Australian Government Consultation on Cleaner Fuels Program

December 2025

Boeing Australia Holdings (BAH) response to Australian Government Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts Cleaner Fuels Program

Overview

This submission is prepared by Boeing Australia Holdings for the Australian Government's Consultation on the *Cleaner Fuels Program.* We note the range of recent Government policy announcements made to support the development of a low carbon liquid fuels (LCLF) sector in Australia and welcome the opportunity to provide input into the development of initiatives through the *Cleaner Fuels Program.*

Boeing acknowledges that the *Cleaner Fuels Program* is one element of a broader policy suite targeting LCLF production in Australia and that it is primarily focused on production incentives and supply-side support. We continue to advocate that this suite will ultimately include a range of supply and demand side measures to drive domestic production and uptake. It is understood that this program is intended to primarily address the premium associated with Australian-produced fuels. Boeing would advocate that this policy also be designed and implemented in a manner that covers the 'green' premium associated with low carbon liquid fuel alternatives. We have structured our response to this consultation by addressing the priority issues outlined in the Policy Design and Engagement Paper released by the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. This response seeks to propose key characteristics of effective production incentives for LCLFs in the Australian context and includes priority principles for Government consideration. Given our role as a leading aerospace company, this submission primarily focuses on policy mechanisms to drive Sustainable Aviation Fuel (SAF) production and uptake, however does include reference to other LCLFs, including Renewable Diesel.

Boeing in Australia

Boeing is one of the world's largest global aerospace manufacturers. Boeing develops, manufactures and services commercial aeroplanes, defence products and space systems for customers in more than 150 countries. Our diverse team is committed to innovating for the future, leading sustainability, and cultivating a culture based on our company's core values of safety, quality and integrity. A leading global aerospace company and top U.S. exporter, Boeing develops, manufactures and services commercial airplanes, defense products and space systems for customers in more than 150 countries. Our U.S. and global workforce and supplier base drive innovation, economic opportunity, sustainability and community impact. Boeing is committed to fostering a culture based on our core values of safety, quality and integrity.

In 2027, Boeing will celebrate 100 years in Australia. With more than 4,500 employees in more than 25 locations across the country, our Australian presence is one of the largest outside the United States, and supports some of the largest and most complex programs for the Australian government and our commercial customers. Our Australian portfolio includes advanced manufacturing of composite aircraft parts for commercial and defence aircraft; defence systems design, development and support; research and development including modelling and simulation; aircraft services and sustainment; as well as uncrewed systems. Boeing has an extensive supply chain to support our programs and operations and continually looks to find ways to engage with and grow Australian industry content in aerospace. We also partner with internationally-recognised and celebrated research organisations, including CSIRO, as well as Australia's leading universities.

The Australian Low Carbon Liquid Fuel Opportunity

Australia relies on liquid fuels for more than half of overall energy demand and transport accounts for approximately 70 per cent of the nation's consumption of refined liquid fuel products. In order to meet both Australia's legislated emissions reduction commitments, and the global aviation sector's commitment to net zero emissions by 2050, swift and comprehensive action is required to develop sustainable, low carbon alternatives to conventionally fossil-fuelled based products.

Boeing believes the future of flight will take 'everything for zero.' Collaborations will need to foster a diverse portfolio of technologies that will mature at different times and be suitable for different aviation segments based around four key strategies: fleet renewal, operational efficiency, renewable energy and advanced technology. Within Australia specifically, the aviation sector will need to be supported by sectoral pathways to decarbonisation that support the transition to net zero. Whilst advanced technologies, including electric and hydrogen, show promise to provide decarbonisation for short-regional distance flights, these opportunities will only be realised over the medium to long term. Significant investment and infrastructure change will also be required to realise the emissions reductions associated with these abatement measures.

SAF is both an immediate transition fuel and an important part of the long-term energy mix when considering the decarbonisation of aviation and the long-term energy mix in Australia. SAF is a drop-in replacement for conventional fossil jet fuel that works with existing aircraft. Under ASTM[1] certification, SAF currently provides eight approved feedstock and production pathways to produce a drop-in fuel for use up to 50 percent blend, with an additional three co-processing pathways also approved. As a key sustainable liquid fuel, SAF can be refined from waste biomass and hydro-carbon based industrial and household waste as well as used cooking oils and fats; depending on the pathway SAF can reduce emissions across the lifecycle by 80 percent or more compared to fossil jet fuel. As a result, blended SAF can use existing fuel delivery infrastructure, avoiding the need for inefficient bespoke supply chains from the point of origin to an aircraft's wingtip.

In the short-term, SAF is the most expedient means by which aviation may be decarbonised and also provides the opportunity to achieve broader sustainability outcomes, including those associated with driving more circular economies. The Boeing CSIRO SAF Roadmap (2023) specifically notes Australia's large landmass, temperate climates, advanced farming practices, established supply chains and renewable energy potential as supportive of domestic SAF (and renewable diesel) industries. Maximising opportunities associated with a LCLF industry, however, requires a range of integrated policy measures to address the current cost differential when compared to conventional fossil fuels and to support the development of viable domestic production and ongoing uptake.

Consultation Response

Responses to the key issues outlined in the Policy Design and Engagement Paper have been provided below. Boeing additionally seeks to suggest a number of overarching principles that should be considered in the development of a comprehensive, integrated and effective suite of policy measures to drive LCLF industry development, particularly with regards to SAF.

Overarching Principles

Despite the significant opportunities that LCLF including SAF represent to decarbonise aviation, economic challenges remain for both producers and consumers. Currently, SAF is more costly to manufacture than conventional fossil jet fuel and is therefore more expensive to purchase. It is hoped that as technologies advance, policy settings mature, feedstock volumes increase and economies of scale are achieved that this price differential decreases. Government policies on both the supply and demand side will play a critical role in addressing this price differential, enabling early-stage producers to ensure the economic viability of domestic production.

Boeing recognises the importance of developing a domestic SAF industry, particularly at a time when many countries are seeking to rapidly scale their SAF production potential. The International Civil Aviation Organisation (ICAO) Third Conference on Aviation and Alternative Fuel (CAAF 3) agreed that in order to support the sector's long-term aspirational goal, ICAO and its member states would strive to achieve a collective global aspirational Vision to reduce CO_2 emissions in international aviation by 5 percent by 2030 through the use of SAF, lower carbon aviation fuels and other cleaner aviation energies. This aligns with demand goals from several airlines and signals future expected demand from international aircraft operators when refuelling in Australia.

Globally the SAF industry is in its early stages. However, this presents significant opportunities, especially for countries like Australia, with the nation holding a range of competitive advantages in terms of the development of a LCLF industry. Along with the preponderance of biogenic and other feedstocks, Australia has a strong aviation market and high domestic skill level. Australia is also set to capitalise on its renewable energy potential to become a significant renewable energy and green hydrogen producer. Green hydrogen will continue to be a crucial commodity in refining LCLF, as well as being a potential feedstock for the power-to-liquid (PtL) SAF development process.

Securing liquid fuel security for Australia is also an important co-benefit that could arise from the development of a domestic industry. Given over 90% of fuel is currently imported, this would assist with mitigating sovereign risks whilst also leading to significant sustainability benefits. It would also be valued by many of Australia's close partners and allies particularly as energy security and independence becomes increasingly competitive in the medium- and longer-term.

[1] ASTM International, formerly known as American Society for Testing and Materials, is an international standards organization that develops and publishes voluntary consensus technical standards.

It is Boeing's view that policy development, including through the *Cleaner Fuels Program* remains cognisant of the following principles:

- **Integration:** Policy should be integrated, with relevant demand and supply side mechanisms designed to complement one another. This may necessitate the phasing of initiatives over time and the Cleaner Fuels Program should be part of a broader policy suite. Policy should also integrate with international schemes, including CORSIA.
- **Stability**: Policy should be stable, predictable and consistent in implementation in order for the private sector to be willing to make investments. The Cleaner Fuels program should communicate relevant detail transparently.
- **Technology-neutral:** This enables diverse production pathways and supply chains to develop. Given the range of feedstocks and number of ATSM approved pathways for LCLF development, policy should drive broad industry development. Importantly, however, whilst policy intent should remain technology neutral, nuanced approaches to application could be considered. It is Boeing's strong recommendation that any nuance regarding technology pathways be integrated in supply side mechanisms (including potentially as part of production tax incentives through the *Cleaner Fuels Program*) and that pathway or feedstock sub-mandates as part of demand-side policy should be carefully avoided.
- **Timing and Duration:** Policy should be of a sufficient duration to reflect project development timelines. Support under the Cleaner Fuel program should adhere to this, with a recommendation of a time frame of 10+ years.
- **Stackable:** Policy support should be "stackable" with other incentives – i.e., allowing credit to be received from multiple reinforcing incentives at the same time.
- **Non-dilutive capital:** Policies should recognise needs of pre-revenue companies through clear access to non-dilutive capital via grants and loans.
- **Sustainability Performance:** The most effective policies link incentives to performance (e.g. higher GHG emission reduction performance should be rewarded in policy design). Supply-side policy should prioritise Carbon Intensity (CI) outcomes.
- **Compliance value:** Policy design should allow access to a compliance credit market to mediate prices between renewable fuels and fossil fuels by ascribing a compliance value. There are several examples of this globally, one such is the Low Carbon Fuel Standard in California.
- **Scope:** The broadest policy scope should be targeted. This allows innovation and project development where most effective. Subnational (States or regions) may be useful, but should complement a national approach.
- **Customised:** Policy should be customised to the unique resources, economic and social factors, political barriers and existing regulatory structure. There is no single path to successful SAF policy implementation.

Boeing reiterates the recommendations made in the CSIRO Boeing SAF Roadmap (2023) to inform policy development. These are a series of phased recommendations designed to build on industry progress over time:

Immediate term

- Consider policy frameworks and tools that support domestic distribution and use of certified SAF with clear long-term support strategy for industry.
- Encourage the signalling of local demand for SAF across government, commercial and defence users, giving investors certainty to establish new plants.
- Educate consumers on the role and benefits of SAF, building social license for investment and demand for fuels
- Invest in R&D to support emerging technologies and improve feedstock availability and sustainability understanding.
- Scale-up of biogenic SAF production in appropriate locations, increasing market supply and driving cost reductions.

Medium term 2025-2035:

- Build on immediate term progress by scaling-up second-generation biogenic feedstock collection and processing, including supporting the commercial readiness of domestic projects.
- Invest in research and development to reduce the costs and logistical hurdles for biogenic supply chains and continue scaling up of power-to-liquids demonstrations

Longer term: 2035+

Pursue a portfolio approach of technologies, including increased commercialisation of large-scale power-to-liquids productions at locations across Australia.

Response to Issues in Policy Design and Engagement Paper

Issues	Explanation
1. Eligible fuels	**Question 1.1: Which LCLF should be eligible under the program and why?** Program eligible fuels should include Sustainable Aviation Fuel (SAF) and Renewable Diesel (HVO) given both play a critical decarbonisation role in 'hard-to-abate' sectors with few other viable alternatives. Viable production pathways, including HEFA and Alcohol to Jet (AtJ) can manipulate product slates to produce variable percentages of both fuels, meaning a single plant could supply fuel to both the aviation and heavy vehicle sectors. Both fuels also offer drop-in solutions that can be integrated into existing infrastructure up to approved blend limits. Additionally, no other technological alternatives, including electric and hydrogen are currently viable for aviation at scale. Given the current program funding limit, we advocate for these fuels to be prioritised over other low carbon liquid fuels. Additionally, it is recommended that fuels produced via co-processing pathways be included. SAF is a critical decarbonisation lever for aviation and will play the largest and most immediate role in the sector's net zero transition. According to the Air Transport Action Group's Waypoint 2050 Report, SAF could contribute up to 70% of aviation's overall emissions reduction by 2050. The Boeing CSIRO SAF Roadmap and the Boeing Cascade Climate Impact Model also illustrate the critical role of SAF in the Australian context, with modelling demonstrating up to 12.6 billion litres of SAF could be produced domestically in 2050, supplying approximately 90% of jet fuel demand. Despite this opportunity, there is currently no domestic production of SAF, leaving Australia's valuable feedstocks open to the export market. The inclusion of SAF and HVO in the *Cleaner Fuels Program* would be an important step in supporting prospective production facilities to reach Final Investment Decision (FID), driving the establishment of a currently nascent industry. **Question 1.2: Should certain types of LCLF by prioritised over others?** • **Should LCLF suitable for particular sectors or uses be prioritised? For example, should sustainable aviation fuel be prioritised over renewable diesel?** Careful design will be required to ensure both SAF and HVO are incentivised through the Cleaner Fuels Program. It is more expensive to produce SAF than HVO, even through the same technology pathways[2]. As such, applying the same incentive to both fuels could have the unintended consequences of only incentivising HVO production at the expense of also driving SAF production and uptake. It is recommended that the Government consider differentiating the

[2]IEA (2024) https://www.ieabioenergy.com/wp-content/uploads/2024/06/IEA-Bioenergy-Task-39-SAF-report.pdf

Issues	Explanation
	incentive for SAF from HVO in recognition of this, with a higher incentive provided for the former. A similar policy mechanism was previously utilised through the Inflation Reduction Act (IRA) 45Z tax credit in the United States of America, which priced the SAF credit at $1.75 per gallon and the HVO credit at $1.00 per gallon. Whilst this was altered in 2025 (with both fuels now receiving $1.00 per gallon), this early differentiation supported prospective (and operating) SAF facilities in the USA to grow. Boeing would not recommend that similar distinctions be applied to different pathways for SAF production in the immediate term, for example that AtJ SAF receive a higher production tax credit that HEFA SAF. In the early stages of developing a domestic industry, all currently viable pathways should be encouraged and pursued. It is recommended that this be reviewed over time, however, particularly as available HEFA feedstock volumes decrease. Policy design may consider a time-bound cap for eligible HEFA produced SAF in the medium-to-long term, perhaps phasing out the eligibility of this pathway by 2035. For similar reasons, it is also recommended that the production tax credit be available to the current eight ASTM approved production pathways under D7566 (and the additional three co-processing approved pathways under D1655) as approval for additional production pathways is not realistic in the short-term. We would also recommend that the pathway for 100% drop in SAF currently being reviewed through ASTM D4054 Clearing House be incorporated with anticipated approval in 2026. Any distinction made within the SAF category could consider a sliding, CI-based scale, as opposed to a rigid amount per technology category. • **Should LCLF for certain sectors or uses be de-prioritised due to other viable decarbonisation pathways?** The *Cleaner Fuels Program* should focus on enabling the production of LCLFs that are currently cost-prohibitive and those that will enable decarbonisation of sectors with few other levers, including aviation and heavy vehicle mining. Light road transportation is increasingly becoming electrified, a technology pathway that will not be viable for aviation in the short-medium term. As such, the Program should not be applied to support further ethanol production for use in e10 or other blended fuels. • **What market impacts are anticipated by influencing prioritisation of particular fuel types?** The impact of prioritising particular fuel types is dependent on the nature and design of the policy instrument, particularly whether it is a demand or supply side intervention. It is Boeing's view that prioritising fuels through demand-side mechanisms such as sub-mandates be avoided. In the European Union, a sub-mandate for Power to Liquid

Issues	Explanation
	(PtL) fuels as been introduced requiring 1.2% of total aviation fuel to come from this source by 2030 and 35% by 2050[3]. Such policies can have unintended consequences and, in some locations, may be very difficult to achieve, particularly in the short-term. Boeing notes, however, that prioritisation of certain fuels (or production pathways) could be considered as part of carefully designed supply-side mechanisms, including the *Cleaner Fuels Program.* Such interventions could help to ensure that emerging production pathways for SAF, including AtJ are encouraged, in addition to the most mature HEFA pathway. It is recommended that the United Kingdom's Contracts for Difference Mechanism approach be considered.
2. Type of production support	**Question 2.1: Should the production credit be a fixed amount per litre of production, or a variable amount that depends on the market price of LCLF?** **a. Are there any potential benefits, risks or constraints considering the two different production credit options?** Boeing has undertaken extensive engagement with the private financing sector and prospective SAF producers to understand the optimum design of a proposed production tax credit. Key themes that have emerged from this consultation, including the need for stability, certainty and duration of such policy interventions to: - Manage market volatility - Provide strong market signals to both domestic and international investors - Enable the standing up of a new manufacturing sector producing LCLF - Support existing refineries to explore co-processing opportunities - Integrate adjacent supply-side mechanisms, including Contracts for Difference and Production Tax Incentives. As such, it is proposed that fixed production credits, offering a set amount per litre of LCLF be pursued, at least in the short term in order to address the domestic production cost premium. In order to incentivise greater decarbonisation outcomes, these fixed credits could be on a sliding scale based on carbon intensity, with a fixed maximum incentive price. This is the approach recently introduced as part of the revised USA 45z production tax credits which provide a maximum of $1.00 per gallon for fuels emitting less that 50 kg CO2/emmBTU, with a clearly communicated sliding scale based on carbon intensity. Either a single fixed price or a fixed, sliding scale matrix based on CI as outlined above both have advantages, including simplicity of

[3] https://www.easa.europa.eu/en/domains/environment/eaer/sustainable-aviation-fuels

Issues	Explanation
	implementation, investor certainty and government expenditure management. As a domestic industry develops, a transition to variable mechanisms that align with market conditions could be pursued, however, this is unlikely to be applicable until post 2030. Regardless of the design of the production tax incentive introduced, the principle of long-term duration is key to de-risk project investment, with a minimum term of 10 years recommended. **b. What outcomes do you think can be delivered with the available funding?** Boeing welcomes the Government allocation of $1.1 billion to the *Cleaner Fuels Program*, particularly as this builds upon earlier funding announcements through the Future Made in Australia legislation. It is important to consider the cost of establishing greenfield SAF or HVO production facilities, however, and the current challenges facing prospective producers. It is realistic to consider that the available funding can support several current project proponents to attract more private investment and move through project phases to achieve FID. Funding should prioritise projects with greater likelihood of return on investment, including through the prioritisation of existing infrastructure and to support projects in optimum geographic locations. Production incentives, including the Guaranteed Strike Price in conjunction with Contracts for Difference mechanisms in the UK, can help to ensure price certainty, present potential for driving down costs and attract commercially sustainable funding As previously noted, however, this policy mechanism will be most effective when integrated with a broader policy suite, including demand-side mechanisms which could include a Low Carbon Liquid Fuels Standard, a Government levy (similar to that being employed in Singapore), extensive government procurement of LCLF or a mandate. **c. What type of mechanism provides the greatest investment certainty or level of bankability to projects?** As outlined above, a fixed production credit would offer the highest level of investment certainty and mitigate risk for early production projects. It is vital, however, that the principles of duration and certainty underpin the design and implementation of such policies, particularly at this early stage of Australian LCLF industry development. **d. How can this support be structured to prevent substantial upside to producers?** Several projects are currently progressing through various stages of Front End Engineering and Design or feasibility planning in Australia. It is possible that these early tranche of projects may experience some upsides or benefits through the introduction of the *Cleaner Fuels Program* given they are potentially significantly closer to construction

Issues	Explanation
	and production. This should be viewed pragmatically, however, with a consideration of the challenging environment such projects have navigated to date in the absence of broader policy support. Several principles should be employed over the life of the policy however, to ensure equity and transparency, including: - Transparency and data collection and reporting requirements for incentive recipients - Time-bound, tiered incentives - Periodic policy review and iteration **e. How do you consider pricing for LCLF will be set over the short-medium term and longer term? Will pricing be matched to a premium on equivalent fossil fuel or price of imported LCLF or be on a carbon abatement basis?** In the short-medium term, pricing should be fixed (and clearly communicated) based on a carbon abatement/CI basis as outlined above. This would employ a tiered approach that prioritises maximum abatement, whilst still providing project and investor duration and certainty. Challenges exist with the alternative proposals of pricing matched to a premium on equivalent fossil fuel or on the price of imported LCLF, both of which are subject to external market forces and implemented policies in other jurisdictions. **Question 2.2: To deliver the policy intent of the Program while maximising the value for taxpayers, do you agree that projects with the lowest cost should be prioritised under the Program, with the cost being measured either as per unit of LCLF produced or as per unit of carbon emissions abated?** The production costs of SAF can differ significantly based on plant location, technology pathway and feedstock selection and other factors, including cost of capital. Additionally, understanding complete costs requires significant front end engineering and design works. Some pathways may have additional upfront costs but could deliver higher return on investment over the medium-to-long term, through greater economic growth, more secure supply chains and higher carbon abatement outcomes. Therefore, a broader national benefit consideration should be applied to prioritise or select projects, rather than a sole focus on additional, upfront costs. This could include listing jobs created, pursuing circularity outcomes, transitioning communities to a net zero future and prioritising optimum use of domestic feedstocks. **Question 2.3: Should the production credit be linked to the quantum of LCLF produced, or the carbon emissions saving potential of the fuel?** As outlined in the response to Questions 2.1 and 2.2, both carbon emissions savings and volumes could be prioritised. Providing a maximum credit per litre of fuel provides certainty, and the employment

Issues	Explanation
	of a sliding scale up to this limit, based on CI, incentivises higher carbon abatement pathways. Importantly, associated carbon-management frameworks and policy mechanisms, including NGERS need to evolve to coordinate with relevant low carbon liquid fuels policies. **Question 2.4: What are your views on the cost to deploy LCLF domestically compared to internationally? Is there a local premium for domestic production?** It is expected that there will be a domestic premium for LCLF production in Australia, due to a range of factors including: - Higher labour costs - The need to increase prevalence of fuel blending infrastructure - Large distances required to transport either feedstocks or fuels (at least in the short-term) - Likely smaller production scale than other markets, even within the Asia Pacific region, such as China and Singapore. It is important, however to consider additional national benefits that will arise from a domestic LCLF industry, including more resilient supply chains and less exposure to potential geopolitical shocks or emerging climate risks. Over time, it is also anticipated that business and recreational travellers will increasingly consider the carbon impact of travel choices. As a relatively isolated nation, this could impact decisions to hold events, for example, in Australia, in the absence of meaningful action around LCLF. **Question 2.5: Should the total value of production credits be capped for each project? If yes, what should the capped amount be and why?** In the early stages of the establishment of this industry, it is recommended that a time-bound rather than total dollar value cap be placed on project support. This should be of a duration of a minimum of 10 years. Policy duration is key to providing investor certainty to attract private financing for early projects. This approach should subsequently be reviewed and potentially iterated as the industry further develops. **Question 2.6: Should production be focused on domestic supply only or should export also be permitted? What impact could restriction have for projects or the market?** Production tax incentives through the *Cleaner Fuels Program* will support the delivery of emissions reduction, economic growth and sovereign risk mitigation outcomes for Australia. As such, production tax incentives should prioritise the domestic supply and uptake I LCLF, along with the optimum use of Australia's rich domestic feedstocks. Support for export of these fuels should be permitted only under clearly defined conditions, such as when both commercial and military fuel use requirements have been fulfilled. In such instances, prioritisation should

Issues	Explanation
	be given export to strategic or geographic allies, including Aotearoa New Zealand or allies across the Pacific Islands, including through mechanisms such as the Pacific Agreement on Closer Economic Relations Plus (PACER PLUS). Both physical export or use through regional book and claim mechanisms should be explored in such scenarios. **Question 2.7: Is there a role for combined production support with capital grants for first-of-a-kind facilities?** Boeing welcomes the grant funding that has been provided to-date through the Future Made in Australia initiative. In the earlier stages of establishing a LCLF market in Australia, additional support in the form of both capital grants and support for pre-FEED and FEED project phases may be necessary. There is, however, uncertainty around the Return on Investment with this type of funding, with some recipients unlikely to reach FID stage. Capital grants for first-of-a-kind facilities may form part of an integrated policy suite, however should be limited to prospective projects with a clear pathway to commercial scale production. **Question 2.8: What other types of funding or concessional finance could support LCLF projects (e.g. funding from CEFC and NRF)?** LCLF production aligns with several of the priority areas of the National Reconstruction Fund (NRF), namely defence capability; transport; resources; agriculture, forestry and fisheries; renewables and low emissions technologies. Prospective projects that can demonstrate alignment with these areas, particularly in regional communities should be supported to seek funding through the NRF. It is recommended that a 'single front door' to triage applicants towards most appropriate government funding mechanisms be established, perhaps through ARENA and/or in the form of a LCLF Accelerator or Clearing House. Funding through NRF, CECF or other should also remain stackable with any production tax incentive gained through the *Cleaner Fuels Program.* **Question 2.9: Is any other support required across the supply chain to enable domestic production of LCLF?** In the short-term, policy support and incentives should be considered to enable co-processing of HVO and SAF at Australia's two remaining refineries (Viva Energy and Ampol). Approved under ASTM D1655, co-processing is now permitted up to a 30% limit, recently raised from the previous 5%. Incentivising co-processing in the short-term, whilst prospective projects move towards construction and production could kick start a LCLF industry and Australia and also provide important learnings for future industry growth. Additionally, policy support and focus should include:

Issues	Explanation
	- Furthering of the National Feedstock Strategy to consider optimum collection, aggregation and distribution for LCLF production - Identification and pursuit of opportunities for collaboration between commercial aviation and defence - Investment into infrastructure to support collection, processing and distribution of fuels. - Investment in infrastructure to support blending and storage - Clear, harmonised frameworks for carbon accounting **Question 2.10: What lessons can Australia learn from other jurisdictions that have already implemented LCLF production support measures?** Australia should consider the benefits and disadvantages of other jurisdictions, including: • European Union. Here the obligated party is the fuel supplier. This can lead to 'rent seeking' along the supply chain if not carefully managed. Additionally, Boeing notes the potential unintended consequences that can emerge from the introduction of technology-based sub mandates as a demand-side policy. Nevertheless, the clear, stable and long-term policy framework in the EU has provided a level of certainty to producers, investors and end-users. • United Kingdom. Boeing would recommend an approach similar to the United Kingdom, whereby a nuanced production tax incentive through a Guaranteed Strike Price (GSP) mechanism is combined with clear demand-side measures as part of an integrated policy suite. Additionally, the Ministry of Defence is also bound by emissions reduction and renewable fuel use targets. • United States – as outlined above, differentiating production tax incentives on a CI-based sliding scale can stimulate a broader product slate. • Singapore Levy. Boeing would recommend the consideration of a demand-measure similar to that being introduced in Singapore. The levy is clear, transparent and well-communicated. Centralised Government procurement will also likely result in maximum volumes of SAF being purchased with the funds collected.
3. Fuel production	**Question 3.1: Considering this objective, what production pathways should be focused on or prioritised?** **a. Should priority be given to projects that use more-established production pathways (e.g. HEFA and HVO) than nascent production pathways that may present a higher level of technology risk?** Whilst established pathways like HEFA and HVO may deliver faster benefits in the short-term, a variety of production pathways will be

Issues	Explanation
	required to meet Australia's fuel needs over time. Additionally, Australia has larger feedstock volumes suitable for AtJ and, eventually PtL, with far lower volumes of fats, oils and greases than other jurisdictions. A focus should be on recognising greater carbon reduction benefits, if any pathway/feedstock nuances are incorporated into the policy. In the United Kingdom, a timeframe cap on HEFA based support has been included and may be considered as part of similar policy development here. **b. How can nascent production pathways compete with more-established production pathways (e.g. HEFA and HVO)?** As outlined above, this could be facilitated through a sliding scale production tax incentive matrix that is based on CI. Alternatively, support for more emerging technology pathways (e.g. AtJ) could be provided through alternative public financing mechanisms, including higher capital grants through Future Made In Australia Funding or though NRF or CEFC administered funding. **c. What minimum stage of project development (and evidence) should be expected by projects under the program?** To be eligible for production support, projects must be able to demonstrate a credible pathway to commercial production. The program could also consider a phase-based approach, perhaps granting earlier conditional approval when some milestones are met to assist with securing offtake agreements and early private financing. Key considerations should include: - The proposed production pathway is ASTM approved (under D1655 or D7655). A review of this criteria could be incorporated post 2030, however in the early stages only currently approved ASTM pathways should be supported. - Committed agreements with key project delivery partners should be in place, including feedstock providers, technology providers, logistic operators and offtakers. - A comprehensive project and financial plan should be in place. - The fuel must be CORISA eligible, with a clear plan for certification under ISCC, RSB or other CORSIA approved certification scheme in place. - Evidence of best endeavours to ensure community support should be provided, including through local governments and First Nations engagement, in alignment with broader Australian Government requirements. - Regulatory preparedness should be evident, including through relevant development and environmental approvals and access to supporting resources, including water supply. - Location to key demand centres to maximise energy secruity outcomes

Issues	Explanation
	Question 3.2: Should there be a minimum facility size to be eligible? Optimum facility size will be dependent on a range of factors, including geographic location, proximity to feedstocks, proximity to distribution and logistics facilities and chosen technology pathways. As such, a minimum project size shouldn't be imposed, rather projects should be assessed more holistically in terms of suitability for the proposed site. Additionally, smaller and more modular construction may in fact be required in early industry stages to reduce initial costs. **Question 3.3: Should LCLF be required to meet a carbon intensity threshold (% carbon intensity reduction compared to fossil equivalent) to be eligible for the program? If yes, what would be a reasonable threshold, and how should that threshold be calculated and verified? If not, why not?** A key driver for the establishment of a LCLF industry in Australia is delivering viable decarbonisation opportunities for hard-to-abate sectors, including aviation, heavy road vehicles and shipping. As such, a minimum carbon intensity threshold should be a key criteria for program eligibility. As outlined above, the program may seek to align with the minimum CI threshold currently in place under the USA 45z tax credit, or to incorporate another reasonable value that aligns with global frameworks and recognised thresholds, using CORSIA as the default guide. **a. If the production incentive is based on carbon emissions reduced, rather than volume of LCLF produced (see Question 2.3), is a minimum carbon intensity threshold still needed as part of the eligibility criteria?** As outlined above, a volume-based approach should be employed with a maximum value per litre, however a clearly communicated sliding scale up to this maximum could be considered based on CI. Alignment with regional thresholds across the Asia Pacific should be considered to ensure policy harmonisation. **b. Should Indirect Land Use Change be included in the method for determining carbon intensity, for the purpose of the Program?** Indirect Land Use Change (ILUC) should be included in the method for determining carbon intensity. This aligns with international best practice. If ILUC is not included, additional policy levers will be required, adding additional complexity and risking misalignment with global frameworks. Any perceived misalignment between Australian outputs and international standards (e.g. the value for canola-based fuel production) should be addressed through existing mechanisms,

Issues	Explanation
	such as applying for a differentiation from the existing CORSIA default value. **c. Should any feedstocks be prioritised or otherwise considered out of scope?** Any CORSIA-eligible fuel and feedstock should be considered in scope for the program as it relates to SAF production, with a particular alignment to the CORSIA positive list. The program should iterate as CORSIA accepts/rejects particular fuels. **Question 3.4: Other than carbon intensity, should any other sustainability criteria be included?** Sustainability criteria should be informed by and align with international standards. For SAF including CORSIA and IATA's SAF Sustainability Certification guidance. Certification must be obtained under CORISA recognised schemes, currently ISCC, RSB and Class NK. New schemes should be incorporated as they are approved through ICAO processes. **Question 3.5: Which international and domestic sustainability schemes should be allowed to verify sustainability claims?** Only certification schemes that are currently endorsed through CORSIA should be allowed to verify sustainability claims. This ensures international confidence in the Australia LCLF market and ease of uptake for airlines and end users. The schemes currently endorsed for SAF are outlined in Question 3.4. Effective integration with domestic policy frameworks, including the Guarantee of Origin (GO) Scheme must also be ensured to ensure coherence across fuel markets.
4. Other policy considerations	• **Question 4.1: What are your views on the aforementioned factors affecting the merit of a proposal?** The aforementioned factors represent a comprehensive set of considerations for the merit of a proposal. These factors will need to be reviewed over time, as the global LCLF market evolves and new technology pathways become feasible and, in the case of SAF, ASTM approved. **Question 4.2: Recipients under the Program will need to deliver benefits according to the Community Benefit Principles under the Future Made in Australia Act (see Appendix D). How do you consider the Community Benefit Principles in relation to LCLF projects? Are there specific Community Benefit Principles that are more or less relevant?** Boeing recognises the principles outlined under the Future Made In Australia Act 2024 and supports the six criteria as applicable to LCLF projects. These principles will ensure that LCLF projects eligible for the

Issues	Explanation
	program deliver a range of co-benefits, including emissions, economic outcomes, workforce development and stronger supply chains. **Question 4.3: How will overseas policy developments interact with domestic policy settings to support projects reaching final investment decisions? For example, LCLF demand-side targets or mandates, and international frameworks such as the International Civil Aviation Organisation long-term global aspirational goal for international aviation (LTAG) of net-zero carbon emissions by 2050.** Policy progression, including the development of the *Cleaner Fuels Program* are important steps to ensure that Australia takes action to meet our commitments under the LTAG. Ensuring alignment with this and other international agreements, including the CAAF 3 commitment to 5% reduction in CI through SAF by 2030 is critical. It is important to note that policy development globally, particularly in the Asia Pacific Region is occurring at pace. As such, it is important that the broader policy suite in Australia also continue to develop with focus in the short-term placed on the introduction of a demand side measure, which could include a levy, fuel standard, mandate and/or large scale government procurement. This is important to ensure that low carbon fuels are both produced and utilised in Australia. Boeing also welcomes and encourages ongoing collaboration with Aotearoa New Zealand to ensure collaboration and policy harmonisation in both jurisdictions. **Question 4.4: In addition to production support, what other measures are considered critical to achieve final investment decisions for projects? What are their key features?** Early projects will continue to require additional support to reach FID, including possible upfront capital grants or access to government offtakes (either for Departmental or Defence use) to increase investor confidence. Complementary finance certainty mechanisms, including Contracts for Difference could also be considered, along with other policy mechanisms such as an international-outbound levy applied to both domestic and foreign carriers. **Question 4.5: What are the intersecting policies you expect need to be considered to unlock a domestic LCLF production industry?** As outlined through this submission, the *Cleaner Fuels Program* should be one element of an integrated policy suite that incorporates key principles of transparency, stability, stackability and duration. Boeing encourages the timely development of a accompanying demand-side policy measures. Intersection with recent Productivity Commission work on circularity should also be ensured. **Question 4.6: Is there any other feedback you would like to provide that isn't covered by questions above?**

Issues	Explanation
	N/A