

# Opportunities for a renewable fuel industry in NSW

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Discussion paper submission

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Thank you for the opportunity to comment on New South Wales Government's discussion paper on the opportunities and challenges presented with renewable fuel uptake. Energy Consumers Australia is the national voice for residential and small business energy consumers, and we are committed to ensuring a safe, reliable, green, and affordable energy transition.

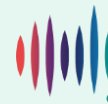
We commend the NSW Government for asking the right questions, seeking to better understand how a renewable fuels sector is developed in the most efficient and beneficial way.

ECA is firmly of the view that while renewable fuels may have a place in the energy mix for industrial users, this is not the case for households and small businesses.

There is mounting evidence to support transitioning households and small businesses to efficient, electric appliances. All-electric homes and businesses will not just help NSW reach its Net-Zero targets, but are also the most affordable and healthy option for consumers. The NSW Government must take advantage of the opportunity to support consumers to transition to homes and businesses that are healthier to live in and cheaper to run.

This submission will outline why the NSW government in their planning of a potential renewable fuels sector must not consider households and small businesses as part of this discussion nor the bearer of costs. We recommend:

1. The policy objectives must make clear that electricity is the preferred fuel for NSW households and small businesses;
2. Household and small business energy consumers must pay none of the costs of infrastructure or development programs for the renewable fuel industry; and,
3. Communications must clearly and simply outline the future of energy use, and the transition more broadly.



## The policy objectives must make clear that electricity is the preferred fuel for NSW households and small businesses.

### Question 1: Do you support these primary objectives? Are there other objectives renewable fuel policies should address?

We support the objectives laid out in the consultation, particularly that policies for a domestic renewable fuel industry must address hard-to-abate sectors. It should be made more explicit in the objectives, however, that renewable fuels do not have a role in decarbonising homes and small businesses.

Renewable fuels such as green hydrogen and biomethane have, at times, been touted as a possible alternative to fossil fuels for residential and small business consumers. However, there is mounting evidence that neither is feasible. The NSW government should focus on supporting households and small businesses to become all-electric.

*Hydrogen use by households and small businesses in the domestic economy is both technically difficult and economically inefficient.*

More than 50 independent studies on the use of hydrogen for heating space and water have all concluded that hydrogen is inefficient.<sup>1</sup> The International Renewable Energy Agency (IRENA) – a proponent of hydrogen overall – finds that residential heating is the lowest priority application of hydrogen.<sup>2</sup>

The economic inefficiency of hydrogen for homes stems from its reliance on green electricity and the relative efficiency of heat pumps. Emissions-free or “green” hydrogen requires the use of green electricity. If green hydrogen is cheap, then green electricity is also cheap. Efficient electric appliances, like heat pumps, are 4-5 times more efficient than hydrogen (or gas) appliances.<sup>3</sup> Accordingly, it will always be cheaper to operate efficient electric appliances compared to their hydrogen alternatives.

Moreover, hydrogen cannot replace gas “in heating or consumer appliances above a 5 to 20 percent blend without enormous costs and disruption.”<sup>4</sup> Consumers will need new appliances to operate on 100% hydrogen, and those appliances are not widely available at the moment. If they emerge in the future, they could not operate on the existing gas (methane) fuel supply. Accordingly, all consumers who would use hydrogen would have to replace all their appliances before the gas network converts to operating on 100% hydrogen. There are also material safety issues with operating hydrogen appliances, including the inability to include odorants to alert people to a possible hydrogen leak.<sup>5</sup>

*Biomethane resources are limited and should be reserved for hard-to-abate industries*

Compared to hydrogen, bio-methane offers fewer logistical challenges. It can technically operate without any modification to the existing gas network and is completely useable by existing gas appliances. The major issue is that there simply isn’t enough domestic bio-methane to replace Australia’s gas consumption.

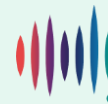
<sup>1</sup> Rosenow, J. A meta-review of 54 studies on hydrogen heating. Cell Reports Sustainability, 2024

<sup>2</sup> IRENA, Green hydrogen for industry: A guide to policy making, 2022

<sup>3</sup> Rosenow, J. Is heating homes with hydrogen all but a pipe dream? An evidence review, 2022

<sup>4</sup> Sara Baldwin, et. al, “[Assessing The Viability Of Hydrogen Proposals: Considerations For State Utility Regulators And Policymakers.](#)” Energy Innovation, 2022.

<sup>5</sup> Occupational Health and Safety Administration, “Hydrogen Fuel Cells: Fire and Explosion,” <https://www.osha.gov/green-jobs/hydrogen/fire-explosion>



Grattan reports that Australia could produce only a third of the current total gas consumption. And the feedstock needed to make biomethane is unevenly distributed, increasing the cost as it will need to be transported across the country. As a result, they state “biomethane is likely to be much more valuable for gas users where electrification is not a technical possibility and hydrogen is not an economic option”<sup>6</sup>. As a report on biomethane potential sponsored by the gas industry summarises, “current projections of biomass in Australia indicate insufficient quantities will be produced to meet the scale required to entirely replace natural gas at costs that are competitive with other forms of decarbonised gas.”<sup>7</sup> The Future Gas Strategy makes the conclusion even more concisely: “biomethane is likely to be more valuable to gas users where electrification is not feasible.”<sup>8</sup>

### *Electrification is the most cost-effective and healthy solution for households and small businesses*

Electrification is not only feasible, but cost-effective for many Australian households and small businesses. The economics for households going all electric rather than using a mix of gas and electricity are the clearest for new homes. The Victorian government outlined the total costs for running a new home on both gas and electricity compared to electricity only and found that an all-electric home (without rooftop solar) pays \$1,000 less annually to operate than a dual fuel home, and those savings increase to more than \$2,200 for an all-electric home with solar<sup>9</sup>. Even research commissioned by the gas industry admits that “for new builds...it would be lower cost to electrify.”<sup>10</sup>

All-electric homes and businesses are also healthier and safer for consumers. Numerous studies have drawn attention to the harmful chemicals and particles that gas stoves release and the potential impact on human lungs, particularly children<sup>11</sup>.

## **Household and small business energy consumers must pay none of the costs of infrastructure or development programs for the renewable fuel industry**

### **Question 4: How can the NSW Government support infrastructure reuse and development that delivers efficient, low-cost renewable fuel supply chains across the state?**

We support the NSW Government investigating the development of renewable fuels and their place in the energy mix, including through demonstration projects and pilots. However, as discussed above, renewable fuels may have a role in decarbonising hard-to-abate industries but not households and small businesses. Therefore, any renewable fuel development should be funded through the industries that seek and benefit from these alternative fuels.

Government may have a role in supporting the initial development of a renewable fuels industry however any additional costs to the network must not be borne by households and small businesses.

<sup>6</sup> Grattan Institute, Getting Off Gas, June 2023

<sup>7</sup> Deloitte, Decarbonising Australia's gas distribution networks, December 2017, p. 79

<sup>8</sup> Australian Government Department of Industry, Science and Resources, Future Gas Strategy, p. 37.

<sup>9</sup> Victorian Energy, Environment and Climate Action, Save money and the environment with your new all electric home, 2023.

<sup>10</sup> Boston Consulting Group, The role of gas infrastructure in Australia's energy transition, June 2023, commissioned by APA Group, Australian Gas Infrastructure Group, and Jemena. p. 7.

<sup>11</sup> Grattan Institute, Getting Off Gas, June 2023

## **Communications must clearly and simply outline the future of energy use, and the transition more broadly.**

### **Question 31: What information should be provided to industry and the community to build an understanding of renewable fuels? How is this information best delivered?**

Ensuring consumers are equipped with a clear understanding of their role in the energy transition will be fundamental as NSW transitions to Net-Zero. Households and small businesses should understand that, going forward, efficient appliances fuelled by electricity are the most affordable and healthiest way to meet their energy needs.

A 2024 KPMG report found that consumers who had a greater awareness of the energy transition were substantially more likely to feel positive about it<sup>12</sup>. However, our Energy Consumer Sentiment Survey finds that only 22% of households in NSW feel that the State Government has clearly communicated how the transition will impact them. And only 8% say that in the next three years they will investigate changing their home to run off electricity only<sup>13</sup>. This is despite growing evidence that all-electric households are cheaper to run, better for our health and better for the environment<sup>14</sup>.

Consumers need clear information to ensure they are making decisions that will be in their best-interest long-term. Our October 2023 Energy Consumer Behaviour Survey **found** that households in the ACT, the only jurisdiction at the time of fieldwork to have clear messaging on and support for electrification, were significantly more likely to be considering electrification and Consumer Energy Resources than other jurisdictions<sup>15</sup>. The NSW Gas Roadmap will play a critical role in outlining a clear plan for decarbonisation. Central to this narrative must be that electrification is the cheapest and healthiest alternative to fossil-fuel gas use, and renewable fuels are reserved for hard-to-abate industries.

Please reach out to Alice Gordon at [alice.g@energyconsumersaustralia.com.au](mailto:alice.g@energyconsumersaustralia.com.au) for any further information.

Sincerely,



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<sup>12</sup> KPMG, Human side of the energy transition, 2024

<sup>13</sup> Energy Consumers Australia, Energy Consumer Sentiment Survey, June 2024

<sup>14</sup> Grattan Institute, Getting off gas, June 2023

<sup>15</sup> Energy Consumers Australia, Energy Consumer Behaviour Survey, October 2023