24th July, 2024

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Subject: The Truck Industry Council's response to the Department Climate Change, Energy, Environment and Water's, *Low Carbon Liquid Fuels Consultation Paper – June 2024*

The Truck Industry Council (TIC) is the peak industry body representing manufacturers and distributors of heavy commercial vehicles (that is, with Gross Vehicle Mass above 3.5t) or "trucks" in Australia. TIC members are responsible for producing or importing and distributing 17 brands of truck for the Australian market, totalling almost 48,000 trucks in 2023. In 2023 TIC members supplied to market over ninety-eight (99) percent of all new on-highway trucks above 4.5 tonne Gross Vehicle Mass (GVM) sold in Australia.

Further, TIC also comprises of two dedicated engine manufacture members and two dedicated driveline manufacture member who supply major engine and driveline systems for both on highway and off highway "truck" applications.

A current list of TIC members can be found at the end of this submission.

Most TIC members currently provide a range of diesel powered trucks for sale in Australia, one member provides battery electric vehicles (BEVs) only, while six brands provide both diesel and BEV trucks and one member provides diesel and hybrid (diesel/electric) trucks. Whilst alternative powered trucks are available and in use currently in Australia, the Australian truck fleet is dominated by diesel powered trucks, hence TICs interest in Low Carbon Liquid Fuels (LCLF) and specifically Bio-diesel and Renewable Diesel. TIC and TIC members are not involved in the production, importation, or distribution of fuels in Australia, hence TICs interests in fuels lies in the in-service use of mineral diesel and LCLFs, this will be TICs primary focus in this submission.

The first part of this submission will outline the current road freight task and truck park in Australia. The size and make-up of the current Australian truck fleet, emission intensity of the sector, assets life, etc. An understanding of these parameters is required to appreciate the size of the decarbonisation mission facing the heavy vehicle road freight sector as well as the pathways, current and future, that could be deployed in order to transition to a low carbon future.

1. Introduction/background

The Australian Transport Sector accounts for just over 90 Mt CO_2 emissions (or 18%) of Australia's annual GHG emissions. The operation of Australia's national heavy duty truck fleet generates 19.8

MT CO_2 emissions (or 22%) of all Transport Sector emissions, which equates to about 4% of Australia's total annual GHG emissions.

The Transport Sector has experienced the highest GHG emissions growth of all industry sectors since 1990 and is expected to become the largest source of GHG emissions by 2030, with the national vehicle fleet (both light-duty and heavy-duty vehicles) accounting for around 72% of the forecast 111 Mt CO_2 emissions to be generated by the Transport Sector in 2030.

Road Freight is the most significant mode of transportation for goods in Australia, accounting for approximately 75% of the total domestic freight moved in Australia by total volume. This proportion has been remained largely unchanged since the late 1970's, due principally to the fact that Australia's sparsely populated geography and limited non-road freight infrastructure has meant that this is the most economic mode for movement of freight around the country.

Without significant (and costly) development of alternative national freight infrastructure, the road freight task will continue to grow at the rate of 3.5% to 4.0% per year (a 50% increase every 10 years). This is the typical growth rate that has been witnessed for this sector for decades now.

Constraining this annual growth rate is problematic – if not unrealistic - given that it is directly linked to growth in national economic output and national population growth. In addition, there are several contemporary trends that are further increasing growth of the national freight task. Chief amongst these trends is the following:

a) The rise of the online economy and digital commerce. This phenomenon has accelerated since COVID and is fundamentally reshaping the nature of the urban road freight task in Australia - from one that was previously optimized around the realization of freight efficiencies (i.e. between manufacturers, distribution centres, and retailers) to one that is increasingly being designed to optimize delivery times for end-customers (i.e. from manufacturer to end customer). This trend is fragmenting the freight task and has given rise to increased annual sales of new urban delivery trucks in recent years.

b) Changes in logistics industry practices. The past decade has seen a significant change in Australian supply chain practices where goods are no longer warehoused to reduce delivery times to Australian consumers. As a result, manufactured goods are typically transported directly 'off the production line', or 'off the ship', to retailers, or the end customer.

Further, the Australian truck fleet has an average age of approximately 14 years for all vehicles above 3.5t GVM *(BITRE Motor Vehicle Census 2023*). A sobering statistic is that a new truck sold in 2024 will not be retired from the national truck fleet until 2052 based on current truck fleet profile.

The Truck Industry Council has commissioned extensive CO_2 profile modelling of the current heavy vehicle fleet including a prediction of business as usual (BAU) emissions in 2025 and 2030. This work involved the construction of a 2020 baseline fleet using actual ABS Vehicle Census Data. Annual average fleet attrition rates (2015 to 2020) and annual truck sales data were then used to forecast the composition of the national truck fleet in 2025 and 2030. A summary of this modelling is provided below.

The national truck fleet will increase to approximately 850,000 vehicles by 2030, up from 688,000 trucks in 2020. The GHG emissions of the national heavy duty vehicle fleet are forecast to increase to 21.262 Mt CO_2 by 2030. This represents an increase of 2.667 Mt CO_2 (14%) above forecast 2025 levels and an increase of 4.052Mt CO_2 (23.5%) above 2020 levels as shown in Figure 1.

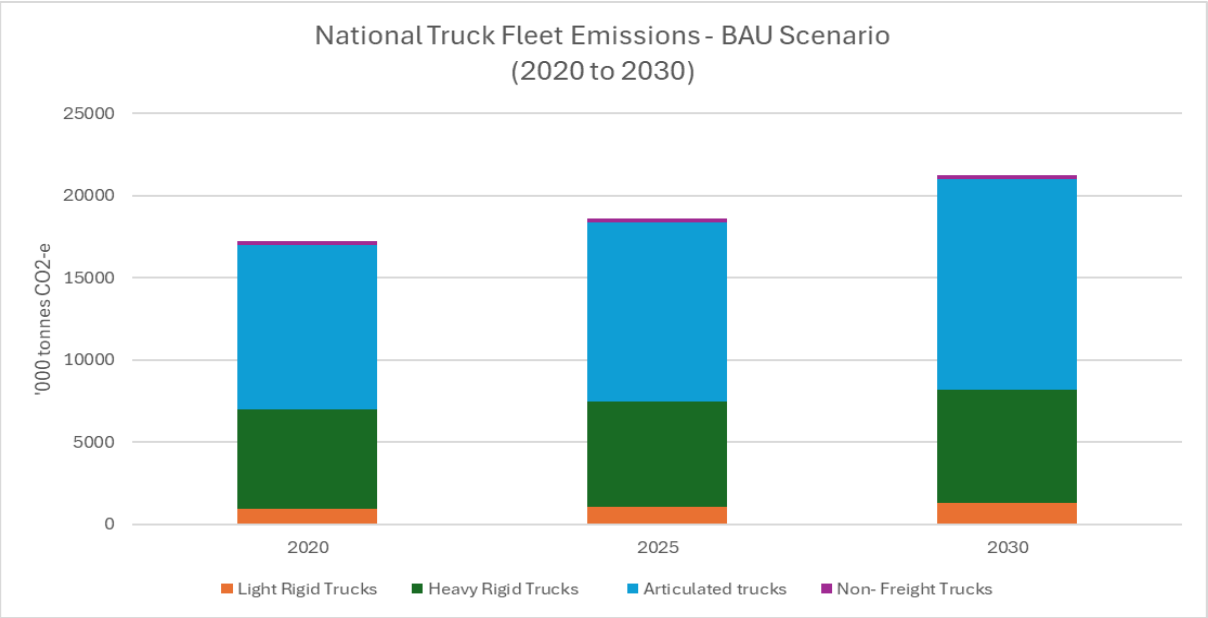

Figure1: GHG emissions are forecast to increase by 4.052Mt CO_2-e between 2020 and 2030

GHG emissions from articulated trucks will account for 69% of the projected increase between 2020 and 2030 – and 60% of the total GHG emissions produced by the national truck fleet in 2030.

The GHG emissions production rate of a new articulated truck in 2030 is forecast to produce 5.5x more GHG emissions than a new heavy rigid truck, 10.9x more GHG emissions than a new non-freight truck, and 17.9x more emissions that a new light rigid truck (refer Figure 2).

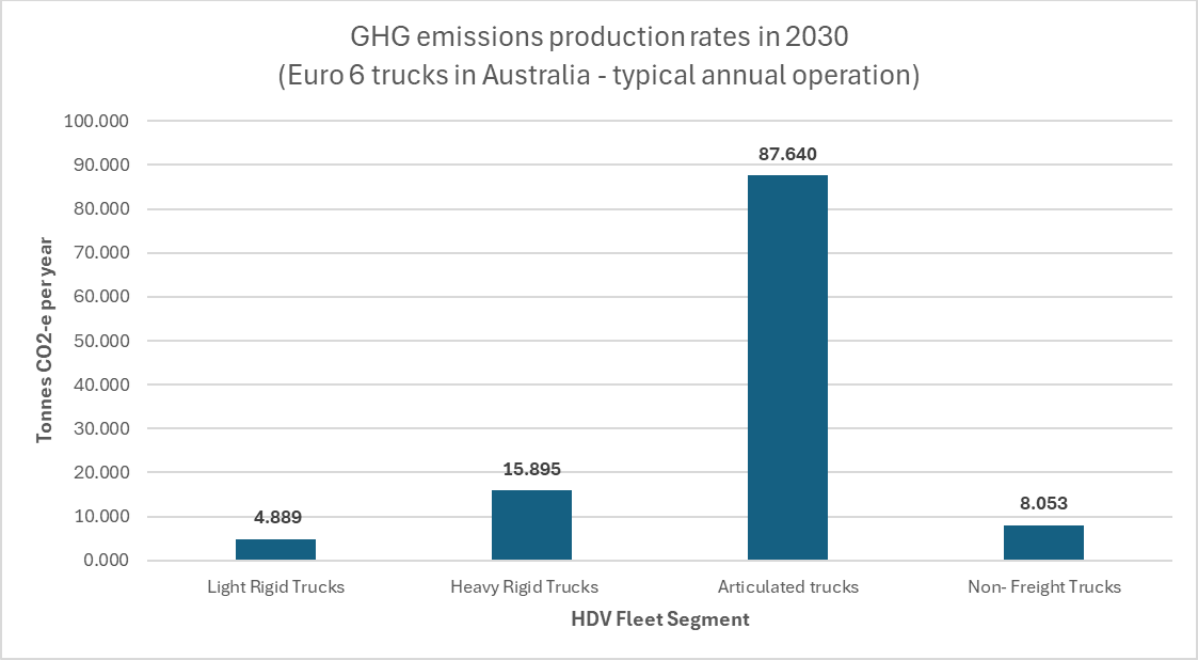

Figure 2: *New articulated trucks will produce 5.5 times more emissions than new Heavy Rigid trucks and nearly 18times more GHG emissions than new light rigid trucks in 2030*

In 2023 the new sales uptake of low (diesel/electric hybrid) emission and zero emission trucks was approximately 1%, with an even split (50/50) between zero emission and low emission (hybrid) trucks. TIC is predicting slightly less than the doubling of sales of these vehicle's year-on-year for the next 4-5 years. In 2030 TIC is forecasting that 1 in 4 (25%) of all new truck sales will be zero emission

(over 12,000 trucks/year) and that by 2030 there will be over 20,000 zero emission trucks on Australian roads. However, that will represent less than 2% of the truck fleet and because almost all these trucks will be Light and Heavy Rigid trucks operating in metro/urban environments, the actual CO_2 reduction that these zero emission trucks will deliver will be approximately 1% of the total heavy vehicle truck fleet emissions.

By 2030 approximately 98% of trucks operating in the Australian truck fleet will still require diesel. This is further reinforced by the lack of suitable zero emission truck technology that currently exists for the Articulated Truck and the larger Heavy Rigid Truck (eg: tipper and dog) sectors. Predominantly diesel engined trucks will be required up to and potentially beyond 2040, in these segments.

Hence due to the increasing freight task, the number and average age and long asset life of the Australian heavy vehicle truck fleet, it is obvious that a transition away from diesel, particularly for the Articulated Truck and the larger Heavy Rigid Truck portion of the fleet is many years away. And with these trucks accounting for more than 70% of heavy vehicle CO_2 emissions, low carbon liquid fuels (LCLFs) are the only practical solution for significant carbon abatement in the foreseeable future.

2. The Truck Industry Council's responses to the LCLF Consultation Paper questions

What do you think are Australia's comparative advantages as an LCLF producer? Where does Australia face international competition?

TICs response:

- LCLF feedstocks. Australia's feedstock potential was highlighted in the 2023 CSIRO SAF Roadmap. This report projected that in 2025, Australia will have enough feedstocks to produce 60% of local jet fuel demand using biogenic feedstocks, growing to 90% by 2050. Equally these feedstocks could be used to produce substantial quantities of Bio and Renewable Diesel. Australia possesses a significant feedstock advantage with a diverse array of sustainable LCLF sources, including fats and oils (such as oilseeds, tallow, rendered animal fats, and used cooking oil) and lignocellulosic materials (like straw, cotton trash, sugarcane bagasse, forestry residues, urban waste streams, sugarcane, grasses, woody biomass, and algae). Australia's feedstock potential can effectively meet the increasing demand for LCLF production, while simultaneously sustaining agricultural supply for other purposes. Currently Australia exports large quantities of these feedstocks to international markets for their production of LCLFs, these feedstocks should be used domestically to produce LCLF.
- Highly efficient and effective agriculture sector. Australia's agriculture sector is extremely well positioned to deliver feedstocks for a LCLF industry, as the sector is currently achieving with substantial exports of LCLF feedstock to international markets.
- Use of existing infrastructure. With Renewable Diesel and SAF being drop in fuels for blends currently of at least 50% and in many cases higher and Bio-diesel blends ranging from 5% in the automotive sector up to 100% and for some marine applications, Australia's extensive existing storage, transportation and delivery infrastructure for mineral based liquid fuels can be used directly for LCLFs and LCLF blends.
- Current LCLF production is underutilised: Existing biofuel supplies in Australia (biodiesel and ethanol) are currently underutilised, presenting an immediate opportunity for increased production of these LCLFs domestically.
- Fuel security. In 2021, 91% of all refined product consumed in Australia was imported. This includes imported refined oil and imported crude and condensate that is refined domestically (Department of Industry, Science, Energy and Resources (June 2021) Australian

Petroleum Statistics – Issue 299). By developing a LCLF industry in Australia we can start to address Australia's current fuel security deficiency.

- Strategic geographical location for supply into the Asia/Pacific region. Australia's geographic location provides access to key export markets in Asia and the Pacific region. And with fuel tankers currently leaving Australian shores empty (having unloaded their cargo of imported mineral fuel) we have a ready export opportunity and pathway for Australian produced LCLFs.
- Industry alignment. Australia has an array of stakeholders across the entire LCLF value chain, from feedstock suppliers through to end users of LCLFs who are all ready to act and progress the development of an Australian LCLF industry.
- Highly skilled workforce supported by the R&D/university sectors. With mining and agriculture playing such a key role in Australia's economy, we benefit from a highly skilled workforce in the key areas required to develop, build, operate and maintain a LCLFs sector in Australia.
- Late to the party. There is no doubt that Australia is behind the majority of the world with the development of a domestic LCLF industry. However, we can use this to our advantage by benefiting from the experiences of countries who have established a LCLF industry. By learning from these international examples, successes and challenges, Australia can develop a more effective policy and regulatory framework that maximizes our inherent advantages.

Based on the current policy and market environment, to what extent will Australia rely on imports of LCLF, as opposed to domestic production?

TICs response:

- Australia does not currently produce any SAF or Renewable Diesel domestically and is reliant on imports (largely made from Australian feedstock). However, importing these fuels is cost-prohibitive compared to traditional fuel equivalents, rendering widespread adoption economically unfeasible beyond limited demonstration projects.
- Global renewable liquid fuel demand is set to expand 38 billion litres over 2023-2028, a near 30% increase from the last five-year period (*International Energy Agency (IEA), Renewables 2023*). However, international investment is focussed in countries where governments are actively accelerating the adoption of renewable fuels through ambitious targets, subsidies, blending mandates, low-carbon fuel standards, and funding for projects. Thus, to attract this global investment to support domestic LCLF production and project development, Australia requires the right policy settings.
- Australia does have a small Bio-diesel industry, 3 production facilities. However, the production of Bio-diesel from these facilities has largely been mothballed in recent years with less than 10ML being produced yearly, when the potential combined output of these Bio-diesel refineries is approximately 105ML annually. A clear indicator that the current policy settings for domestic LCLF production are not working.

What mechanism do you think would best support production – through the tax system, contract for difference or grant based funding?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

Are there other mechanisms Government could consider to deliver production support, other than a production tax incentive or competitive grant-based payment? What do you think is the highest priority form of support?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

What are expected production costs of LCLF in Australia? How would you design production incentives to make production competitive in Australia?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

What would an expected rate of support be under a competitive grant-based production scheme (contract for difference or fixed grant amount per production unit)?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

How many producers would you expect a production incentive scheme to support in Australia?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

How could the introduction of a production incentive scheme affect competition in fuel production and supply markets, and also amongst fuel users?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

What are the expected timeframes for when an industry would be sustainable without support from Government?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

How should production support be funded, and how could this best be aligned with the beneficiaries of the production support?

TICs response:

- TIC and TIC members are not involved in the production of transport fuels, conventional, or low carbon, therefore TIC is not positioned to provide feedback on this question.

Would production support need to offer a different rate of incentive for SAF and renewable diesel?

TICs response:

- TIC notes that the current national discussion about LCLFs has implied that the market development strategies for both sustainable aviation fuels and renewable diesel (on-road and off-road use) will likely be similar. However, TIC contends that the characteristics of

these two markets are dramatically different in terms of services provided to society, scale and market behaviours. Hence TIC believes that the strategies for the development of the markets for these two fuels will likely need to be differentiated.

- As highlighted in the consultation paper, production incentive/s or demand-side measures designed neutrally for LCLFs would likely favour Bio-diesel and Renewable Diesel due to their lower production costs, potentially putting SAF at a disadvantage.
- It is important to recognise that electrification via BEV trucks and/or Hydrogen Fuel Cell will increasingly become feasible (probably beyond 2035) for many diesel-reliant truck sectors (currently only practically/economically viable for some metro/urban truck operations). Noting that other sectors currently using diesel engines may remain reliant on this fuel for a greater period than the truck sector. However, SAF will likely be the only viable decarbonisation option for aviation and thus SAF will be required in aviation past 2050.
- Currently and for the mid-term however, there is an increasing demand/requirement for Bio-diesel, Renewable Diesel and SAF. Noting that production methods for each of these LCLF may require/can only accept, specific feedstocks. Importantly, when considering Renewable Diesel and SAF, the two most viable current production methods, HEFA and Fischer-Tropsch, produce BOTH of these fuels concurrently with neither fuel able to be produced without significant quantities of the other. Generally, a given amount of suitable feedstock will commercially produce 55% Renewable Diesel and 45% SAF by volume from these two production methods. These percentages can be moved slightly, within production limitations, but are fundamentally linked.
- Thus, policy needs to not only ensure access to LCLFs to decarbonise hard to abate sectors WITHOUT favouring any specific LCLFs, policy must also be designed to ensure there is a market demand/use for Renewable Diesel and SAF in the quantities that would be produced locally (this could include international demand for these fuels and hence potential exports to “balance” the use of these locally produced LCLFs). Failing to created such policy settings would eventuate in Renewable Diesel subsidising SAF, or vice versa. Hence, policy design must enable and encourage the acceleration and deployment of multiple low carbon fuel types to support decarbonisation of key sectors with a recognition that not all fuels are equal in cost and demand and that locally produced Renewable Diesel and SAF volumes will be linked to a large extent by production methods for the foreseeable future.
- For imported Renewable Diesel, or SAF, volumes can be imported as required, for example only Renewable Diesel, or only SAF. However as detailed above, the local Australian production of these fuels, using the two most viable current production methods, will produce close to equal quantities of both Renewable Diesel and SAF. Hence policy settings must consider the local coproduction of these fuels and policy should not consider these fuels in isolation.

Would a potential production support program need to prescribe certain proportions of production volumes towards SAF or renewable diesel?
TICs response:

- Please refer to TICs response to the preceding question.

Would production support need to provide different levels of support for emerging and established production pathways? What are some of the design considerations Government should consider?
TICs response:

- Fundamentally TIC does not support “picking winners” with regard to technology. For example, TIC is agnostic with regard to the transition of the heavy vehicle sector to net zero, taking the view that a mix of technologies will be required, LCLFs, BEV trucks, Hydrogen ICE

and Hydrogen Fuel Cell as well as freight efficiencies via productivity improvements. And that these carbon abating solutions will have “their time” over the coming decades during the transition.

- However, in the short to mid-term, LCLF and specifically Bio-diesel and Renewable Diesel will be required as the only means of decarbonising the existing truck fleet, that due to its long asset life, will be predominantly diesel powered beyond 2035/2040.
- HEFA production technology is presently the most mature and investment-ready pathway for Renewable Diesel and SAF production. HEFA is also the lowest cost and most mature technology pathway, with approximately 85% of Renewable Diesel and SAF facilities expected to come online in the next five years to likely utilise HEFA production technology. However, HEFA is reliant on oil-based feedstocks (inedible animal fats (tallow), used cooking oil, canola and other oil seed crops and industrial greases). This will ultimately limit the production capacity of LCLF via the HEFA pathway. Hence there will be a significant imperative to diversify and scale up LCLF production through a range of other technologies and feedstocks to meet growing demand beyond 2030/2035. This includes expanding production through emerging technologies such as Alcohol-to-Jet, which uses ethanol or butanol fuels, and Fischer-Tropsch, which utilises bio/agricultural wastes and residues. Looking further ahead (2035/2040), Power-to-Liquid technologies, which produce liquid hydrocarbons synthetically using renewable electricity, water, and carbon dioxide (CO_2), will also contribute to expanding LCLF production capacity. The choice of LCLF production technology will be heavily influenced by local feedstock availability and supply chain costs. Therefore, government has an important role to play in steering the development of the industry to develop technologies and facilities that are most suitable for the long-term development of an LCLF industry in Australia, particularly beyond 2030/2035.
- In summary, to maximise the immediate potential of LCLFs, it is crucial for governments to reestablish the existing Bio-diesel production capacity in Australia, as well as fully leverage HEFA's technological and commercial readiness. At the same time, it is essential to support and recognise in policy design emerging technologies to ensure continued future production growth. Therefore, a combination of mechanisms that support established pathways, as well as policies that specifically de-risk emerging technology, could be effective to maximising domestic production capabilities, in the short, mid and long-term.

What policy approaches are technology agnostic, applying efficiently to new technologies as they emerge?

TICs response:

- Please refer to TICs response to the preceding question.

Do you support an emissions reduction threshold being included as part of eligibility criteria for fuels to receive support under a production incentive program?

TICs response:

- Existing and new LCLFs, including Ethanol, Bio-diesel, Renewable Diesel and SAF, should stipulate the inclusion of emissions reduction thresholds as part of the eligibility criteria for fuels to receive support under a production incentive program. However, during the early stages of development, it is key that the criteria are sufficiently inclusive to encourage widespread LCLF production and usage, matching supply and demand. A balanced approach could prioritise fuels with the highest emission reductions through a tiered system where different levels of emission reduction receive varying degrees of support or incentives.
- To support this position, TIC notes that the European Union’s Renewable Energy Directive II [reference, Directive - EU - 2023/2413 - EN - Renewable Energy Directive - EUR-Lex (europa.eu)] stipulates an emissions reduction of at least 65%. By comparison, the USA’s

Renewable Fuel Standard stipulates a life cycle emissions reduction of at least 20% compared with conventional fuels [reference, Final Renewable Fuels Standards Rule for 2023, 2024, and 2025 | US EPA)]. Such fuels could reasonably be blended with conventional fuel initially to deliver a lesser GHG emissions benefit, with a view to a requirement for progressive increase in blend renewable diesel concentrations (and hence increased GHG emissions) over time.

What threshold would you seek be included in eligibility criteria (for example 50 per cent emissions reduction relative to conventional fuels, or another emissions reduction ratio)?
TICs response:

- TIC supports a tiered system where different levels of emission reduction receive varying degrees of support or incentives, rather than a 'one size fits all' minimum threshold. This would allow the timely reestablishment of existing Bio-diesel production capacity in Australia, whilst allowing the carbon intensity of this fuel to be lowered over time with upgrades to production facilities (eg: use of renewable electricity/energy in production, lower carbon feedstocks and transportation).

Do you think any threshold should increase over time?
TICs response:

- Yes, TIC supports thresholds that are periodically reviewed and gradually increased as technology advances and emissions reduction opportunities present. This approach enables the deployment of existing pathways while encouraging the deployment of new technologies. It provides a clear signal for continuous improvement in emissions performance, fostering innovation and supporting decarbonisation. Also please refer to TICs response to the preceding question.

Do you think incentives should be included to encourage emissions reduction in addition to a minimum eligibility threshold?
TICs response:

- TIC supports a tiered system where different levels of emission reduction receive varying degrees of support, or incentives, based on the actual decarbonisation outcome delivered.

If you don't support a threshold, what emissions requirements do you think are better?
TICs response:

- Please refer to TICs response to the preceding question.

Do you have views on the sustainability criteria under consideration as part of the criteria?
TICs response:

- TIC supports the expansion of the Guarantee of Origin Scheme to include LCLFs. Inclusion in the Guarantee of Origin Scheme ensures that LCLFs can compete on equal footing with other energy sources in energy markets. This is vitally important in the road transport sector that is currently deploying BEV trucks as a means of decarbonisation and will intime use Hydrogen in both ICE and Fuel Cell applications to aid decarbonisation. Such a metric is required to stimulate market competition, fosters investor confidence, accelerates project development and will lead to increased uptake of CO_2 reduction technologies and in turn reduce carbon emissions from the heavy vehicle truck sector.
- The sustainability criteria for the inclusion of LCLF in the Guarantee of Origin Scheme should substantially align with existing international models while also being adapted to suit Australia's specific context/parameters, support local feedstocks and importantly

acknowledge the unique efficiencies and characteristics of the Australia agricultural sector (eg: land use parameters MUST factor in Australia's land mass, land use and sparce population, a very different scenario to the land use issues pertaining to Europe and much of Asia).

What additional or alternative criteria would you want to see form part of the criteria?
Do you have any other views on emissions and sustainability criteria?
TICs response:
TIC highlights the importance of the Government leveraging existing international schemes, where practical/applicable, so that Australia's LCLF sustainability criteria can be established quickly.

What are the community benefits associated with LCLF production in Australia?
TICs response:

- Employment and economic growth. A LCLF industry can offer substantial employment and development opportunities particularly for regional Australia.
- Agricultural revenue streams. Australian LCLF production will, at least in part, rely on agricultural feedstocks, providing surety for many existing farms and the potential for additional revenue streams for farmers, whilst supporting rural development and diversification.
- Job retention and transition. A LCLF industry will enable traditional/legacy energy workers to retain their jobs while adapting to cleaner energy technologies. Or transition from industries such as the coal sector to the low carbon energy fuels sector.
- Australian Fuel security. An Australian LCLF industry has the immediate potential to reduce our reliance on imported fuels. This would build over time and Australia could conceivably be liquid fuel self-reliant by 2050.
- Waste management solution. LCLFs support a circular economy, where waste is transformed to future fuels. A domestic LCLF market would incentivise the recovery and use of household, industry and agricultural residues/waste.
- Preserves Australia's tourism industry. Ensuring Australia maintains international connectivity by enabling refuelling of international planes and ships with LCLFs that meet global decarbonisation standards and mandates.

What options should the Government consider in its regulatory impact analysis, such as a mandate introduced over time, low carbon fuel standard connected with a trading scheme, a non-binding target or other demand options?
TICs response:

- TIC supports the implementation of a blending mandate for Bio-diesel, Renewable Diesel and SAF to be introduced concurrently on all three LCLFs and at a point in the fuel supply chain no later than the fuel wholesaler. Such a mandate needs to be applied nationally by the federal government and not at State and Territory level and should not be applied at the fuel retail point.
- Mandates should be legally binding on wholesale fuel suppliers. Non-binding mandates and/or mandates applied at the fuel retail point have failed in Australia previously. A similar failure would likely occur if State based, rather than national, mandates applied.
- Concurrent blend mandates should be applied to Renewable Diesel and SAF as the local production of these fuels, by current production methods, will produce close to equal quantities of both Renewable Diesel and SAF concurrently. Without appropriately

apportioned blend mandates for these two LCLFs there will be the risk that Renewable Diesel sales will subsidise SAF sales, or potentially vice versa.

- Mandated volumes of Bio-diesel, Renewable Diesel and SAF must be accompanied by a fuel carbon trading scheme, or a book and claim scheme. Allowing the specific LCLF to be blended close to its production (or import) source. Hence ensuring that the carbon abatement potential of the fuel is maximised and not reduced by needlessly transporting the LCLF across Australia to ensure an even distribution of the blended fuel across the nation. This will be particularly important in the early stage of LCLF blending in Australia (potentially to 2030/2035), when supply of Bio-diesel, Renewable Diesel and SAF will be limited.
- A blending mandate would create a stable demand for LCLFs, encouraging investment in its production and distribution infrastructure. This can lead to economies of scale, reducing costs over time to a point where subsidies could be minimised, or potentially abandoned. A clear blending mandate also provides regulatory certainty for businesses, allowing them to plan long-term investments.
- TIC notes that the recommended targets could be progressively increased to ensure continuous improvement and sustained momentum in reducing CO_2 emissions. This approach would provide clear, long-term signals to the market, encouraging investment in low-carbon fuel technologies and production. Incremental increases in the blend mandate would also help mitigate any potential 'financial shock' to fuel users and their associated industry, allowing businesses to adapt in a manageable way.
- TIC has undertaken a review of current and near-term (to 2030) potential Australia LCLF production and based on this analysis proposes the following potential LCLF blend mandates:

Bio-diesel production facilities (3 currently in operation):
Current capacity: 100 – 105 million litres/year
Current production: 5-10 million litres/year (primarily for mining and marine use)
Potential Bio-diesel capacity by 2026: 105 million litres/year

Proposed Renewable Diesel refineries (Ampol and BP) projected to commence production 2029/2030:
Combined projected volume by 2030: 2,550 million litres/year (Renewable Diesel and SAF combined)
Both refineries plan to use HEFA technology that commercially produces approximately 55% renewable diesel and 45% SAF
Renewable Diesel production (55% of total): 1,403 million litres/year

Total Australian LCLF production by 2030 (including Nio-diesel from refineries currently operating):
1,500 million litres/year

Based on the above volumes and proposed production timelines, TIC proposes the following minimum blend mandates be applied to mineral diesel sold in Australia:
Bio-diesel mandates:

A 0.3% Bio-diesel mandate by the end of 2026
A 0.6% Bio-diesel mandate by the end of 2028

Bio/Renewable Diesel mandate:

A R5 mandate by the end of 2030
Aspire to introduce a R10 mandate by the end of 2035, or a similar CO_2 reducing Low Carbon Fuel Standard (see dot point below)

The above blend mandates will likely lead to a small increase in the diesel fuel price across Australia when implemented. TIC believes that commercial users of diesel, heavy vehicles (trucks above 4.5t GVM), agriculture, mining, rail, marine, etc. could be compensated through existing tax mechanisms such as the fuel tax rebate. TIC believes that light vehicle motorists should not be financially compensated for using these LCLF diesel blends, as the price increases would amount to just a few cents per litre of diesel and introduced over a number of years. Also, the slight increase in diesel fuel

price could be used to temper the purchasing behaviour of light vehicle owners, making the purchase of plug-in hybrid and battery electric light vehicles more attractive.

- TIC supports a transition from blending mandates to a Low Carbon Fuel Standard (LCFS), potentially to be introduced by 2030. Ultimately a LCFS would provide a more robust and potentially more practical and manageable measure of the carbon intensity of LCLFs and LCLF blends across Australia and allow better/simplified administration of the fuel carbon trading scheme.

3. Additional TIC comments

- Extending excise/fuel tax mechanism to all LCLFs. Supportive taxation treatment is required to support a LCLF industry in Australia and this should include maintaining and extending excise/fuel tax mechanism to support 'new' LCLF such as Renewable Diesel. For example, TIC recommends that Renewable Diesel receives similar excise taxation treatment as Bio-diesel. Without such treatment, the business case for a Renewable Diesel project becomes less attractive, diminishing the likelihood of its progression and hindering the growth of new renewable fuels in the Australian market.

- LCLF blending support. To achieve cost effective blend mandates, or a Low Carbon Fuel Standard, robust but simple, processes will be required to produce LCLF/mineral diesel blends. Such fuel blends must have a high level of quality assurance and ensure ongoing compliance to Australian fuel standards. This is essential to ensure that LCLF/mineral diesel blends can be safely run in all diesel engines across all vehicle and machinery types throughout Australia. In Europe this is achieved by volume mixing of Bio-diesel and/or Renewable Diesel with Mineral Diesel. A suitable LCLF/mineral diesel blend is achieved in Europe WITHOUT the requirement for post blending fuel quality testing. In Europe, volume blending occurs at, fuel refineries, fuel storage facilities, fuel transport tankers, forecourts, etc. Europe can achieve blends of LCLFs and mineral diesel, 'on the fly', efficiently and cost effectively by having suitable Mineral Diesel (EN590), B100 (EN14214) and R100 (EN15940) fuel standards. In Australia we are unable to use this simple blending method due to some inferior parameters within the Australian Mineral Diesel Standard. Bio/Mineral Diesel blends in Australia require post blending fuel quality testing to ensure continued compliance with the Australia Mineral Diesel Standard. Australia's B100 Fuel Standard is equivalent to EN14214 and the Department of Climate Change, Energy, the Environment and Water is working with industry, via the Fuel Standards Consultative Committee, on the development of a R100 Fuel Standard that will hopefully be equivalent to EN15940 (noting the Australian requirement for a slightly higher Flash Point for compatibility with our existing infrastructure). TIC notes that with over 90% of diesel used in Australia coming from imports and with local fuel monitoring/testing, by both the Department and industry, showing that this internationally manufactured mineral diesel typically meets the requirements of EN590 (noting that this imported mineral diesel also meets the Australian requirement for a slightly higher Flash Point to ensure compatibility with our existing infrastructure), that it could be possible to conduct European LCLF/mineral diesel volume blending in Australia using these imported fuels and locally produce B100 (and hopefully soon with locally manufactured, or imported, R100, if an equivalent, to EN15940, Australian standard is developed for Renewable Diesel). To enable European LCLF/mineral diesel volume blending in Australia TIC proposes that a second, alternative, Mineral Diesel Standard is developed, completely aligned with EN590, save for the Flash Point that would need to be changed to 61.5°C minimum. Once in place, mineral diesel fuels complying to this new alternative Mineral Diesel Standard could be volume blended with up to 5% B100 and/or a yet to be determined percentage of R100 (TIC proposes a maximum 50% R100 blend at this point in time), at multiple locations throughout the diesel fuel distribution network in Australia, without any requirement for post blending fuel testing.

I trust that you find TIC's submission acceptable and that the issues that have been raised in this submission will be considered in the development of policy and regulatory settings to support the development of an Australian Low Carbon Liquid Fuels industry.

[redacted]

Yours faithfully,

Mark Hammond
Chief Technical Officer

Truck Industry Council member Brands:
Allison Transmissions Australia
Eaton Transmissions Australia
Cummins Engines
Detroit Engines
DAF Trucks
Dennis Eagle Trucks
Foton Mobility Trucks and Vans (provide BEV trucks only)
Fuso Trucks and Busses
Freightliner Trucks
Hino Trucks
Isuzu Trucks
Iveco Trucks, Busses and Vans
Kenworth Trucks
Mack Trucks
MAN Trucks and Busses
Mercedes-Benz Trucks
Mercedes-Benz Vans
Scania Trucks and Busses
UD Trucks
Volvo Trucks and Busses
Western Star Trucks