

MALAYSIA AVIATION DECARBONISATION BLUEPRINT: AN OVERVIEW

19 September 2024



On 5 September 2024, Malaysia’s Ministry of Transport (‘MOT’) published the Malaysia Aviation Decarbonisation Blueprint¹ (‘**Aviation Blueprint**’). The aviation sector has undergone rapid growth over the years in order to meet increasing demand, and this has certainly become more evident in these post-pandemic times. However, as a major contributor to carbon emissions, this sector has at the same time become a challenge to the country’s goal to be carbon neutral by year 2050. To that end, the Aviation Blueprint represents Malaysia’s strategy with regards to managing the carbon footprint of the aviation sector, with the overarching objective of driving sustainable development.

AIRLINE MEASURES

The Aviation Blueprint identifies airlines as playing a key role in the decarbonisation of the aviation sector, given that over 90% of carbon emissions are generated during the commission of a flight. There are four measures which airlines can implement in order to decarbonise, and these are summarised below:

AIRLINE MEASURES	
1. Operational Efficiency	<ul style="list-style-type: none"> • Operationalising technical-related measures such as maintaining optimum flight levels, reducing contingency fuel and fuel load optimisation, and optimal flight landings. • Publishing regulator guidelines on approval criteria for the application of measures. • Providing training standards, operating procedures and policies. • Encouraging all qualifying operators (domestic and international) to apply the relevant procedures when operating in Malaysia.

¹ The Malaysia Aviation Decarbonisation Blueprint is available [here](#) on the MOT’s official website.

2. Aircraft Technology	<ul style="list-style-type: none"> • Enhancing flight performance across their route networks, such as utilising latest generation aircraft where feasible or carrying out retrofits to improve flight performance. • Investing in upgrading flight management systems to enable operational efficiency measures. • Investing in monitoring systems which could assist in ensuring safety, optimising maintenance and reducing fuel consumption. • Considering sustainability factors impacting aircraft weight and emission intensity in the selection of cabin interior fittings. • Transitioning to the use of next-generation technology, including supporting research and development efforts for the development of such technology.
3. Sustainable Aviation Fuels ('SAF')	<ul style="list-style-type: none"> • Increasing the SAF volume in their fuel mix. • Developing and ensuring a sustained, prolonged supply of SAF. • Encouraging wider adoption of SAF.
4. Carbon Offsetting	<ul style="list-style-type: none"> • Purchasing carbon offsets via the Carbon Offsetting and Reduction Scheme in International Aviation (CORSA). • Offsetting emissions from domestic flights by purchasing locally-issued credits.

AIR TRAFFIC MANAGEMENT MEASURES

The Aviation Blueprint also highlights the importance of air traffic management. By enabling efficient flight paths, flight distances, flight time, fuel consumption and carbon emissions can be minimised. Measures that can be taken in this respect are as follows:

AIR TRAFFIC MANAGEMENT MEASURES	
1. Reviewing Flight Routings	<ul style="list-style-type: none"> • Regular reviews of flight routings by Civil Aviation Authority of Malaysia. • Reviewing and developing optimal flight paths based on available data. • Proposing air traffic procedure changes to enhance efficiency.
2. Investing in Upgrading of Equipment and Systems	<ul style="list-style-type: none"> • Improving Point Merge System². • Increasing utilisation rate of Required Navigation Performance – Authorisation Required³. • Transitioning to performance-based navigation at all Malaysian airports by end of 2025. • Redesigning of airspace based on updated traffic growth projections.

² Point Merge System is the air traffic control arrival procedure for Kuala Lumpur. It involves arrival sequencing in order to manage multiple aircraft flows.

³ Required Navigation Performance – Authorisation Required refers to navigation specifications that permit the operation of aircrafts on a precise flight path with a precise level of accuracy.

AIRPORT MEASURES

Airports have a significant impact on aircraft ground emissions. Factors such as the design of the airport, operational facilities and use and supply of clean energy at the airport will need to be addressed in order for Malaysia to position itself as a sustainable aviation hub. Proposed measures under the Aviation Blueprint with regards to airports are outlined below.

AIRPORT MEASURES	
1. Airport Collaborative Decision Making ('A-CDM')	<ul style="list-style-type: none"> Implementing A-CDM to reduce taxi times.
2. Utilisation of Ground Power Units and Pre-conditioned Air Units	<ul style="list-style-type: none"> Supplying Ground Power Units and Pre-conditioned Air Units for aircrafts to use during transits and aircraft servicing, instead of using their auxiliary power units.
3. Energy Efficiency	<ul style="list-style-type: none"> Investing in technologies for reducing energy intensity for cooling and lighting systems. Investing in building automation systems to operate systems only when needed and to utilise the least possible energy when in use.
4. Ground Electrification and Green Energy Supply	<ul style="list-style-type: none"> Transitioning from diesel-powered ground vehicles to electric ground vehicles. Installing charging points and ensuring supply of clean energy. Integrating of SAF into the fuel supply chain, including upgrading fuelling and storage infrastructure. Supplying renewable energy to facilitate the use of hydrogen- and electric-powered aircraft. Investing significantly in airport infrastructure to support next-generation fuel technologies.
5. Aviation Waste Management	<ul style="list-style-type: none"> Developing in-flight waste management protocols. Appointing certified operators for disposal of inflight waste. Providing rules and regulations on waste categories and disposal protocol to airlines.
6. Environmental Management Plan	<ul style="list-style-type: none"> Reviewing and updating Environmental Management Plan to reflect new or emerging requirements and to take into account improvement measures.

MULTI-SECTOR COOPERATION

The Aviation Blueprint also emphasises the importance of leveraging on the varied expertise of stakeholders, from the Government to private sector players and non-governmental organisations, in order to address the difficulties in decarbonising the aviation sector in Malaysia. There are other factors that have be considered so as to balance decarbonisation efforts with maintaining sector competitiveness and ensuring sustainable growth.

MULTI-SECTOR COOPERATION MEASURES	
1. National Strategy for SAF	<ul style="list-style-type: none"> Establishing a comprehensive national strategy for SAF which addresses measures to ensure stable supply, affordability of SAF, feasibility of feedstock, technologies, regulations and incentives.
2. National Carbon Market Strategy	<ul style="list-style-type: none"> Developing policies to facilitate implementation of carbon projects in the country. Formulating a national strategy on decarbonisation efforts through carbon market mechanisms. Developing a regional carbon market standard or programme.
3. Climate Transition Financing	<ul style="list-style-type: none"> Implementing effective financing mechanisms and increasing access to financing options to support the transition towards sustainable practices in the aviation sector. Monitoring implementation of carbon fees to ensure fairness.

THE PATHWAY TO A SUSTAINABLE AVIATION SECTOR

The Aviation Blueprint is intended to serve as a guiding document on the country’s short-term and long-term initiatives on developing a sustainable aviation sector. Such development is crucial to Malaysia’s efforts to transition to clean energy and be a carbon-neutral nation. In fact, the National Energy Transition Roadmap⁴ has identified the decarbonisation of the aviation sector as a key initiative to drive the development of green mobility. To that end, a Steering Committee comprising stakeholder representatives and chaired by MOT will be established to monitor and review the progress of the Aviation Blueprint.

It should be noted that the Aviation Blueprint is a live document that will be subject to updates from time to time. The strategies and approach under the Aviation Blueprint will have to align with the rapid growth and developments in not just the aviation sector, but the country’s socioeconomic landscape as a whole. Additionally, it will need to address the significant challenges ahead in decarbonising the aviation sector, as well as take into consideration the capability and readiness of the industry to undergo the changes that will be required.

The pathway to a sustainable aviation sector is neither an easy nor a short one. It is, however, a necessary road to be taken by Malaysia in order to achieve its net-zero commitments.

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⁴ Our Alert on the National Energy Transition Roadmap is available [here](#).



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