



24 October 2023

Submission: Guarantee of Origin Scheme Design

The Australian Pipelines and Gas Association (APGA) represents the owners, operators, designers, constructors and service providers of Australia's pipeline infrastructure, connecting natural and renewable gas production to demand centres in cities and other locations across Australia. Offering a wide range of services to gas users, retailers and producers, APGA members ensure the safe and reliable delivery of 28 per cent of the end-use energy consumed in Australia and are at the forefront of Australia's renewable gas industry, helping achieve net-zero as quickly and affordably as possible.

APGA welcomes the opportunity to provide further comment on the Guarantee of Origin Scheme (**GO Scheme**). As the GO Scheme will likely form the regulatory framework for developing Australia's green hydrogen industry nationally, it is critical that it is fit for purpose and designed for the long-term – including being fit for purpose for domestic hydrogen customers.

APGA supports a net zero emission future for Australia by 2050¹. Renewable gases represent a real, technically viable approach to lowest-cost energy decarbonisation in Australia. As set out in Gas Vision 2050², APGA sees renewable gases such as hydrogen and biomethane playing a critical role in decarbonising gas use for both wholesale and retail customers. APGA is the largest industry contributor to the Future Fuels CRC³, which has over 80 research projects dedicated to leveraging the value of Australia's gas infrastructure to deliver decarbonised energy to homes, businesses, and industry throughout Australia.

GO Scheme is unlikely to meet the needs of domestic hydrogen customers

To achieve a GO Scheme that meets the needs of its customers, the Federal Government must consider all customers, including both international export partners and domestic consumers. At present, it appears that international export partners are being considered ahead of the needs of domestic consumers.

There have been changes in government priorities for a GO Scheme across the years, which has been reflected in its development. Initially, the GO Scheme was largely intended to support Australia's international trading of green hydrogen. As state and Federal governments have now increasingly recognised the domestic decarbonisation potential of

¹ APGA, *Climate Statement*, available at: <https://www.apga.org.au/apga-climate-statement>

² APGA, 2020, *Gas Vision 2050*, https://www.apga.org.au/sites/default/files/uploaded-content/website-content/gasinnovation_04.pdf

³ Future Fuels CRC: <https://www.futurefuelscrc.com/>

green hydrogen, the GO Scheme design has been retrofitted to reflect this additional priority. Successive consultations on the scheme have altered the trajectory of the scheme, without necessarily reflecting the intent of those changes in scheme design.

In each consultation, the domestic gas industry has highlighted issues with the scheme which do not fully recognise the needs of domestic energy consumers. These issues remain unresolved:

- The lack of a well-to-production gate system boundary option for hydrogen will put Product GOs on an unequal footing relative to Renewable Electricity GOs (REGOs) in a domestic trading context. Absence of this option will impede domestic hydrogen trading and may also hamper international trading.
- The Product GO certificates may not convey the information necessary for domestic consumers to report the scope 1 emissions of combustion under NGER Measurement Determination emission reporting methods, and so prevent those consumers from benefiting from the emissions reduction potential of green hydrogen.

Not addressing these shortcomings of the GO Scheme fails to support decarbonisation of domestic energy customers – a stated intent of the GO Scheme.

GO Scheme system boundary

APGA provided detailed commentary on the well-to-delivery gate (“well-to-user”) design in our February 2023 submission⁴ on the GO Scheme. The challenges identified by APGA in past submissions still exist in this consultation paper.

A well-to-delivery gate boundary for Product GOs has been chosen in contrast to the well-to-production gate boundary for REGOs. It has been stated within GO Scheme consultation papers that this choice is made to support hydrogen export before domestic consumption was considered a priority. The choice between these system boundaries has inherent pros and cons, but in choosing different system boundaries for the Product GOs and REGOs, DCCEEW creates incentives to use one over the other.

| Boundary | Well-to-production gate (REGOs) | Well-to-delivery gate (Product GOs) |
|-------------|---|---|
| Flexibility | More flexible domestic certificate trade | Less flexible domestic certificate trade |
| Trade | Does not provide information aligned with trade requirements ⁵ | Does provide information aligned with trade requirements ⁵ |
| Emissions | Less tracking = less downward pressure on emissions | More tracking = more downward pressure on emissions |

The additional complexity of a well-to-delivery gate system boundary for Product GOs will create a domestic tradability imbalance between REGOs and Product GOs. This will impede

⁴ APGA, 2023, *Submission: Australia’s Guarantee of Origin Scheme*,

https://www.apga.org.au/sites/default/files/uploaded-content/field_f_content_file/230203_apga_submission_-_guarantee_of_origin_scheme.pdf

⁵ While scheme design has been based upon the assertion that a well-to-user model is required to aligned with international trade requirements, this is inconsistent with the International Renewable Energy Agency’s advice on international hydrogen certificate scheme design: IRENA, 2023, *Creating a global hydrogen market: Certification to enable trade*, available at

https://mc-cd8320d4-36a1-40ac-83cc-3389-cdn-endpoint.azureedge.net/-/media/Files/IRENA/Agency/Publication/2023/Jan/IRENA_Creating_a_global_hydrogen_market_2023.pdf?rev=cad6962f55454a46af87dec5f2e6c6e8

customer uptake of green hydrogen, even if it is equal cost with renewable electricity. It will introduce regulatory biases between renewable hydrogen (and other future products) and renewable electricity, which in turn will hamper domestic decarbonisation. It will also prevent Product GO certificate information being able to be recognised under Market Based Instruments under NGER unless the well-to-production gate approach is taken.

A well-to-delivery gate system boundary for Product GOs is necessarily more onerous than the well-to-production gate boundary chosen by comparable international schemes. Along with the fact this design is inconsistent with other existing schemes this design also risks Australian hydrogen exports being less competitive on the international stage.

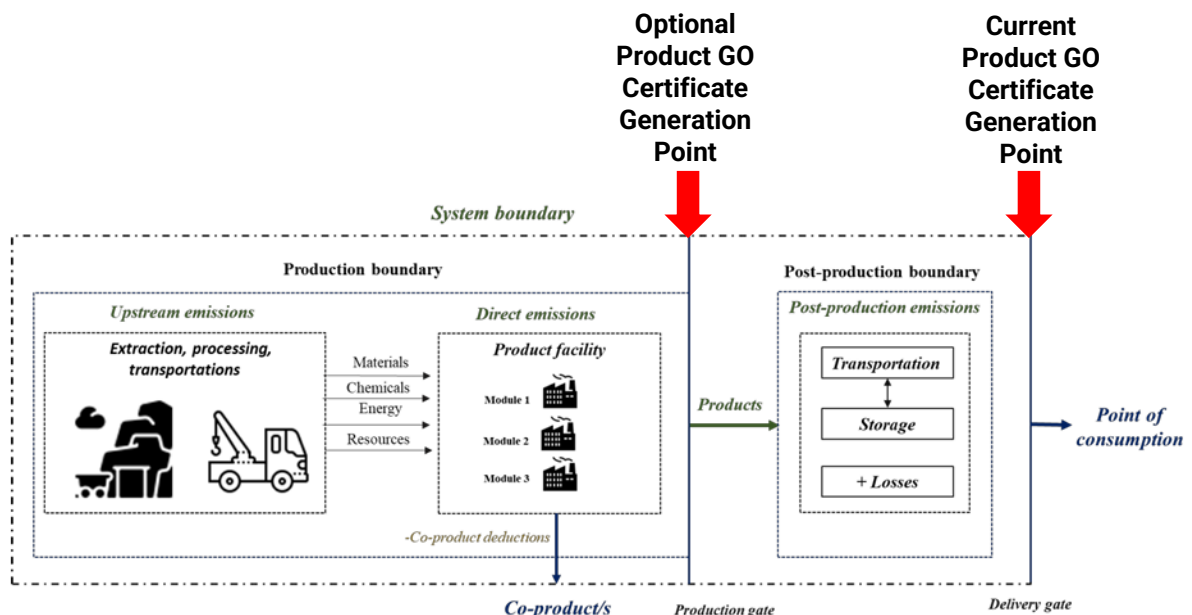
In addition, the well-to-gate REGO scheme does not consider the Scope 2 emissions of electricity transmission, resulting in a gap in the provenance model for hydrogen exported with a Product GO certificate and an additional imbalance between Product GOs and REGOs.

Recommendation: include an option to generate a GO Certificate at the production gate

DCCEEW has conceived the “well-to-production gate” profile, which approximates a “well-to-gate” boundary – in part recognising the necessity of this information, separate to the post-production emissions data. This well-to-production gate profile can be used to address the above concerns.

Adding an option to generate a certificate at the production gate, in addition or instead of at the delivery gate, would solve this issue. This is demonstrated in Figure 1.

Figure 1: optional Product GO Certificate generation points



In the updated draft certificate design shared by the GO Scheme team on 11 October, details of the certificate include information to the well-to-production gate, which indicates that this approach should be both possible and straightforward (Figure 2).

Figure 2: example Product GO certificate

Product GO certificate information - example

| Guarantee of Origin Certificate | | Emissions intensity - Production (Well-to-production gate) |
|---|--|--|
| | | 5.314 kg / kg H2 |
| Production details | | Emissions intensity - Post-production (Production gate to delivery gate) |
| Batch production dates 01/07/2024 - 30/09/2024 | Production Process Natural Gas Reforming | 2.830 kg/ kg H2 |
| Production facility name Example SMR Plant | | Emissions intensity - Overall (Well-to-delivery gate) |
| Production facility location Non-Metro - Queensland | Renewable electricity 20.25% | 8.184 kg / kg H2 |
| Post-production details | | Primary production - Hydrogen information |
| Transport Articulated Truck – bulk gas container | Storage | Quantity of hydrogen produced 54,881 kg H2 |
| Distance: 2120 km | Duration: 3 days | Purity of hydrogen produced 99% |
| | | Quantity of hydrogen delivered 54,399 kg H2 |

APGA will provide additional comments on this in the consultation on the Emissions Accounting Methodology.

Mass balance approach and definition of reasonable physical link

APGA notes that the following commentary applies to the option of using a well-to-delivery gate boundary instead of a well-to-production gate boundary. Providing both well-to-production gas and well-to-delivery gate options would largely address the below challenges for customers which choose well-to-production gate certification, however the below still applies for those who choose to consider well-to-delivery gate certification.

The mass balance approach has been introduced to provide a chain of custody link for Product GOs – once again, a different approach to that of REGOs. APGA does not support this mass balance approach as it disadvantages Product GOs relative to REGOs, as well as hampering the tradability of certificates. For REGOs, there is no requirement to demonstrate a reasonable physical link, and in fact it is not considered necessary even though it is not possible to transport all renewable electricity produced via interconnectors. It is unclear why such an approach is considered necessary for Product GOs.

This provenance approach is further complicated by the current approach to ‘reasonable physical links’, which appear to preference geographic boundaries. Issues with geographic boundaries are exemplified in the “Area Distribution Authority” referred to in the consultation paper. Firstly, this term is specific to the Queensland distribution licence area. Secondly, using an existing distribution area as a boundary would exclude future transmission hydrogen networks and transmission customers (outside the boundary) who are most likely wanting to buy certificates to decarbonise. Transmission customers would also be exposed to additional costs of transport or dedicated pipelines, acting in opposition to the National Gas Objective.

Recommendation: apply a broad definition of ‘reasonable physical link’.

If a mass balance approach is considered necessary for a well-to-delivery gate option, APGA recommends using the broadest definition possible of ‘reasonable physical link’, which does not attempt to define links along geographic boundaries. Using a market boundary definition (i.e. East Coast Gas System) would be most appropriate as it encompasses a single network which shares infrastructure and product across state borders.

Compatibility with other schemes

Product GOs will not ‘recognise’ the voluntary cancellation of Australian Carbon Credit Units or Safeguard Mechanism Credits. This is intended to ensure integrity of the GO Scheme, but raises questions about the overall compatibility of the GO Scheme with other schemes.

APGA appreciates that the GO Scheme has been designed to maximise compatibility with *international* schemes. Compatibility with domestic schemes such as NGERs and the Safeguard Mechanism are still critical to ensure both uptake and the ability for the scheme to support domestic use.

For example, it is unclear whether the certificate contains sufficient information for green hydrogen customers to use hydrogen emission calculations in NGER Measurement Determination. If not, changes will need to be made to the certificate to accomplish this, and it is critical that the GO Scheme team engage with the Clean Energy Regulator to ensure compatibility.

Scope 1 emissions of hydrogen combustion

For domestic customers, the most valuable information on a possible Product GO certificate would be the specification of the Scope 1 emissions produced through consumption of hydrogen. It is this information that will permit future recognition of emissions reduction through hydrogen consumption by NGERs and the Safeguard Mechanism.

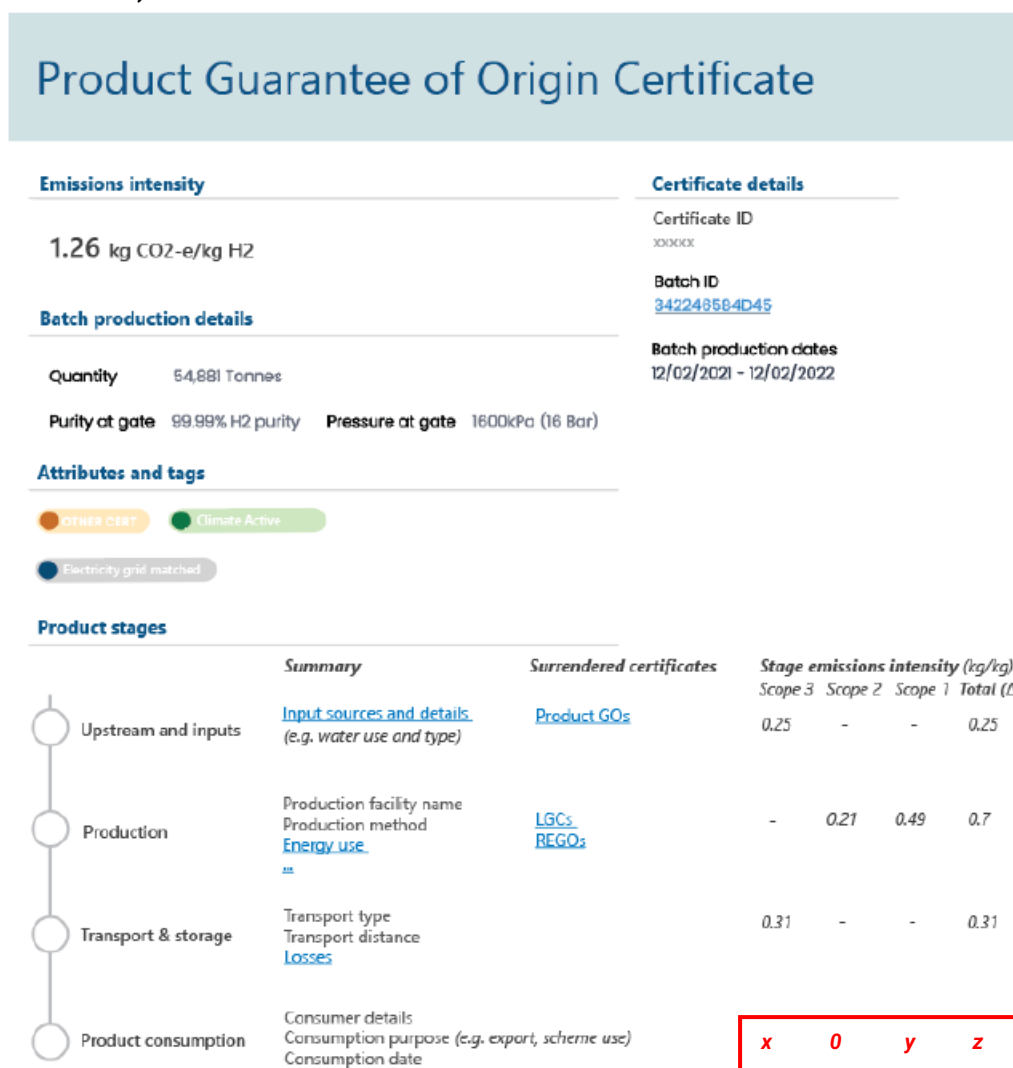
It is still not clear that the scheme will provide sufficient information on the Product GO certificates for a gas customer to identify Scope 1 emissions of combustion. It is critical for domestic uptake that domestic customers be able to formally demonstrate the emissions (or lack thereof) of combustion of green hydrogen, both for the purposes of the Safeguard Mechanism and more broadly.

Along with our recommendation below, adjacent reforms will need to be made to NGERs for it to consider a Product GO certificate sufficient proof to determine the Scope 1 and Scope 3 emissions intensity of hydrogen delivered by pipeline. This would need to be able to apply to both blended and pure hydrogen pipelines.

Recommendation: state Scope 1 emissions of combustion on the certificate

This information could be conveyed simply through adding it to the certificate (Figure 3). We again recommend this to DCCEEW as it provides a simple way to demonstrate verified emissions of combustion for domestic use.

Figure 3: Example Product GO certificate with consumption emissions (from APGA 2023 submission)



Note: **x** is the total of the emissions of production (in this example, 1.26kg/kg); **y** is the Scope 1 emissions of product consumption (as specified within National Greenhouse and Energy Reporting (Measurement) Determination 2008); and **z** is (x + 0 + y) or the total Scope 1, 2 and 3 emissions of the Product.

APGA will provide additional comments on this in the consultation on the Emissions Accounting Methodology, but generally recommends engagement with the CER and DCCEEW NGER team about the information they would require from a certificate to consider certificates under a gas emissions market-based method for emissions reporting.

Expanding Product GOs to cover additional renewable gas products

APGA understands DCCEEW will investigate expanding products covered by the GO Scheme beyond renewable hydrogen.

If the GO Scheme is intended to cater to the needs of Australian energy consumers as detailed in this submission, then biomethane should be considered for inclusion as a matter of urgency. This will ensure that projects which are already producing biomethane are able to be covered by the scheme.

If this scheme is *not* intended to support domestic consumers, then biomethane should *not* be included. Including biomethane will only hold back domestic consumption of biomethane uptake, in the same way this scheme will hold back the domestic uptake of hydrogen. APGA instead recommends the parallel ascendance of the GreenPower Renewable Gas Certification Scheme Pilot to nationally recognised status.

Ultimately, doing both will provide greater choice and opportunity for renewable gas users in the future, as is provided to renewable electricity users through parallel LGC and GreenPower certificate recognition today.

To discuss any of the above feedback further, please contact me on +61 422 057 856 or jmccollum@apga.org.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'JM', is positioned above the printed name.

JORDAN MCCOLLUM
National Policy Manager
Australian Pipelines and Gas Association