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Submission: Agriculture and Land Sectoral Decarbonisation Plan

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 the Department of Agriculture, Fisheries and Forestry consultation on the first sectoral decarbonisation plan, the Agriculture and Land Sectoral Plan. Australia has the opportunity to reach our national net zero target when all industry sectors work together towards this common goal. However, there is risk of misalignment on electricity and energy decarbonisation between individual sectoral plans.

APGA supports a net zero emission future for Australia by 2050,¹ Renewable gases represent a real, technically viable approach to lowest-cost energy decarbonisation in Australia. As set out in Gas Vision 2050,² 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 CRC,³ 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.

Risk of sectoral plan misalignment

The sectoral decarbonisation plans provide the opportunity to develop coordinated decarbonisation strategies for specific industries. In drafting these documents, the relevant departments should aim to address only the issues directly relevant to that industry sector, and in particular leave issues on decarbonising energy and electricity to that sectoral plan.

The consumption of electricity and energy can be decarbonised in two ways:

1. Changing the type of energy being used to a decarbonised or decarbonising type of energy – for example, electrifying diesel demand; or
2. Decarbonising the type of energy already being used – for example, using drop in renewable diesel.

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/>

The five sectoral plans which sit alongside the Electricity and Energy Sectoral Plan risk making uninformed decisions if they make electricity and energy decarbonisation decisions without the context of the Electricity and Energy Sectoral Plan.

Importantly, the Electricity and Energy Sectoral Plan has the opportunity to set all four energy supply chains – solid, liquid, gaseous and electric – on their own decarbonisation journeys. Understanding each of these energy decarbonisation pathways will be key to each other sectoral plan determining the most economically efficient approach to decarbonising their electricity and energy use.

In discussion with DAFF to date, the Agriculture and Land Sectoral Plan appropriately ringfences these issues by only addressing energy and fuel as it pertains to on-farm use. This leaves the conversation of whether existing fuel supply chains could be decarbonised, as well as whether there are multiple alternatives, to the Electricity and Energy sectoral plan. APGA recommends that this model be carried forward for the development of other sectoral plans, and that each plan loops back upon delivery of the Electricity and Energy plan to reconsider its approach to electricity and energy.

Renewable gases can contribute to decarbonisation

The agriculture sector has a unique opportunity to both decarbonise its own sector and provide the necessary feedstock to contribute to the decarbonisation of other sectors. APGA's interest in the Agriculture and Land Sectoral Plan focuses on two areas: increasing feedstocks for use creating biomethane and other renewable biogenic fuels, and on decarbonising on-farm machinery and practices using renewable gases. These areas will be addressed in the following section.

Opportunities for the agriculture sector to decarbonise using renewable gases

The consultation paper acknowledges some of the opportunities available to the agriculture sector to decarbonise using renewable gases.

Decarbonising farming practices

The production of ammonia for use in fertiliser (and other uses) is currently very energy intensive, and is a considerable source of global carbon emissions. Fertilisers produced using renewable gases, rather than fossil gases, offer immediate opportunities to decarbonise farming practices.

Major ammonia producers Incitec Pivot⁴ and Yara⁵ are transitioning to ammonia production from green hydrogen in Australia. There are also smaller scale, on-farm projects such as the Good Earth Green Hydrogen and Ammonia project⁶ on the Keytah cotton station which will support the decarbonisation of the entire property. The project will produce ammonia for use at Keytah and green hydrogen to replace diesel used in regional transport.

⁴ Incitec Pivot, 2023, *Green ammonia at Gibson Island*, <https://www.incitecpivot.com.au/sustainability/projects/green-ammonia-at-gibson-island>

⁵ Engie, 2023, *Yuri Renewable Hydrogen to Ammonia Project*, <https://engie.com.au/yuri>

⁶ ARENA, 2023, *Good Earth Green Hydrogen and Ammonia Project*, <https://research.csiro.au/hyresource/good-earth-green-hydrogen-and-ammonia-project/>

Decarbonising on-farm fuel use

Heavy vehicles and farm machinery are also large contributors to agricultural emissions. Currently, electrification is seen as the major avenue for decarbonising their energy use. Renewable gases should also be supported as a decarbonisation option which is not reliant on potentially challenging electricity or battery infrastructure.

Farm vehicles powered by green hydrogen fuel cells^{7,8} and dual fuel technologies⁹ are being brought to market and will soon be available in Australia. Biomethane produced from agricultural and other feedstock can also be compressed into a renewable version of CNG, which already powers millions of passenger vehicles worldwide and can be adapted for heavy vehicles and machinery.

Accessing renewable gas supply chains

Both biomethane and green hydrogen supply chains will be readily available for the agriculture industry, provided the right policy settings are in place. As biomethane is chemically indistinguishable from natural gas, existing gas transmission and distribution pipelines can provide access without any changes to the physical infrastructure.

Regional communities will be able to access hydrogen through local generation projects, such as the Good Earth Green Hydrogen and Ammonia projects, or from hydrogen pipelines. Generating renewable electricity, converting it to hydrogen and transporting it in pipelines is a process that may be cost competitive, and certainly much easier, than transporting this energy in transmission powerlines. Gas transmission pipelines are safer, more reliable, and with fewer environmental impacts than transmission powerlines, with fewer impacts on landholders. Ready access to these pipelines will provide opportunities for regional communities to decarbonise which may not be available through transmission powerlines.

Opportunities for the agriculture sector to contribute to broader decarbonisation

The agriculture sector has a unique opportunity both reduce its own emissions and contribute to broader decarbonisation in Australia through the production of biogenic fuels.

Biogenic fuels, including biomethane and bio-CNG, as well as biodiesel, are produced from organic matter and are carbon-neutral when used in place of fossil fuels. Bioenergy Australia's current assessment of biomethane potential in Australia is at least 350 PJ annually, which much of this from the agriculture sector.¹⁰ This can be sourced both from direct production of feedstock, and also from organic agricultural waste. This provides a market for waste product and ultimately a circular economy for agricultural product.

⁷ Seneca ESG, 2023, *Kubota to roll out hydrogen-powered fuel cell tractors in 2025*, <https://senecaesg.com/insights/kubota-to-roll-out-hydrogen-powered-fuel-cell-tractors-in-2025/>

⁸ JCB, 2023, *JCB: Building a hydrogen future*, <https://www.jcb.com/en-au/campaigns/hydrogen>

⁹ Blue Fuel Solutions, 2023, *H₂ Dual Power*, <https://h2dualpower.com/en>

¹⁰ ENEA Consulting, 2021, *Australia's Bioenergy Roadmap*, <https://arena.gov.au/assets/2021/11/australia-bioenergy-roadmap-report.pdf>

How this sectoral plan can support decarbonisation

Recommend support for renewable gas supply chains

APGA recommends that the Agricultural and Land Sectoral Plan not make recommendations about electricity and energy, until the recommendations of the Electricity and Energy Sectoral Plan are outlined.

The Agriculture and Land Sectoral Plan should recommend enacting frameworks for developing renewable gas (specifically biomethane) supply chains. Ideally, this would support a renewable gas target or other mechanism which promotes gas use decarbonisation within the Electricity and Energy Sectoral Plan.

Green hydrogen¹¹ and biomethane¹² projects are already underway and actively decarbonising gas networks in Australia, supported by state and federal funding. But there are challenges to broader rollout of these technologies, some of which are specific to the agricultural sector. There is currently no widespread deployment of renewable gas, or national plan to achieve this. Ongoing, coordinated, nationally-led policy support for both the supply and demand side is required to provide the necessary signals for investment in the industry.

Whole-of-farm accounting

APGA recommends that the Sectoral Plan consider available carbon accounting methods for agriculture under the Emissions Reduction Fund and whether new or combined methods would be fit for purpose.

Emissions accounting for the agricultural sector is currently piecemeal and not streamlined. This was acknowledged in the *Report of the Expert Panel examining additional sources of low cost abatement*¹³ (King Review) as a key limitation to optimising carbon abatement in the agricultural and other sectors. Following the King Review, the Federal Government appointed an independent panel to review the integrity of Australian Carbon Credit Units (ACCU) under Australia's carbon crediting framework.

Recommendation 5 of the ACCU Review¹⁴ proposes establishing a proponent-led method development pathway. Implementing this recommendation would allow for the development of a method that brings together and expands existing carbon accounting methods under a single "whole-of-farm-accounting" method. The Carbon Market Institute has proposed a

¹¹ AGIG, 2023, *Hydrogen Park South Australia*, <https://www.agig.com.au/hydrogen-park-south-australia>

¹² Jemena, 2023, *Malabar Biomethane Injection Plant*, <https://www.jemena.com.au/future-energy/future-gas/Malabar-Biomethane-Injection-Plant/>

¹³ Department of Industry, Science, Energy and Resources, 2020, *Report of the Expert Panel examining additional sources of low cost abatement*, <https://www.dcceew.gov.au/sites/default/files/documents/expert-panel-report-examining-additional-sources-of-low-cost-abatement.pdf>

¹⁴ Department of Climate Change, Energy, the Environment and Water, 2022, *Independent Review of Australian Carbon Credit Units Final Report*, <https://www.dcceew.gov.au/sites/default/files/documents/independent-review-accu-final-report.pdf>

model for this, the Active Land Management & Agricultural Production (AL-MAP) method.¹⁵ This method would combine multiple carbon sequestration or emission avoidant land management activities from vegetation and soil which sequester carbon or avoid emissions, under a single method.

The agriculture sector can also be supported through developing a method to recognise natural gas displacement by a wider range of zero emissions gases. Currently this is constrained to biomethane from a narrow range of feedstocks.

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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¹⁵ Carbon Market Institute, 2021, *Blueprint for holistic approach to carbon farming – Active Land Management & Agricultural Production (AL-MAP) Method*, https://carbonmarketinstitute.org/app/uploads/2021/08/AL-MAP-Method-Blueprint_final.pdf