Submission to the Productivity Commission's Inquiry Determinants of regional airfares

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Submitted by

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This submission is based on preliminary findings from a research study: Exploring Opportunities of Sustainable Aviation for Regional Australia (Wiedemann et al., 2026) funded by the UNSW Institute for Climate Risk & Response.

The authors are available to present full findings to the Commission and support ongoing efforts for a competitive, reliable and affordable regional aviation network.

How Aircraft Choice Impacts Regional Airfares

Regional aviation plays a critical role in connecting communities across Australia, supporting tourism, business activity, access to healthcare and education, and regional workforce mobility. However, many regional routes operate in thin markets with limited passenger demand, high operating costs and restricted competition. These structural conditions contribute to relatively high airfares and low service frequency in regional areas.

This submission draws on research conducted at the University of New South Wales titled Exploring Opportunities of Sustainable Aviation for Regional Australia (Wiedemann et al., 2026). The research examines how emerging aircraft technologies—including hydrogen-electric and battery-electric propulsion systems—may influence the cost structure of regional aviation and the determinants of regional airfares.

Aircraft operating economics are a primary determinant of regional airfares. Key cost drivers include fuel costs, aircraft capacity relative to passenger demand, maintenance requirements, landing fees, and crew costs. Conventional jet fuel powered aircraft used on regional routes are often larger than required for thin passenger markets, creating high minimum viable passenger loads and limiting the number of economically sustainable routes.

Emerging sustainable aviation technologies have the potential to alter these structural cost drivers. Hydrogen-electric and battery-electric aircraft are currently under development for the 9–30 seat regional aircraft market, with some platforms targeting larger turboprop replacements. These aircraft are designed with propulsion systems that reduce fuel and maintenance costs and enable smaller aircraft platforms to be better matched to regional passenger demand.

Financial modelling is undertaken in the research examines four representative Australian aviation routes:

1) capital city to major regional centre

2) regional centre to regional centre

3) regional town to remote town

4) capital city to regional tourism destination.

The modelling uses a cost–revenue framework over a 25-year horizon and evaluates commercial viability, emission outcomes and the influence of carbon pricing.

The analysis suggests that hydrogen and electric aircraft could operate competitively on several types of regional routes while significantly reducing lifecycle emissions. In some cases, smaller aircraft platforms may reduce minimum viable passenger loads and enable new services in low-demand markets. For example, modelling of a potential route between Cloncurry and Burketown indicates that a hydrogen-electric aircraft could achieve positive cashflow with average passenger numbers of approximately five to six passengers per flight.

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Notably, the case of existing regional routes such as Dubbo to Broken Hill suggest that hydrogen aircraft could operate more profitably in comparison to existing jet fuel powered aircraft if carbon costs would be included and appropriate infrastructure is available. For connections between the region and capital cities, such as Sydney to Dubbo, a transition to hydrogen aircraft would offer a viable commercial alternative with the added benefit of more frequent services.

Furthermore, in addition to existing routes, smaller aircraft platforms may enable new aviation markets. For example, our research examines the potential for a route between Adelaide and the Clare Valley, a major tourism destination that currently lacks commercial air services. A transition to small-scale electric aircraft or drones could make those routes viable for air traffic with significant environmental benefits and high economic and social impact on regional residents and economies.

Despite these opportunities, significant barriers remain. The most important constraint is the need for new infrastructure to support hydrogen and electric aircraft propulsion systems. Hydrogen and electric aircraft will require specialized refuelling or charging infrastructure, energy supply systems, and updated airport facilities. Regulatory pathways for certification and commercial deployment of new aircraft technologies are also critical to enabling their adoption.

Government policy can play an important role in facilitating the transition to sustainable regional aviation. Potential policy measures include targeted infrastructure investment at regional airports, incentives for airlines to transition to hydrogen and electric aircraft types, demonstration programs for emerging aircraft technologies, regulatory frameworks that support certification of new propulsion systems, and carbon pricing mechanisms that reflect the environmental costs of aviation emissions, in line with emerging international standards.

Sustainable aviation technologies are particularly well suited to regional aviation markets because of their range characteristics and potential compatibility with smaller aircraft platforms. These technologies reduce operating costs, improve the viability of regional air services, and expand connectivity to underserved communities.

Improved regional aviation connectivity can generate broader economic benefits, including support for tourism, regional business activity, and access to essential services. In addition, smaller sustainable aircraft platforms may improve resilience in regional transport networks by enabling operations from shorter runways or alternative landing areas during emergencies or extreme weather events.

Overall, the research suggests that aircraft technology is an important structural determinant of regional aviation economics and, consequently, regional airfares. Emerging sustainable aviation technologies may offer opportunities to significantly reduce carbon emissions, reshape the cost structure of regional air services and expand connectivity across regional and remote Australia, provided that appropriate infrastructure and policy frameworks are established.

Key Insights for the Productivity Commission

Insight 1 – Aircraft technology is a key structural determinant of regional airfares

Regional airfares are strongly influenced by aircraft operating economics, including fuel costs, aircraft capacity relative to demand, maintenance requirements, and minimum viable passenger loads. Emerging electric and hydrogen propulsion technologies may significantly alter these cost structures through lower fuel and maintenance costs as well as aircraft platforms optimised for small passenger markets. Electric and hydrogen aircraft are currently under development for 9–30 seat regional aircraft markets, with some designs targeting larger turboprop replacements.

Insight 2 – Smaller aircraft platforms powered by hydrogen or electricity can significantly reduce minimum viable passenger loads

Financial modelling undertaken in the research indicates that smaller hydrogen, electric and hybrid aircraft could operate some remote routes with very low passenger numbers. For example, modelling of a Cloncurry–Burketown route indicates that a hydrogen-electric aircraft could achieve positive cash flow with average passenger numbers of approximately 5–6 passengers per flight.

Insight 3 – Hydrogen aircraft can support a faster transition to net zero while maintaining existing routes.

Our research shows that for regional routes hydrogen aircraft can operate more profitably in comparison to existing jet fuel powered aircraft if carbon costs would be included and appropriate infrastructure is available.

Insight 4 – Hydrogen aircraft can provide more frequent services while maintaining capacity and profit for airlines.

Modelling for a route between a capital city and a major regional centre shows that a transition to hydrogen aircraft would offer a viable commercial alternative with the added benefit of more frequent services as more frequent services with smaller aircraft would be used to offer the same capacity.

Insight 5 – Hydrogen and electric aircraft can improve access to regional areas with socio-economic benefits while supporting the transition to net zero.

Our financial modelling demonstrates that replacing car journeys with small-scale electric flights generate positive economic benefits through time savings while reducing emissions in comparison to diesel or petrol cars. For airlines, new aircraft platforms offer commercial viability for low demand routes. Consequently, those new air traffic routes would improve tourism access and access to services for regional residents.

Insight 6 – Infrastructure requirements are a key barrier to adoption

Transition to hydrogen or electric aviation will require new airport infrastructure including hydrogen production and storage facilities, specialised refuelling systems, electrical generation and charging systems, and upgraded airport energy infrastructure. Government can play an important support role in facilitating infrastructure development to hasten adoption of battery and hydrogen aviation services.

Insight 7 – Policy support could accelerate adoption and improve regional connectivity

Targeted policy interventions could help reduce barriers to adoption and improve the affordability and accessibility of regional air services. Potential policy actions include infrastructure funding for regional airports, funding incentives for airlines to transition to electric and hydrogen aircraft, demonstration programs for emerging aircraft technologies, and regulatory frameworks to support certification of hydrogen and electric aircraft.

Subsidization of airport landing fees and implementation of carbon costing could accelerate the adoption of sustainable aviation and therefore stimulate more services in regional areas as well as more frequent services on established regional routes.

Carbon cost signals an accelerated transition, especially on regional routes, where emission-free and more frequent air traffic could be achieved within the next 5 years based on current carbon costs provided by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2024). For instance, the route Dubbo - Broken Hill is more profitable with hydrogen powered aircraft than traditional jet fuel aircraft if carbon costs are taken into consideration.

Key Recommendations for the Productivity Commission

1. Recognize aircraft technology as a structural determinant of regional airfares.
2. Evaluate the role of carbon costs for regional aviation.
3. Seek to further investigate the regional benefits from electric and hydrogen aircraft.

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