Advancing a domestic sustainable aviation fuel industry

Background and context

- Sydney, Melbourne and Brisbane airports are national leaders in achieving accelerated Net Zero outcomes for Scope 1 and 2 emissions.
- A clear and timely approach to the management of airport Scope 3 emissions is critical to the future of the aviation sector by protecting passengers ability to fly in a cost-effective manner. As seen in Europe, scrutiny around carbon emissions relating to travel is only going to increase.
- The existing Australian market for imported jet fuel is significant, with an average of 7.7 billion litres used per year between 2018 and 2023[1]. This presents both a major risk from an environmental and fuel security perspective but also a major opportunity for the establishment of a domestic Sustainability Aviation Fuel (SAF) industry.
- For Scope 3 airport emissions, we recognise that SAF is the primary pathway for aviation to credibly decarbonise in the medium term. This has also been identified by the Australian Government through the Aviation Green Paper and the consultation on Low Carbon Liquid Fuels (LCLF).
- The typical Scope 3 emissions profile of a major airport shows that approximately 85% of these emissions are created by aircraft.
- Currently, significant Australian SAF feedstock is contracted to be exported overseas for use in biofuels (e.g. to Singapore and EU).
- Australia is falling behind other nations due to our lack of appropriate policy settings to catalyse SAF uptake.
- Government, through the Aviation Jet Zero Council has flagged that it is looking to industry to develop a unified plan for the sector to implement credible decarbonisation efforts. Led by Brisbane Airport, the airport sector is contributing to this work.

Risks of inaction

- The Australian domestic aviation sector (particularly airlines with only a domestic footprint) cannot decarbonise without a local SAF market.
- Australia's long overseas fuel supply chains expose us to geopolitical changes and climate risks. The COVID pandemic showed the impact that supply chain risk can have on Australia and this is only likely to increase in the future.
- Continued importation of traditional fuels, including jet fuel, in the future will have an increasing negative impact on Australia's overall emissions as other industries decarbonise and the contribution of the aviation sector to national emissions grows as a proportion.
- Without a near-term pathway for SAF refining in Australia, there is a high risk that Australian feedstock export agreements are extended well beyond 2030, further entrenching overseas dominance in this space and limiting local industry development.
- Inaction will challenge an airport's social licence to operate and grow. Over time, this will negatively impact travellers through greater commercial challenges in attracting new international airlines which favour destinations with an established source of SAF.
- Airlines (other than purely domestic operators) have a global choice where to adopt SAF – this decision will be price and volume-driven. Currently, without appropriate policy mechanisms in Australia, both major domestic Australian airlines will seek to buy SAF in overseas markets with attractive subsidies.
- Without interest in domestic SAF offtake from major airlines, Australian feedstock will continue to be exported to be refined and purchased offshore. Shipping unrefined Australian feedstock into Europe, the US or Southeast Asia for it to be refined and flown back by airlines frequenting Australian airports is a perverse outcome from an environmental, economic and fuel security perspective.
- This presents a potential medium-term risk to Australian airports' Scope 3 reduction efforts as carbon reduction from SAF is likely to be calculated from the point of origin.

Opportunities for a domestic SAF market (farmers, feedstock, new economy jobs, regions, fuel security, geopolitics, global isolation, political overlay)

- Australia has a global comparative advantage in its farming capability and land availability. In its Sustainable Aviation Fuel Roadmap, the CSIRO reports that there is sufficient feedstock to supply almost 5 billion litres of SAF production in Australia, or around 50% of forecast jet fuel demand in 2025.[2]

[1] Deloitte for Queensland Government (2023), Catalysing sustainable aviation fuel in Australia, p. 2.
[2] https://www.csiro.au/en/news/All/Articles/2023/August/sustainable-aviation-industry-australia

MELBOURNE AIRPORT SYD Sydney Airport BRISBANE AIRPORT AUSTRALIA BNE

- Australia is well placed to become a significant global producer of SAF and other renewable fuels. With significant volumes from variety of SAF feedstocks, the transition to clean fuels presents a significant 'clean economy' refining opportunity for Australia.
- By extending Australia's participation in the clean fuels supply chain to refining, we have a window of opportunity to develop new high value-add industries and jobs. If this opportunity is missed, these high value-add industries will be ceded to other countries which are competing to attract capital, decarbonise their economies and scale up net zero industries. This is a significant risk for Australian aviation, which is one of the hardest to abate sectors and has no other option to support decarbonisation in the medium term outside of SAF.
- The airports are able to facilitate SAF blended as a drop in fuel without any additional modifications to jet fuel infrastructure. No changes are needed to joint user hydrant infrastructure (JUHI) if SAF is blended off site (which is a requirement of the relevant standards).
- Boosting Australian production of feedstock and producing sustainable fuels locally creates further opportunities for liquid fuel security and regional jobs.
- Production of SAF in Australia is dependent on timely development of clear government policy to establish a local market and catalyse private sector investment in SAF refining capacity.

Proposed aligned SAF policy position across airports

- The Australian Government needs to set a clear, articulated objective for SAF that is underpinned by global best practice policy mechanisms. Our recommendations on how this should be done are set out below.

- **Government should play an active role to support the development of a domestic LCLF market.**
  - Due to the limited pathways to decarbonising aviation, and lack of alternate modes of transport in Australia, it is recommended that Government prioritise Australian feedstock for use in SAF and catalyse industry uptake with a volume-based target for domestic SAF sales until such time as a mandate is set.
  - Over the long term, and once a domestic SAF industry has matured, Government could consider the addition of carbon intensity (CI) requirements to SAF usage targets. Doing so would encourage refiners to optimise their feedstock supply chains and pursue actual life cycle carbon assessments (i.e. under the International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), as has been observed in the US, or the more current Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model, as has been observed in Canada).

- **The development of a LCLF certification framework.**
  - Australia needs to develop a LCLF certification process through expansion of the Guarantee of Origin scheme to track and verify emissions from the production of LCLFs.
  - The LCLF certification process should include emissions reduction thresholds which increase over time as part of the eligibility criteria for LCLFs to receive support under a production incentive program. It is important that emissions reduction thresholds are initially set with the aim of maximising the portfolio of Australian feedstocks eligible for use in LCLF to allow for the rapid establishment of an Australian LCLF industry.
  - Develop sustainability criteria for Australian produced SAF ensuring interoperability with international schemes such as the CORSIA Sustainability Criteria for CORSIA Eligible Fuels and adapt CORSIA life cycle assessment (LCA) methodologies for feedstocks produced in Australia to better reflect Australian LCAs.

- **Implementation of a transparent market for trading LCLF credits.**
  - Establish an emission intensity compliance program under the National Greenhouse and Energy Reporting (NGER) Scheme to administer any SAF Supply Mandate or Fuel Carbon Intensity Standard.
  - Develop a domestic book and claim system to track chain-of-custody of LCLF certificates that will be generated and traded within Australia to support a domestic production industry. This system should aim to integrate into any international book and claim systems in the future, once Australian produced SAF is internationally competitive.
  - Introduce changes to the NGER Act and Safeguard Mechanism to enable a credible LCLF trading mechanism to exist (i.e. book and claim system). Whilst a SAF emission factor is now available in the NGER Scheme to enable an airline to claim Scope 1 emissions reductions through combustion of SAF, this approach only recognises the physical fuel throughput in an airport's jet fuel infrastructure (location-based accounting methodology) and not any trading of LCLF certificates that may exist in the future (market-based accounting methodology). A market-based approach would result in a more streamlined and pragmatic method of enabling a reduction in an airline's Scope 1 emissions and an airport's Scope 3 emissions through trading of LCLF certificates and accelerate SAF adoption. Any such system should be transparent to enable an airport to have access to the data for carbon accounting.

- **Establishment of supply-side (incentive) policy measures.**
  - Incentive-based solutions are essential to develop domestic SAF refining. As we are seeing internationally, targeted incentives (such as production tax incentives) are needed to close the gap between global incentives. SAF supply is the most critical Scope 3 decarbonisation lever available to Australian airports.
  - Introduce production tax incentives to support domestic SAF production over other forms of incentives. Production tax incentives provide a direct incentive to produce LCLFs with a predictable benefit correlated with the emissions intensity of a fuel. Production tax incentives will result in tangible emissions reduction; encourage behaviours across the supply chain to innovate; and can represent a range of risk sharing outcomes between industry and Government.
  - Provide different rates of incentives to support SAF production over renewable diesel or prescribe certain proportions of production volumes towards SAF, given it is cheaper to produce renewable diesel than SAF. This recognises the oversized role of SAF in an airport's Scope 3 emissions reductions. Whilst renewable diesel will support an airport's Scope 3 emissions reduction (e.g., through use in airport ground support equipment or construction plant and machinery), the use of SAF will have by far the greatest impact on an airport's Scope 3 emissions reduction over time and electrification of ground support equipment is also expected to occur.
  - Continue to provide fixed-grant amount incentives such as the ARENA SAF Funding Initiative to support the development of domestic SAF production from renewable feedstocks.
- **Establishment of demand-side mandates.**
  - Establish demand-side mandates such as a SAF Supply Mandate or Fuel Carbon Intensity Standard in line with industry best practice to provide market certainty and incentivise uptake of LCLFs.
  - Any demand-side mandate should ramp up over time. Carbon intensity requirements for SAF must balance the dual objectives of utilising a broad portfolio of Australian feedstocks to catalyse refining capacity and applying downward pressure on SAF carbon intensity over the long term through feedstock and supply chain enhancement. The aim would be to prevent perverse outcomes of Australian feedstocks being exported and SAF produced overseas and then imported back into the country.
  - Ensure demand-side interventions (i.e. production tax incentives) deliver appropriate volumes of SAF relative to other LCLFs, giving regard to the additional costs associated with producing SAF, its premium to fossil jet, and the acute lack of alternate decarbonisation pathways for medium and long haul aviation.

- Airports and the broader aviation sector will provide ongoing advocacy and awareness with State governments, key stakeholders including passengers and the community around present capability of airport fuelling infrastructure to support SAF as a drop in fuel as well as supporting trials and demonstrations of SAF technologies.
- We view a target for domestic SAF sales of between 5% and 10% by 2030 as realistic, achievable and necessary to ensure the Australian aviation sector does not fall behind global expectations and policies:
  - Roughly 2 years to implement policy
  - Roughly 5 years to move from a final investment decision through planning, approvals and construction of an Australian SAF plant

Examples of 'what does good look like'?

- To date, governments overseas have adopted, or are close to adopting, two types of policy mechanisms to catalyse SAF demand and production:

Policy mechanism	Targets/mandates	Incentive-based solutions
Example jurisdictions	EU, UK, Canada, Norway, Brazil, NZ, India, Japan Californian Low Carbon Fuel Standard – LCFS;	US: Renewable Fuels Standard – RINs; Inflation Reduction Act – IRA; US Sustainable Skies Act
Typical policy	10% SAF mandate by 2030	US$0.46/litre tax credit for SAF produced in the US
Considerations	Can be applied on fuel suppliers (ReFuelEU) or airlines (Brazil). Airline targets are generally considered less effective due to 1) limited control over fuel supply and 2) airline emissions reduction targets already matching or exceeding national targets.	Market-based solutions (e.g. certificate/credit schemes) are used as enabling economic architecture for supply-side targets (i.e. offsetting the green premium through incentives/penalties). Californian 'cap & trade' credit schemes spread economic burden of SAF refinement across petroleum market in a manner like Australian Safeguard Mechanism (not currently applied to SAF / jet fuel)