



ASSESSMENT OF JEMENA GAS NETWORKS DISTRIBUTOR LICENCE APPLICATION



Ministerial Report

Prepared in accordance with the *Gas Supply Act 1996 (NSW)*

May 2021

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The Independent Pricing and Regulatory Tribunal (IPART)

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Tribunal Members

The Tribunal members for this review are:

Ms Deborah Cope, Acting Chair
Ms Sandra Gamble
Mr Mike Smart

Enquiries regarding this document should be directed to a staff member:

Christine Allen (02) 9290 8412
Sachin Singh (02) 9113 7784
Martin Riley (02) 9019 1902

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1 Executive Summary

We recommend that the Minister for Energy and Environment¹ (Minister) grant Jemena Gas Networks (NSW) Ltd (**JGN**) (ACN 003 004 322) a gas distributor licence.

JGN applied for a gas distributor's licence (**Licence**) on 2 March 2021. JGN is the owner and operator of an extensive natural gas network² in NSW. JGN distributes natural gas to 1.4 million homes, businesses and industrial sites across greater Sydney and regional centres.

If granted, this Licence will authorise JGN to distribute a mixture of hydrogen and natural gas (**Hydrogen Blend**) through its existing natural gas network to facilitate its *Western Sydney Green Gas Project* (**WSGG Project**). The WSGG project involves:

- ▼ Using renewably-sourced electricity to convert water into oxygen and hydrogen via electrolysis.
- ▼ Capturing and injecting small quantities of hydrogen (up to 2%) into part of JGN's natural gas distribution network.

The Hydrogen Blend will retain the properties of natural gas and comply with Australian Standard AS 4564-2011 *Specification for general purpose natural gas* (**Australian Standard**). The gas mixture may therefore be used in appliances designed for natural gas, without modification.

Under the proposed Licence, the Hydrogen Blend distribution network will be limited to the local government areas of Camden, Canterbury-Bankstown, Fairfield, Liverpool, and Penrith.

In assessing this Licence application we considered the grounds for refusal of a Licence set out in section 38(2) of the *Gas Supply Act 1996* (**Act**), and the public consultation obligations under section 37 of the Act.

We recommend licence conditions for the Minister to consider when granting the Licence in Chapter 4, and include a draft Licence in **Appendix A** of this report.

¹ The Minister administers the *Gas Supply Act 1996*.

² The *Gas Supply Act 1996* (NSW) (**Act**) defines gas network as a distribution pipeline (for authorisations) and distribution system (for licences).

2 Recommendation

We recommend that the Minister for Energy and Environment;

- 1 Grants a distributor licence to JGN, subject to the conditions as set out in the attached draft Licence.

2.1 The Applicant

JGN is a natural gas network operator and authorisation holder in NSW. It operates a 25,000 km network and distributes gas to approximately 1.4 million customers in Sydney, Newcastle, Central Coast, Wollongong and parts of regional NSW.

2.2 The application

JGN is seeking a Licence to distribute Hydrogen Blend through its existing distribution system (**Application**). JGN will supply the Hydrogen Blend to the local government areas of Camden, Canterbury-Bankstown, Fairfield, Liverpool, and Penrith.

The Licence will enable the WSGG Project to proceed. The Australian Renewable Energy Agency (**ARENA**) is partially funding this project, which is located at Horsley Park, NSW. The WSGG project involves:

- ▼ Using electricity to convert water into oxygen and hydrogen via electrolysis.
- ▼ Capturing and injecting small quantities of hydrogen (up to 2%) into part of JGN's natural gas distribution network.
- ▼ Distributing Hydrogen Blend that will comply with the Australian Standard specifications for natural gas.^{i, 3}

The Minister for Planning and Public Spaces granted development consent (state significant development) for the WSGG Project in August 2020.

³ This Australian Standard prescribes the quality for natural gas conveyed through a distribution network.

3 Assessment

This section of our report contains our assessment of the Application, and includes consideration of:

- ▼ grounds for refusal under the Act
- ▼ public submissions.

3.1 Consideration of grounds for refusal

The Act sets out the grounds under which the Minister can refuse to grant a licence.

Box 1 Grounds for refusal of an application under section 38 (2) of the Act

An application may be refused on the following grounds:

- a) that the proposed holder of the licence fails to satisfy such technical or prudential criteria as have been adopted by the Minister to determine whether a person is able to operate a viable business as a licensed distributor
- b) such grounds as may be prescribed by the regulations,
- c) such grounds as the Minister considers relevant, having regard to the interests of consumers and the need to promote a competitive market for the gas concerned, to prevent misuse of market power and to ensure the security and reliability of the New South Wales supply system for gas (other than natural gas).

3.1.1 Technical and prudential criteria (Act, section 38 (2) (a))

The Minister has not adopted specific technical or prudential criteria to determine if JGN is able to operate a viable business as a licensed distributor.

We consider that JGN is capable of operating a viable business as a licensed distributor, as:

- ▼ JGN has been successfully operating a gas network within NSW for several years under its gas authorisation.
- ▼ The nature of JGN's business carried out under the Licence (if granted) will be the same as the business it is currently carrying out under its existing authorisation, being the operation of a gas distribution network.
- ▼ JGN has a strong compliance record with its authorisation conditions, with no non-compliances in the last five years.

-
- ▼ The Safety and Technical Regulator (Department of Planning, Industry and Environment) (DPIE) has raised no concerns with the Licence being granted. We understand that while DPIE does recognise that any new and emerging technologies present a level of risk, the controls JGN has proposed to DPIE for the WSGG project provide confidence that the safety and integrity of the existing gas network can be effectively managed.

3.1.2 Grounds prescribed by the regulations (Act, section 38 (2) (b))

The two regulations under the Act are the *Gas Supply (Safety and Network Management) Regulation 2013* (NSW) (**Regulation**) and the *Gas Supply (Natural Gas Retail) Regulation 2014*. There are no grounds for refusal prescribed in either regulation.

3.1.3 Other grounds that the Minister may consider relevant (Act, section 38 (2) (c))⁴

Interests of consumers – additional direct or indirect costs

We have considered whether granting the Licence would adversely impact customers. In doing so we have had regard to the issues raised in the submission from the Public Interest Advocacy Centre (PIAC) concerning potential additional direct or indirect costs to consumers, either immediate or in the future. We have responded to the specific issues raised by PIAC below (Table 3.1).

JGN has advised that the WSSG Project will not have any impact on prices or on the wholesale NSW market as the quantity of hydrogen injected annually is expected to be less than 0.05% of the total gas distributed by JGN.ⁱⁱ

The Australian Energy Regulator (AER) regulates JGN's gas distribution network as a 'distribution pipeline' under the *National Gas (NSW) Law 2008* and National Gas Rules. The AER aims to ensure service providers operate gas distribution assets reliably and cost effectively.ⁱⁱⁱ On 5 June 2020, the AER released its 2020-25 revenue decision for JGN. It determined how much JGN can recover from its gas consumers over the 5 year period.^{iv} Costs beyond 2025 will also be considered by the AER in subsequent revenue decisions with the impact on consumers considered as part of the determination.

We note that the project has been partly funded by ARENA. ARENA considers this project would focus on addressing the technical, regulatory, environmental and economic barriers to the production and use of hydrogen in gas distribution and transmission networks.^v Therefore, we consider that the interests of consumers are supported by granting the Licence to facilitate the long term security of clean and economic energy sources in NSW.

⁴ Having regard to the interests of consumers and the need to promote a competitive market for the gas concerned, to prevent misuse of market power and to ensure the security and reliability of the New South Wales supply system for gas (other than natural gas).

Table 3.1 Summary of PIAC’s submission on the Application

PIAC submits that the Application, if granted would increase costs to consumers from:	IPART’s response
<ol style="list-style-type: none"> 1. Need for new, regulated network investment to inject, monitor or manage the hydrogen content in the gas network 2. Additional costs for consumers due to the higher cost of producing and injecting hydrogen. 	<p>The AER regulates JGN’s gas pipelines, and ensures JGN operates its assets reliably and cost effectively.</p> <p>JGN submitted its 2020-25 period access arrangement proposal to the AER for consideration as part of the access arrangement review. The proposal referred to the WSGG Project, which will cost \$15M, and is jointly funded by JGN and the Australian Renewable Energy Agency (ARENA). In its proposal, JGN has stated that:</p> <p><i>“Our costs for this trial are not included within our 2020 Plan—and we will not seek to recover hydrogen or future fuel innovation costs until the trial is successful and the technology is capable of being utilised within our network.”^{vi}</i></p> <p>On 5 June 2020, the AER released its final decision on JGN’s access arrangement proposal for the 2020-25 period.^{vii}</p>
<ol style="list-style-type: none"> 3. Additional costs for consumers due to lower energy content of natural gas blended with hydrogen resulting in more volume of gas used. 	<p>The proposed blend will remain within the Australian Standard specifications for natural gas. JGN has acknowledged that</p> <p><i>“the injection of hydrogen into the natural gas stream may result in a slight reduction in the heating value of the gas. It is not expected that this will have any discernible impact on the operation of appliances.”^{viii}</i></p> <p>We note that one of the purposes of this project is to gain a better understanding of impacts, including impacts to consumers if any.</p>
<ol style="list-style-type: none"> 4. Need for changes to consumer appliances to safely operate with or manage the presence of hydrogen in the fuel supply 	<p>The proposed blend will remain within the Australian Standard specifications for natural gas. Therefore, appliances designed for natural gas can be used, without modification. The volume of hydrogen in the natural gas network is also limited to 2% under JGN’s development consent condition.</p>
<ol style="list-style-type: none"> 5. Possible shortening of asset lives of consumer appliances due to higher operating pressure and/or embrittlement⁵ of hydrogen in the system. 	<p>As per item 4.</p> <p>We note that embrittlement is not considered a concern at low level blending proposed in the WSGG Project.^{ix,x}</p>
<ol style="list-style-type: none"> 6. Cost of increased leakage associated with more hydrogen. 	<p>This is likely to be negligible due to the low-level blend proposed in the WSGG Project.^{xi} Also refer to response to items 1 and 2.</p>

⁵ Hydrogen under high pressure can lead to steel transmission pipelines becoming more brittle, or cracking. This phenomenon is known as embrittlement.

Promoting a competitive market

The Hydrogen Blend will be the first of its type to be distributed in NSW, if the Licence is granted. The grant of the Licence will have a positive impact on promoting the use of hydrogen and hydrogen mixtures as a renewable fuel⁶ and is likely to increase interest in this market in NSW.

Impact to environment

JGN has received development consent from the Minister for Planning and Public Spaces for the project, which is classified as a State Significant Development under the *Environmental Planning and Assessment Act 1979* (NSW). In granting consent, the Minister considered impacts on the environment. In our view there are no additional environmental issues to consider, as JGN proposes to use its existing distribution network to distribute the Hydrogen Blend.

Also, hydrogen is a low emissions alternative to natural gas as there are no carbon dioxide or other greenhouse gas emissions from using hydrogen as a fuel.

Safety and quality

We considered the risk to safety and gas quality from injecting hydrogen into the natural gas network. There are no significant implications for gas quality or safety from blending up to 10% hydrogen by volume in gas distribution networks, where the gas mixture is homogenous throughout the network.^{xiii} The injection of up to 2% hydrogen into the natural gas network, as part of WSGG Project, is not expected to have any impact on the safety of the distribution network or household appliances.

The volume of hydrogen that can be injected into JGN's natural gas distribution pipeline from the Horsley Park site is limited by the Australian Standard specifications and by JGN's development consent.⁷ However, these restrictions on the volume of hydrogen apply specifically to JGN's natural gas pipeline and would not apply to the proposed distribution system that would be authorised by the Licence (even though JGN will use the same infrastructure to convey natural gas and the hydrogen blend in accordance with the relevant instrument). To ensure consistency between the authorisation and the Licence, and minimise any risk to consumers in receiving gas that does not meet the Australian Standard specifications, we recommend including the following licence conditions:

- ▼ Licence be restricted to Hydrogen Blend only, and not authorise the supply of 100% hydrogen (Licence condition 1, Table 1.1).
- ▼ The Hydrogen Blend must comply with standards specified in the definition of compliant natural gas in clause 22 of the Regulation (Licence condition 2.1 and clause 1 of Schedule 2).

⁶ This project will produce hydrogen from water. Hydrogen converts back to water (as steam) when burned in the presence of oxygen.

⁷ Condition A.6 of JGN's development consent (SSD 10313, granted 10 August 2020) stipulates that a maximum of 2% by volume of hydrogen gas may be injected into the Applicant's natural gas distribution network.

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- ▼ Conditions which largely mirror clauses 22, 24, 26, 28, 29 and 30 of Part 4 (Natural Gas Standards) of the Regulation (Licence condition 2.1 and clauses 2-5 of Schedule 2).

JGN has advised that it completed a Formal Safety Assessment for the proposed injection of hydrogen in consultation with both DPIE and the NSW Office of Fair Trading to validate that the safety risks to community and consumers from distribution and use of Hydrogen Blend are as low as reasonably practicable.^{xiii}

JGN is required to prepare, lodge and implement a safety and operating plan for its gas network under the Regulation.^{xiv} JGN has advised that it has updated its existing safety and operating plan for its natural gas network to incorporate the WSGG Project.^{xv,xvi} JGN will be required to have the plan audited at initial lodgement and periodically by an independent auditor. The auditor is required to certify the plan.⁸ Additionally, DPIE has the power to direct amendment of, and compliance with, the safety and operating plan.^{xvii}

We consider that the existing regulatory framework, together with the proposed Licence conditions, provides sufficient controls to manage gas network safety risks associated with the Hydrogen Blend.

Insurance

JGN has existing insurances in place as required under its reticulator's authorisation. JGN considers that these insurances will apply to the conveyance of the Hydrogen Blend.

We recommend including a licence condition requiring JGN to maintain reasonable insurance (refer to licence condition 4 in **Appendix A**). This proposed licence condition replicates the insurance requirements specified under condition 5 of JGN's reticulator's authorisation.

3.2 Public consultation and submissions

On 12 March 2021, we published the notice of the Application in the Government Gazette and on the IPART website at the request of the Minister.^{xviii} The notice included all matters required under section 37(2) of the Act. We called for submissions on the Application from the public and notified Camden, City of Canterbury-Bankstown, Fairfield City, Liverpool City, Penrith City councils. We also notified NSW Fair Trading and DPIE.

Public consultation and submissions closed on 23 April 2021 and met the requirement to consult with the public for a minimum 40 calendar days.^{xix}

⁸ Regulation, clause 15 (1)

A safety and operating plan must, when lodged, be accompanied by a report on the plan from a nominated auditor that includes a certificate by the auditor that—

(a) the plan complies with this Regulation, and

(b) the plan is appropriate having regard to the size and complexity of the gas network (subject to any exemptions granted by the Secretary), and

(c) all measures intended to prevent hazardous events identified in the plan from occurring, and intended to protect operating personnel, plant, equipment, the community and the environment should they occur, are in place, and

(d) there are properly trained and equipped personnel available to implement the plan.

We received 3 submissions.

PIAC does not support the Application if granting the Licence will introduce any new direct or indirect costs to consumers either immediately or in the future. We have responded to PIAC's concerns in section 3.1.3.

Energy Users' Association of Australia (**EUAA**) provided a short submission supporting the application. The EUAA considers the WSGG Project to be very important for the 'proof of concept' for commercialisation of hydrogen and addressing technical and commercial issues in hydrogen development. The EUAA is the peak body representing Australian commercial and industrial energy users.

We also received a submission from DPIE which states that JGN has the necessary technical capabilities to safely design, construct and operate the WSGG project.^{xx}

We note that the WSGG Project is a state significant development, and there was extensive consultation on the project during its development application assessment.

4 Summary of proposed licence conditions

We recommend licence conditions be imposed on JGN’s Licence, if granted, as summarised in **Table 4.1**. **Table 4.1** also outlines the differences between JGN’s authorisation and the proposed Licence. Full details of each licence condition is listed in the draft Licence (**Appendix A**).

The proposed licence conditions are intended to be largely consistent with JGN’s existing authorisation conditions to avoid any inconsistency between the two instruments. However, we have made changes to improve clarity and strengthen reporting obligations in the licence where necessary.

Table 4.1 Summary of proposed licence conditions and comparison with JGN’s authorisation conditions

Conditions	Reticulator Authorisation ^a	Distributor Licence (proposed) ^b
Limitation on supply	Specifies distribution districts	Specifies: <ul style="list-style-type: none"> ▼ Authorised gas ▼ Distribution district
Cessation of operations	Must provide 3 months’ prior notice to IPART (where practicable).	<ul style="list-style-type: none"> ▼ Must provide 3 months’ prior notice to IPART and the Safety and Technical Regulator ▼ Provision for Licensee to request change to notice period (on case-by-case basis) ▼ Requirement to follow any directions (in writing) from the Safety and Technical Regulator, with regards to safety, when permanently ceasing or reducing activities.
Insurances and indemnity	Insurance requirements	No change
Audit of compliance – FRC obligations	Refers to obligations under <i>Gas Supply (Natural Gas Retail) Regulation 2014</i> .	Not applicable
Compliance management systems	Requires JGN to develop and maintain internal systems to manage compliance with the conditions.	We consider that this condition is not necessary as the nature of the proposed licence conditions is not onerous.
Compliance with statistical reporting obligations	Requires authorisation holder to provide operating statistics and performance indicators as requested from time to time	<ul style="list-style-type: none"> ▼ Requires licensee to report in accordance with any reporting manual issued by IPART

Conditions	Reticulator Authorisation ^a	Distributor Licence (proposed) ^b
		<ul style="list-style-type: none"> There is no practical change as JGN already reports compliance in accordance with the IPART issued reporting manual. This proposed licence condition will formalise the arrangement.
Compliance with standards	<ul style="list-style-type: none"> This requirement is imposed by the Regulation and not as a condition of the authorisation Requirement is to comply with natural gas standards 	<ul style="list-style-type: none"> Requirement to comply with natural gas standards as specified in the definition of 'compliant natural gas' in clause 22 of the Regulation Requirements which largely mirror clauses 22, 24, 26, 28, 29 and 30 of Part 4 of the Regulation.

Source:

a Standard Gas Reticulator Authorisation Conditions (Minister's variation signed 2 October 2018).

b Proposed distributor Licence (Appendix A).

A Draft gas distributor licence



NEW SOUTH WALES GOVERNMENT

Gas Supply Act 1996 (NSW)

Distributor's licence

Jemena Gas Networks (NSW) Limited

(ACN 003 004 322)



I, the Hon. Matthew Kean, MLA, Minister for Energy and Environment, grant this licence under section 38(1) of the *Gas Supply Act 1996* (NSW) to Jemena Gas Networks (NSW) Limited.

Signed on this day of 2021

The Hon Matthew Kean MLA
Minister for Energy and Environment

SCHEDULE OF MINISTERIALLY-IMPOSED LICENCE CONDITIONS

This schedule sets out conditions which the *Minister* has determined to impose pursuant to section 40(1)(b) of the *Act*. In addition to these Ministerially-imposed conditions, the *Licensee* is subject to obligations imposed by the *Act*, *Regulation* and associated regulatory instruments.

1. Operate within distribution district

At all times this *Licence* is in force, the *Licensee* must ensure that it only operates a distribution system:

- a) for the purposes of conveying the gas listed in Table 1.1.
- b) within its distribution district as set out in Table 1.2.

Table 1.1 Authorised gas

<i>Compliant Hydrogen Blend.</i>

Table 1.2 Distribution district

<i>Local Government Areas of Camden, Canterbury-Bankstown, Fairfield, Liverpool, and Penrith.</i>

2. Compliance with standards and safety requirements

- 2.1. At all times this *Licence* is in force, the *Licensee* must comply with the standards and safety requirements specified in Schedule 2.

3. Permanent reduction or cessation of operations

- 3.1. If the *Licensee* intends to permanently reduce or cease activities in its distribution district, the *Licensee* must provide written notice, at least 3 months in advance, to *IPART* and the *Safety and Technical Regulator*.
- 3.2. *IPART* may reduce the notice period specified in condition 3.1 if:
 - a) the *Licensee* makes an application in writing which specifies an alternative notice period and the reasons why it seeks to permanently reduce or cease activities in its distribution district on less than 3 months' notice; and

b) *IPART* is satisfied that the notice period should be reduced.

3.3. The *Licensee* must follow any directions, provided in writing, from the *Safety and Technical Regulator* in relation to safety on the permanent reduction or cessation of activities in its distribution district.

4. Insurances and indemnity

4.1. The *Licensee* must maintain with a reputable insurance company:

- a) workers compensation insurance,
- b) public liability insurance, and
- c) other third party liability insurances for the purpose of covering liability for it, its employees and agents for any loss or damage to property or for death or personal injury to any person,

for an amount which in all the circumstances is reasonable or for an amount which the *Minister* may from time to time specify.

4.2. The *Licensee* must produce to the *Minister* and *IPART* on request satisfactory evidence that the insurance specified in condition 4.1 is in force.

4.3. The *Licensee* must not do or fail to do anything that would cause any policy of insurance to be void.

4.4. The *Licensee* must indemnify the *Minister* and *IPART* and shall keep them indemnified against loss or damage, (including legal costs on an indemnity basis and the cost of rectifying any breach by the *Licensee* of the *Act* or its *Licence*) which they may jointly or severally sustain arising from any of the following:

- a) the *Licensee's* failure to comply with the *Licence*;
- b) any negligent act or omission of the *Licensee*, its employees or agents.

5. Reporting in accordance with the Reporting Manual

The *Licensee* must prepare and submit reports in accordance with any *Reporting Manual* issued by *IPART*.

SCHEDULE 1 – INTERPRETATION AND DEFINITIONS

1. Interpretation

1.1. In this *Licence*, unless the context requires otherwise:

- a) the singular includes the plural and vice versa;
- b) headings are used for convenience only and do not affect the interpretation of this *Licence*;
- c) a reference to a document includes the document as modified from time to time and any document replacing it;
- d) a reference to a person includes a natural person and any body or entity whether incorporated or not;
- e) a reference to a condition is to a condition in this *Licence*;
- f) a reference to a clause is to a clause in this *Licence*;
- g) a reference to a schedule is to a schedule to this *Licence*;
- h) a reference to a law or statute includes regulations, rules, codes and other instruments under it, and consolidations, amendments, re-enactments or replacements of them; and
- i) explanatory notes do not form part of this *Licence*, but in the case of uncertainty may be relied on for interpretation purposes.

1.2. If the boundary of a *Local Government Area* within the distribution district is altered while this *Licence* is in force (including by an amalgamation under Division 2A of Part 1 of Chapter 9 of the *Local Government Act 1993* (NSW)), that alteration has no effect on the distribution district specified in this *Licence*.

[**For example:** if the whole or part of the *Local Government Area* of Camden is amalgamated with another *Local Government Area*, or part of another *Local Government Area*, while this *Licence* is in force, that part of the amalgamated *Local Government Area* that was known as Camden on the date of this *Licence* will remain part of the distribution district.]

1.3. For the purpose of the definition of *Compliant Hydrogen Blend*, all references to natural gas in the standards specified in the definition of compliant natural gas in clause 22 of the *Regulation*, being AS 4564-2011 (Specification for general purpose natural gas) or any other standards specified in the *Regulation* from time to time, are to be read as references to *Hydrogen Blend*.

2. Definitions

2.1. Expressions used in this *Licence* that are defined in the *Act* or the *Regulation* have the meanings set out in the *Act* or the *Regulation*.

2.2. In this *Licence*:

Act	means the <i>Gas Supply Act 1996</i> (NSW).
Compliant Hydrogen Blend	means <i>Hydrogen Blend</i> which complies with the standards specified in the definition of 'compliant natural gas' in clause 22 of the <i>Regulation</i> , being AS 4564-2011 (Specification for general purpose natural gas) or any other standards specified in clause 22 of the <i>Regulation</i> from time to time.
Hydrogen Blend	means a mixture of hydrogen gas and another gas to which the <i>Act</i> applies.
IPART	means the Independent Pricing and Regulatory Tribunal of New South Wales established under the <i>Independent Pricing and Regulatory Tribunal Act 1992</i> (NSW).
Licence	means this licence granted under section 38 of the <i>Act</i> .
Licensee	means Jemena Gas Networks (NSW) Limited (ACN 003 004 322).
Local Government Area	means an area as constituted under section 204 of the <i>Local Government Act 1993</i> (NSW) as at the date of this <i>Licence</i> .
Minister	means the Minister responsible for administering the <i>Act</i> .
Non-Compliant Hydrogen Blend	means <i>Hydrogen Blend</i> that that is not <i>Compliant Hydrogen Blend</i> .
Reporting Manual	means any document setting out reporting requirements for the relevant <i>Licensee</i> which is prepared by IPART and is available on its website at www.ipart.nsw.gov.au as amended from time to time.
Regulation	means the <i>Gas Supply (Safety and Network Management) Regulation 2013</i> (NSW).

Safety and Operating
Plan

means the *Licensee's* safety and operating plan lodged in accordance with clause 11 of the *Regulation*.

Safety and Technical
Regulator

means the Department of Planning, Industry and Environment.

Secretary

means the Secretary of the Department of Planning, Industry and Environment.

SCHEDULE 2 – STANDARDS AND SAFETY REQUIREMENTS

1. Hydrogen Blend in *Licensee's* distribution system to comply with standards

- 1.1. At all times this *Licence* is in force, the *Licensee* must not convey *Non-Compliant Hydrogen Blend* through its distribution system.

2. Exception from standards in special cases

- 2.1. The *Licensee* does not breach clause 1 in this Schedule 2 if:

- a) the *Licensee* reasonably believes that the conveyance of *Non-Compliant Hydrogen Blend* is necessary to ensure the safety of the public or the security of its distribution system; or
- b) the *Licensee* reasonably believes that the *Non-Compliant Hydrogen Blend* is, or is to be, delivered to the end user customer is *Compliant Hydrogen Blend*.

- 2.2. If the *Licensee* conveys *Non-Compliant Hydrogen Blend* in accordance with clause 2.1 in this Schedule 2, it must notify the *Safety and Technical Regulator* of the point of injection of the *Non-Compliant Hydrogen Blend*:

- a) by telephone or email as soon as practicable after the time when the *Non-Compliant Hydrogen Blend* began to be conveyed in the *Licensee's* distribution system; and
- b) if notified by telephone, in writing within 14 days after that time.

- 2.3. The *Licensee* must comply with any directions, or requests for information, issued by the *Safety and Technical Regulator* following a notification in accordance with clause 2.2 of this Schedule 2.

3. Testing of Hydrogen Blend

- 3.1. The *Licensee* must not convey *Hydrogen Blend* through its distribution system unless the *Licensee* has tested the gas, or caused the gas to be tested, in accordance with the *Licensee's* *Safety and Operating Plan*, to ascertain whether the gas is *Compliant Hydrogen Blend*.

- 3.2. The *Licensee* must keep a register containing copies of all test results.

- 3.3. If a test has been performed to determine a derived value (such as a Wobbe Index value), the test results required to be kept in the register include the raw measurements used to determine that derived value.

- 3.4. The *Licensee* must ensure that copies of or extracts from the register are made available to the *Safety and Technical Regulator* on request and at no cost.
- 3.5. The *Licensee* must notify the *Safety and Technical Regulator* if it becomes aware of any test result that shows that *Hydrogen Blend* in its distribution system is *Non-Compliant Hydrogen Blend*:
- a) by telephone or email as soon as is practicable; and
 - b) if notified by telephone, in writing within 7 days after that time.

4. Written notice or directions about Non-Compliant Hydrogen Blend

- 4.1. If the *Secretary* believes that *Non-Compliant Hydrogen Blend* is being, or is to be, injected into or conveyed through the *Licensee's* distribution system, the *Secretary* may:
- a) issue a written notice to the *Licensee* requiring the *Licensee* to give to the *Secretary* such information regarding the injection or conveyance of the *Non-Compliant Hydrogen Blend* as is specified in the notice; or
 - b) issue written directions to the *Licensee* about the injection or conveyance of *Non-Compliant Hydrogen Blend*.
- 4.2. The *Licensee* must comply with any notice or directions issued by the *Secretary* in accordance with clause 4.1 of this Schedule 2.

5. Hydrogen Blend must have odour

- 5.1. The *Licensee* must ensure that *Hydrogen Blend* being conveyed, or to be conveyed, through its distribution system has a distinctive and unpleasant odour that is discernible at a level specified in the *Safety and Operating Plan*.

References

- ⁱ Australian Standard AS 4564-2011 *Specification for general purpose natural gas*.
- ⁱⁱ Jemena Gas Networks (NSW) Ltd March 2021 *Application for Distributor's licence – supporting information*, p 3.
- ⁱⁱⁱ <https://www.aer.gov.au/networks-pipelines>. Accessed 11 April 2021.
- ^{iv} Australian Energy Regulator (June 2020) *Fact Sheet - Jemena Gas Networks (NSW) Ltd Revenue Decision 2020-25*, Accessed 11 April 2021.
- ^v Australian Renewable Energy Agency, *Jemena Power to Gas Demonstration* <https://arena.gov.au/projects/jemena-power-to-gas-demonstration/>, Accessed 11 April 2021.
- ^{vi} Jemena Gas Networks (NSW) Ltd (June 2020) *2020-25 Access Arrangement Review*. pp viii and 35.
- ^{vii} <https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/jemena-gas-networks-nsw-access-arrangement-2020-25>. Accessed 26 April 2021.
- ^{viii} Jemena Gas Networks (NSW) Ltd (March 2021) *2020-25 Application for a Distributor's Licence – supporting information*. p 3.
- ^{ix} Smith, N. et al. (July 2017). *Roadmap Report: Identifying the commercial, technical and regulatory issues for injecting renewable gas in Australian distribution networks*. Page 15.
- ^x Melaina, M.W et al. (March 2013) *Blending Hydrogen into Natural Gas Pipeline Networks: A Review of Key Issues*. pp 20-21
- ^{xi} Smith, N. et al. (July 2017). *Roadmap Report: Identifying the commercial, technical and regulatory issues for injecting renewable gas in Australian distribution networks*. pp 12-13, 27.
- ^{xii} COAG Energy Council 2019, *Australia's National Hydrogen Strategy*, p42.
- ^{xiii} Jemena Gas Networks (NSW) Ltd March 2021 *Application for Distributor's licence – supporting information*, p3.
- ^{xiv} Regulation, clause 11.
- ^{xv} Jemena Asset Management Pty Ltd 2020, *Safety Case - Pipeline Management Plan*.
- ^{xvi} *Safety and Operating Plan approval*, Letter from Energy Operations (DPIE) to Planning (DPIE), dated 11 November 2020.
- ^{xvii} Regulation, clause 19 and clause 20.
- ^{xviii} Act, section 37(1).
- ^{xix} Act, section 37(2)(e).
- ^{xx} Letter from DPIE to IPART, *Jemena's Application for a Distributor's Licence*, dated .26 April 2021.