



3 May 2023

Submission: Standards Australia consultation on amending AS/NZS 4564:2020 General-purpose natural gas

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 contribute to the Standards Australia consultation on amending AS/NZS 4564:2020 - General-purpose natural gas (the **Standard**). APGA supports Standards Australia commencing an amendment process for the Standard and recommends commencing a process considering new research outcomes alongside industry cost and risk factors preventing renewable gas blending today.

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.

The renewable gas industry has the potential to play a significant role in decarbonising Australia's energy sector. However, aspects of the Standard create compliance risk and introduce cost to enable the injection and blending of renewable gases into the gas infrastructure. A revision of AS4564 has the potential to unlock the opportunity of low-cost gas blending in Australia where the research shows that it is safe to do so.

Amendments required to enable hydrogen blending

The current contents of AS4564 poses challenges for hydrogen blending. In particular, some APGA members have received legal advice indicating that phrasing within AS4564 combined

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/>

with a lack of a specified allowable hydrogen range creates regulatory risk for service providers which allow hydrogen blends within its infrastructure.

There is a view that the absence of a hydrogen limit does not prevent hydrogen blending under the Standard, and only the Wobbe Index limit constrains hydrogen blending. Future Fuels CRC research finds that this would be a reasonable way for the Standard to function.

However, APGA members flag other statements within the Standard imply an unspecified limit on hydrogen uptake. This is leading to gas infrastructure service providers being reluctant to take on the risk of introducing hydrogen if the Standard could be read in such a way that limits hydrogen.

APGA recommends that any Standards Australia review of AS4564 include engagement with its members to understand the risk that regulatory legal advice has highlighted, to ensure that phrases within the standard do not unintentionally impede hydrogen blending – in particular where this is not the intention of the Standard.

Amendments required to enable biomethane uptake

One of the more costly components of biogas composition which needs to be removed to produce biomethane is oxygen. While biogas typically contains around 1 per cent oxygen content, the Standard requires under 0.2 per cent. It is not impossible to achieve oxygen reduction to this level, but the cost of doing so is very high – some proponents suggest that oxygen removal can add in the order of \$4 to \$8 per gigajoule to biomethane cost.

If it is safe for infrastructure and appliances to transport and consume AS4564 compliant gas with 1 per cent oxygen content, then maintaining the 0.2 per cent limit in light of these cost estimates seems unnecessarily impeditive to biomethane industry uptake.

Future Fuels CRC research in the Australian context indicates that infrastructure and appliances can safely operate with an oxygen level of up to 1 per cent. This research also proposes industry endorsed phrasing to amend the Standard to achieve this end. APGA recommends that Standards Australia consider an amendment to oxygen limits in the Standard in line with Future Fuels CRC research and proposed phrasing.

Relevant Future Fuels CRC research

Please note the following Future Fuels CRC research and their associated delivery dates in considering the timing and framing of amending the Standard:

- RP1.4-01 Future Fuels End-use – Type A appliances Test Program. **Final report delivered in August 2020**
- RP1.4-02 Future fuels End-use – Type B appliances and Industrial equipment. **Final report delivered in February 2020**
- RP1.4-05 Performance of Type A appliances with blends of hydrogen and natural gas. **Final report not yet delivered (due April 2023) – expected to be delivered in mid-May**
- RP1.4-06 Planning detailed assessment of Type B appliances with blends of hydrogen and natural gas. **Final report delivered in September 2021**
- RP3.2-07: Metering and gas quality monitoring. **Final report delivered March 2021**
- RP3.2-09 Literature Review on Biomethane Impurities. **Report delivered in July 2021**

- RP3.2-09 “Desktop review and corrosion modelling for integrity-based impacts of raising AS-4564 oxygen limits on Australian natural gas networks”. **Report has recently been delivered to FFCRC – it will be uploaded to the FFCRC website ASAP**
- RP1.4-07 “Deliverable 1: The effect of biomethane oxygen and nitrogen content on Type A appliances”. **Report delivered 3 June 2022.**
- RP1.4-07 “Deliverable 2: The effect of biomethane oxygen and nitrogen content on laminar flame speed and emissions”. **Report delivered November 2022.**
- RP1.4-07 “Biomethane injection into the gas network: impact of impurities on the performance of end-use appliances”. **Final report expected to be delivered on/by 1 October 2023**

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

Yours Sincerely,



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