

NSW Renewable Fuel Scheme team

Office of Energy and Climate Change
NSW Government

8 February 2024

Via email to: renewablefuelscheme@environment.nsw.gov.au

Dear Mr Supratik Ghosh,

NSW Renewable Fuel Scheme: Rule 1 consultation paper

Australian Gas Infrastructure Group (AGIG) welcomes the opportunity to make this submission on the draft NSW Renewable Fuel Scheme (RFS) rule. The current RFS puts NSW at the forefront of green hydrogen production and use in Australia.

AGIG is one of Australia's largest energy infrastructure groups with distribution, transmission and storage assets worth over \$9 billion. We deliver natural gas reliably, safely and efficiently to over 2 million residential, commercial and industrial customers across Australia. Our Australian Gas Networks services around 60,000 customers in New South Wales through the gas distribution networks in Albury, Wagga Wagga and various towns in the south of the State.

We are committed to decarbonisation and leading the transition from natural gas to renewable gas. We are investing in renewable gas projects - today we have three projects operating or under construction, and a pipeline of several projects at earlier stages which will provide confidence in the deliverability of renewable gas to customers.

AGIG supports the implementation of the RFS. As with renewable electricity to date, renewable gases require policy incentives to develop and deploy commercial projects at scale. The RFS can help projects manage the cost differential with high carbon alternatives throughout their lifetime.

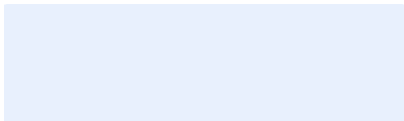
In summary:

- We broadly support the direction of the draft rule.
- However, we are concerned that Proposal 2: *Product GO certificates will be required to create renewable fuel certificates* will inadvertently penalise network injection projects by limiting the amount of NSW RFS certificates that can be generated and sold to a large segment of network connected customers.
- We recommend that the NSW RFS rule includes an option for project proponents to adopt the NSW GreenPower Renewable Gas Guarantee of Origin Scheme (RGGO) for NSW RFS certificate compliance.
- The NSW Government should consider providing price and revenue certainty to initial projects registering in the scheme at this stage of nascent industry development.

The above points are discussed in our detailed submission and our responses to the consultation questions are included in **Attachment A**.

Should you have any queries about the information provided in our submission, please contact Jenny Thai, Senior Policy Advisor at Jenny.Thai@agig.com.au.

Yours sincerely,



Cathryn McArthur
Executive General Manager Customer and Strategy

AGIG's detailed submission

We understand that the NSW Government's intention is for the NSW RFS to measure emissions only to the point of injection into the grid (the "production gate"), and to utilise information collected by the Guarantee of Origin (GO) scheme up to the production gate for administrative convenience.

While we agree with and support this intention, we note that the draft NSW RFS rule requires full compliance with the GO scheme. The GO scheme currently requires recording of emissions data beyond the production gate to be able to register a certificate and lodge information within the GO database. As a result, this increases compliance burden and unnecessarily limits the NSW RFS certificates that can be generated. This is described in greater detail below.

We understand that details of the GO Scheme are due to be released by the Commonwealth Government in 2024. While there are benefits in aligning with the national GO scheme, we recommend that participants are also given the option to comply with the GreenPower's Renewable Gas Guarantee of Origin (RGGO) scheme for the emissions data input.

Integration with Product GO limits the financial benefits of network injection projects and limits the pool of customers that receives decarbonisation benefits

Compliance with the Product GO

As discussed above, the emissions boundaries for both schemes are different. The NSW RFS adopts a narrower emissions boundary (stops at hydrogen production, i.e. "well-to-gate"). In contrast, the GO scheme adopts a wider emissions boundary (includes transport and storage of the hydrogen product, i.e. "well-to-user"). This means that by integrating with the Product GO, the draft rule effectively sets a higher compliance threshold for project proponents despite the scheme requiring a simpler emissions accounting approach.

Further, we note that our understanding of the existing framework indicates that network injection projects cannot comply with the GO scheme in its current form. The emissions accounting is not available for hydrogen that is intended to be sold to customers who are physically not connected to the same network as the hydrogen production facility. In order to generate and sell a Product GO certificate to these customers, we would need to track emissions to the end customer's use. This cannot be achieved within the existing framework as once gas is injected into the network it is commingled and cannot be physically traced, same as renewable electricity.

This issue has not yet been resolved under the current GO scheme design, as an annual emissions factor for hydrogen pipelines has not been assigned to calculate default emissions associated with pipeline transport and the requirement for direct supply remains. However, if an annual emissions factor for hydrogen pipelines were set and the proposed definition of reasonable physical link remains, this would mean a producer would need to calculate and verify emissions data for a broad customer base. This adds further administrative and cost burdens than if a 'market based' boundary was adopted. This is discussed further below.

Limits the number of NSW RFS certificates that can be generated

Therefore, in requiring compliance with the proposed GO scheme, this in effect limits the potential pool of users a producer can generate and sell NSW RFS certificates to. Specifically, it seems that network injection project producers can only generate and sell Product GO certificates to gas distribution network connected customers that are located within the same network boundary as the hydrogen production facility itself.

For example, if a hydrogen production facility was built within AGN's Wagga Wagga network, the producer can only generate and sell certificates to gas customers connected to the AGN Wagga Wagga network. A producer cannot generate and sell NSW RFS certificates to a larger segment of the market (non Wagga Wagga connected customers) based on the practical challenges in complying with the GO

scheme emissions accounting requirements discussed above. Table 1 below outlines the different hypothetical scenarios on whether a network injection project can sell and generate NSW RFS certificates to those customers.

This in turn will significantly reduce the amount of NSW RFS certificates that can be generated and sold from network injection projects. As a result, NSW network injection projects will not be able to maximise financial benefits in generating revenue and reducing costs. Given that it is proposed all NSW gas users are liable parties under the NSW RFS, it is appropriate to ensure that the widest pool of customers receive the decarbonisation benefits.

Further, limiting the pool of customers stifles market activation which is critical to enabling hydrogen production to scale. It would also create monopoly powers by tying consumers to specific producers, whereas full tradability would allow for and encourage competition amongst producers.

[Confidential] Table 1: Hypothetical scenarios summarising whether a network injection project can sell and generate NSW RFS certificates to those customers [Confidential]

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	[Redacted]	

¹ DCCEEW, GO Scheme – Frequently Asked Questions. See: <https://consult.dcceew.gov.au/aus-guarantee-of-origin-scheme-consultations-on-design>

² DCCEEW, GO Scheme – Frequently Asked Questions

³ DCCEEW, GO Scheme – Frequently Asked Questions



AGIG's submission to the GO scheme design consultation 2023

In our submission to the Federal Government's GO scheme design consultation, we submitted that the proposed mass balance accounting approach should not be applied and that Product GO certificates should be fully tradable just as renewable electricity certificates are treated today, given that:

- it does not reflect the way natural gas is transported, bought and sold today and is inconsistent with most international export certification standards⁴
- full tradability also reflects the way title and custody of natural gas is currently recognised today under the National Gas Rules
- the mass custody approach is not commonly used across international certification standards⁵, with a mass custody approach only adopted in Germany's CMS 70 for Green H2 transport.

If a mass balance approach is adopted under the GO scheme, we proposed that the definition of 'reasonable physical link' in cases where hydrogen is blended into a natural gas network be market-based rather than based on geographic boundaries such as a distributor's licence boundary or by state or territories. An appropriate market-based definition could be based on the east coast gas market and west coast gas market as gas is traded in different wholesale gas markets, with gas flowing through interconnected pipelines.

A copy of our full submission on the GO scheme can be found in **Attachment B**.

The NSW RFS Rule should also recognise the GreenPower Renewable Gas Certification Pilot

Given that the GO scheme is a national scheme we would prefer alignment with the scheme. However, we suggest that the draft rule be changed to allow project proponents to choose between the NSW GreenPower Renewable Gas Guarantee of Origin Scheme (RGGO) or the GO Scheme in sourcing the emissions input data for the NSW RFS certificate.

The GreenPower RGGO Scheme is a suitable certification tool for hydrogen produced under the NSW RFS as the system boundary directly aligns with the system boundary requirement under the draft NSW RFS rule. Both schemes adopt a 'well to gate' emissions boundary while the GO Scheme adopts a wider emissions boundary as discussed above. We note that the Green Power RGGO Scheme only currently allows certificates to be sold to commercial and industrial customers, noting that this was a policy decision made at the time the GreenPower RGGO scheme was implemented. Notwithstanding, we note that it would not be administratively burdensome to extend the GreenPower scheme to

⁴ Creating a Global Hydrogen Market – Certification to Enable Trade – IRENA 2023. See Table 1 in <https://www.irena.org/Publications/2023/Jan/Creating-a-global-hydrogen-market-Certification-to-enable-trade>

⁵ Creating a Global Hydrogen Market – Certification to Enable Trade – IRENA 2023. See Table 1 in <https://www.irena.org/Publications/2023/Jan/Creating-a-global-hydrogen-market-Certification-to-enable-trade>

residential customers and encourage the NSW Government to work with the GreenPower scheme to broaden the decarbonisation benefits available to all customers.

Penalty rates

In terms of the penalty rate, the NSW Government should provide price and revenue certainty to initial projects (who take on first-mover risk in this nascent industry), such as locking in the penalty rate over the investment term of 20 years, as this would assist a project in reaching financial close.

Attachment A: Response to consultation questions

Consultation Questions	AGIG response
Proposal 1: Renewable energy is the 'eligible renewable energy sources' as defined in the forthcoming 'GO Act 2024 (Cth)'	Given we have not seen the definition in the forthcoming GO Act 2024, we cannot provide full support for the definition. However, we anticipate that the definition for 'eligible renewable energy sources' would remain consistent or align with that in the Commonwealth's Renewable Energy (Electricity) Act 2000, which we would support.
Proposal 2: Product GO certificates will be required to create renewable fuel certificates	<p>As discussed as detail above, we do not support the proposal for Product GO certificates to be required to create renewable fuel certificates. This proposal will increase the compliance burden on project proponents as the GO scheme emissions accounting requirements goes further than the NSW RFS and would not be practical for network injection producers to comply.</p> <p>Further in some instances the emissions accounting requirements cannot be met for network injection projects and as a result, limits the number of NSW RFS certificates that can be generated from a network injection project.</p> <p>Unless the GO scheme design is amended, we suggest amending the draft rule to allow project proponents the option to choose between emissions data inputs from the Product GO certificates and the GreenPower Renewable Gas Guarantee of Origin Scheme.</p>
Proposal 3: The eligible production method is the electrolysis of water using renewable electricity	This proposal is reasonable.

Proposal 4: The RFS emissions boundary is the hydrogen “production boundary” as defined in the forthcoming ‘GO Act 2024 (Cth)’	We support the principle of adopting a well-to-gate emissions boundary, however given we have not seen the definition in the forthcoming ‘GO Act 2024 (Cth)’ we cannot provide full support.
Proposal 5: The Local Use Factor is 1 for all green hydrogen produced in NSW.	No comment.
Proposal 6: Green hydrogen must have a minimum purity of 99.9 volume percent at the point of exit from the RFS emissions boundary	This proposal is reasonable.
Proposal 7: IPART will only accredit green hydrogen producers to create renewable fuel certificates	No comment.
Proposal 8: For the production of green hydrogen: <ul style="list-style-type: none"> Electricity emissions must be zero by matching the electricity use with an equivalent number of renewable energy certificates Direct combustion emissions must be less than 2.5% of total production emissions 	No comment.
Proposal 9: Renewable energy certificates: <ul style="list-style-type: none"> Only include certificates eligible under the GreenPower Program Rules Involve the surrender of certificates through an accredited GreenPower product 	<p>We question why Renewable energy certificates only includes certificates eligible under GreenPower and not include REGO certificates under the GO scheme.</p> <p>This would not align with Proposal 1 “<i>Renewable energy is the ‘eligible renewable energy sources’ as defined in the forthcoming ‘GO Act 2024 (Cth)’</i>” as it does not acknowledge the use of REGO’s.</p>
Proposal 10: The number of renewable fuel certificates is calculated using Equation 1	No comment.
Proposal 11: The duration of the production period is not less than the Product GO batch period and not greater than 12 months	It is noted that Product GO could potentially be time matched through electricity generation.

Proposal 12: The sites listed in clause 9.4 of the draft RFS rule can only create renewable fuel certificates for producing green hydrogen above their annual baseline production

No comment.

Future Work general comments:

- Expanding the RFS to incentivise other renewable fuels
 - Investigate to include other hydrogen production technologies in the scheme rule
 - Supporting other policies and programs – will investigate how it will complement other Clth and NSW incentive schemes such as the GP Renewable Gas Certification Pilot
 - Time of use matching not currently a requirement
 - Local use factor
 - Market transformation
 - Hydrogen minimum purity
 - REGO
 - Water source requirements
 - National and international standards
- Expanding the RFS to incentivise other renewable fuels - We support the inclusion of biomethane, synthetic methane and other renewable fuels.
 - Supporting other policies and programs – We support alignment and/or complementing with existing schemes such as GreenPower Renewable Gas Guarantee of Origin to limit additional administration.
 - Market transformation – The market transformation factor in principle appears reasonable.
 - REGO – currently the application of utilising GreenPower for renewable electricity certificate may not align with the potential requirements under the Go Scheme in particular time matching.
 - Water source requirements – With regards to water source, we observe that GreenPower already has a criteria on water use.
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23 October 2023

Department of Climate Change, Energy, the Environment and Water

Via online submission: <https://consult.dcceew.gov.au/aus-guarantee-of-origin-scheme-consultations-on-design/new-scheme-design-survey-b83f1f08>

Australia's Guarantee of Origin Scheme: consultation on scheme design

To whom it may concern,

The Australian Gas Infrastructure Group (AGIG) welcomes the opportunity to participate in and contribute to the development of a Federal Guarantee of Origin (GO) Scheme for hydrogen and other future products. This will be an important step forward in developing a renewable gas industry in Australia and ensuring the carbon benefits of hydrogen are recognised.

AGIG is one of Australia's largest energy infrastructure groups with distribution, transmission and storage assets worth over \$9 billion. We deliver natural gas reliably, safely and efficiently to over 2 million residential, commercial and industrial customers across Australia. We are committed to decarbonisation and leading the transition from natural gas to renewable gas. Today we are investing in the development of four early-stage projects which will provide confidence in the deliverability of renewable gas to customers.

The GO scheme is integral to the development of Australia's hydrogen industry

We understand the importance of creating a credible labelling scheme for hydrogen products. However, we have a number of overarching concerns with what DCCEEW proposes and outline in this submission a number of specific issues we believe warrant attention.

1. Allowing GO certificates to be tradable opens up options for the applicability and usefulness of the scheme.

Product GO certificates are likely to be financially traded domestically in the future as the hydrogen industry develops. Therefore, designing a scheme as a labelling scheme in isolation of the potential use of product GO certificates underpinning financial products (various traded energy commodities) potentially limits the options, applicability, and usefulness of the scheme, particularly in respect of other DCCEEW initiatives such as Hydrogen Headstart and the National Hydrogen Strategy.

2. The GO scheme should advance both the domestic and export markets for renewable hydrogen, as they are both interrelated.

The scheme should advance the domestic market for hydrogen as well as for the export market. Domestic production of renewable hydrogen supports the efficacy of an export industry through the sharing of a resilient supply chain and expertise. Furthermore, commercial viability of production for the export market offtake can be supported by domestic offtake. Domestic customers are already seeking energy products with an appropriate label to provide assurance around the integrity of hydrogen.

Domestically, the GO scheme will help build demand and scale for hydrogen products. While the hydrogen industry is in early stages of market development, the GO scheme can help improve supply chain confidence in the emissions outcomes for customers, just like certification schemes have today do for renewable electricity.

3. The GO scheme should not limit the potential users a producer can sell to under the Hydrogen Headstart Program

The scheme should be credible in terms of emissions accounting while also being simple and relatively low cost to administer. Encouraging innovation and industry growth should be objectives for the scheme alongside emissions objectives. We think that allowing tradability and simplicity in administering the scheme will improve the integrity and robustness of the scheme.

As detailed below, a mass balance approach does not reflect the way natural gas is transported, bought and sold today and is inconsistent with most international export certification standards¹. Limiting the potential users a producer can sell to, narrows the options for offtake for successful proponents of the Hydrogen Headstart Program and may serve to undermine the success of the program. This approach may also limit policy options in the National Hydrogen Strategy (such as development of renewable gas targets). The success of the Hydrogen Headstart program is contingent on sufficient demand and off-take options being available to producers, and this requires the hydrogen product produced to be sufficiently tradable amongst various off-takers.²

Furthermore, several state schemes currently being consulted on³ will look to utilise the GO scheme as a certification methodology. The GO scheme consultation represents an opportunity to leverage several years of knowledge regarding the technical certification of renewable hydrogen, and it would be desirable to design a scheme which provides greater optionality in the initial years, rather than having to design a separate scheme (or make changes to the scheme) at a later stage to be fit for purpose for other potential national or state hydrogen initiatives.

In the following section we provide commentary on key issues that will impact the domestic uptake of the GO scheme.

Mass balance approach

We continue to advocate for GO certificates to be fully tradable just as renewable electricity certificates are treated. This will ensure a consistent approach in the decarbonisation of gas and electricity without biases towards renewable electricity. While we recognise there is a push for additionality requirements to be placed on renewable electricity internationally, that is not how renewable electricity GOs are proposed to be treated today.

Further, gas molecules flow through interconnected gas pipelines and once that gas is injected into a pipeline the gas molecule is comingled and cannot be tracked to the point of withdrawal. This point is as valid for hydrogen from multiple producers (which may have differing emissions characteristics) flowing through the same pipeline, as it is for blends of hydrogen and natural gas.

¹ Creating a Global Hydrogen Market – Certification to Enable Trade – IRENA 2023. See Table 1 in <https://www.irena.org/Publications/2023/Jan/Creating-a-global-hydrogen-market-Certification-to-enable-trade>

² Note that the final Hydrogen Headstart Program Guidelines indicate that the Program is open to all end-use cases. See <https://arena.gov.au/funding/hydrogen-headstart/>

³ For example, the Victorian Renewable Gas Consultation <https://engage.vic.gov.au/victorias-renewable-gas-consultation-paper> and NSW Renewable Fuels Scheme <https://www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/energy-security-safeguard/renewable-fuel-scheme>

Full tradability also reflects the way title and custody of natural gas is currently recognised today under the National Gas Rules applying to the Declared Wholesale Gas Market (DWGM), which will soon apply to hydrogen blends and other renewable gases.

NGR 220(6) for the DWGM: Each Market Participant is taken to accept that the gas delivered to it at a system withdrawal point may not match the specifications of the gas injected, or tendered for injection, into the declared transmission system by that Market Participant at a system injection point.

Like natural gas, once hydrogen is blended into gas distribution networks it should no longer be considered a molecule but rather energy, therefore GO certificates should be traded in line with how the energy would be traded.

Adopting a mass balance approach limits the number of customers that can purchase product GO certificates, which stifles market activation which is critical to enabling hydrogen production to scale. It would also create monopoly powers by tying consumers to specific producers, whereas full tradability would allow for and encourage competition amongst producers.

Further, we note that the mass custody approach is not commonly used across international certification standards⁴, with a mass custody approach only adopted in Germany's CMS 70 for Green H₂ transport.

Definition of reasonable physical link

If a mass balance approach is adopted, we propose that the definition of 'reasonable physical link' in cases where hydrogen is blended into a natural gas network be market-based rather than based on geographic boundaries such as a distributor's licence boundary or by state or territories.

An appropriate market-based definition could be based on the east coast gas market and west coast gas market as gas is traded in different wholesale gas markets, with gas flowing through interconnected pipelines. We note that the definition in the *Competition and Consumer (Gas Market Code) Regulations 2023* could be a useful starting point.

9 Geographical application

- (1) For the purposes of subsection 53N(2) of the Act, Parts 3, 4, 5, 6, 7, 8 and 9 of this instrument apply in relation to all parts of Australia other than any part of Australia in relation to which the requirement in subsection (2) of this section is met.
- (2) For the purposes of subsection (1), the requirement in this subsection is met in relation to a part of Australia if:
 - (a) there is a market for regulated gas in the part of Australia, and regulated gas is acquired and supplied in that market by means of a physical network of interconnected gas pipelines; and
 - (b) there is another market for regulated gas in another part of Australia, in respect of which all of the following conditions are satisfied:
 - (i) regulated gas is acquired and supplied in that market by means of a physical network of interconnected gas pipelines;
 - (ii) that physical network crosses a border or borders between States, or between a State and a Territory; and
 - (c) there is a physical separation between the network mentioned in paragraph (a) and the network mentioned in paragraph (b).

Extracted from Competition and Consumer (Gas Market Code) Regulations 2023.

⁴ Creating a Global Hydrogen Market – Certification to Enable Trade – IRENA 2023. See Table 1 in <https://www.irena.org/Publications/2023/Jan/Creating-a-global-hydrogen-market-Certification-to-enable-trade>

Adopting geographic boundaries has the following challenges:

- Adopting a distributor's licence boundary limits the pool of end customers that can buy certificates from a particular production facility. This boundary essentially excludes transmission gas customers that are likely to have the strongest need for hydrogen for their decarbonisation objectives from purchasing certificates unless they have hydrogen physically delivered to them via truck or through dedicated hydrogen pipelines which is costly.
- Adopting a state or territory geographic boundary does not recognise that gas distribution and transmission networks cross state and territory boundaries, with hydrogen blends flowing across the networks. For example, our Australian Gas Network Albury Wodonga network (in the graphic below) operates in both New South Wales and Victoria with gas flowing across the state border.⁵

Figure 1: Map of AGN Albury Wodonga crossing the NSW/VIC state border



Going forward, we expect the definition will continue to be refined and therefore suggest that sufficient flexibility is provided in defining the term in legislation.

Systems boundary – delivery gate definition

We continue to support a well to gate system boundary. This a relatively simple emissions accounting approach that can be easily adopted in the first instance before moving on to a more thorough emissions accounting process at a future date. A well to user delivery gate system boundary has an extra layer of complexity in terms of defining what the delivery gate is for the different uses for hydrogen.

⁵ See: <https://www.aemc.gov.au/energy-system/gas/gas-pipeline-register/nswvic-agn-albury-gas-distribution-network>

However, if a well to user delivery gate is adopted, our suggestion for the definition of ‘delivery gate’ is based on the principle that the delivery gate is the location where hydrogen produced is converted from a molecule. Following are examples of potential delivery gates for the different use cases based on AGIG projects:

Table 1: Examples of delivery gates

Hydrogen use	Delivery gate definition
Hydrogen delivered to a gas market -e.g. blended into a gas pipeline/distribution network	Market injection point consistent with the National Gas Law/Rules. (In practice this might be the custody transfer meter)
Hydrogen delivered directly to user – e.g. via tube trailer	Delivery to an end customer’s premises

Figure 2 – Delivery Gate Example

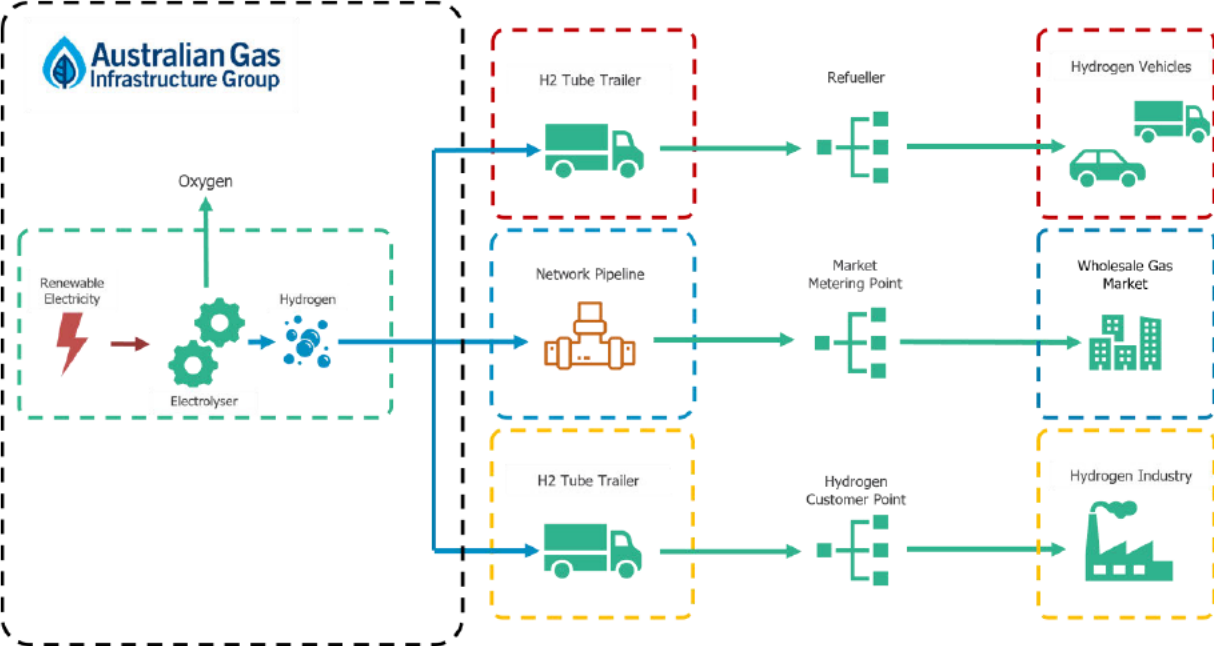


Figure 2 demonstrates how the delivery gate differs for direct use or use via a network (or market).

We expect the definition of delivery gate will continue to be refined in the coming years as more hydrogen projects come online with different uses and therefore suggest that sufficient flexibility is provided in defining the term in legislation.

Biomethane should be prioritised for methodology development

We consider that biomethane should be considered high-priority for methodology development.

Biomethane has large scale immediate-term emissions reduction potential. It is a carbon neutral replacement for natural gas that can decarbonise gas networks today without requiring upgrades of the gas infrastructure or changes to existing consumer appliances. It can also be used to decarbonise Australia’s industrial sector relying on natural gas today.

Australia's Bioenergy Roadmap (ARENA, 2020), showed significant bioenergy resources are available and indicated the bioenergy sector has the potential to contribute to Australia's GDP by about \$10 billion annually, create over 26,000 jobs, and reduce emissions by 9% by 2030.

Incorporating biomethane into the GO scheme delivers a number of benefits and promotes Australia's economic prosperity by:

- Supporting local economies and energy independence by enabling communities to produce their own energy from local waste sources.
- Converting organic waste into valuable energy, contributing to a more sustainable waste management system.
- Providing renewable gas to promote carbon-neutral industry and manufacturing

In terms of biomethane's level of technology, production and market readiness, biomethane production is an internationally mature technology and operating at scale. There has already been a successful demonstration of biomethane production and injection into the New South Wales gas network from Jemena's Malabar facility⁶ which exhibits the level of technological and production readiness.

This technology, including grid injection, is driving down emissions globally with 57 PJ p.a. produced in the United States and 45 PJ p.a. produced in Europe in 2019⁷. This has increased in Europe to over 130 PJ by April 2023⁸ and they are targeting over 1,300 PJ by 2030 proposed by the European Commission in the REPowerEU plan. Global investment is rapidly accelerating with the EU recently announcing 37 billion euros to increase biomethane production.

Biomethane can also be used as an input to various other pathways including bioLNG and bioCNG which have been developed internationally. In addition, it can be used in the manufacturing process to create products including low-carbon hydrogen which has been done through CertifHy and is acknowledged within IPHE.⁹ Biomethane would be a versatile ready-made decarbonised energy product that can leverage existing developed frameworks internationally as well as locally with the GreenPower Renewable Gas Guarantee of Origin Scheme.

To derive the full benefits of biomethane industry development, it will be critical to ensure that there is sufficient tradability of certificates to support producers investing into initial biomethane projects. It is recommended that biomethane GO be developed as a framework to promote industry development, noting that these projects will be undertaken by smaller businesses and consist of lower capital investments comparatively to hydrogen. Therefore, the Biomethane Product GO must have versatility and ease of use in mind to enable the successful development of the industry.

⁶ See Bioenergy Australia Factsheet:

<https://cdn.revolutionise.com.au/cups/bioenergy/files/9ymnzx1kqcccplna.pdf#:~:text=International%20evidence%20Biomethane%20production%20is%20an%20internationally%20mature,p.a.%20produced%20in%20the%20United%20States%20and%2045PJ>

⁷ See Bioenergy Australia Factsheet:

<https://cdn.revolutionise.com.au/cups/bioenergy/files/9ymnzx1kqcccplna.pdf#:~:text=International%20evidence%20Biomethane%20production%20is%20an%20internationally%20mature,p.a.%20produced%20in%20the%20United%20States%20and%2045PJ>

⁸ New record for biomethane production in Europe

shows EBA/GIE Biomethane Map 2022-2023 <https://www.europeanbiogas.eu/strongnew-record-for-biomethane-production-in-europebrshows-eba-gie-biomethane-map-2022-2023-strong/>

⁹ IPHE Working Paper Ver3 Jul 2023 *Methodology for Determining the Greenhouse Gas Emissions Associated with the Production of Hydrogen*.

Conclusion

Should you have any queries about the information provided in our submission, please contact Jenny Thai, Senior Policy Advisor at Jenny.Thai@agiq.com.au.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Cathryn McArthur'.**Cathryn McArthur**

Executive General Manager
Customer and Strategy