Jet Zero®

# Preparing for emerging industries across Northern Australia

## Joint Standing Committee on Northern Australia

RESPONSE TO QUESTIONS ON NOTICE

Jet Zero Australia

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# Jet Zero Response to Questions on Notice

Below are Jet Zero Australia's ('Jet Zero') response to questions taken on notice during the Inquiry into preparing for emerging industries across Northern Australia on Friday, 6 March 2025. Where questions were not presented as discrete items or were raised as part of broader discussion, they have been paraphrased for clarity. Jet Zero welcomes the opportunity to provide these supplementary responses and remains available to assist the Joint Standing Committee on Northern Australia ('the Committee') with any further information.

## Question 1

Senator Susan McDonald

***Please provide any available information on port charges that are being proposed by ports you're loading from, how they affect your project and whether they are commercially competitive with other jurisdictions. In addition, what advice, if any, could you offer to the Committee on how port operators can behave in a way that is more designed to facilitate trade rather than maximising their own returns.***

Jet Zero is developing Project Ulysses in Townsville and Project Mandala in Gladstone, both of which rely on port infrastructure for feedstock receival and product distribution. As such, port charges, including terminal access, storage, and broader infrastructure costs, are a direct input to project economics and can materially influence investment decisions.

At present, we do not have full visibility on comparative port charges across Australian or international jurisdictions, and commercial negotiations for our projects are ongoing. However, port cost structures will be an important determinant of Australia's competitiveness in attracting investment in low carbon liquid fuels (LCLFs), particularly given the capital intensity and globally mobile nature of these projects.

Jet Zero has a constructive and ongoing relationship with the Port of Townsville and has entered a Memorandum of Understanding (MOU) to investigate storage and associated infrastructure needs to support the importing and exporting of SAF products. As part of the MOU, an Investigation Committee will be established with representatives from both organisations, who will meet to discuss and develop options. The committee will also consider the feasibility of developing a new common user biofuel storage and blending infrastructure on Port land.

Both the Port of Townsville and Gladstone Ports Corporation are Queensland government-owned statutory authorities, not privatised ports, and Jet Zero appreciates the collaborative approach Port of Townsville has taken in working with us on new infrastructure. The government-owned model provides an opportunity to align port pricing with state and national economic development objectives in a way that can be harder to achieve where ports are operated under long-term private leases with return obligations to investors.

Notwithstanding our situation, coordination between port authorities, state governments and the Commonwealth on infrastructure planning for strategic industries that support Australian sovereign industries, including LCLFs, would help ensure port investment is aligned with national economic and security objectives.

## Question 2

Senator Susan McDonald

***Outline any risks associated with large-scale pongamia cultivation, particularly in relation to seed dispersal, impacts on waterways and broader ecological considerations. In this context, does pongamia present similar risks to those identified for leucaena? Further, in scenarios such as unharvested crops or flooding events, what is the risk of seeds entering drainage systems or waterways, and what management or mitigation measures would be implemented to address this?***

### *Risk Assessment of Pongamia*

The Queensland Government's *'Invasive Plant Risk Assessment on Pongamia'* [1] ('IPA Pongamia') concludes that the plant Pongamia (Millettia pinnata), an evergreen legume tree, does not have any significant negative impacts in Queensland and is therefore considered low risk.

The Queensland Herbarium currently lists Pongamia as native to Queensland, from Mackay north, with the earliest herbarium record dated 1818. A considerable number of specimens have been collected across coastal eastern and northern Queensland and the Top End of the Northern Territory over the past two centuries. Given this extensive distribution, the IPA Pongamia concludes it is reasonable to suggest the species has already spread over most of its potential range, with limited potential for range expansion into marginal habitats. Outside its native range, Pongamia is cultivated in parts of south-eastern Queensland; however, there is little evidence of spread, with only a very small number of sporadically naturalised populations recorded.

The species possesses several biological traits that naturally limit uncontrolled propagation. Pongamia leaves and pods have toxins (such as karanjin) that make it unpalatable to herbivores. Pongamia pods do not dehisce or open naturally and need to decompose before the seeds can germinate.

### *Pongamia Comparison to Leucaena*

Leucaena (Leucaena leucocephala) is regarded as an environmental weed in Queensland, the Northern Territory, Western Australia, New South Wales, and on Christmas Island. It is also very invasive in other parts of the world, being listed in the Global Invasive Species Database (GISD) and regarded to be in the top 100 of the world's worst invasive species. As it is not prohibited or restricted under Australian biosecurity legislation, it has naturalised in many Australian regions and on several offshore islands. Despite the productivity benefits Leucaena has delivered for the grazing industry, its cultivation has been accompanied by well-documented ecological challenges.

The only meaningful similarity between Pongamia and Leucaena is that both are legumes that provide nitrogen beneficiation to soils. Beyond that shared characteristic, the two species differ in each of these critical aspects:

- **Native Status:** Pongamia is native to northern Australia (Queensland and the NT). Leucaena is native to Central and South Amera, making it an introduced species into Australia with recognised invasive behaviour across multiple jurisdictions worldwide.
- **Pod & Seed Biology:** Pongamia pods are indehiscent (they do not open naturally) and must fully decompose before seed germination can occur. Leucaena pods are passively dehiscent, releasing 8 to 18 hard-coated seeds per pod that can remain viable in the soil for at least 20 years.[2]
- **Palatability and livestock dispersal:** Pongamia seeds are unpalatable and not attractive to foraging animals due to the presence of karanjin and other flavonoids. Cattle do not consume Pongamia seed, and livestock are therefore not a dispersal vector. Leucaena, by contrast, is highly palatable and actively sought by cattle who eat it in preference to other forages.
- **Harvest incentive and crop management:** Pongamia is cultivated as an oilseed crop, with the seed itself being the primary commercial product (containing up to 40% oil content). There is a direct economic incentive to harvest the crop thoroughly and on time. Leucaena is managed as a fodder crop where the leaf is the product of value, and seed set is a secondary and often less tightly managed outcome of the production cycle.

[1] Queensland Government (2016), *Invasive plant risk assessment : Pongamia (Millettia pinnata syn. Pongamia pinnata*. https://www.dpi.qld.gov.au/__data/assets/pdf_file/0003/67575/IPA-Pongamia-Risk-Assessment.pdf

[2] IUCN Global Invasive Species Database (2026), *Species profile: Leucaena leucocephala*. https://www.iucngisd.org/gisd/species.php?sc=23

In summary, the ecological risks that have accompanied Leucaena cultivation in northern Queensland are a product of that species' specific dispersal ecology: dehiscent seed production, high palatability enabling livestock-mediated spread, and its status as an introduced species with demonstrated invasive potential. Pongamia does not share these characteristics, and its risk profile, as assessed independently by the Queensland Government, is materially lower.

*Risk Mitigation Strategies*

Notwithstanding Pongamia's low-risk assessment, Jet Zero and its wholly owned feedstock subsidiary, Silvo Plus Projects ('Silvo Plus'), are committed to implementing proactive environmental management practices aligned with the Queensland Government's mitigation strategies as outlined in *IPA Pongamia* and the IUCN's Guidelines on Biofuels and Invasive Species.

The IPA Pongamia identifies the following risks and subsequent mitigation strategies, all of which Jet Zero will adopt:

| Risk | Strategy / Recommendation |
|---|---|
| Spreading to neighbouring landholders that may not want this species. | • Not growing pongamia next to national park boundaries or waterways outside its' natural range, or cropping undertaken prior to wet season<br>• Ensure reasonable buffer zone around plantation area to contain seeds within site. |
| Importing pongamia varieties from overseas that might introduce new genetic material into the Australian pongamia population. | • Source genetic material from existing Australian stocks. |

Consistent with the IUCN's Guidelines on Biofuels and Invasive Species, environmental management plans will be developed for each plantation site, ensuring adequate planning and resourcing is in place for ongoing monitoring, eradication of seedlings outside designated plot boundaries, and provisions for rapid and effective control if required.

## Question 3

Senator Susan McDonald

***Please supply information on SAF mandates and mandate considerations for different jurisdictions internationally.***

In recent years, the main approach to encouraging SAF uptake has been target-based (e.g. minimum percentage of SAF), although Canada and the US have adopted an incentive-based approach. Eight SAF mandates have been adopted worldwide, including in the EU, the UK, India and Brazil. Proposals are being discussed in seven countries including China, South Korea, the United Arab Emirates and Turkey.

The table below outlines how countries are locking down their biofuel supply chains with policy, yet Australia with a large jet fuel market and a large agricultural feedstock advantage, is lagging. UCO is defined as Used Cooking Oil and POME is Palm Oil Effluent.

| Region | Jet Fuel Demand | SAF Mandate | SAF Mandate Start Year | SAF Refineries (HEFA) | Primary Feedstocks |
|---|---|---|---|---|---|
| **US** | ~100 BL/yr | BBB tax credits (45Z) | 2025 | 4-5 (Montana, Phillips, ) | Ethanol, Tallow, UCO, Soy |
| **EU** | ~60 BL/yr | 2% in 2025, 6% by 2030 | 2025 | 4-5 (Neste, Total, ENI, OMV) | UCO |
| **Japan** | ~50 BL/yr | 10% Target | 2030 | 3 (Cosmo, ENEOS, Idemitsu) | UCO |
| **China** | ~50 BL/yr | TBC | 2030 | 6 plants (Sinopec, EcoCeres.) | UCO * |

| | | | | | |
|---|---|---|---|---|---|
| **South Korea** | ~16 BL/yr | 1% & 3-5% | 2027 & 2030 | 2 (SK Energy / S-Oil) | UCO |
| **UK** | ~15 BL/yr | 2% in 2025, 10% by 2030 | 2025 | 1 (Phillips 66 Humber) | Waste oils, UCO, tallow |
| **Australia** | ~10 BL/yr | - | - | - | Canola, Tallow, Ethanol |
| **India** | ~10 BL/yr | 1% & 5% | 2027 & 2030 | 1 (IOC) | UCO & Ethanol * |
| **Singapore** | ~9 BL/yr | 1% & 3-5% | 2026 & 2030 | 1 (Neste) | UCO & Tallow |
| **Indonesia** | ~7 BL/yr | 1% & 2.5% | 2027 & 2030 | 2-3 (Pertamina) | POME & UCO * |
| **Thailand** | ~6 BL/yr | 1% & 3-5% | 2026 & 2030 | 1 (PTT / Bangchak) | UCO & Ethanol |
| **Malaysia** | ~5 BL/yr | - | 2027 (planned) | 1 (EcoCeres Johor) | POME & UCO |
| **Hong Kong** | ~4 BL/yr | 2% | 2030 | - | UCO |

** Export restrictions on feedstocks*

## Question 4

Senator Susan McDonald

***Senator Susan McDonald referenced recent reporting in the Financial Times indicating that European airlines have raised concerns that the European Union's SAF mandate could affect their competitiveness on long-haul routes relative to airlines based in jurisdictions without similar requirements. Please provide comment on these reports.***

*Current Market*

The European Union's SAF mandate is implemented through the ReFuelEU Aviation regulation, which requires a minimum share of SAF to be supplied at EU airports. The regulation applies to fuel suppliers operating at those airports, rather than to airlines based in a particular jurisdiction. This means that all airlines uplifting fuel at EU airports are subject to the same SAF requirements, regardless of the airline's country of origin. The policy is therefore designed to operate on a level playing field within the European aviation market.

The recent report from the Financial Times on SAF mandates talked about broader issues that "European airlines face a significant competitive disadvantage" to Gulf carriers Emirates, Qatar or Turkish Airlines. These airlines fly passengers between the EU and Asia through their central hubs in Dubai, Doha or Istanbul, and hence fuel usage and SAF obligations across the entire journey are lower, nearly half, than that of EU carriers making the journey to Asia non-stop.

While some airlines have raised concerns about the potential cost implications associated with SAF uptake, similar policy mechanisms are now being introduced across a growing number of aviation markets globally. As more jurisdictions mandate SAF, the cost differential between regulated and unregulated hubs narrows. The competitive distortion is a product of the EU moving first; it diminishes with each jurisdiction that follows.

*Australian Context*

For Australia specifically, the competitiveness dynamics differ from Europe. Australia is not a major transit hub, so the hub-switching behaviour that European airlines are concerned about is less directly applicable. Australian aviation is predominantly point-to-point.

The more relevant consideration is that Australian airlines are already being drawn into the global SAF framework through the mandates and carbon pricing of the jurisdictions they fly into, particularly in Asia where Japan, South Korea, Hong Kong, Singapore, Thailand, Indonesia, India and Malaysia have set SAF mandates or targets for SAF usage.

A domestic mandate, designed in coordination with CORSIA and the Asia-Pacific mandates now emerging, paired with integration into book and claim frameworks, would ensure Australia is a competitive producer of SAF rather than a price-taking importer, while giving domestic airlines access to locally produced fuel at a lower cost than internationally sourced alternatives.