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CANBERRA AIRPORT

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THE PATH TO NET ZERO AT CANBERRA AIRPORT

Submission to the Net Zero Commission

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INTRODUCTION

The transport sector is central to the economic and social prosperity of Australia by facilitating the movement of people and goods over large geographical areas. The aviation industry underpins this by contributing to the ongoing growth of supply chains, business growth and tourism. Aviation also supports regional access and national economic resilience.

The COVID-19 pandemic illustrated just how indispensable aviation is. When aircraft were grounded and borders were closed, communities across Australia were impacted. People were unable to visit family and friends, travel interstate for business or rely on the delivery of essential goods due to disruptions to freight networks. These impacts were especially pronounced in regional communities across southern NSW who rely on reliable aviation connections.

Airports are the critical infrastructure that support and sustain the ongoing growth and efficiency of the aviation industry. It is airports that facilitate the connectivity of people and goods across Australia's diverse transport network. Canberra Airport serves as a critical gateway for communities and businesses across NSW and Australia. Through its network of domestic and international routes, the airport facilitates the movement of passengers, freight and emergency medical services, serving as a vital link across the region.

While airlines play a critical role in supporting economic and social development, they are also among the largest contributors to greenhouse gas emissions within the aviation sector. Although airports are not the primary source of these emissions, they are actively supporting efforts to reduce the industry's carbon footprint.

Canberra Airport has long recognised its responsibility to achieving a cleaner, more sustainable future. Over a period of more than two decades, the airport has implemented a range of initiatives to reduce emissions and improve energy efficiency. These include transitioning to 100 per cent renewable energy, investing in green building design, improving public transport access and adopting renewable airfield infrastructure. As a result of these efforts, Canberra Airport was recently recognised at Level 4 of the Airport Carbon Accreditation programme, placing it among global leaders in the transition to net zero across the aviation sector.

The initiatives implemented at the airport are not only reducing carbon emissions, but they also offer a scalable solution for transport infrastructure across NSW. It is the experience at Canberra Airport that demonstrates how transport hubs can reduce emissions while continuing to drive economic growth.

The opportunity to contribute to the Net Zero Commission's consultation process is welcomed. Canberra Airport's experience highlights the impact of collaboration between government, industry and stakeholders in progressing the transport sector's transition to net zero.

AIRPORT CARBON ACCREDITATION

Canberra Airport's leadership in environmental management and decarbonisation was formally recognised in June 2025 through its direct accreditation at Level 4 under the global Airport Carbon

Accreditation (ACA) programme. This distinction places Canberra Airport among the highest-ranked airports worldwide for climate action and sustainability. The accreditation reflects more than two decades of sustained investment in carbon reduction initiatives across the airport precinct.

In 2024, the airport made a strategic decision to deepen its understanding of carbon emissions across all of its operations. This was an important step in fulfilling its broader environmental responsibilities. Climate change presents a global challenge and Canberra Airport acknowledges the critical role that transport infrastructure hubs must play in driving meaningful change. A comprehensive carbon footprint assessment was undertaken to establish a baseline for action and to inform the airport's future sustainability efforts.

Through this initiative, the airport has set ambitious but achievable sustainability goals that align with the objectives of the ACA framework and the United Nations Sustainable Development Goals. These goals support the net zero targets set by the ACT, NSW and Commonwealth Governments.

To achieve net zero Scope 1 and Scope 2 emissions by 2030, Canberra Airport will continue to invest in decarbonisation measures, focusing on energy efficiency and the integration of renewable energy. However, this commitment extends well beyond emissions accounting. By engaging in partnerships with governments, supporting local sustainability initiatives and promoting education and knowledge-sharing, the airport is fostering a culture of environmental responsibility that extends across the precinct.

Recognising that long-term sustainability requires collective effort, Canberra Airport is also working collaboratively with its stakeholders to promote low-emission practices and co-develop shared targets. This includes supporting the airport's Scope 3 net zero 2045 commitment through joint initiatives in areas such as waste management, energy efficiency and carbon reduction. By embracing transparency and collaboration, Canberra Airport is helping to embed sustainability not only in its operations but across the broader aviation and business ecosystem.

DECARBONISATION AT CANBERRA AIRPORT

Airlines are responsible for the most significant proportion of the aviation industry's production of greenhouse gas emissions. It is the case that infrastructure at airports which support the operations of airlines also make some contribution to the industry's overall emissions.

Canberra Airport does emit some greenhouse gas emissions in its operations, largely through the heating, cooling and operation of buildings. In addition, ground operations emit small amounts of greenhouse gas, almost entirely from the burning of petrol or diesel in the airport's vehicles and third party's ground support equipment (GSE).

To counter this, Canberra Airport has been committed to decarbonisation across the airport for more than two decades. This is in recognition of Canberra Airport's responsibility and commitment to manage the airport in a sustainable, sensitive and responsible manner that benefits the community and environment. Reducing emissions and improving sustainability has been central to airport operations.

The terminal opened in 2013 is one of the most carbon friendly in Australia. It is renowned for its sustainability and energy-efficiency initiatives, winning multiple awards for its leading-edge approach to building design and operation. Through the implementation of environmentally sustainable design and construction practices, Canberra Airport has achieved a range of water and energy efficiencies that have helped lower its overall greenhouse gas emissions.

Canberra Airport is also home to the second largest office precinct in the ACT, comprised of three world-class business parks: Brindabella Business Park, Majura Park and Fairbairn. Each business park has been designed to deliver a high level of amenity, anchored in both architectural and sustainable design. Indoor and outdoor spaces merge seamlessly to create a sense of community and to redefine work-life balance.

Canberra Airport is on track to achieve net zero Scope 1 and 2 emissions by 2030 through a comprehensive program of decarbonisation initiatives. These include the transition to 100 per cent renewable electricity, upgrades to energy-efficient infrastructure such as LED runway lighting and the electrification of airside operations. The airport is also actively engaging with airlines, tenants and service providers to influence and reduce Scope 3 emissions across the broader airport precinct. This includes initiatives to support low-emission ground transport, improve waste management and encourage shared sustainability goals across the airport ecosystem.

To support the Net Zero Commission's policy agenda to reduce carbon emissions across the transport industry, this submission outlines specific decarbonisation initiatives that have been adopted across the airport precinct. It is hoped that the experience at Canberra Airport can be used as a benchmark for other infrastructure providers seeking to implement more carbon-friendly proposals in their operations.

Supporting airlines to reduce emissions

Canberra Airport does not have the ability to impact the efficiency of individual aircraft, this is the responsibility of the aircraft manufacturers and airlines. The airlines have initiatives in place to reduce fuel burn, hence a reduction in greenhouse gas emissions, such as the introduction of new generation aircraft, optimising aircraft take-off weight and by implementing Airservices Australia Air Traffic Management [AATM] procedures.

Airservices Australia, as the manager of aircraft flight paths in Australia continues to work with the airlines, airports and the Australian community to achieve greater efficiencies. Constant Descent Approach (CDA), Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs) and Required Navigation Performance (RNP) approaches and departures are some of the environmental initiatives that have been introduced by Airservices Australia at the airport which have resulted in lower emissions. Canberra Airport actively supports these procedures and urges all operators with capable aircraft to expeditiously commence using these procedures.

Canberra Airport also plays a critical role in minimising emissions on the ground. This includes ensuring that airport infrastructure is designed to minimise delays to aircraft while taxiing or at the terminal. For this reason, the airport plans to continue to work with airlines, government departments, Airservices Australia and the community to provide sufficient runway, taxiway, navigation aids, aprons,

terminal and other aviation infrastructure capacity to ensure aircraft can operate without delays inflight or whilst taxiing.

Sustainable aviation fuel

Given aircraft account for between two and three per cent of all global carbon emissions, the decarbonisation of the sector must be a priority for all aviation stakeholders. In addition to the adoption of more fuel-efficient aircraft, there must be a far greater uptake of sustainable aviation fuel (SAF) to reduce carbon emissions across the aviation industry.

Canberra Airport has a state-of-the-art fuel farm that has the capacity to cater for significant aviation activity by storing around 770,000 litres of jet fuel. Through the use of advanced technologies, the fuel farm operates under strict environmental controls. The progressive nature of the fuel farm reflects Canberra Airport's ongoing commitment to quality, safety and sustainability.

Canberra Airport has engaged with the Commonwealth Government to advocate for the progressive transition to SAF for aircraft on both domestic and international routes. The airport is satisfied that existing fuel infrastructure can accommodate SAF. As the current fuel farm is compatible for the "drop-in" of blended SAF, Canberra Airport is in the position to support airlines using SAF on a larger scale. There would be no modification required to the practices of storing, transferring or refuelling. As demand for SAF increases, Canberra Airport will be prepared to provide the necessary support required for the transition to net zero.

Recognising the role airports can play to advance a domestic SAF industry, Canberra Airport has also proactively sought to support Australian industry participants who have the potential to produce SAF. In 2023, Canberra Airport announced an investment of USD$10 million into Vast, an Australian renewable energy company with a focus on concentrated solar thermal power (CSP) energy systems which can produce SAF.

Vast has developed CSP v3.0 technology to be based at its utility-scale reference plant at Port Augusta that will capture the sun's energy and generate clean, low-cost, dispatchable power. The carbon free power and heat produced by this technology can be dispatched to the grid or used as a thermal battery, stored for later dispatch.

Co-located with the utility-scale reference plant will be a green methanol demonstration plant which will be supplied with baseload renewable heat to assist in the production of SAF. Vast anticipates that up to 7,500 tonnes of green methanol will be produced annually. Canberra Airport recognises the potential of Vast's technology to play a major role in powering large-scale low-cost production of SAF.

Canberra Airport's investment in Vast is a demonstration of the importance of airports supporting the domestic production of SAF. The timely development of large-scale production is crucial, and Canberra Airport hopes to play a leading role in the establishment of a domestic production industry through support.

Sustainable buildings across the airport

Considerable precinct development has been undertaken at Canberra Airport over the last two decades to create a high-quality facility serving the ACT and southern NSW's growing transport and business requirements. Through deliberate planning and design, Canberra Airport has been responsible for the development of commercial and employment infrastructure at Brindabella Business Park, Majura Park and Fairbairn. Home to leading aerospace businesses, government departments and leading shopping chains, more than 22,000 people work within the Canberra Airport footprint each day.

A commitment to net zero and sustainability has been central to the development of these precinct facilities. This is because Canberra Airport has led the way in the performance of the built environment. The use of low-emissions resources and materials as well as the implementation of sustainability measures have been an overarching precondition during the planning and development of all buildings within the Canberra Airport footprint. As a result, Brindabella Business Park is one of, if not the, most sustainable business parks in Australia. By embracing sustainable design techniques, Canberra Airport ensured it was the first development to use recycled concrete and steel, therefore, using less embodied energy.

The Green Star certification launched by the Green Building Council of Australia (GCBA) has been applied to many of the buildings at the Brindabella Business Park to recognise the sustainable approach adopted. Green Star certification is an internationally recognised rating system conducted by an independent third-party assessor. The rating scale is between one star for minimum practice and six stars for world leadership. Compared to typical Australian structures, Green Star-certified buildings emit 62 per cent fewer greenhouse gases and consume 66 per cent less power.

Since 2003, the GBCA has undertaken rigorous assessment of the office buildings in Brindabella Business Park to rate the environmental sustainability of design, construction and fit-out of each building. Through this process, three buildings in the precinct have been formally awarded five Green Stars for sustainability. These are 6 Brindabella Circuit, 3 Molonglo Drive and 8 Brindabella Circuit, with 8 Brindabella being awarded the first five Green Star building in Australia in 2004. In addition, it was resolved that all new buildings at Brindabella Business Park will be carbon neutral.

This vision has been extended to the Majura Park precinct where a new office building at 25 Catalina Drive was formally awarded six Green Stars by the GBCA in 2023. As a founding member of the GBCA, Canberra Airport is committed to instilling GBCA building design principles and practices for all buildings constructed on airport. These include initiatives such as:

- Recycling building materials
- Minimising the use of products containing volatile organic compounds
- Reducing noise levels
- Reducing water consumption
- Use of solar hot water
- Waterless urinals
- Waste management initiatives
- Strict control of ventilation and day lighting
- Facilities to promote active travel
- Car parking for small cars
- Non-potable water irrigation
- Electric vehicle charging

To maintain the airport's ongoing commitment to sustainability, all new buildings constructed since 2019 are fully electric. Existing buildings in the business park have been retrofitted with onsite renewable generation via solar, further reducing greenhouse gas emissions. These are the airport's 'as standard' building requirements, ensuring that the buildings are not only good for the environment, but for the people working in them for years to come.

The airport has also teamed with NABERS, an international leader in assessing the energy efficiency of commercial buildings to rate the office buildings across the business parks. By comparing the energy consumption of each building against a set of benchmarks, NABERS has been able to rate the overall energy efficiency of the buildings designed by Canberra Airport to reduce carbon emissions.

NABERS provides a rating from one to six stars for energy efficiency. Three stars indicates average performance while six stars demonstrates market leading performance. Across each of the airport precincts, 28 office buildings have been assessed by NABERS. The significant majority of buildings have achieved a rating of 5 or 5.5 stars.

These high ratings by NABERS demonstrates Canberra Airport's commitment to designing and building infrastructure around the airport which places the efficient use of renewable energy at the centre of operations.

The measures enacted across the built environment at Canberra Airport over the last two decades to improve sustainability, increase energy efficiency and drive down greenhouse gas emissions have significantly contributed to the airport's overall mission of achieving net zero. The initiatives adopted at the airport can be used as a benchmark for other transport infrastructure providers seeking to design and develop more efficient buildings which are both economically and environmentally viable.

Solar panels

The implementation of solar panels across all precincts of the airport as a form of renewable energy to guarantee the power required to light, heat and cool the terminal, office buildings and operational facilities has been another positive step towards decarbonisation. Over the last decade, the airport has made considerable investment in solar which has resulted in 26 buildings across the airport precinct being powered completely by solar panels. With more than 3,000 panels installed across Canberra Airport, it is the second largest solar farm in the ACT.

The total energy that can be generated from these solar panels is over 2.66 megawatts per year. This is equivalent to powering between 532 and 665 Canberra homes. Canberra Airport's use and generation of renewable energy underscores its commitment to leading the transport sector in the transition to net zero.

Water recycling

Advancing the circular economy across the airport's operations has been a fundamental tenet in efforts to decarbonise Canberra Airport. One of the measures to assist in achieving this has been the recycling of greywater across the airport precinct.

There are two state-of-the-art Aquacell water recycling systems based on airport that service each of the business parks and the terminal. While the treated water is assessed as drinking quality, the recycled water is used in toilet flushing, irrigation and cooling towers. The system has the potential to treat approximately 100,000 litres of wastewater each day. As an international wastewater recycling system, Aquacell is designed to reduce daily potable water consumption on airport from 15-20 litres per person to approximately five litres per person.

Canberra Airport also utilises rainwater capture to replace and reduce potable water for a range of purposes. Under each of the multi-level carparks at the terminal, there is a 650,000-litre water tank installed to collect ground and rainwater. The water collected is then processed through a softening system and used in the terminal for flushing toilets and for landscape irrigation.

The implementation of circular economy principles when it comes to the use of water across the airport precinct is another example of Canberra Airport's commitment to embracing efforts that decarbonise operations at the airport.

Worm farm

With more than 22,000 people working within the airport footprint and another 10,000 transiting through the terminal each day, there is a considerable amount of food scraps and organic waste. Recognising the impact of this all going to landfill, Canberra Airport established a worm farm in 2018 to help with the efficient composting of organic materials from businesses and organisations right across the airport precinct.

The anaerobic conditions in landfill lead to a release of methane, a gas which is more than 20 times more harmful to the environment than carbon dioxide. The farm, based at the airport, has more than 250,000 worms diverting nearly one tonne of food waste per week from landfill.

The organic waste is converted into worm castings and rich, nutrient-dense liquid fertiliser that is used on gardens and landscaping across the airport. This reflects Canberra Airport's commitment to the circular economy by promoting the value and importance to businesses on airport being considerate of their carbon footprint and taking steps to recycle waste and regenerate nature.

EV charging stations

Canberra Airport has been an active supporter of the community uptake of electric vehicles. As residents of the ACT and southern NSW embraced electric vehicles as a more sustainable form of road transport, Canberra Airport recognised that many passengers travelling to and from the airport would require the use of EV chargers.

This has resulted in the installation of more than 21 EV charging stations in precincts surrounding the airport, including Brindabella Business Park, Majura Park, Vibe Hotel and the airport. The combination of fast and slow chargers offers passengers with the convenience and assurance that their electric vehicle will be adequately charged while parked at the airport. Incentivising those travelling to and from the airport with electric vehicles is another example of Canberra Airport's commitment to decarbonisation right across the national capital region.

Through collaboration with airlines and ground handlers, a number of charging points have been installed airside to provide power to electric tugs and other GSE which have replaced traditional combustion engines or standard batteries.

Promoting alternatives to road transport

As the most sustainable city in Australia, Canberrans have an affinity for transport options that reduce their carbon footprint. This is particularly the case for airport passengers and those who work in the business parks.

To contribute to a reduction in greenhouse gas emissions contributed by road transport, Canberra Airport has implemented various measures to promote active travel as an alternate option for those travelling to the airport precinct. Cycle paths on and off Pialligo Avenue, the main route to the airport, are connected with the broader Canberra cycle network, offering seamless travel for those cycling from all suburbs of the ACT and border communities of NSW. Bicycle storage and end-of-trip facilities have also been installed across the airport footprint to cater for those opting to cycle to the airport or surrounding businesses.

CONCLUSION

For more than two decades, Canberra Airport has demonstrated a strong commitment to sustainability by actively working to reduce the impact of its operations on the natural and built environment. Contributing to the pathway to net zero remains a central objective that underpins broader decision-making across the precinct.

Reducing greenhouse gas emissions in aviation is a shared priority for all industry participants. While some sources of emissions, particularly those associated with aircraft operations, are challenging to mitigate, infrastructure providers are increasingly playing a meaningful role in supporting decarbonisation efforts.

At Canberra Airport, a range of measures have been implemented to promote a cleaner, more sustainable environment across the entire precinct, including Brindabella Business Park, Majura Park and Fairbairn. These initiatives are designed to reduce energy use, promote sustainable building practices and enhance environmental performance for both passengers and those who work within the airport precinct.

By setting an ambitious net zero agenda, Canberra Airport has shown the value of infrastructure providers taking proactive steps to offset emissions generated by other parts of the transport industry. This leadership role is especially important in light of the projected growth in aircraft activity in the post-COVID-19 recovery period, which has the potential to significantly increase overall emissions unless targeted action is taken.

Canberra Airport believes the energy efficiency measures introduced over the past two decades provide a strong foundation to support the aviation industry's long-term carbon reduction goals. Through continued investment in sustainable infrastructure and operational practices, the airport is helping to reduce emissions in areas within its control while supporting broader industry efforts.

This submission is intended to help inform the Net Zero Commission and encourage others across the transport sector to pursue practical, emissions-reducing initiatives.

For more information, please contact Canberra Airport's Government Relations and Policy Advisor, [redacted]

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