

# Submission to the NSW Renewable Fuel Scheme Discussion Paper

November 2023

The Australian Logistics Council (**ALC**) is pleased to make a brief submission on the *NSW Renewable Fuel Scheme Discussion Paper (the Discussion Paper)*.

ALC is the peak national body representing major companies participating in the end-to-end freight supply chain and logistics industry with a focus on delivering enhanced supply chain safety, efficiency and sustainability.

Freight affects every Australian, every day, everywhere. Common goods purchased by Australians such as food, clothing, household appliances and medicine all need to be transported by freight operators. Australia's population is expected to grow by 10 million by 2040, an increase which must be supported through proactive investment in infrastructure.

Forecasts suggest that without a policy to cause the diesel fleet to retire early, diesel heavy vehicle fleet in Australia will remain at around 55 per cent of the total heavy vehicle fleet in 2050 locking in emissions from diesel combustion well past 2050<sup>1</sup>.

As Australia makes this transition to a decarbonised economy, decision makers must not forget the need to ensure a resilient and efficient end to end supply chain to carry the Australian freight task

This means that care needs to be taken to ensure that decisions made to incentivise the adoption of methods of transport utilising alternative fuels does not distort the efficient operation of the marketplace.

In this submission, ALC will be principally concentrating on areas of the most relevance to our members.

## Hydrogen

Australia's trajectory toward global hydrogen leadership by 2030, both in export capabilities and local industry decarbonization, is evident. The Consultation Paper emphasises hydrogen's versatile applications, especially in hard-to-abate sectors like heavy transport, where battery electrification isn't straightforward.

The growing interest in hydrogen reflects its evolution from a less prominent energy source to one garnering widespread attention locally and internationally. However, there's a need to ensure that

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<sup>1</sup> Towards net zero – Practical policies to reduce transport emissions, Grattan Institute 2021

there is a unified and national approach, with jurisdictions implementing precise policies to expedite investment and industry growth.

There is a risk facing Australia's hydrogen industry that lies in the predominant focus on gaseous hydrogen. Liquid hydrogen for heavy transport has many benefits largely overlooked in ongoing initiatives. To achieve alignment with decisions made by global Original Equipment Manufacturers (OEMs) like Volvo Group and Daimler Truck and Bus, emphasising liquid hydrogen is equally important.

The hydrogen can be stored onboard the vehicle as high-pressure gas or a cryogenic liquid. Storing the hydrogen as a liquid is advantageous for long haul truck and bus applications because for the same storage volume, the range (miles) of the vehicle can be 2 times greater than using a high-pressure gas depending on the gas pressure<sup>2</sup>. In addition, the short refuelling time possible (10-15 minutes) with hydrogen with either liquid or gas is a more valuable asset compared to battery-electric trucks that require very large and heavy batteries which require much longer to recharge. It seems likely that when the refuelling technologies for liquid are mature that refuelling with liquid will be faster than with gas.

The primary disadvantage of liquid hydrogen is its higher cost due to the cost of liquefaction and the difficulty in transporting over long distances. These difficulties require the development, construction, and operation of large, efficient central liquefaction plants that produce liquid hydrogen at relatively low cost.

The absence of a commercially viable liquid hydrogen market poses a risk to Australia, potentially diverting foreign investments and affecting our decarbonization goals and supply chain competitiveness.

More broadly, policy makers should avoid 'picking winners' in incentivising technologies that can help to decarbonise the transport sector. Whilst green hydrogen produced from renewable energy is understandably the ultimate goal, policy makers should consider policy settings that enable a broad suite of net-zero hydrogen production. This could include blue hydrogen, should the technology enable lower production cost and greater scalability in the fledgling years of Australia's commercial hydrogen sector.

## Liquid Hydrogen and Alternative of Renewable Diesel

Hydrogen is currently integrated into the transportation systems of numerous countries, boasting advantages in terms of weight, power density, range, and refuelling efficiency. ALC's forward thinking members envision the future of hydrogen across various intermodal needs (trucks, forklifts, rail, aviation, marine shipping etc) as a strategic consideration. However, the widespread adoption on a significant scale is unlikely until the end of this decade, at the earliest, without incentives and policy to encourage uptake.

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<sup>2</sup> Andrew Burke and Lew Fulton (2022) Use Of Liquid Hydrogen in Heavy-Duty Vehicle Applications: Station And Vehicle Technology and Cost Considerations  
[https://escholarship.org/content/qt22z8260f/qt22z8260f\\_noSplash\\_471a1fd55d7f6bc82febb5e5897f7b4c.pdf](https://escholarship.org/content/qt22z8260f/qt22z8260f_noSplash_471a1fd55d7f6bc82febb5e5897f7b4c.pdf)

The infrastructure for hydrogen production, storage, and distribution is currently in its early stages, which drives up cost curves.

In terms of current infrastructure, and as noted by the State of Hydrogen 2022 report<sup>3</sup>, Australia currently has a limited number of operational refuelling stations, with the majority not operating at a commercial scale. Despite the extended range of hydrogen vehicles, the dispersed locations and considerable distances between refuelling stations pose a risk. Even the temporary inaccessibility or maintenance of just one station can introduce uncertainty and compromise the feasibility of travel.

Policy-makers will need to work on pilots that co-locate supply of hydrogen with demand from wider stakeholders brought in from fuel retailing, freight logistics and vehicle manufacturing.

There is a necessity for the Australian Government to take on the responsibility of coordinating a public refuelling network with nationally standardised consideration of access, suitability and consistency of hydrogen form (referring to liquid or compressed gas at specific pressure). The absence of a nationally standardised infrastructure strategy, ideally aligned with international standards, significantly undermines the overall cost-effectiveness of owning and operating hydrogen-heavy vehicles.

Australia's freight task reflects the reality of vast distances and low population density across the continent. As such, a sizable proportion of our freight will require very large and heavy configurations. For the coming years, very heavy haulage including rail and high-productivity road freight vehicles (i.e. A-Double and quad road train configurations) will continue to be propelled by internal combustion engines (ICE).

The most immediate decarbonization solution for heavy haulage lies in focusing on local manufacturing of renewable diesel. Renewable diesel, also known as hydrotreated vegetable oil (HVO), is chemically identical to conventional diesel, but it's created from renewable raw materials (animal fats, vegetable oils including used cooking oil, and agricultural waste) instead of crude oil. Because it's so similar, existing diesel engines do not need to be modified –existing fleets of diesel trucks, trains and mobile equipment can switch straight to using it.

Renewable diesel offers an excellent, tested and readily available alternative to mineral diesel, with much as 75 percent to 95 percent reduction in lifecycle emissions compared with mineral diesel<sup>4</sup>, and doesn't have a shelf life, meaning its storage and distribution is far easier.

This approach allows for 100% direct injection into existing fleets and infrastructure, presenting a cost-effective, straightforward, and sensible method for overnight decarbonization.

In Australia, the obstacle for Hydrogenated Vegetable Oil (HVO) adoption lies in the current National Diesel Standards, which don't permit 100% diesel replacement due to specified density requirements. This regulatory misalignment hinders the widespread use of HVO as a sustainable alternative to traditional diesel.

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<sup>3</sup> Australian Government (2023) *State of Hydrogen 2022*, Australian Government Department of Climate Change, Energy, the Environment and Water, April, <https://www.dcceew.gov.au/energy/publications/state-of-hydrogen-2022>

<sup>4</sup> <https://www.biobased-diesel.com/post/heavy-vehicle-industry-australia-joins-call-to-establish-local-renewable-diesel-industry>

The impact of strong policies is clear in the US, with its national Renewable Fuel Standard scheme and California's Low Carbon Fuel Standard. These policies, which provide financial incentives based on biofuel carbon credentials, have driven development and investment into conventional and advanced biofuels. In fact, Australian tallow is converted into renewable diesel at the NexBTL refinery in Singapore, to be sold in the Californian market. Similarly, the majority of Australian canola seed – considered a low-carbon feedstock due to Australian farming methods – is exported to Europe for conversion to biodiesel<sup>5</sup>.

There is no commercial renewable diesel production or supply in Australia, however several companies are looking to develop domestic production. Three groups are progressing proposals in Western Australia with two based in the Wheatbelt region and one in Perth<sup>6</sup>.

Encouraging renewable diesel production at a price comparable to mineral diesel would prompt the rapid adoption of a proven and familiar product. This strategy ensures the resilience of existing grids and infrastructure, mitigates supply chain risks such as Australia's fuel security, and eliminates the need for additional planning or modifications to current port infrastructure. The key incentive required is narrowing the fiscal gap between mineral diesel and renewable diesel.

## Other considerations

The ALC would like to offer some additional commentary on key aspects that warrant consideration during the consultation phase. These points aim to contribute to the development of a robust and effective scheme that aligns with the goals of supporting renewable fuels and achieving a low-emission or zero-emission transportation sector.

### *1. Incentives for Transitioning to Renewable Fuel Blends*

The ALC advocates for the inclusion of incentives that support the use of renewable fuel blends during the transition phase. These incentives are crucial for facilitating the commercialization of renewable fuels and encouraging their early adoption. By providing financial and regulatory support, the scheme can play a pivotal role in accelerating the shift towards sustainable transportation solutions.

### *2. Transition Periods and Review Frequency*

It is essential to establish clear transition periods and a regular review mechanism for any new regulatory regime. This ensures flexibility and adaptability to evolving technologies and market dynamics. Frequent reviews allow for adjustments based on technological advancements, market readiness, and the overall progress towards achieving emission reduction targets.

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<sup>5</sup> CEFC (2019) Biofuels and Transport: An Australian opportunity  
<https://www.cefc.com.au/media/4f2dctmf/biofuels-and-transport-an-australian-opportunity-november-2019.pdf>

<sup>6</sup> Government of WA (2022) Renewable Diesel Factsheet  
<https://www.agric.wa.gov.au/sites/gateway/files/Renewable%20Diesel%20Factsheet.pdf>

### *3. Certificates of Origin for Renewable Fuels*

To guarantee the authenticity of renewable fuels and ensure they are genuinely low or zero-emission, the ALC recommends the implementation of a certification process. Certificates of origin should be mandated for renewable fuels to verify their production methods, such as hydrogen generated through electrolysis using renewable energy sources. This measure adds transparency and credibility to the renewable fuel supply chain.

### *4. Comprehensive Emission Standards Across All Transportation Modes*

The ALC emphasizes the need for consistent and comprehensive emission standards applicable to all transportation modes, including sea, road, air, and rail. This approach creates a level playing field and provides regulatory incentives for the adoption of environmentally friendly technologies. It is important to avoid disproportionate impacts on specific sectors, as seen with the current challenges faced by the rail industry under safeguard mechanisms.

### *5. Emergency Provisions for Fossil Fuel Use*

While driving towards a low or zero-emission transportation sector, it is imperative to incorporate provisions for emergency use of fossil fuels. Unforeseen circumstances may necessitate temporary reliance on traditional fuels, and the regulatory framework should accommodate such exceptions while ensuring a commitment to overall emission reduction goals.

## Responses to Questions

### **What renewable fuels do we need to produce at scale to achieve net zero?**

A variety of renewable fuels is necessary, including (but not limited to):

- **Renewable diesel (HVO)** (for heavy fleet, equipment, and shipping)  
Replacing 2% of diesel with renewable diesel, based on current targets, would be the equivalent of taking 29,000 rigid trucks off the road<sup>7</sup>
- Biodiesel (as a blended fuel for heavy fleet, equipment, and shipping)  
Biodiesel however has major implications for servicing etc. This is not the case for HVO
- LNG (for heavy fleet, equipment, and shipping)
- Ethanol (as a blended fuel for lighter fleet)
- Green hydrogen (liquid, not gas, for heavier hydrogen fuel cell vehicles post-2030)
- E-methane (for gaseous applications in gas infrastructure)
- E-methanol (for shipping)
- Sustainable aviation fuel (for aviation)

**Of these fuels, which need incentives under the scheme to be commercially viable and for how long?**

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<sup>7</sup> <https://www.bioenergyaustralia.org.au/news/transitioning-australias-liquid-fuels-sector-report/>

All these fuels are likely to require incentives until they reach price parity with diesel. Price parity is essential in incentivising fuel switching in a highly competitive and price sensitive sector such as transport and logistics.

**Which fuels or production pathways should not receive incentives under the scheme? For example, should methane generated from landfill be excluded?**

Some negative perceptions around sustainable fuels exist, particularly in instances where foodstuffs are used in their production such as sugar cane or corn. ALC believes sustainable fuels produced from waste products as a feedstock to be preferable. The Government strategy should remain sensitive to public understanding of sustainable fuels to ensure companies have the social licence for their continued use. It will be important to communicate the environmental benefits of sustainable fuels and their role in the transition to a net zero economy.

Fuels derived from fossil fuels or those promoting fossil fuel uptake should not be included. Methane generated from landfills, unless of biogenic origin, falls under the category of fossil fuel and should be excluded.

**If biogenic fuels are included in the scheme, what controls should be in place to safeguard environmental outcomes and avoid competing with food production?**

Established international standards like ISO and RSB can serve as safeguard mechanisms to ensure appropriate and managed controls. It is important that federal and state/territory leaders and ministers have ongoing visibility of programs such as this scheme. This is important towards meeting and balancing competing policy priorities (such as food security) and associated political sensitivities.

**If the scheme is expanded to include other renewable fuels, who should be the liable parties and why?**

ALC agrees with the proposed liable parties.

**What target levels are appropriate beyond 2030 to develop the scale of renewable fuel production needed for net zero in NSW by 2050?**

ALC believes that a 30% emission reduction target by 2030 would be logical to support the necessary development of local fuel production.

**How can the scheme best provide targeted support for hydrogen and e-fuels until these fuels are commercially mature? Is it more effective to have a separate target for hydrogen or a certificate multiplier, and why?**

Separate targets for the various fuel types might be best suited particularly in an environment where there is no clear market leader in the renewable fuels market. ALC sees the need for mechanisms which are able to drive demand for fuels particularly in the stage where there is no market leader and supply chains as well as feedstock sources have not matured.

**If hydrogen and e-fuels do not have targeted support under the scheme, what support outside of the scheme should Government provide to help establish supply chains now?**

The Government should consider ways in which it can offer price stability for companies that wish to adopt more sustainable liquid fuels whether through tax credits or the availability of subsidies. Tax incentives could increase for fuels with greater sustainability criteria or government could look at ways to reduce the supply chain costs to collect feedstock. Maturing supply chain will be important in bringing the cost of fuels down. Overall regulatory settings should be established to ensure price competitiveness and aim to minimise severe price fluctuations. Without price stability, companies may switch back to high polluting fuels or be hesitant to invest in future technology, further undermining the industry and undoing efforts to decarbonize. Blending mandates should also shift and follow the availability of sustainable fuels particularly if there is a requirement that these are supplied domestically.

**Should the target for an expanded scheme be a production volume in GJ or an increasing percentage of liable fuel sales, and why?**

Any targets must balance what is feasible and what is best suited for net zero targets. A percentage target, although adding additional complexity to the system, will ultimately better serve the transition to net zero and emissions reductions.

**Australian Logistics Council**

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