopted in the QRA is sound and that its findings are robust.

In addition, the design of the facility has been informed by:

Study	Facilitator	Scope
Hazard and Operability Study (HAZOP)	Environmental Risk Solutions	Structured and systematic analysis to identify and reduce hazards to levels that are 'as low as reasonably practicable'
Layer of Protection Analysis (LOPA)	Environmental Risk Solutions	Determine the integrity of proposed safety controls to ensure residual risks are reduced to 'as far as reasonably practicable'

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Safety Systems

The selected technology to produce hydrogen is small-scale – capable of producing 2.75kg per hour – and in use throughout the world today including in the Perth suburb of Jandakot (link) and ACT suburb Fishburn (link)

- Consistent with our Vision and Values, public safety is our key focus.
- We are experts in the safe and reliable development and operation of gas infrastructure – which has been demonstrated over many decades.
- Hydrogen, like other fuels, is flammable – which is a key reason it can provide us with energy. It also means we need to treat it with respect, as we do natural gas, electricity, LPG, petrol and other energy carriers.
- The facility is designed with multiple layers of independent safety systems designed to ensure that an incident does not occur.
- The multiple layers of automated controls include flame detectors, pressure safety valves and a fail-safe independent emergency shut down and blowdown system (see schematic on next slide).

FACILITY SNAPSHOT

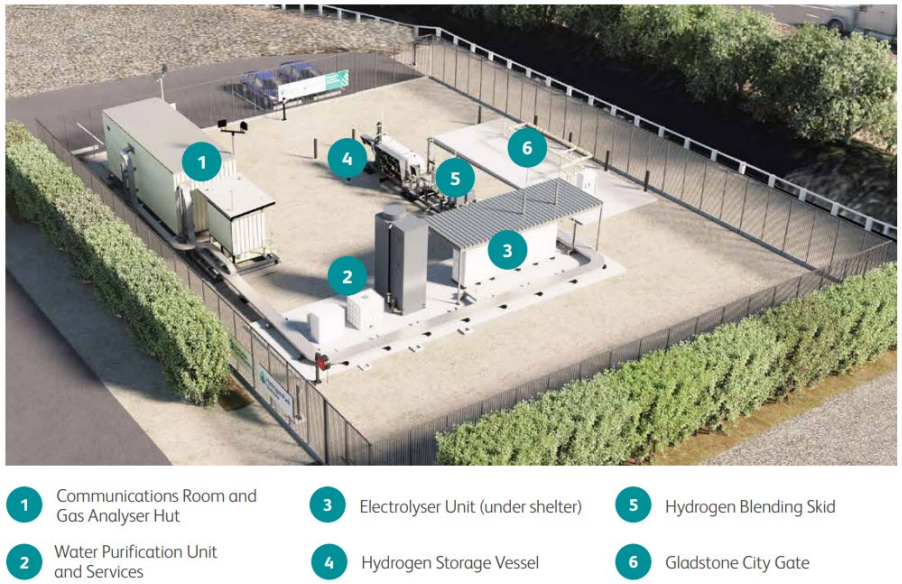

Image Source: Response to Community Feedback document

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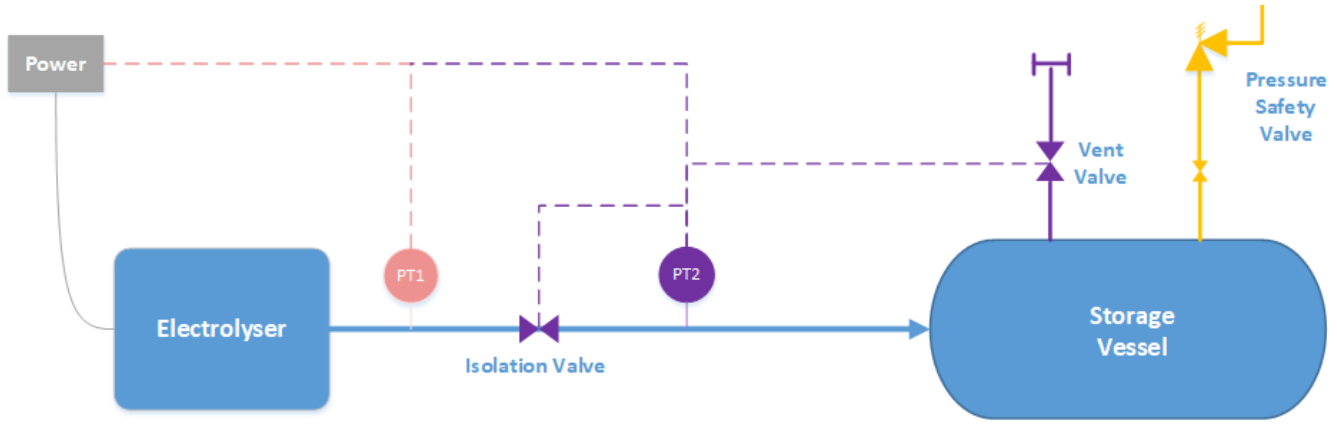
Document Set ID: 5321817
Version: 1, Version Date: 08/04/2022

Safety Systems

We are experts in safely developing and operating gas infrastructure

Facility design leverages our expertise – including operating similar projects – to ensure our commitment to safety, reliability and service continues

- In the unlikely event of unacceptable conditions occurring within the facility, the systems have multiple separate layers of redundancy in place that will shut down the facility safely.
- We heard residents wanted to understand what would happen if all safety systems fail. In this hypothetical scenario, the plant is designed to safely shut down automatically without manual on-site intervention.
- In the hypothetical event of overpressure of the hydrogen storage vessel, the vessel is designed to fail by tearing in a ductile fashion (i.e: splitting along the seam as opposed to shattering) and therefore would not create fragments that could become projectiles.



PT1 Pressure Transmitter. Shuts down electrolyser on detection of high pressure in pipe.

PT2 Pressure Transmitter. Shuts down electrolyser, closes isolation valve and opens vent valve on detection of high pressure in pipe.

Pressure Safety Valve opens at the predetermined set pressure

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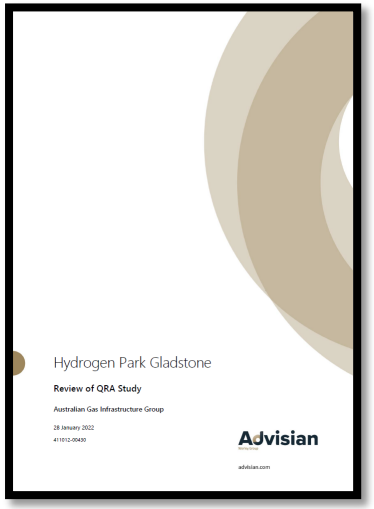
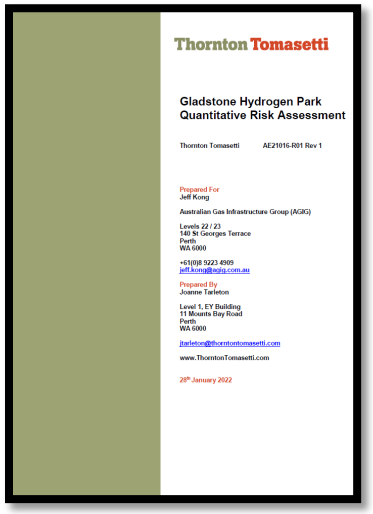
Consequence Contours

- The independent QRA assessed scenarios that could lead to a fire or explosion at the site. A catastrophic failure of the hydrogen storage vessel was included in updates to the QRA at Council's request.
- The QRA identifies that in the extremely unlikely event of an incident at the site, the maximum distance that hazardous effects could extend is 72.2m in a single direction (see next slide).
- Importantly, hazardous effects would not reach any nearby homes, schools or other sensitive uses. The closest residential dwelling is 110m away. The distance to Gladstone State School is over 200m.
- The likelihood of a consequence of this magnitude occurring is extremely low - approximately 0.5 chance in a million. By comparison, the annual risk of death in a traffic accident in Queensland is in the order of 54 chance in a million (QRA Assumption Sheet 4).





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Consequence Contours

Potential hazardous effects from an incident at the site would not extend to nearby residential land uses or Gladstone South State School

Note this illustration does not take account natural topography and landscaping at site that may act to diminish the contour

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Comparable examples

We recognise that the use of hydrogen for energy in Gladstone is perceived as new, and must be treated with respect

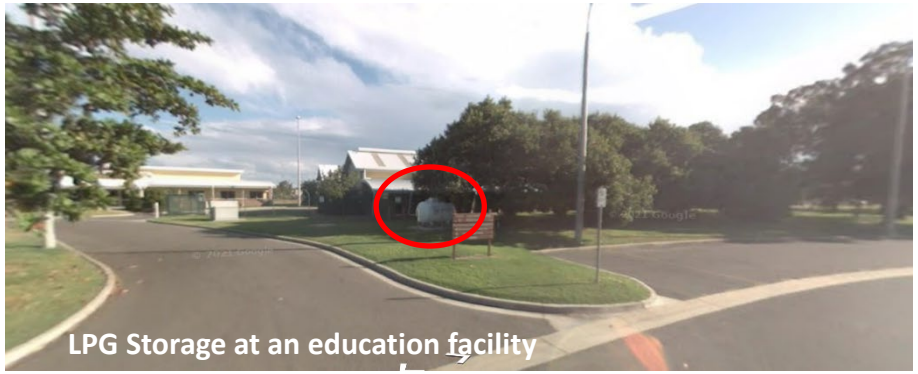
However, the risk to public safety is lower than many existing accepted energy carriers embedded within Australian communities

- Essential services throughout Gladstone, such as hospitals, nursing homes, State and Local Government facilities, education campuses, commercial and industrial buildings commonly have vessels containing flammable substances (LPG, Oxygen etc) with far greater risk profiles.
- While also non-credible, a single 210kg LPG bottle subject to similar extreme failure scenarios as tested for HyP Gladstone would have a consequence distance of over 200m – approximately 3x that of the proposed facility.

6 x 210kg LPG Storage tanks – Shaw St

LPG Storage –Toolooa St

2 x 210kg LPG Storage –Breslin St


LPG Storage at an education facility

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Public Risk Criteria

- The independent QRA determines that the key public risk criteria for vulnerable land uses and sensitive land uses do not extend beyond the proposed lease area onto the balance of Lot 43 (refer Figure 5-3 overleaf).
- The facility will not prejudice the ability for other community uses to be developed on the balance of Lot 43 or other nearby Community Use Zone land as required by the Community Facilities Zone Code (refer independent expert advice from Advisian – QRA Peer Review section 2.5).
- There is approximately 60m of separation from the relevant risk contour (indicated in dark green colour in Figure 5-3) to the closest residential land use – far greater distance than examples already in community.
- There is approximately 175m from the relevant risk contour (indicated in black colour in Figure 5-3) to the closest school boundary.
- The potential risk of injury to a person walking on the adjacent footpath is 1 in 33 million, around half the annual risk of death by lightning.

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Public Risk Criteria

The development complies with the relevant public risk criteria by maintaining significant separation from nearby vulnerable (black contour) or sensitive (dark green contour) land uses

Figure 5-3 LSIR Contours

Summary

Hydrogen Park Gladstone is proudly supported by the Queensland Government

It provides the opportunity for Gladstone to embrace its new credentials as a world leader in decarbonising gas supply, attracting new industry and giving sustainability credentials to local businesses

- We are an Australian leader in safely and reliably delivering renewable hydrogen facilities – as evidenced through HyP South Australia.
- In addition to improving the visual amenity at site, we have comprehensively demonstrated that HyP Gladstone is safe at the proposed site.
- The facility includes multiple layers of independent safety systems that will ensure that the likelihood of an incident occurring at the site is extremely low.
- Even in a hypothetical fire or explosion scenario, the potential to cause injury does not reach nearby sensitive land uses.
- HyP Gladstone complies with the relevant public risk criteria and will not prejudice the development of other community uses within the Community Facilities Zone.

Click here to view HyP Gladstone explainer video

Materials in the 'Welcome Pack' received by approximately 4,700 homes in August 2021.

Image Source: Response to Community Feedback document

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