Climate and greenhouse gas emissions

Aviation is a critical part of Australian society, enabling travel, social connection, economic development and trade opportunities. But the aviation industry is also a contributor of greenhouse gas emissions.

While aviation accounts for 2.5 per cent[1] of global CO_2 emissions, Melbourne Airport takes the challenges posed by climate change seriously – and we will extend this to the construction and operation of the third runway.

Projected greenhouse gas emissions of the third runway

A greenhouse gas emissions inventory was prepared for all phases of construction and operation of Melbourne Airport's third runway, and assessments were made on all material sources of greenhouse gases. It included emissions associated with aircraft activity, such as landing and take-off, airfield operations, and airside support vehicles and equipment.

The assessment provided a picture of the likely impacts regarding greenhouse gas emissions related to the third runway. Through this modelling[2], Melbourne Airport estimates that:

- More than 1,162 kilotonnes of CO_2-e total emissions will be produced annually with the third runway operating
- This compares to 814 kilotonnes of CO_2-e total emissions that would otherwise be produced annually without a third runway, due to increased passenger forecast.

Source: [1] Our World in Data
[2] Calculated based on landing and take off cycle, refer to Major Development Plan Chapter B11 for further information

What are Scope 1, 2 and 3 emissions?

SCOPE 1 EMISSIONS

Direct emissions from owned or controlled sources (for example, combustion of diesel in company-owned vehicles and the use of natural gas to power Melbourne Airport's tri-generation plant).

SCOPE 2 EMISSIONS

Indirect emissions from the generation of purchased energy (for example, purchased grid electricity used to power airport facilities).

SCOPE 3 EMISSIONS

All relevant indirect emissions (not included in Scope 2) that occur in the value chain of the airport, including both upstream and downstream emissions (for example, aircraft movements, waste from airport tenants, and employee and passenger journeys to and from the airport).

Our commitment to reduce emissions

To balance the need for growth with the challenges posed by climate change, Melbourne Airport has made several commitments and improvements to reduce operational emissions across our site.

- We were the first Australian capital city airport to commit to net-zero (Scope 1 and 2) emissions by 2025
- 100% of our purchased energy comes from renewable sources, including from our own 12-megawatt solar farm and through a power purchase agreement
- We currently operate our own 12-megawatt solar farm and are constructing a second solar farm that will produce an additional 7.5 megawatts of energy, as well as installing further rooftop solar across the precinct
- As of 2024, we have reduced our Scope 1 and 2 emissions by almost 20% and 89% respectively since 2016
- We are the first and only Australian airport to become a GreenPower® approved provider, creating our own energy through our on-site solar farms and on-selling it to retailers, tenants and partners, which supports the transition of their own operations to net zero
- In addition to our solar program, we have recently transitioned a large portion of our airside car fleet to electric with a view to transitioning the whole fleet in the future.

Reducing aviation emissions

Greenhouse gas emissions associated with flights fall into the Scope 3 category. This means Melbourne Airport does not have direct control of these emission sources – but we can influence them.

We do this through a variety of initiatives, including:

- Providing partners with green energy
- Promoting the development of alternative fuels and flight technology, such as sustainable aviation fuel, as well as monitoring the development of renewable hydrogen energy
- Supporting the electrification of transport across the precinct
- Considering sustainability performance when contracting suppliers.

Airline initiatives

Several Australian and New Zealand airlines have committed to achieving net zero emissions by 2050.

QANTAS

In 2019, Qantas Group announced a commitment to achieving net-zero emissions by 2050 and capping its net emissions at 2019 levels. Initiatives include improved fuel efficiency, investing in new aircraft technology and collaborating to accelerate the development of a sustainable aviation fuel industry in Australia.

Source: www.qantasnewsroom.com.au/media-releases/qantas- group-to-slash-carbon-emissions/

Virgin australia

Virgin Australia was the first airline in Australia to test sustainable aviation fuel in the supply chain. In 2021, they announced commitment to a target of net-zero emissions by 2050.

Source: www.virgin.com/about-virgin/latest/virgin-australia-commits-to-net-zero-by-2050

AIR NEW ZEALAND

Air New Zealand has a goal of achieving net-zero emissions by 2050 and acknowledges a pathway to sustainable aviation fuel is a key solution to significantly reduce emissions. It has formed a partnership with regional aircraft manufacturer ATR Aircraft to explore hybrid propulsion regional aircraft and Airbus to research zero-emission hydrogen powered aircraft.

Source: https://www.airnewzealand.com.au/sustainability https://www.airnewzealandnewsroom.com/press-release-2021-airnz-and-airbus-to-research-future-of-hydrogen-powered-aircraft

IATA FLY NET ZERO

In 2021, the International Air Transport Association approved a resolution for the global air transport industry to achieve net-zero carbon emissions by 2050. The plan includes sustainable aviation fuels, new aircraft technology, more efficient operations and infrastructure, and the development of new zero-emissions energy sources, such as electric and hydrogen power.

Source: www.iata.org/en/programs/environment/flynetzero/

Improved aircraft efficiency

A key factor in reducing aviation emissions is the aircraft that fly our skies. Plane manufacturers continue to improve aircraft efficiency and environmental performance. Melbourne is an "end-of-the-line" destination and tends to receive the newer, more modern aircraft that can handle long-haul distances as well as produce less noise.

Airbus A350s

have a **25%** fuel burn and CO_2 emissions advantage compared to previous generation aircraft.

Boeing 787-8 Dreamliners

have around **20%** better fuel per seat and emissions than aircraft they will replace.

Airbus A320neo

family offers fuel improvements of **14%** from A320ceos (current engine option).

Boeing 737 MAX10

provides a **14%** reduction in carbon emissions and fuel use compared to Next Generation 737 (current fleet).

Information based on airline and manufacturer websites. Source: Norebbo Illustrator and Designer

Reducing emissions while constructing the third runway at Melbourne Airport

The majority of emissions relating to the third runway will come from the additional flights the extra capacity enables. There will also be emissions incurred in the construction of the third runway. To reduce these emissions – as well as reduce waste and minimise materials consumption – we will investigate the feasibility of following initiatives:

- minimising the construction footprint and vegetation removal
- focusing on an overall reduction in construction material requirements
- exploring the potential to use low-carbon concrete as well as using supplementary cementitious materials (thus reducing the environmental impact of concrete production) during construction works
- ensuring greater use of recycled steel where possible as well as finding ways to reduce steel consumption, through the use of polymer, fibre and steel fibre reinforcement
- utilising local sourcing strategies, such as selecting materials from local suppliers, which reduces the distance required to transport materials
- using more recycled content in asphalt or warm-mix asphalt over hot-mix asphalt to reduce the carbon footprint of flexible pavements
- better management of site works to reduce transportation emissions
- using energy efficient vehicles and renewable fuels in the construction process
- re-using green waste or organic waste on site, such as for compost.

For further information contact **newrunway@melair.com.au** or call **03 9297 1597**