Property Council of Australia Submission

GreenPower Renewable Gas Certification Pilot

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Background

The Property Council is supportive of the continued use of natural gas in buildings in the short term as a transition fuel while the property sector electrifies its operations.

Much of the energy in gas systems is lost through poor efficiency appliances and, as is increasingly becoming better understood, through leakage. Methane, the main component of Natural Gas and biomethane both have powerful Global Warming Potential (GWP) and must be phased out rapidly from uses where there are well established low GHG alternatives.

Burning methane produces CO2 which is a gas with elevated GWP and will contribute to exacerbating the negative impacts of climate change. Burning biomethane liberates an equivalent amount of CO2 as the amount extracted from the atmosphere by the plants used as the feedstock and is therefore considered net zero in emissions. However, the combustion is often an incomplete process resulting in some methane being released which has a higher GWP than the CO2 it absorbed during its production.

US studies have found that over the lifetime of an appliance more methane leaks from them when they are turned off and through post-meter leaks and incomplete combustion.[1] Further, there is some scepticism over the accuracy of GHG emissions from the full gas supply chain particularly as supply moves to coal seam gas fields.[2]

Gas networks and natural gas extraction sites have been demonstrated to leak significant amounts of methane into atmosphere. The National Greenhouse Factors provide limited information on scope 3 emissions for the gas network. Scope 3 factors haven't been updated since 2008/9 and exclude fugitive emissions from the distribution network.

Emission source	Fuel combustion	Fugitive emissions
Natural gas exploration	Included	Included
Natural gas production or processing	Included	Included
Natural gas transmission	Included	Included
Natural gas distribution	Included	Not included

Figure 1- National Greenhouse Accounts Factors 2021, page 74

[1] https://pubs.acs.org/doi/10.1021/acs.est.1c04707

[2] A review of current and future methane emissions from Australian unconventional oil and gas production. Oct 2016. (Melbourne Energy Institute – Lafleur, Forcey, Saddler, Sandiford)

As conventional gas supplies decline and more reliance is placed on alternate supply from coal seam gas, fugitive emissions seem likely to grow in volume based on the experience of overseas markets.

Fugitive emissions are most significant in NSW, comprising up to 22% of emissions related to gas consumption.

Scope 1 EF (NGA Factors 2021, Table 2: = 51.53 kgCO2e/GJ
Scope 3 EF (NGA Factors 2021, p75) NSW (Metro – Non Metro) = 13 - 14 kgCO2e/GJ

Our members hold concerns that any actions that extend the life of the gas distribution network will lead to unnecessary and avoidable GHG emissions and detract from our national target of net zero by 2050.

Allowing gas consumers to purchase Renewable Gas Certificates (RGCs) has the potential to delay the replacement of gas appliances and delay the decommissioning of gas systems.

Further, there is a risk that creating new demand for limited bio resources has the potential to distort agricultural markets.

Biomethane is sourced from organic feedstock that is treated to release biogas which can be further processed to become biomethane. Organic feedstocks can include:

- Sewage
- Crop waste
- Energy crops

Energy crops compete with food crops for water, soil and nutrients and do not efficiently convert solar energy into biomethane.

There are existing facilities that create and capture biogas including EarthPower, Sydney Water, and many landfill sites. At these facilities the biogas is collected and converted to electricity. Sometimes, in cogeneration systems where waste heat can be used as part of the organic digestion process increasing the overall efficiency of the system. By comparison, sources of feedstock are limited with many already being used for energy. Feedstocks tend to be widely dispersed leading to significant impacts from year 'round collection and transport.

Biomethane presents the advantage that it can be injected into the gas grid without requiring any change to the distribution network or consumer appliance. However, it seems unlikely that there will be enough biomethane supply to fully replace natural gas in the gas grid.

Hydrogen does however represent a possible, future supplement. Only Green Hydrogen, made using renewable electricity, is without greenhouse gas emissions and cost-effective green hydrogen will require a significant input of cost-effective renewable electricity. As a result, it is likely that consumers will choose to remove hydrogen as an intermediary energy source and transition directly to the cheaper renewable electricity.

The Australian Energy Regulator notes global average cost of producing bio methane = US$19/MBtu compared to the average wholesale gas price in Australia 2020 < $6/MBtu.[3]

AEMO's draft Integrated Systems Plan 2022 develops a number of scenarios, the "step change" scenario considered most likely by an expert panel. Characteristics of these scenarios include:

[3] Regulating gas pipelines under uncertainty – Information Paper Nov 2021

AEMO's scenarios in 2040	Rooftop solar capacity compared with 2020	Residential heating	Industry and manufacturing	Proportion of our cars that are electric vehicles
Net zero 2050 The NEM has seen 10 years of growth in deployment of emissions-abatement technologies, and would be on track for zero emissions by 2050	Quadruple	Increasingly heating our homes with electric heat pumps and reverse cycle air-conditioning, with gas heating appliances reduced by 55% since 2020.	Over 30% powered by electricity, up from 20% electricity in 2020	Almost half
Step change Consumers have led a transformation by installing more of their own power sources, buying electric vehicles, and voting for strong global policy action to rapidly reduce carbon emissions	Quadruple	The use of gas in our homes is cut by 85% since 2020, on the path to using no gas in homes by 2050	Using nearly 20% less gas, 30% less coal and 90% less oil than in 2020	Almost 60%, and almost one-third of heavy vehicles are fuelled by hydrogen

A fully renewable hydrogen/biomethane gas network would require modification of network components, meters and appliances and will still produce GHG emissions (including fugitive methane).

Hydrogen is less energy dense than methane and therefore is unsuitable to the current network infrastructure. A potential solution would be to increase the pressure within the network, which in turn would increase the occurrence of leaks and require modifications to the design of appliances.

Future options of methanated hydrogen, $CO_2 + 4H_2 = CH_4$ (methane) $+ 2H_2O$, still rely on low-cost hydrogen which requires low-cost electricity for its production. It is therefore likely that buildings will remove the intermediary fuel and opt to use low-cost electricity directly.

Hydrogen is forecast to play an important role as a fuel and process feedstock in certain industries. The facilities could be supplied through dedicated pipelines or through onsite/nearsite, electrolysers turning renewable electricity into hydrogen. Clusters of businesses could use a dedicated system that operates independently from the broader gas network.

Without a clear renewable energy gas grid objective GreenPower should not certify green gases. Green Gas is not equivalent to Green Electricity.

Consultation questions

Which renewable gases will be included in the pilot ?

Gas should be considered a short-term transition fuel for the building sector. There are few plausible scenarios whereby the wide scale gas grid becomes sustainable environmentally or economically.

Anything that delays the decommissioning of the grid increases greenhouse gas emissions and will detract from our national target of net zero by 2050.

1. Do you agree with the definitions outlined above? If not, what should they be?
2. Do you agree with an initial focus on biomethane? If not, why not?
3. Should the pilot be open to other renewable gases, if so, which and why?

Eligibility to participate in the pilot

4. Do you agree with the above eligibility criteria? If not, why?
5. Are there other eligibility criteria that should be included, and what would they achieve?
6. Which technologies and production processes should be included in the pilot?
7. What factors do you consider essential when defining best practice planning compliance and environmental management?

Displacing network gas as a requirement for the pilot

8. Do you agree that only projects that displace network gas use should be eligible to participate in the pilot? If not, why not?
9. Should behind the meter production and use projects without a network connection be able to participate in the pilot, and why?
10. If behind the meter projects without network connection were eligible, how could metering and other verification activities be done?
11. Are there any barriers to injecting renewable gas into the network in your jurisdiction that GreenPower should be aware of for the pilot?

Network boundary

12. Do you agree with the proposed national network boundary approach and if not, why?

No, using a national boundary allows a customer drawing from a fossil fuel system to claim use of renewable gas injected into a different network.

Eligible feedstocks for biomethane

13. Do you agree with the pilot aligning eligible feedstocks with the ERF methodology?

14. Should any other feedstocks be included? Which ones, and why?

15. Do you see any risks of unintended consequences from incentivising anaerobic digestion of waste-derived feedstocks and landfill gas capture? If so, which risks and are there any risk mitigation options?

16. Should the use of energy crops be permitted? Why or why not?

17. If energy crops were eligible, what conditions and considerations would ensure these projects still adhere to the principles of Ecological Sustainable Development?

18. Should methane produced using hydrogen methanation of the carbon dioxide in biogas be included?

Project scope and lifecycle

19. Do you agree that, for project assessment, the pilot should use the cradle to gate approach? Why or why not?

The proposed cradle to gate LCA excludes the most harmful part of the biomethane project, fugitive emissions after the point of injecting the biogas into the distribution system.

The emissions accounting for the project needs to be made clear. An RGC will not confer zero emissions energy to the consumer, the 22% of fugitive emissions remain.

20. Do you agree with the definition of the gate being the gas network injection point? If not, why not?

21. Are there any other LCA standards or requirements that should be considered?

22. Should there be different requirements for biomethane and hydrogen projects? If so, what should they be?

Fugitive emissions

23. Do you agree with this approach? If not, how should fugitive emissions be treated?

Fugitive emissions must be considered and accounted for in relation to the broader emissions associated with RGCs.

Offsetting emissions

24. Do you agree with the proposed approach? If not, why?

25. Should other carbon offsets be permitted to offset upstream emissions?

Baseline emissions

26. Do you agree with the proposed approach? If not, why?

Interaction with other schemes

27. Are there any other new schemes not mentioned here that GreenPower should be aware of?

28. What linkages between these schemes and the pilot should be considered?

Recognition of RGCs by existing schemes

29. What recognition is needed for the pilot to provide value for customers?

30. What design elements of the pilot are most crucial for recognition by other programs and schemes?

31. Do you agree with the proposed approaches for non-ERF and ERF projects? If not, which step should be changed and why?

32. Do you agree that any displacement ACCUs should be surrendered before an RGC is created? If not, why not?

33. Do you see any risks with the alternative approach of the displacement ACCU being surrendered at the same time as the RGC is surrendered?

34. Do you agree with the decoupled approach being applied for the pilot?

35. Please specify why you think one or the other is more suitable, and if any other options should be considered.

36. Do you agree with the proposed approach of using an existing registry? If not, why not?

37. Is it important for customers to be able to access the registry and manage their own surrenders?

38. Is there a particular registry functionality you think should be included in the pilot, and why?

39. Do you agree with the proposed attributes?

40. Are there any other attributes that should be included?

41. Do you agree with GJ as the functional unit? If not, why?

42. How important is it that the registry is based on GJ in addition to using this unit on the certificate?

43. Should a certificate be issued for each 1 GJ of renewable gas produced, or should certificates be issued incrementally for any volume chosen by the producer?

44. Do you agree with the proposed validity period? If not, why?

45. Are there other schemes or programs that the pilot should align with regarding the certificate validity period?

46. Which organisations should be represented on the project steering committee?

The Project Steering Committee should include a full set of interested stakeholders including representatives with relevant property industry experience to ensure credibility.

47. Do you agree with the proposed approach for auditing? If not, why not?

48. What price would you expect for a renewable gas certificate?

49. Do you agree with the proposed approach not to set price caps or minimum prices? If not, why?