

26 July 2024

Department of Infrastructure, Transport,
Regional Development, Communications and the Arts
GPO Box 594
Canberra ACT 2601

Via email: lclfconsultation@infrastructure.gov.au

Re: Low Carbon Liquid Fuels Consultation Paper

Thank you for the opportunity to provide feedback on *the Low Carbon Liquid Fuels - A Future Made in Australia: Unlocking Australia's low carbon liquid fuel opportunity: Consultation Paper*.

AIP presents this submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) on behalf of AIP's core member companies:

- Ampol Limited
- BP Australia Pty Ltd
- Mobil Oil Australia Pty Ltd
- Viva Energy Australia Pty Ltd.

AIP members supply more than 90 per cent of the liquid fuels used in Australia and are planning projects which could supply almost 1100 million litres of renewable diesel and sustainable aviation fuel a year. These prospective projects by AIP members represent the overwhelming majority of the announced volume of low carbon fuel projects to date.

AIP notes this is one of a series of overlapping consultations, including the Net Zero Sectoral Plans, to which AIP is providing views. In particular, AIP's submission to the Electricity and Energy Sectoral Plan is relevant. AIP's submission to that consultation is at [Attachment 1](#). This submission covers most of AIP's views on Low Carbon Liquid Fuels (LCLF) and is referenced throughout this submission.

AIP believes there are significant opportunities for low carbon fuels to reduce the emissions from Australia's transport fleet and other sectors where liquid fuels are used. Importantly, 'drop in' low carbon fuels can reduce emissions immediately by displacing the conventional fuels used in existing engines and equipment. Low carbon fuels can begin and secure abatement *now* while prospective, medium to long-term technology options, such as hydrogen, are being developed. Supporting the uptake of low carbon fuels complements other transport policies, such as electrification, while delivering abatement which would otherwise not occur from the existing vehicle fleet and other applications.

AIP notes the Government is seeking to achieve multiple objectives from LCLF policy, including:

- delivering abatement from the use of LCLF, particularly in hard to abate sectors of the economy such as transport, mining, agriculture, electricity generation and construction

- increasing the volume of LCLF sold in the Australian market
- supporting local production of LCLF
- reducing the price differential to their fossil fuel alternatives (the green premium)
- ensuring that sustainable aviation fuels (SAF) are available for supply to airlines.
- enhancing Australia’s fuel security.

AIP considers that no single measure will be able to deliver all of these outcomes. An integrated suite of measures will be necessary.

In that context, AIP recommends the following policy measures:

- An early decision (i.e. no later than 2025) to introduce an effective demand side measure by 2027. Prospective investors need a firm commitment from government to implement a demand side measure as soon as possible:
 - The most effective, proven demand side measure is a Low Carbon Fuel Standard (LCFS)
 - The LCFS should be underpinned by an emissions intensity approach, applying to fuel suppliers and covering all fuels to spread the obligation and cost as broadly as possible
 - To secure investment in additional local production of low carbon fuels, the LCFS needs to be announced by the Government by late 2025, with a clear legislative process which would see the scheme operating by 2027
- introduction of a legislated supply side measure
 - AIP’s preferred approach is a fully refundable tax credit scheme for the production of LCLF, consistent with the Hydrogen Production Tax Incentive (HPTI).
 - Eligibility for the incentive would require a project proponent taking the Final Investment Decision (FID) by 30 June 2030 (as is the case with the HPTI).
 - The incentive would apply to LCLF produced by new and already established production sites (i.e. co-processing at existing refineries and repurposed or expanded sites).
 - Projects under the scheme should be eligible for up to 10 years of financial support.
 - Assistance rates under the scheme should *broadly* reflect the carbon intensity of individual fuels (i.e. higher rates of assistance for producing fuels with lower carbon intensity/higher carbon abatement). This will create incentives for investment into more prospective, cleaner fuels.
 - The Guarantee of Origin Scheme is the obvious basis for an emissions intensity approach. The Government has committed to extending the scheme to low carbon fuels.
 - Unfortunately, this work is in its infancy, has no firm completion date and will necessarily take time. There is a significant risk that waiting for exact emissions factors for all fuel/feedstock combinations to be agreed will delay introduction of both production incentives and an LCFS.
 - AIP considers this work can be completed in time to underpin a carbon intensity approach. Existing lifecycle models and default factors can be used in the first instance and evolved over time.

Given that renewable diesel provides the same abatement benefit as SAF at a lower cost, a pure carbon-intensity approach could discourage SAF production. Consequently, a LCFS may need to include additional support for SAF, perhaps a sub-target for SAF. AIP is further examining measures that could best deliver this outcome without distorting the market or foregoing least-cost abatement. AIP considers that a SAF outcome could be examined in tandem with the development of the demand side measure.

AIP is keen to engage further with DITRDCA, DCCEEW and Treasury on these issues and looks forward to the opportunity to meet in the near future.



Yours sincerely

<SIGNED>

Peter Gniel
Deputy CEO

AIP SUBMISSION TO THE LOW CARBON LIQUID FUELS CONSULTATION PAPER

1. INTRODUCTION

AIP presents this submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) on behalf of AIP's core member companies:

- Ampol Limited
- BP Australia Pty Ltd
- Mobil Oil Australia Pty Ltd
- Viva Energy Australia Pty Ltd.

AIP member companies supply around 90 percent of all liquid fuels entering the Australian market. Our interest extends not only to the supply of traditional fuels, but also to supply new fuels to reduce emissions, both through investment in new manufacturing capacity for low carbon liquid fuels (LCLF), as well as importing these fuels. Prospective projects by AIP members could produce almost 1100 million litres of renewable diesel and sustainable aviation fuel a year with further upside opportunity via scaling up some projects.

This is discussed in more detail in AIP's submission to the Electricity and Energy Sectoral Plan (EESP) submission at [Attachment 1](#).

AIP welcomes the recent Federal Government's Budget announcements, including:

- LCLF being identified as one of the five priority industries for the net zero transformation stream of the *Future Made in Australia* program.
 - The \$1.7 billion *Future Made in Australia Innovation Fund* will support commercialisation of net zero innovations including low carbon fuels.
- the Federal Government investigating the introduction of a demand-side measure to spur the demand needed for the development of a low carbon fuels market.
- identifying options for delivering production incentives "to support the establishment of a made in Australia low carbon liquid fuel industry".
- new funding being provided to the Guarantee of Origin scheme to develop certification for LCLF.

This submission addresses:

- the role of LCLF, Australia's comparative advantage in these fuels, and the range of government policy objectives and outcomes that low carbon fuels could meet
- the critical importance of early introduction of a demand-side measure to ensure LCLF have a market
- an appropriate production supply-side incentive
- other policy measures to underpin LCLF.

2. ROLE OF LOW CARBON LIQUID FUELS

As noted in AIP's submission to the EESP, there are significant opportunities for low carbon fuels to cut emissions from Australia's transport fleet and other sectors where liquid fuels are used. Importantly, 'drop in' low carbon fuels can reduce emissions immediately, by displacing the conventional fuels used in existing engines and equipment. Low carbon fuels can secure abatement now while prospective, medium to long-term technology options, such as hydrogen, are being developed. Supporting the uptake of low carbon fuels complements other transport policies, such as

electrification, as they can deliver abatement which would otherwise not occur from the existing vehicle fleet and other applications.

AIP's EESP submission outlines:

- the growing demand for diesel and jet fuel in Australia and the corresponding growth in emissions
- the pathways for LCLF, particularly in hard-to-abate sectors, and the limited short-to medium term alternatives to these fuels
- current and planned global investment in the production capacity of LCLF.

3. AUSTRALIA'S COMPARATIVE ADVANTAGE

Australia will need to compete with the rest of the world to attract investment in LCLF, particularly with jurisdictions such as the US and EU that already have significant policy measures in place.

Investment in new manufacturing capacity (not just fuel manufacture) has been notoriously difficult in Australia, due in part to Australia being a comparatively high-cost operating environment. Capital and labour costs are high compared with competing nations, and energy costs are becoming an increasing barrier to entry. Key investment drivers include:

- proximity to feedstock supply
- certainty of feedstock supply
- capital costs
- operating costs
- freight costs
- operational flexibility
- product yields
- feedstock costs.

There are also a range of barriers to securing supply of LCLF into the Australian market, including:

- minimal and unpredictable demand
- international subsidies and other supporting policies make it difficult for Australia in competing for investment
- a lack of clear, enabling policy
- the relative high cost of low carbon fuels vis-a-vis their fossil fuel equivalents.

Australia, however, is well positioned to capture investment in local production of LCLF, given the right policy settings. Our advantages include:

- significant volumes of diverse feedstocks, much of which are currently being exported to markets where there are policy demand drivers
- scope for strong local demand for LCLF, particularly in hard to abate sectors such as mining, agriculture, heavy haulage road transport, construction and aviation, where alternative abatement options are limited, corporate ESG targets are in place and other government policy obligations (such as the Safeguard Mechanism) need to be met
- extensive existing fuel supply infrastructure which should be utilised wherever possible to provide least cost supply of these fuels
- a highly skilled workforce, technical expertise and brand recognition/confidence
- robust operational and regulatory practices.

AIP is aware of the following Australian project proposals and anticipates more proposals will emerge with appropriate policy settings:

Company	Location	Volume per year RD ML	Volume per year SAF ML	Feedstocks
AIP Member Projects				
BP	Kwinana, WA	Flexible Max:550 Min:27	Flexible Min: 0 Max:460	UCO, tallow, Waste oils
Ampol/ENEOS	Brisbane, Qld	At least 500 – production split to be determined		UCO, tallow, agricultural waste
Viva Energy (refinery co-processing)	Geelong, Vic	50 (with plans to scale up)		Biogenic oils, UCO, tallow
Non-AIP Member Projects				
Jet Zero Australia/Lanzajet (Project Ulysses)	Townsville, Qld	11	102	Sugarcane
Renewable.bio	Esperance, WA	40		Cellulosic ethanol
Future Energy Australia	Narrogin, WA	19		Waste Wood chips

AIP has noted in its EESP submission the global competition for investment in LCLF. This competition will only become fiercer as countries strive to make deeper cuts in their emissions to meet their Paris targets.

The competition for low carbon fuels also means competition for related feedstocks. While Australia has significant feedstock potential, large volumes of feedstocks such as tallow and canola are being exported to Singapore, the United States and other markets for production of low carbon fuels. As the consultation paper notes, low carbon fuels are an opportunity for Australia to value-add to these feedstocks.

4. GOVERNMENT POLICY OBJECTIVES

The consultation paper mentions multiple objectives the Government is hoping to achieve, albeit without indicating which objective or objectives have priority:

1. Emissions abatement

- Emissions from the use of liquid fossil fuels are expected to substantially increase, in absolute terms and as a proportion of Australia’s emissions, particularly as emissions from the electricity sector decline.
- LCLF can deliver abatement from displacing, even partially, the use of liquid fossil fuels across many applications. Most importantly, the consultation paper notes that LCLF can play a unique role in reducing emissions from many hard to abate sectors of the economy including transport, mining, agriculture, electricity generation and construction.
- The consultation paper notes there are very few alternatives for many uses of liquid fuels – particularly in the short to medium term. Although there are new technologies on the horizon, these are many years, if not decades, into the future.
- Unfortunately, the consultation paper does not outline how much abatement the Government is seeking to achieve. The absence of this critical fact means it is difficult to provide detailed advice on the design and value of possible assistance measures.

2. *LCLF volume in the market*

- Significant volumes of LCLF will need to be supplied into the Australian market to deliver Australia's abatement goals, particularly if deep cuts are required to meet an ambitious 2035 target.
- This supply of LCLF will need both local manufacture (from new dedicated production facilities and co-production at existing refineries) and imports.
- AIP considers all sources of supply will need to be tapped. Policy should support an open market which will maximise competition and ensure least cost abatement.

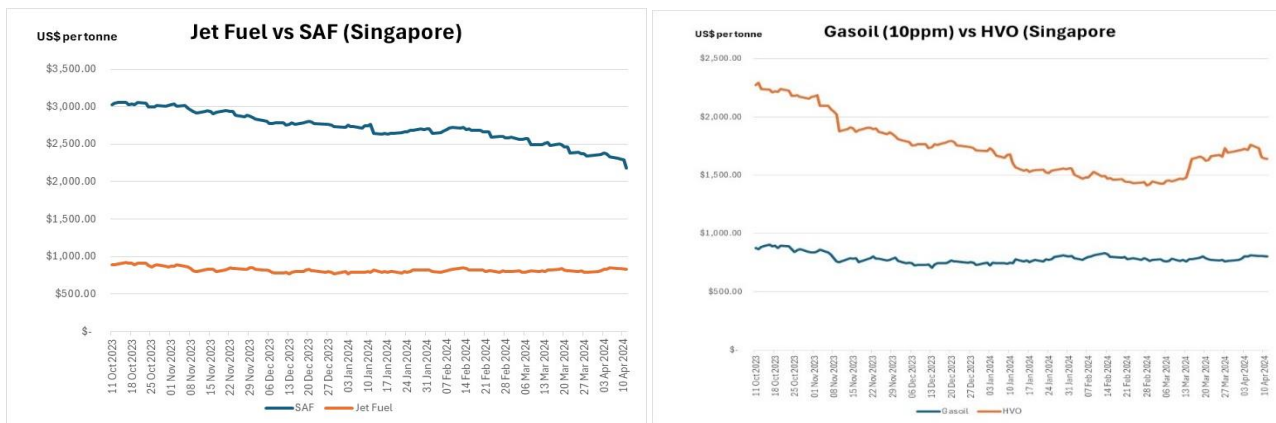
3. *Local manufacturing*

- AIP welcomes the Government's recognition of the unique role LCLF could play in meeting Australia's emissions targets and its support, through the *Future Made in Australia* policy, for local production of LCLF.
- While Australia does have some comparative advantages, investment in Australian manufacturing capacity (of all kinds, not just fuels) is challenging with OpEx costs greater than in competing nations, particularly in the Asian region.
- Policy will need to address these cost disadvantages, at least in the short to medium term, until economies of scale are achieved in Australia.
- Investment in new and expanded LCLF manufacturing capacity is required to scale a domestic industry. Any policy in support of LCLF should also support the use of existing local manufacturing infrastructure (refineries) to produce LCLF. Co-processing is an effective way to utilise existing refinery assets, retaining them for our energy security, as well as utilising the significant technical skill base we have, and continuing to support existing and new local jobs and regional communities.

4. *Reduce the price differential between fossil and low carbon liquid fuels*

- Like the markets for other petroleum products, the low carbon fuel market in Australia will be supplied by a dynamic mix of local and imported products that have been made from either local or international feedstocks. Prices in the Australian market will be set by the interplay of regional supply and demand. Import parity pricing (IPP) will ensure that the Australian market attracts necessary imports and retains local refined product for local sale.
 - Regional benchmark fuel prices, be it for crude or petroleum products, set Australian fuel prices. In Australia, products are linked to Singapore prices, the main trading hub for crude oil and petroleum products in the Asia-Pacific Region
 - IPP is the 'landed cost' of refined fuel to Australia and includes the international price for refined fuel, any 'quality premium' for specific Australian fuel standards, freight, exchange rate, wharfage, insurance and loss.
 - If Australia's petroleum prices were below regional prices, Australian fuel suppliers would have no commercial incentive to import into Australia (because fuels would have to be sold at a loss). Similarly, Australian refiners would have an incentive to export production to receive a higher world price.
- In the case of LCLF, price reporting agencies such as Argus are publishing emerging benchmark prices for renewable diesel and sustainable aviation fuel (SAF).
- The movement in these prices reflect each market's own supply and demand dynamics. From a supply perspective, they will be influenced by both the commodity feedstock price and the costs associated with producing the fuel.
- Volatility in feedstock prices – given alternative uses for these inputs - has a particularly strong influence on the finished product price.

- There is also rising demand in markets such as Europe for SAF and renewable diesel. If demand, spurred by policy, rises more quickly than supply, the premium for low carbon fuels will also rise.
- LCLF are currently supplied at a significant premium to the fossil alternative. A high-level analysis from AIP, using relevant Argus benchmark prices, highlights this premium as well as the price volatility:
 - In early April 2024 the premium for SAF over fossil jet fuel was about AUD\$1.72 per litre, but this fell to about AUD\$1.22 per litre by early June 2024.
 - In early April 2024 the premium for renewable diesel over fossil diesel was about AUD\$1.21 per litre, falling to about AUD\$0.99 per litre by early June 2024.
 - These price movements are shown in the following charts.



- AIP notes that these price premiums reflect a “neat” or 100% LCLF. The reality is that low carbon fuels will be supplied blended at a significantly lower rate than 100% of the low carbon fuel. Consequently, the price premium passed through to the customer will be lower and dependent on the actual blend rate.
- It is also important to note that these charts and price data are a 6-month snapshot in time, used to illustrate the market volatility of a relatively immature market, rather than specific price premiums. The experience from AIP members who have imported LCLF is that prices have been well above the prices indicated in the emerging market data. AIP anticipates that benchmark data will substantially improve over time as the necessary market depth and liquidity emerges to better underpin benchmark pricing.

5. Ensuring SAF availability to the aviation market

- The consultation paper notes:
 - *An LCLF product neutral design of a production incentive or demand-side measure would likely favour production of renewable diesel over SAF due to cheaper production costs. However, aviation will likely require access to SAF in the longer term compared to sectors which rely on renewable diesel, as aviation is less able to rely on alternative abatement measures (such as electrification) in the longer term.*
 - *Consideration is being given to whether production incentives need to be designed to incentivise SAF production over renewable diesel production, or to require producers to dedicate specific proportions of their production to SAF over renewable diesel.*
- The concern that renewable diesel may be favoured over SAF is supported by international experience. In California, credits are generated from SAF supply (without the debit on a supplier’s obligation) but supply has tended to be weighted to renewable diesel. Although the LCFS in that jurisdiction broadly rewards Renewable Diesel and SAF the same, other additional “stacked policies” that favour Renewable Diesel (such as the US EPA Renewable Fuel Standard) have further distorted this outcome.

- AIP also notes that, despite claims of significant demand for SAF from parts of the Australian aviation sector, very little SAF has been purchased or contracted. Pricing has been a barrier to supply, at least in any meaningful volume.
- There will also remain significant competition from renewable diesel in hard to abate sectors well into the future.

6. *Enhancing Australia's liquid fuel security*

- Australia has demonstrably robust fuel reliability and security. AIP also recognises that the Government can, and will, determine its own risk parameters for fuel supply.
- AIP considers that low carbon fuels have the potential to strengthen the diversity of Australia's fuel supply chain, through:
 - co-processing at existing refineries offering the possibility to help repurpose and retain them as part of Australia's existing supply security arrangements
 - new local manufacturing capacity using existing or future domestic feedstocks
 - supply of imported feedstocks and finished low carbon fuel products from new international supply locations
 - incentives to include low carbon fuels into company MSO obligations.
- This is discussed further in AIP's EESP submission.

5. AIP POLICY PRINCIPLES

In seeking to develop a policy response to the above objectives, AIP has assessed the issues raised in the Consultation Paper against the following AIP Policy Principles:

- Policy should provide medium to long-term certainty and transparency for investors
- Policy should be technology and fuel neutral
- Policy should not distort the market, for example
 - policies do not harm competition by 'picking winners' (i.e. support is accessible for all local producers)
 - policies support open markets where supply can be met from domestic and international sources
 - policy enhances Australia's fuel supply security
- Government support should be proportionate to environmental and other benefits (i.e. emissions abatement)
- Support should be time limited.

6. OPTIMAL POLICY SUITE

The *Low Carbon Liquid Fuels Consultation Paper* poses questions about the design of both demand-side and supply-side support for low carbon fuels. While AIP believes that the demand-side measure is the essential policy, the Government's priority is designing an incentive for local production of low carbon fuels. It appears that a demand-side measure is some two years away, given the departmental appropriations in the 2024-25 Federal Budget.

It must be stressed that there will be very little demand, in the foreseeable future, for low carbon fuels without a demand-side measure in place. Supply-side subsidies can reduce but are unlikely to be sufficient to eliminate the price premium which deters local buyers, even when they have made voluntary emissions reduction commitments.

No single policy measure will be able to meet all the objectives outlined in Section 4. As already noted, a suite of policies will be necessary. The nature of these policies will vary depending on the relative priority given to each objective.

If the Government's primary objective is abatement, then:

- a demand-side measure is critical to ensure that there is a large and growing market for low carbon fuels.
- a technology neutral, emissions intensity approach is needed to promote least cost abatement, with support weighted in favour of fuels delivering the greatest abatement at competitive cost.
- both local production and imported supply are needed to maximise the flow of low carbon fuels into the market, at competitive prices.

If the Government's primary objective is to develop a local LCLF production industry, then:

- a demand-side measure is critical to ensure that there is bankable certainty of a growing market for low carbon fuels, which will support initial investment decisions
- a time limited domestic production incentive can help reduce risk while the industry establishes itself
- this production incentive would need to offset, wholly or in large part, the higher operating costs of manufacturing in Australia
- supply security could be enhanced, provided there is consistent feedstock supply and recognition of LCLF under existing supply security policy settings (such as MSO).

If the Government's aim is to diminish the price premium of LCLF compared to fossil alternatives:

- the demand-side measure is critical as a well-designed scheme can soften the price impact on customers of low carbon fuels by recovering the premium across the entire fuel pool
- a supply-side production incentive measure has some challenges in meeting this objective:
 - the incentive rate would need to be very (perhaps impossibly) large to close the price premium
 - the rate would need to move with prices (addressing market volatility) to ensure assistance is not lesser or greater than the premium, in turn either punishing or overly rewarding local suppliers
 - depending on how and where the production incentive is applied, the ability for cost pass through of the incentive may be difficult given import parity pricing.

A. DEMAND SIDE MEASURE

The price premium for low carbon fuels is substantial and production incentives alone will not make low carbon fuels price competitive with conventional fuels. For this reason, as noted above, AIP see a demand-side measure as the critical policy priority. A voluntary scheme will not create significant or stable demand for low carbon fuels; a measure of regulated demand has to be created.

The consultation paper outlines options for a possible demand-side measure:

- Trading schemes such as those supported by low carbon fuel standards
- Mandates over time as supply chains mature.

It is important to recognise that these approaches can often exhibit similar characteristics, despite the different labels. AIP's attached submission to the EESP discusses at length demand side measures, concluding that a Low Carbon Fuel Standard (LCFS) would give producers the confidence (alongside the supply side incentives) to invest in low carbon fuels and allow for the higher costs of these fuels to be recovered across the whole pool of end-users. In AIP's view, it not only provides bankable certainty of market demand, but it is the best tool to manage the price impact of higher fuel prices on end-users.

In summary, AIP considers that the benefits of an LCFS are that it:

- incentivises supply of lower emissions fuels to meet national, sectoral and corporate emission targets and objectives
- reduces emissions from the current vehicle fleet while the fleet slowly turns over to new, low and zero emission vehicle technologies
- uses a life cycle approach which can reflect the true cost and performance of an abatement policy, providing for innovation and competition between fuels and technologies
- provides an appropriate price signal to end users and provides a level playing field (so individual customers are not disadvantaged by having to pay for higher priced, lower carbon fuels)
- is technology neutral and fuel agnostic
- incentivises consumer choice and fuel innovation
- can enable faster, potentially lower cost abatement solutions than policies that promote a single replacement technology – especially when some replacement technologies don't exist, are less mature, or not at commercial scale
- provides flexibility for individual producers to best meet their obligations in a manner consistent with their own business and supply strategies
- allows the market to determine the lowest cost abatement pathway in the supply of fuels and avoids governments 'picking winners' (like volumetric mandates in NSW/Qld)
- provides certainty over the long-term policy and abatement trajectory
- can sit alongside other policy measures such as grants to assist projects which will manufacture lower carbon fuels and New Vehicle Efficiency Standard (NVES) which target the vehicle fleet make-up and rewards lower or zero emission vehicle technology uptake.

Demand Side Recommendation

While the Government has prioritised the production incentive over a demand-side measure, AIP believes that the Government should:

- Make an early decision (i.e. no later than 2025) to introduce an effective demand side measure by 2027. Prospective investors need a firm commitment from government to implement a demand side measure as soon as possible.
- The most effective, proven demand side measure is a Low Carbon Fuel Standard (LCFS):
 - The LCFS should be underpinned by an emissions intensity approach, applying to fuel suppliers and covering all fuels
 - The LCFS should have a relatively soft start, given the need to build (local and imported) supply from scratch
 - A LCFS allows trading between suppliers to meet their obligations
 - To secure investment in local production of low carbon fuels, the LCFS needs to be announced by the Government by late 2025, with a clear legislative process to see the scheme operating by 2027.

B. SUPPORT FOR SAF

The Government has queried whether a narrow demand-side measure focused only on SAF is needed. Such a measure would be an explicitly short-term policy to create modest, early demand for low carbon fuels. Ideally, it would be replaced before 2030 by a well-designed broader LCFS as the long-term policy framework. An interim measure could be seen as a trial to inform the development of the eventual, long-term demand measure.

The first issue is whether it is feasible and sensible to have two demand-side measures in succession, especially if these measures take different forms (e.g. volumetric vs carbon-intensity). Another question is whether an interim measure would only operate for such a short time (e.g. one or two

years) that it would have little practical value. The second question assumes, of course, that a more permanent demand-side measure will be delivered before 2030 although this is not assured.

More specifically, the question is raised as to whether a measure applying to SAF could be introduced in advance, or in tandem with a broader demand side measure. SAF delivers abatement at a higher cost than renewable diesel. A strictly ‘fuel neutral’ policy, designed to deliver least cost abatement, would favour renewable diesel over SAF, and therefore a separate arrangement for SAF could be considered.

Setting a higher subsidy rate for SAF than for renewable diesel could not be justified on abatement grounds. It would be contrary to the principle of setting subsidy rates reflecting emissions intensity.

The second possibility raised by the Government is mandating that producers supply set volumes of SAF. In principle, this is undesirable because it constrains investment choices by producers and constrains production flexibility to produce fuels to meet changing customer demand and feedstock availability. There is also the question whether the Government has in mind an obligation applying to ALL producers (e.g. a SAF mandate) or just applying to producers receiving tax credits.

SAF Recommendation

On the assumption that an effective LCFS can be introduced within two years, AIP’s preference is for policy attention and resources to focus on the broader, long-term demand-side measure which is the more assured path to least-cost abatement.

If the Government decides to proceed with an narrow target (i.e. a standalone demand side measure for SAF in advance of a broad based LCFS), AIP urges the Government to design that target to be compatible with the long-term demand-side measure. It will be important to minimise uncertainty and the costs of making the transition from one scheme to another. For example, an SAF target should be based on emissions-intensity rather than simple volume-based mandates.

AIP recognises that additional support may be required to produce SAF under an LCFS with perhaps a sub-target for SAF being required. AIP considers that a SAF outcome should be examined in tandem with the development of the demand side measure.

AIP is considering how a future LCFS could be designed to provide an adequate supply of SAF, without distorting the market and losing low-cost abatement opportunities.

C. SUPPLY-SIDE MEASURE

The consultation paper raises three ways to support local production:

- Contracts for Difference (CfDs);
- Project grants; or
- Production tax credits.

In the national electricity market, Contracts for Difference have been introduced to attract investment into renewable energy projects. CfDs insulate investors from the volatility of wholesale prices. If market prices dip below an agreed ‘strike price’, projects are compensated by government payments. Effectively, investors are guaranteed minimum revenue. Applied to the liquid fuels market, where market prices will always be lower than the production costs of low carbon fuels, the CfD approach would mean a significant, ongoing operating subsidy, with the cost to government determined by price movements in the market.

A more traditional approach to industry support would see project proponents competing for grants to reduce their capital and/or operating costs. More recently, Governments have varied the type of grant support, such as the Hydrogen Headstart program, where revenue support is provided as a grant on a per unit of output basis. In either case, such grants would improve the business case for investment in Australia. However, the process to obtain grants will be necessarily slow and involve significant costs for applicants, with no guarantee that support will be made available (unlike tax credits). Compared to CfDs, grants involve less financial risk for governments; governments' exposure is limited to the value of the grant. On the other hand, governments face the usual risks of 'picking winners' and may, in the case of capital grants, spend money on projects which do not reach production.

Production tax credits have already been announced for hydrogen projects. The Hydrogen Production Tax Incentive will provide a \$2/kg subsidy for approved projects to 2040, for a maximum period of ten years. Projects will need to have reached FID or commenced production by 30 June 2030. Incentives will be paid for hydrogen sold for domestic use or export. Tax credits are likely to appeal to governments as they are accessible to all producers (no 'picking winners'), tied to production levels and relatively easy to unwind. To provide an assured benefit, a tax credit would need to be fully refundable. The consultation paper suggests that support could be tailored to the carbon-intensity of individual fuels.

The consultation paper floats two options for tax credits:

1. a flat rate paid per unit of production for all low carbon fuels; or
2. different subsidy rates for individual fuels, based on emissions intensity.

Setting a flat rate for all fuels is relatively simple and would be consistent with technology and fuel neutrality. Producers would have the discretion to choose their mix of fuels and production methods, without facing discounted subsidy rates. As the simpler approach, it could, perhaps, be designed and implemented more quickly than the second option. However, as the consultation paper notes, a flat rate could discourage production of SAF, raising the question whether a separate target or other arrangement would be needed to ensure investment in SAF.

In theory at least, the different subsidy rates available under option two would encourage more investment in very low emission fuels. Arguably, this may produce more (environmental) bang for the government buck. A lifecycle, carbon-intensity approach would also align well with an emissions intensity based LCFS. The disadvantage is that a tiered set of payments could be more complicated to design. It may take time to agree emissions factors and time to settle different subsidy rates, although this could be handled in the first instance by using lower tier 'default factor' methods.

Principally, however, AIP considers that the production incentive should be considered as the primary tool for addressing the investment risk and additional OpEx associated with investing in Australia, while the demand side measure is the tool for creating market demand and managing the green premium.

Supply Side Recommendation

Given the various benefits and pitfalls of each approach discussed above, on balance, AIP recommends supporting a fully refundable production tax credit, with subsidy rates weighted towards emissions intensity.

While more complicated than option one, it has an appealing policy logic and is more likely to yield least cost abatement. It aligns well with a future LCFS, would promote investment in emerging fuels and diversify fuels and feedstocks.

To avoid valuable time being lost in debates over marginal differences in emissions factors and subsidy rates, default emissions factors (possibly taken from existing LCA models available internationally) could be used.

On detail, AIP recommends the following:

- AIP’s preferred approach is a fully refundable tax credit scheme for the production of low carbon liquid fuels (LCLF), consistent with the Hydrogen Production Tax Incentive (HPTI).
- Eligibility for the incentive should be based on a project proponent taking Final Investment Decision (FID) by 30 June 2030 (as is the case with the HPTI).
 - The incentive would apply to new and established (i.e. co-processing at refineries and repurposed or expanded sites) production sites producing LCLF.
- Projects under the scheme will be eligible for up to 10 years of financial support.
- Assistance rates under the scheme should *broadly* reflect the carbon intensity of individual fuels (i.e. higher rates of assistance for producing fuels with lower carbon intensity/higher carbon abatement). This will create incentives for investment into more prospective, cleaner fuels.
 - The Guarantee of Origin Scheme is the obvious basis for an emissions intensity approach. The Government has committed to extending the scheme to low carbon fuels.
 - Unfortunately, this work is in its infancy, has no firm completion date and will necessarily take time. There is a significant risk that waiting for exact emissions factors for all fuel/feedstock combinations to be agreed will delay introduction of both production incentives and an LCFS.
 - AIP considers this work can be completed in time to underpin a carbon intensity approach. Existing lifecycle models and default factors can be used in the first instance and evolved over time.

D. OTHER MEASURES

AIP’s EESP submission outlined some essential building blocks to underpin supply and demand for LCLF. An early priority has to be settling accounting methodologies and certification standards for LCLF:

- The Government’s announcement to extend the Guarantee of Origin scheme to LCLF is welcome and should be expedited. It is a key element of the carbon intensity approach which AIP considers should be the basis of both demand side and supply side policy levers
 - Alignment with international standards, where relevant and appropriate, is strongly desirable given global trade and fuel co-mingling
- Development of accounting methodologies
 - The update to methodologies through the recent NGERS Determination to facilitate market-based reports (versus a location-based approach) was welcome. However, further work to account for LCLF blends via co-processing at refineries is needed.
 - Importantly, AIP considers the NGERS outcomes need to be built upon to facilitate a more comprehensive “book and claim” approach. Such an approach allows suppliers and customers to track and transfer the environmental benefits of low carbon fuels. This is particularly important while the market matures given supply is likely to enter only certain limited markets. There is considerable global experience with this approach that Australia could leverage
- Integration with existing Government policy
 - Some sectoral policies, such as the Safeguard Mechanism (SGM) and the NVES, will intersect with LCLF. Consideration will need to be given to avoid double counting and to provide fungibility of credits between schemes.

- For example, in the case of the SGM, obligations from the use of liquid fuels by SGM liable parties could be excluded and accounted for under a LCFS.
- AIP is keen to continue to engage further with the Government on these issues once there is greater clarity of the policy settings for LCLF.
- While not explicitly covered in the consultation paper, feedstock sustainability, supply and cost are critical components to developing a thriving LCLF market in Australia. Coordinated effort across government will be needed to ensure the challenges and opportunities presented by these alternative feedstocks are well understood and sought to be addressed.

7. SUMMARY OF RECOMMENDATIONS

AIP recommends the following suite of policy measures:

- the development and introduction of a demand side measure as soon as possible:
 - This should take the form of a Low Carbon Fuel Standard (LCFS)
 - The LCFS should be underpinned by an emissions intensity approach, applying to fuel suppliers and covering all fuels
 - To secure investment in local production of low carbon fuels, the LCFS should be announced by the Government by late 2025, with a clear legislative process which would see the scheme operating by 2027
- introduction of a legislated supply side measure
 - AIP's preferred approach is a fully refundable tax credit scheme for producing LCLF, consistent with the Hydrogen Production Tax Incentive (HPTI).
 - Eligibility for the incentive should be based on a project proponent taking the Final Investment Decision (FID) by 30 June 2030 (as is the case with the HPTI).
 - The incentive would apply to new and established production sites (i.e. co-processing at refineries and repurposed or expanded sites).
 - Projects under the scheme should be eligible for up to 10 years of financial support.
 - Assistance rates under the scheme should *broadly* reflect the carbon intensity of individual fuels (i.e. higher rates of assistance for producing fuels with lower carbon intensity/higher carbon abatement). This will create incentives for investment into more prospective, cleaner fuels.
 - The Guarantee of Origin Scheme is the obvious basis for an emissions intensity approach. The Government has committed to extending the scheme to low carbon fuels.
 - Unfortunately, this work is in its infancy, has no firm completion date and will necessarily take time. There is a significant risk that waiting for exact emissions factors for all fuel/feedstock combinations to be agreed will delay introduction of both production incentives and an LCFS.
 - AIP considers this work can be completed in time to underpin a carbon intensity approach. Existing lifecycle models and default factors can be used in the first instance and evolved over time.
- treatment of SAF
 - AIP recognises that additional support may be required to produce SAF under an LCFS with perhaps a sub-target for SAF being required. AIP considers that a SAF outcome should be examined in tandem with the development of the demand side measure.
 - AIP is further examining measures that could best deliver this outcome without distorting the market and low-cost abatement opportunities.

AIP SUBMISSION TO ELECTRICITY AND ENERGY SECTOR PLAN DISCUSSION PAPER

21 May 2024

Department of Climate Change, Energy, Environment and Water
GPO Box 3090
Canberra ACT 2601

Re: Electricity and Energy Sector Plan Discussion Paper

Thank you for the opportunity to provide feedback on the Sectoral Plan covering Energy and Electricity. AIP presents this submission to the Department of Climate Change, Energy, Environment and Water (DCCEEW) on behalf of AIP's core member companies:

- Ampol Limited
- BP Australia Pty Ltd
- Mobil Oil Australia Pty Ltd
- Viva Energy Australia Pty Ltd.

AIP notes this is one of six sectoral plan consultation processes. AIP has provided a submission to the Agriculture Sector Plan (which should be read in conjunction with this submission) and intends to provide a submission to the Transport Sector Plan when it is released.

AIP and member company interest in the Energy and Electricity Sectoral Plan is focused on Issue 3: Growing alternative low carbon fuels, in particular:

- the role of existing measures such as the safeguard mechanism as they relate to the manufacture of low carbon fuels
- supply side measures
- liquid fuel supply, the supply chain and fuel security issues.

AIP believes there are significant opportunities for low carbon fuels to reduce the emissions from Australia's transport fleet and other liquid fuel uses. Importantly, 'drop in' low carbon fuels can reduce emissions immediately, by displacing the conventional fuels used in existing engines and equipment. Low carbon fuels can secure abatement now while medium to long-term technology options, such as hydrogen, are being developed. Supporting the uptake of low carbon fuels complements other transport policies, such as electrification, while delivering abatement from the existing vehicle fleet and other applications which would otherwise not occur.

The 2024-25 federal budget recognises the urgent need to facilitate the uptake of low carbon fuels. A suite of initiatives has been announced to support the certification, supply, and demand for low carbon liquid fuels. The Australian Government will investigate the merits of introducing a demand-side measure to spur the development of a low carbon fuels market. Low carbon liquid fuels have been identified as one of the five priority industries for the net zero transformation stream of the Future Made in Australia program. The \$1.7 billion *Future Made in Australia Innovation Fund* will support commercialisation of net zero innovations including low carbon fuels. Consultations will soon

commence to identify options for delivering production incentives “to support the establishment of a made in Australia low carbon liquid fuel industry”. New funding will be provided to the Guarantee of Origin scheme to develop certification for low carbon liquid fuels.

This suite of budget announcements confirms that supporting low carbon fuels will be a critical element of Australia’s net zero strategy.

Following these timely budget initiatives, AIP recommends the Australian Government undertake the following key actions through the sectoral plan process:

- Establish a Low Carbon Fuel Standard (or equivalent demand-side measure), underpinned by a carbon intensity approach, and supported by stable, predictable and achievable policy targets and emissions reduction trajectories
- Assess Australia’s existing and future feedstock capacity to support local low carbon fuel manufacture
- Prioritise development of a renewable diesel standard and a B20 and B100 standard
- Develop emissions accounting methodologies that:
 - underpin a lifecycle approach for a LCFS
 - enable purchasers of low carbon fuels (such as aviation customers supplied from joint facilities) to claim appropriate credits for the abatement benefits of their fuel choice
 - provide for an Australian sustainability standard and certification scheme
- Enhance the diversity of Australia’s fuel supply through:
 - maintaining Australia’s existing and effective fuel supply and emergency response legislative and regulatory frameworks
 - an expansion of this framework to recognise the role of bio/renewable fuels, including accounting for these fuels towards MSO obligations
 - supporting Australia’s traditional fuel supplies through the energy transition.

Jurisdictions such as the EU and the United States are using a broad range of policies to spur the uptake of low carbon fuels, including policies designed to shrink the price premium for low carbon fuels vis-à-vis conventional fuels. AIP is open to Australia considering similar policies, provided these policies do not harm competition or otherwise distort the market. AIP notes that growing the low carbon fuel market in Australia will require a mix of imported and locally produced fuels.

AIP is keen to engage further with DCCEEW on these issues and looks forward to the opportunity to meet in the near future.

Do not hesitate to contact me at aip@aip.com.au or on (02) 6247 3044.

Yours sincerely

<SIGNED>

Peter Gniel
Deputy CEO

AIP SUBMISSION TO THE ELECTRICITY AND ENERGY SECTOR PLAN DISCUSSION PAPER

1. ABOUT AIP AND MEMBER COMPANIES

AIP members are committed to meeting society's energy needs, today and in the future. AIP members have invested heavily, for decades, in supplying high quality fuels to meet a broad and extensive range of customers' needs. More recently, members are investing in new projects, products and services to cut greenhouse gas emissions, in their operations and for their customers. AIP member companies support governments' efforts to reduce Australia's emissions, including through commitments to the Paris Agreement and to net zero by 2050.

AIP member companies operate across all or some of the liquid fuels supply chain including crude sourcing and refinery operations, petroleum product imports, fuel storage, terminal and distribution networks, marketing, sales and retail. Underpinning this supply chain is considerable industry investment in supply infrastructure, and a requirement for significant ongoing investment in maintaining existing capacity. Over the past 15 years, AIP member companies have invested over \$10 billion to maintain the reliability and efficiency of fuel supply meeting Australian quality standards.

Moreover, AIP member companies deliver most of the bulk fuel supply to the Australian market.

- In relation to conventional petroleum fuels, AIP member companies operate both petroleum refineries in Australia and supply around 90 percent of the transport fuel market with bulk petroleum fuels from both imported and locally manufactured fuels.
- In relation to gaseous fuels, AIP member companies are the major suppliers of bulk LPG to the domestic market, representing around two thirds of this declining market.
- In relation to biofuels, AIP member companies are the largest suppliers of ethanol and biodiesel blend fuels to the Australian market.

AIP member companies are investing in research, product and market testing, and deployment of a range of emerging fuels and technologies to support the energy transition in the transport, agriculture and broader energy use sectors. These include (but are not limited to):

- electric vehicle charging infrastructure
- hydrogen production and refuelling infrastructure
- carbon neutral fuels and products (delivered via offsets)
- co-processing of waste and biogenic feedstocks at local refineries to produce lower carbon fuels and recycled plastics
- renewable diesel manufacture and supply, and
- sustainable aviation fuel manufacture and supply.

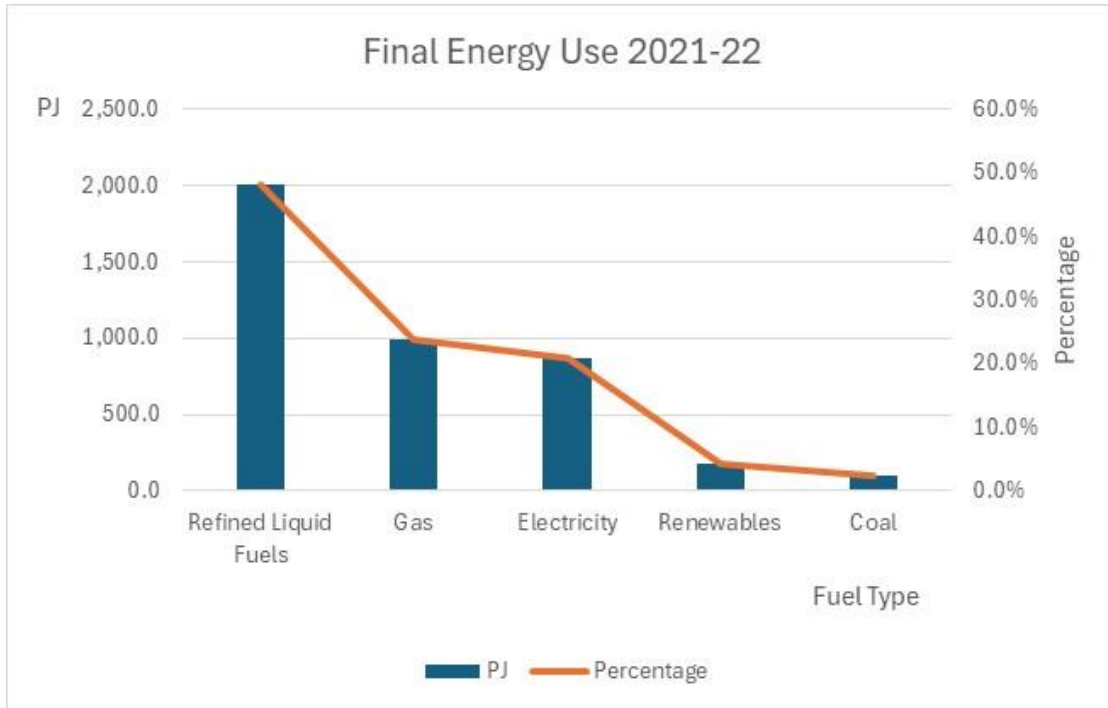
AIP member companies are committed to meeting their customers' needs as fuel, vehicle and equipment technologies evolve. Indeed, the industry is well placed to support the energy transition in the transport sector given it has:

- strong relationships with customers across all fuel using and transport tasks, including passenger, freight, off road and industrial use, agriculture, aviation and marine
- expertise with the safe, efficient, and reliable supply of transport fuels
- expertise in operating and maintaining of integrated supply chains and infrastructure
- a high skilled workforce with technical expertise and research and development capability, and
- expertise in marketing and selling products under trusted brands.

2. THE ROLE OF LOW CARBON FUELS

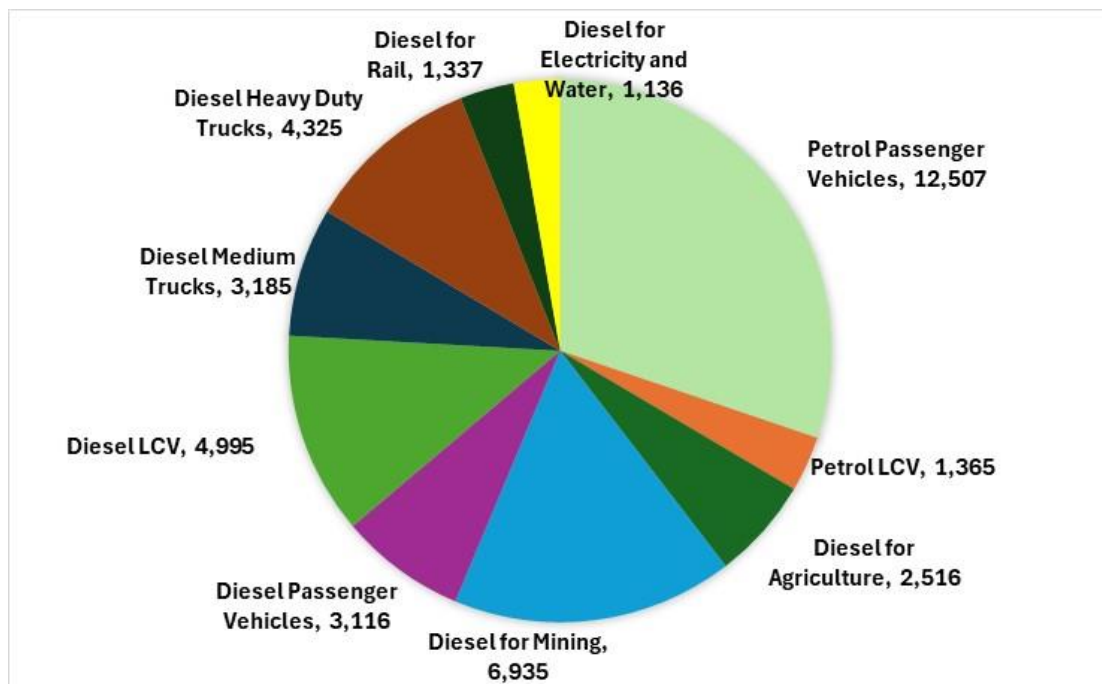
Liquid fuels (primarily petrol, diesel and jet fuel) are the largest source of energy use in Australia, as shown in the chart below. Liquid fuels account for about 50% of final energy use.

Liquid fuels are used across the economy, especially in transport, electricity generation (both remote and grid-based applications), mining, construction and agriculture.

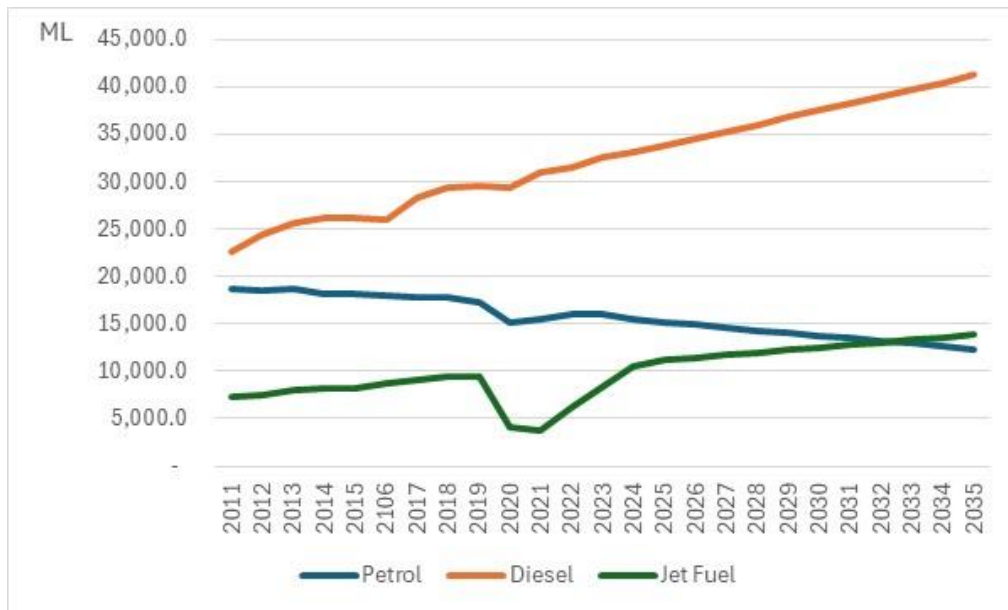


Source: Australian Energy Statistics 2023, DCCEEW.

The widespread use of liquid fuels is most evident in the case of diesel.

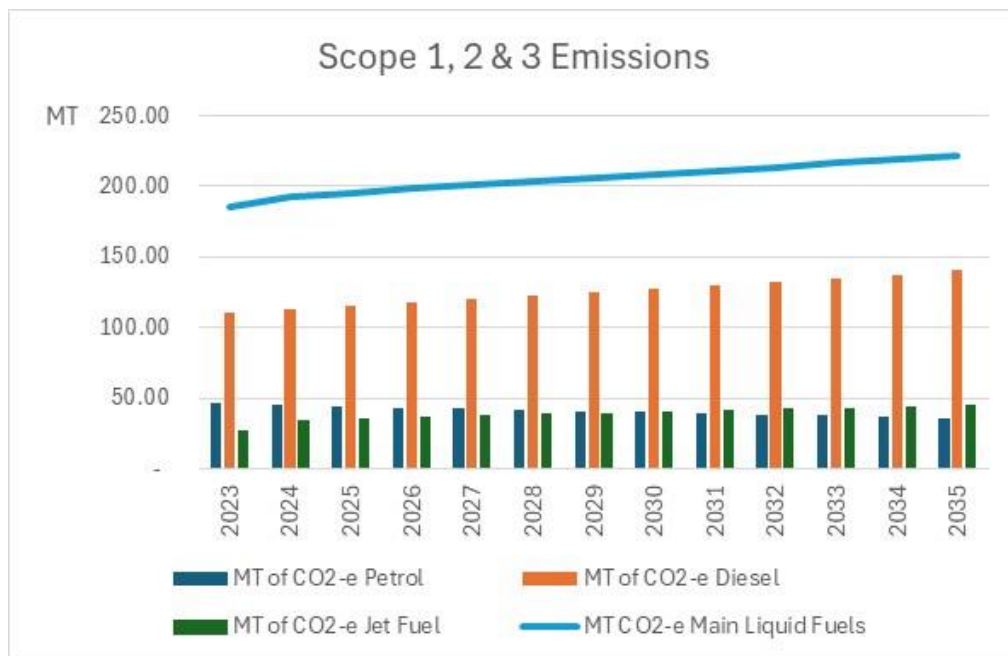


The use of liquid fuels is forecast to grow substantially. As the chart below shows, although petrol use will continue to decline due to the increased fuel efficiency of vehicles and the uptake of electric vehicles, this gradual decline will be dwarfed by the projected increase in both diesel and jet fuel use.



Source: AIP analysis.

The emissions impact of this growth in the use of liquid fuels, without policy intervention, is forecast to 2035 in the following chart.



Source: AIP analysis.

Low carbon fuels therefore have a clear role in reducing emissions. This contribution of low carbon fuels will complement other policies driving abatement and allow Australia to reduce emissions from the existing fleet and applications.

Electrification provides a relatively clear pathway for light passenger and some freight vehicles which will significantly reduce the emissions from these vehicles over time. However, this will only occur as

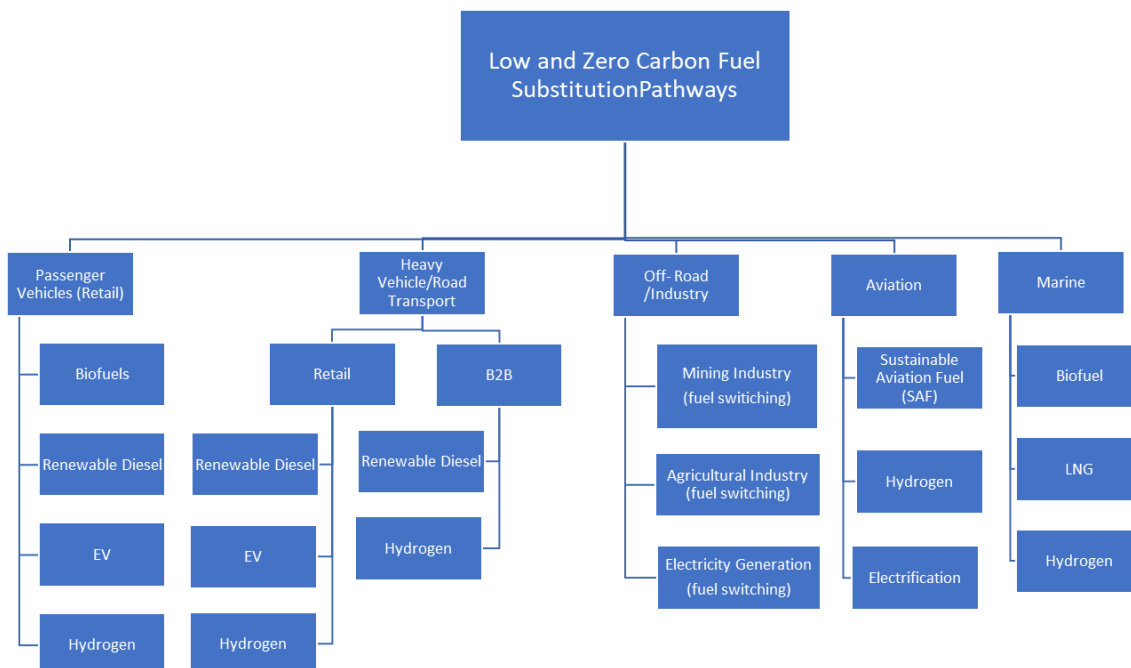
quickly as the turnover of the vehicle fleet. In the case of passenger vehicles, the average age of the fleet is around 10-12 years while in heavy transport, the average age is over 20 years. We are starting from a relatively low base; in 2022, hybrid, battery and fuel-cell electric vehicles constituted just 1.5% of the 20.7 million vehicle fleet.

While the New Vehicle Efficiency Standard (NVES) will, over time, reduce emissions from passenger and light commercial vehicles (i.e. about 60% of transport emissions), it won't address the remaining 40% of transport emissions (such as heavy vehicles, rail, aviation and marine).

There are a variety of low carbon fuels which can reduce the greenhouse emissions from existing and new vehicles, as well as other equipment. These fuels can be blended with existing fossil fuels to reduce their emissions (e.g. ethanol and biodiesel blends) or supplied neat as a full drop-in replacement fuel (such as HVO):

- Bio and renewable fuels
 - Biofuels fuels are manufactured from biological sources, wastes and residues
 - Australia is already supplied with a range of biofuels, such as E10 and Biodiesel. They are mixed in relatively low proportions (5-10%) with existing fossil fuels and provide some abatement benefit
 - Other renewable biofuels, such as Renewable Diesel and Sustainable Aviation Fuel (SAF), can be blended at much higher rates and are considered a drop-in low carbon solution replacement fuel
- Renewable Fuels of Non-biological Origin (RFNBOs)
 - RFNBOs are fuels produced via electrolysis using renewable power and synthesis. For example, hydrogen produced from a low-carbon source, is reacted with carbon dioxide to produce a hydrocarbon chain that is also referred to as power-to-liquid (PtL) or an e-fuel.

The pathways for the potential use of low and zero carbon fuels are highlighted below:



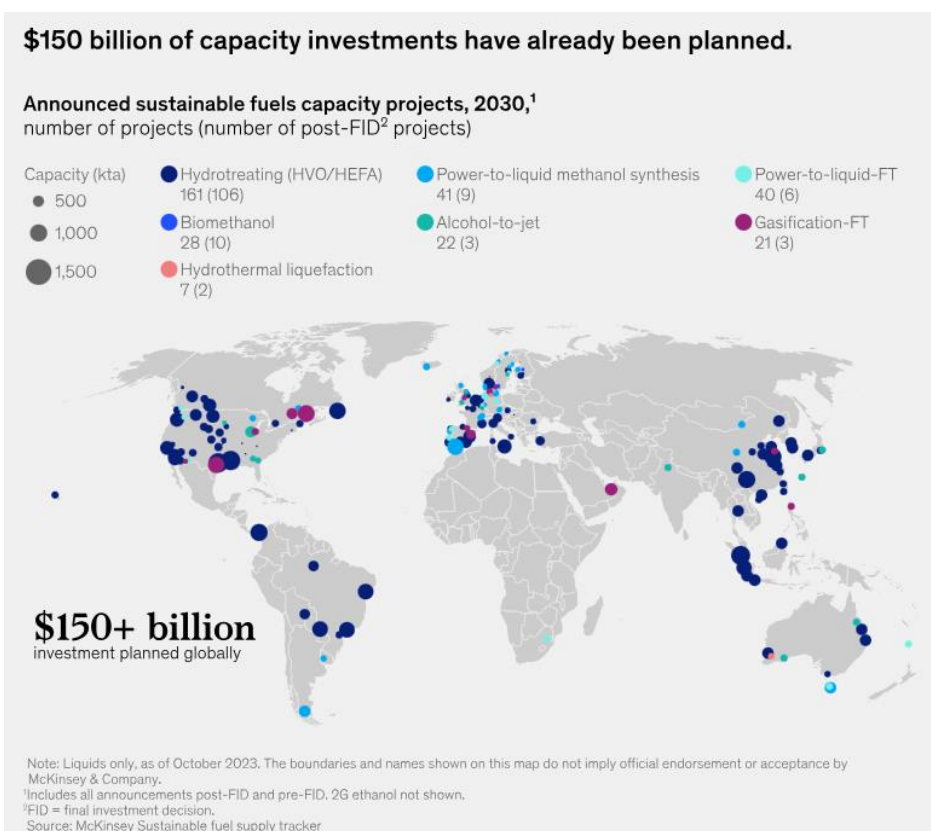
In almost all liquid fuel uses – particularly diesel and jet fuel applications – ‘drop in’ renewable fuels such as Renewable Diesel (RD) and Sustainable Aviation Fuel (SAF) could immediately reduce the emissions intensity of the fuel pool.

The critical role low carbon fuels will play in the decarbonisation of hard-to-abate sectors is being recognised globally. The IEA is forecasting Renewable Diesel and SAF consumption to expand to 18 billion litres over the period to 2028, with the United States and Europe accounting for almost 80% of this increase. This uptake is driven by supportive government policies in these jurisdictions including:

- In the United States, the Inflation Reduction Act (IRA), state-level low-carbon fuel standards (such as in California), and Renewable Fuel Standard (RFS) blending obligations, as well as the Sustainable Aviation Fuel Grand Challenge which targets 11 billion litres of new SAF production by 2030.
- In Europe, the EU has approved its latest Renewable Energy Directive (RED III), which aims to double the share of renewable energy by 2030, along with the ReFuelEU initiative to support SAFs as part of the Fit for 55 package.

While a significant volume of renewable fuels is expected to enter the market soon, the global market is tight. For example, McKinsey & Co forecast that around \$150bn of global investment is planned (see below chart) in support of proposed mandates and increasing demand. McKinsey notes:

“Most of the supply is projected to come from both existing and new HVO/HEFA facilities in the short term. Renewable diesel demand is projected to be substantial in the short term, before SAF demand picks up at a large scale around 2030. New pathways, like methanol, gasification-FT, and PtL, are also entering the market in pilots and are seeing growing capacities. By 2030, they could account for around a fifth of globally announced sustainable fuel production capacity. However, a considerable number of projects have not yet passed the final investment decision, and, as such, the actual supply that can be expected remains uncertain.”



Source: Global Energy Perspective 2023: Sustainable fuels outlook | McKinsey

In Australia, there are announced project proposals for the development of around 1,500 ML of production capacity for both SAF and Renewable Diesel (Argus Media), but none have yet reached final investment decision or commenced production. AIP members have publicly announced plans for over two thirds of this volume.

Without government policy support such as in the US and Europe, it is unlikely that a low carbon fuel market will emerge in Australia, further constraining the limited abatement opportunities for hard to abate liquid fuel applications. To that end, we welcomed the announced measures in the recent Federal Budget seeking to stimulate the low carbon fuels industry in Australia.

3. DISCUSSION PAPER QUESTIONS

QUESTION: WHAT POLICY SETTINGS AND CERTAINTY ARE REQUIRED TO SUPPORT A FAIR, EQUITABLE AND ORDERLY TRANSITION FOR THE DECARBONISATION OF BOTH NATURAL GAS AND LIQUID FUELS? WHAT ACTIONS ARE REQUIRED TO ESTABLISH LOW CARBON FUEL INDUSTRIES IN AUSTRALIA, INCLUDING ENABLING SUPPLY AND DEMAND, AND WHAT ARE THE MOST PROSPECTIVE PRODUCTION PATHWAYS?

AIP's focus in this submission is on the safe, reliable and efficient supply and use of low carbon liquid fuels.

To date, the potential of low carbon fuels to cut emissions has barely been tapped in Australia. There is virtually no market in Australia for these cleaner fuels with higher production costs than conventional fuels meaning low carbon fuels are uncompetitive. The problem is compounded by our regulatory system not recognising the lifecycle emission reductions from using low carbon fuels – prospective purchasers do not receive the full benefit of switching to cleaner fuels due to fuel consumption (“tailpipe”) only accounting.

A strong market signal is the essential first step to support the wider use of low carbon fuels. AIP welcomes the budget announcement that the Australian government will investigate the merits of a demand-side measure for low carbon liquid fuels. A demand-side measure will need to provide a stable environment to stimulate investment in low carbon fuel supply.

The Australian government has also announced that it will consult with stakeholders to identify options for production incentives for low carbon fuels. AIP and member companies will actively participate in this process.

Uptake of low carbon fuels will also require policy changes to enable accounting for emissions across the life cycle and provide appropriate credits for purchasers of these fuels. AIP welcomes the government's commitment to extend the Guarantee of Origin scheme to include low carbon fuels. Appropriate certification will be important for customer and community confidence in these new fuels.

These issues are discussed in more detail below.

A. DEMAND-SIDE MEASURES

There is a significant price premium attached to the supply of low and zero carbon liquid fuels which limits demand. Appropriate policy measures to stimulate demand are therefore required, possibly coupled with measures on the supply side to reduce the price premium until sufficient scale of production is built and a commensurate reduction in the cost of supply is achieved.

Low Carbon Fuel Standards (LCFS), or similar market mechanisms, are becoming increasingly popular around the world to drive the uptake of, and stimulate investment in, low carbon fuels.

A LCFS is a broad market-based policy designed to reduce the carbon intensity of liquid fuels over time. It does so by setting a declining target for average emissions/carbon intensity of the fuel pool. Liable parties generate credits for fuel supplied with emissions intensity below the target benchmark, while fuel supplied above the target benchmark generate debits. A well designed LCFS should be technology/fuel neutral and use lifecycle accounting. Lifecycle accounting provides the most accurate estimate of the emissions generated from the production, distribution and use of individual liquid fuels. It has the potential to drive emission reductions right along the supply chain, including on-farm for feedstock providers.

Mandates are the main alternative to a LCFS, although they can share similar design features. NSW and Qld have had biofuels mandates in place for some time. However, these mandates have been more an industry development policy for a preferred fuel than a least cost abatement policy for all fuels. A LCFS is far more flexible than these mandates, allowing businesses to supply a broad range of fuels to achieve abatement targets rather than marginally increasing supply of a single fuel. Moreover, a LCFS is weighted in favour of fuels with higher abatement potential.

There is a wealth of overseas experience about the operation of Low Carbon Fuel Standards. AIP recommends aligning a future Australian scheme as far as possible with credible, overseas schemes, while being cognisant of, and consistent with, Australian conditions. Examples include:

- California's Low Carbon Fuel Standard
 - The California LCFS has been an early model for others, having commenced in 2007 and recalibrated and expanded over time.
 - Regulated parties (typically oil refineries and petroleum importers) ensure that the mix of fuel they sell in the market meets reducing targets (expressed as baselines).
 - The LCFS standards are expressed in terms of the "carbon intensity" (CI, e.g. CO₂/MJ) of gasoline and diesel fuel and their respective substitutes.
 - Each fuel has "life cycle" greenhouse gas emissions that include CO₂, CH₄, N₂O, and other GHG contributors.
 - The carbon intensity scores assessed for each fuel are compared to a declining CI benchmark for each year. Low carbon fuels below the benchmark generate credits, while fuels above the CI benchmark generate deficits.
 - Regulated parties that have generated deficits and not enough credits themselves must then find credits to buy and satisfy their required obligation.
 - The program provides several opportunities to incentivise production and use of low emissions fuels, through the generation of credits, including:
 - Fuel pathway crediting:
 - Incentives to supply low emission fuels are provided through credits from fuels with lower CI than the baseline CI.
 - Project based crediting:
 - Credits generated from projects that reduce emissions across the petroleum production and supply chain calculated on a life cycle basis, including CCS and direct air capture.
 - Zero-emissions vehicle infrastructure (capacity based) crediting:
 - The aim is to incentivise build out of infrastructure and provide a revenue stream for fuel stations until ZEVs become more competitive.
 - Installation of electric charging infrastructure (fast charging and hydrogen) can generate credits based on installed capacity.
 - Credits are essentially provided for unused capacity.
 - As more ZEVs use the station and the station utilization increases, the site will generate more LCFS fuel credits and fewer infrastructure credits.
- The EU's Low Carbon Fuel Standard - Renewable Energy Directive (RED)
 - RED was introduced in 2009 and is under consultation for further potential revision.
 - The existing directive sets the overarching European target for the content of renewable energy in the overall energy mix of Member States and includes rules to ensure the uptake of renewables in the transport sector and in heating and cooling.
 - In 2009, the Renewable Energy Directive (RED; 2009/28/EC) set the target for each Member State, whereby 10% of all energy used in transport should be from renewable sources by 2020. The RED also introduced sustainability criteria and, since 2011, only biofuels that comply with these criteria count towards the renewable energy share.

- In 2018, the new RED, known as RED II, strengthened the sustainability criteria for bioenergy and set a new goal, increasing the target for the share of renewable energy used in transport to 14% by 2030.
- There is significant lifecycle methodology underpinning the RED2. Work is underway to include Renewable Hydrogen, including legal definitions, certification etc in an updated RED3.
- RED also provides for the market trading of green certificates to support compliance.
- In addition, ReFuel EU Aviation Regulation includes mandatory shares of sustainable aviation fuels (SAFs) to be available at airports, starting at 2% of overall fuel supplied by 2025 and reaching 70% by 2050. Maritime FuelEU regulation has also been adopted to reduce GHG emissions from maritime energy use. Targets include 2% reduction by 2025, 6% by 2030, 14.5% by 2035, 31% by 2040, 62% by 2045, and 80% by 2050.
- Other schemes
 - Schemes similar to the California LCFS also operate in Oregon (implemented 2016), Washington State (2023) and British Columbia (2013), as well as the UK.
 - Schemes encouraging supply of SAF are also emerging, including in Singapore and Japan.

LCFS schemes offer many benefits:

- incentivises supply of lower emissions fuels to meet national, sectoral and corporate emission targets and objectives
- reduces emissions from the current vehicle fleet as it progressively turns over to new, low and zero emission vehicle technologies
- uses a life cycle approach which can reflect the true cost and performance of an abatement policy, providing for innovation and competition between fuels and technologies
- provides an appropriate price signal to consumers/end users and provides a level playing field (so individual customers are not disadvantaged by having to pay for higher priced lower carbon fuels)
- is technology neutral and fuel agnostic
- incentivises consumer choice and fuel innovation
- can enable faster, potentially lower cost abatement solutions than policies that rely on a single replacement technology – especially when some replacement technologies don't exist as yet or are less mature or not at commercial scale
- provides flexibility for individual entities to best meet their obligations in a manner consistent with their own business and supply strategies and commercial interests
- allows the market to determine the lowest cost abatement pathway in the supply of fuels and minimises Government opportunities to pick winners (like volumetric mandates in NSW/Qld)
- provides increased certainty over the long-term policy and abatement trajectory
- can sit alongside other policy measures such as grants to assist projects which will manufacture lower carbon fuels and New Vehicle Efficiency Standard (NVES) which target the fleet make-up and incentivises lower or zero emission vehicle technology uptake.

A LCFS for Australia

Based on the experiences outlined above, and their success in delivering emissions abatement, AIP supports the introduction of a LCFS as the best policy mechanism to underpin the supply and uptake of low carbon fuels in Australia. AIP recognises that such a scheme would take time to design. The government has indicated Departmental funding to undertake a two-year process to assess the role and best design of a demand-side measure in Australia. AIP welcomes this commitment and trusts that a LCFS could be developed earlier, so that it can be assessed through this process and then implemented as soon as possible. The sooner a LCFS or equivalent measure is in place, the more abatement can be delivered.

AIP believes a broad-based LCFS covering all fuels would deliver the least cost solution for abating emissions associated with Australia’s liquid fuel use, provide a necessary incentive to invest in new capacity of current low carbon fuel technologies, and pull forward emerging fuel supply technologies over the longer term.

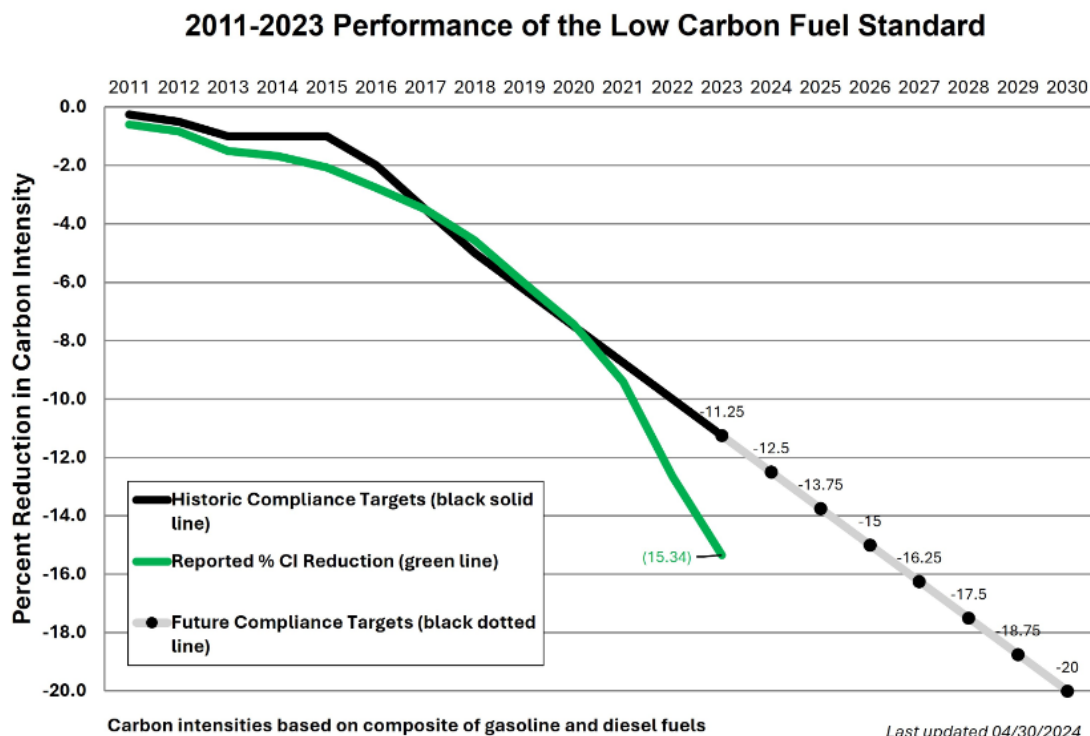
To enable the most efficient abatement technologies and outcomes, the LCFS should be underpinned by a rigorous carbon intensity approach, with the California GREET (Greenhouse Gases, Regulated Emissions, and Energy use in Technologies) or similar methodology providing a useful basis for an Australian system that can be tailored to suit Australian circumstances.

The LCFS should be national, internationally consistent where appropriate, provide flexible compliance mechanisms (similar to the NVES and other tradeable systems) and compatible with other Government abatement policies, such as the Safeguard Mechanism.

Setting achievable targets and trajectories will be critical. As noted above, there is currently limited local manufacture of these fuels in Australia. Depending on the start date of any scheme, imports would be required to meet suppliers’ obligations as local production capacity is developed. As we see in the current traditional fuels market, integration with international markets via imports will also be essential to ensure long-term security of supply, maintain competition, and to expand the market quickly.

AIP therefore considers that a gradual approach with a soft start is strongly desirable. The challenge of aligning supply and demand has been reflected in low carbon fuel policies around the world, including where the fuel demand profile for liquid fuels is significantly flatter than is forecast in Australia.

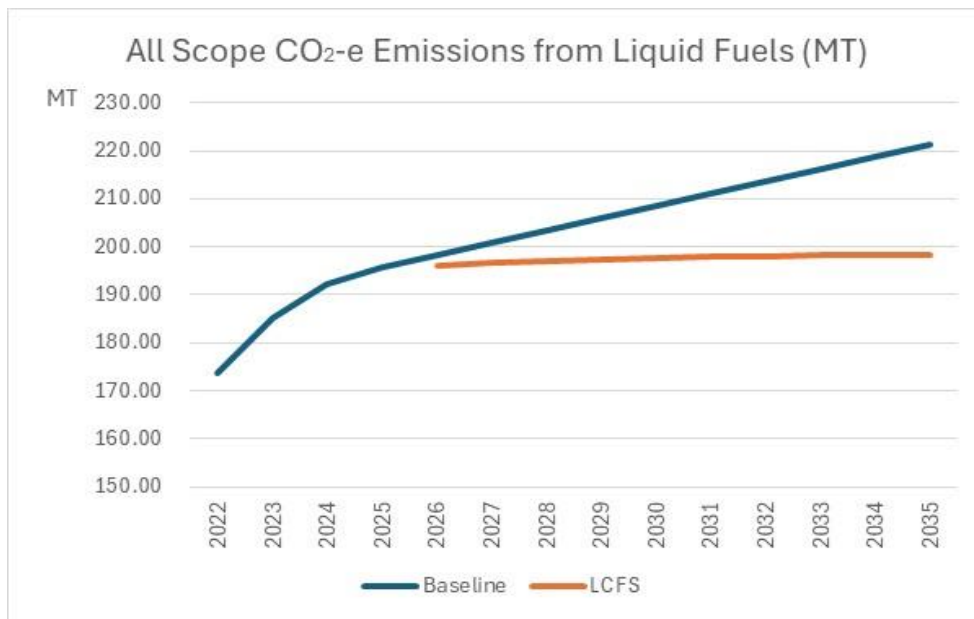
For example, while the California LCFS is now driving a reduction in carbon intensity of liquid fuels in that state, the initial years of the scheme held the intensity targets relatively flat, as demonstrated in the following chart:



Source: California Air Resources Board

It is important to note that the increasing supply of low carbon fuels to meet the declining targets were not only underpinned by the LCFS, but a range of other supporting policies including financial measures such as the Inflation Reduction Act and agricultural incentive policies.

To illustrate the scale of the challenge for Australia, AIP has undertaken some preliminary analysis using a carbon intensity LCFS aimed at flattening the forecast growth of emissions from liquid fuels to 2035, with a target scheme commencement date in 2026. Capping emissions at 2025 levels would require reducing the carbon intensity of the liquid fuel pool by around 10% by 2035 (or a reduction of about 140MT), as demonstrated in the chart below.



Source: AIP analysis.

AIP also notes that SAF and Renewable Diesel are derived from similar manufacturing processes, with each fuel effectively competing against each other. Renewable Diesel manufacture tends to produce greater yields from the feedstock and delivers enhanced and wider scale abatement outcomes compared with SAF. The experience in California has reflected this with almost all supply favouring Renewable Diesel supply over SAF in that jurisdiction. This may also be due to the stacking of other incentives that encourage Renewable Diesel supply. Furthermore, the abatement cost curve tends to be higher for SAF than Renewable Diesel.

Consequently, given SAF is the only short-medium term abatement option for the aviation sector, an additional target for SAF within or alongside the LCFS may be desirable in the short term, until industry scale is built to support the demand for both fuels.

The pricing impacts to consumers will vary depending on the design and target/trajectory of a LCFS. Broadly speaking, SAF pricing has averaged around three times the price of conventional jet fuel, while Renewable Diesel is around double the price of conventional diesel. However, it must be noted that the price premium is for 100 percent “neat” renewable fuel supply, whereas in practice (and with a soft start), blend rates would be significantly lower.

With a soft start along the lines outlined above, and factoring an initial differential target for SAF, AIP considers the pricing impacts will be low (given these low blend rates). AIP is conducting further

analysis on the cost implications of differing trajectories and hopes to have preliminary views available for consideration as part of the Transport Sectoral Plan Discussion Paper.

Investment considerations

There are a number of proposed investments for the local manufacture of low carbon fuels, led by AIP members. These projects could meet multiple government objectives, including emissions abatement, fuel security, and regional development. AIP considers that a LCFS is the key policy lever to create the demand to unlock these investments, but there are other factors that will influence investment decisions for these projects.

Investment in new manufacturing capacity (not just fuel manufacture) has been notoriously difficult in Australia, due in part to Australia being a comparatively high-cost operating environment. In particular, capital and labour costs are high compared with competing nations.

Key investment drivers include:

- capital costs
- operating costs
- freight costs
- operational flexibility
- product yields
- feedstock costs
- proximity to feedstock supply
- certainty of feedstock supply.

The lead time to develop a viable business case for investment through to the delivery of a greenfield infrastructure project and product supply can typically take between 5 – 8 years to progress through feasibility, final investment decision, detailed design and construction. While there has been significant progress by AIP members and other project proponents, decisions on the starting date and trajectory of a LCFS should take account of the time required to bring new supply into production.

The establishment of local manufacturing also needs to consider both the location of the manufacturing facility and the associated feedstock supply chains. Assistance from governments to streamline planning approvals and support feedstock aggregation hubs will be important. This will both de-risk the initial engineering investment and improve speed to market.

Australia has had a range of capital grant and similar investment support policies implemented by governments to help establish local manufacturing. The government's decision to recognise low carbon fuels as a priority for support through the *Future Made in Australia Innovation Fund* and ARENA should help early investment.

AIP does not yet have a firm view on these policies but notes they may be an important component of incentivising local supply sources of low carbon fuels.

B. COST CONTAINMENT MEASURES

Producing low carbon fuels currently comes at a premium to fossil fuel alternatives. This price premium has been the main reason for the very limited demand for low carbon fuels. A LCFS will create a demand signal to bring low carbon fuels into the market and can spread the higher costs of those fuels across the entire fuel pool. While there will likely be improvements in the cost of these low carbon fuels over time and with scale, as with many other abatement options they will likely always remain more expensive than their fossil alternative.

Complementary policies to an LCFS may be needed to make low carbon fuels more competitive in the market, and/or mitigate impacts on retail prices in the short term.

AIP is developing its views on possible complementary policies.

AIP notes that there are historical precedents for such policies, along with those expected to be considered as part of the Australian Government's consultations as part of its Low Carbon Liquid Fuels Package announced in the 2024 budget, including:

- Contracts for Difference (identified in the Federal Budget)
- exempting the renewable component of the fuel from excise (such as the alternative fuels program, including domestically produced ethanol and biodiesel, LNG, CNG and LPG)
- a reduction of the fuel excise in tandem with the annual increases in LCFS targets
- design of a road user charge to include potential incentives to offset the costs of low carbon fuels for on-road users.

AIP welcomes the opportunity to further discuss complementary measures with the Government. Whichever approach is adopted, AIP believes that any measures need to be non-distortionary, targeted and time limited.

C. SUPPLY OF FEEDSTOCKS

The availability of cost-effective and sustainable feedstocks is critical to the supply of lower carbon fuels.

Like traditional fuels, the low carbon fuels that will replace them in the low carbon economy will be part of an international supply chain. Unlike traditional fuels derived from abundant crude oil, first- and second-generation renewable fuels will be made from currently constrained, new or not yet produced/developed feedstocks. Already, there is strong international demand for feedstock supplies, with the few established renewable fuels refineries sourcing tallow, waste oils, vegetable oils and other feedstocks from across the globe – often with financial incentives to attract these feedstocks to their jurisdiction.

Australia has a narrow window of opportunity to secure its future supply of low carbon fuels. Australia will need a stable, long-term policy framework to attract investment in importing and manufacturing low carbon fuels. This framework will need to take account of numerous factors in the international market, including the substantial incentives available in other countries, feedstock competition and a tight global investment environment.

Australia is already a significant feedstock provider to export markets and has great potential for expanding supply to both local and export markets, using feedstocks derived from agricultural residues, purpose-grown Cover Crops, and Novel Crops such as Carinata. Carinata is a non-edible, high yield oilseed plant with high tolerance to diverse climates and growing conditions. Another, yet-to-be commercially grown candidate is Pongamia, which is similar in yield and growth. Such Novel Crops are opportunities to expand and diversify feedstock supply. Non-edible oilseeds do not compete with food markets and can be grown on marginal or degraded land.

The technical and economic viability of different feedstocks will need to be monitored over time as the energy transition changes our understanding of efficient land use, sustainability and cross-sectoral decarbonisation benefits.

AIP believes governments should identify ways to support commercial scale feedstock supplies and work with the agriculture sector to realise the opportunity for these crops to become part of

Australia's agriculture landscape, supporting abatement, local manufacturing and export opportunities.

AIP considers that a key action across the Sector Plan process is a thorough assessment of Australia's existing and future feedstock capacity. Such an analysis will be important for informing the investment decisions of producers and fuel suppliers. It is also likely to reveal policy opportunities for improving sustainable supply.

D. ENABLING POLICY ARCHITECTURE

There are a number of technical policy measures that must be pursued to realise the abatement potential of low carbon fuels.

Fuel Quality Standards Act (FQSA)

The FQSA provides the legislative framework for regulating the quality of fuel in Australia. Its objects include, among other things, reducing the level of pollutants and emissions arising from the use of fuel and to enable better engine technologies.

The FQSA underpins all policy and programs relating to fuel, including the excise system, and gives governments confidence that regulated fuels meet specified standards. Furthermore, the fuels regulated under the FQSA are almost always referenced in relevant State Government programs. The Act is therefore an essential bedrock for pursuing any supporting policies in relation to liquid fuels.

AIP notes the work underway to include new fuel standards for low carbon fuels and supports this as a matter of priority. This includes:

- agreement to a B20 and B100 standard
- finalisation of the Renewable Diesel Standard.

Emissions factors and accounting methodologies

The key strength of both Renewable Diesel and SAF is their suitability as a "drop in" fuel, providing low emissions solutions as a replacement, at least in part, to existing fossil fuels in a host of applications. AIP expects these new fuels will not only be imported but could be supplied from traditional refineries via co-processing and could be produced from dedicated manufacturing facilities. Regardless of their provenance, the reality for fuel supply chains is that they will eventually end up in co-mingled storage facilities that will not have dedicated lines, tanks and gantries for these bio products.

However, current accounting methodologies do not provide for an approach whereby refiners or co-mingled suppliers can easily account for the bio or lower carbon content in their fuel pools, and customers are unable to account for the specific volumes of these fuels they have purchased.

While the 2023 NGERS determination to adopt emission factors for Renewable Paraffinic Diesel and Renewable Paraffinic Kerosene was welcome, AIP has continued to emphasise the importance of further developing methodologies to account for these situations so investment in co-processing or dedicated manufacturing is not disincentivised. For example, AIP members seek development of an agreed methodology that allows those customers who purchase fuel to be supplied through joint fuel systems (such as a JUHI), from co-mingled facilities, or from a refinery that may be co-processing renewable feedstocks to be able to account for the abatement these fuels provide rather than their percentage share of the entire fuel supplied from that facility.

AIP also considers that a sustainability framework and certification system is a critical underpinning of the supply for low carbon fuels, including through a LCFS. This will provide credibility to the scheme for ensuring actual abatement outcomes, along with necessary investor and customer confidence.

While the recently announced consultation on the latest update to NGERs is welcome, a lifecycle carbon intensity methodology drawn from international standards (such as CORSIA) is key. This approach can be designed to sit alongside the NGERs methodologies.

This must also be aligned to an Australian certification scheme that is endorsed and administered by Government. Approaches such as a Guarantee of Origin Scheme for low carbon fuels provide a useful starting point. AIP supports the government's decision to extend the scheme to include low carbon fuels.

QUESTION: LIQUID FUELS - KEY RISKS FOR FUEL SECURITY IN THE NEAR, MEDIUM AND LONG-TERM AND POLICY ACTIONS REQUIRED?

Australia has consistently demonstrated it has robust fuel reliability and fuel security.

With increasing fuel imports since 2003, the domestic industry has taken the opportunity to fully integrate into the deep and growing Asian market to meet growth in Australian fuel demand and has established multiple and reliable sources of supply from the region supplemented by ongoing local refining. Importantly, additional diversity and flexibility in the Australian supply chain is expected over time with the proximity to Australia of major new petroleum export centres (e.g. India) and with the United States now becoming a major crude and petroleum exporter to the world (including Australia). Australia's direct involvement in global trade in crude oil and petroleum products along with some domestic refining capability provides security through the diversity of source countries and multiple import terminals around the Australian coastline.

Industry and market confidence is well founded and supported by comprehensive government and independent reviews of liquid fuel supply security over many years. Key reviews include the National Energy Security Assessments (NESA) and Liquid Fuel Vulnerability Assessments since 2008, Australian Government Energy White Papers in 2004 and 2012, and the 2013 Report of the Parliamentary Inquiry into Australia's Oil Refining Industry. While undoubtedly the world has changed since these reviews and reports, fuel supply continues to remain robust demonstrated by a strong industry track record of supply and the fact that the Liquid Fuels Emergency (LFE) Act has never been triggered.

These reviews have confirmed that Australian liquid fuels supply is highly secure, competitively priced and reliable because of:

- a flexible, resilient and reliable supply chain with:
 - a diversity of supply sources for crude oil and petroleum products, including domestic and imported sources
 - In addition to domestic crude supply, crude oils required to meet the product demand mix in Australian refineries are imported from over 16 countries.
 - Finished petroleum products are imported from over 30 countries, and this diversity is growing with increasing imports from India and the US.
 - This means any supply disruption in one market, can be readily substituted with alternative supply from existing sources of reliable supply to Australia, from emerging sources of supply actively looking to supply the Australian market, or from global spot markets.
 - access to a large pool of international vessels and secure shipping routes
 - a significant volume of stock on the water owned by local companies
 - a domestic refining capability providing multiple supply options and the ability to convert domestic and imported crude oil and potentially other feedstocks into useable products

- actual and planned investment in import, storage and distribution infrastructure which is able to meet growth in fuel demand as well as specific products such as jet and diesel
- efficient domestic distribution using a variety of transport modes and routes
- an extensive, safe and reliable network of service stations
- established and effective integration of this supply chain into the global crude oil and petroleum product markets, including the rapidly growing Asian fuels market
- domestic fuel pricing that relates directly to global market prices (import parity pricing)
- expert and efficient management of the supply chain by industry (demonstrated by a strong record of reliable supply)
- ongoing, substantial investment in new/expanded petroleum storage and handling facilities
- robust risk and emergency management frameworks at industry and government levels.

Australia also has robust emergency response plans and arrangements:

- Industry and governments fully recognise the potential impacts of a severe national shortage of fuel supplies to business and consumers.
- Australia has robust response plans for managing a national liquid fuel emergency, which reflect Australian market characteristics, utilise proven market and commercial response mechanisms, and adopt international approaches that will be effective in our operating environment and market.
- While every effort is made by industry to ensure continuing reliable supply, the National Oil Supplies Emergency Committee (NOSEC) and the International Energy Agency (IEA) have established management plans that would help ensure a coordinated response to any supply emergency at a national (NOSEC) or international (IEA) level.
- NOSEC and the National Plan (NLFERP) are also well supported by flexible and wide-ranging ministerial powers under the Liquid Fuel Emergency Act 1984 to authorise the Australian Government to prepare for, and manage, a national emergency.
- Extensive reviews in recent years have concluded that Australia's emergency response framework for liquid fuels is robust and proven, and there are no obvious gaps currently. The framework should be periodically reviewed to ensure its ongoing alignment with market-based principles and operation.
- According to the IEA previously, Australia is well served by an industry which operates a resilient and diversified supply chain, supported by a regime of policy and regulatory emergency measures, regular in-depth vulnerability assessments, and international advocacy of open global markets.
- A National Liquid Fuels Emergency has never been declared by an Australian Government.

Furthermore, over recent years, the Australian Government has sought to recalibrate its fuel security appetite, implementing two additional measures under the Fuel Security Act:

- support for the ongoing viability of Australia's two refineries through the Fuel Security Services Payment (FSSP) which provides financial assistance during low margin operating periods; and
- a Minimum Stockholding Obligation (MSO) that requires importers and refineries to hold onshore a minimum level of stock of petrol, diesel and jet fuel. The MSO Rules were made in November 2022 with the scheme commencing on 1 July 2023, with required volume of MSO stocks held to be above normal commercial levels, with diesel stock level obligations to further increase in mid-2024.

The Australian Government has also recently established the National Fuel Council to consider defence requirements and the interaction with civilian fuel requirements. A component of this work also includes analysis on the role low carbon fuels can play in reducing the emissions footprint of defence activities.

AIP considers that low carbon fuels have the potential to add to the supply diversity of Australia's fuel supply chain alongside this strong fuel security picture, through:

- new local manufacturing capacity using existing or future domestic feedstocks
- supply of imported feedstocks and finished low carbon fuel products from new international supply locations
- incentives to include low carbon fuels into company MSO obligations.