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THE PRICE TO PAY FOR CLEANER SKIES

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BY **TAN ZHAI YUN**

In February, Minister of Transport Anthony Loke announced that airlines would be allowed to impose extra fees to cover their carbon emissions, whether it's to purchase sustainable aviation fuel (SAF) or carbon credits to offset their emissions.

Eventually, this could show up in flight prices for travellers, akin to the surcharge of the Renewable Energy Fund collected by Tenaga Nasional Bhd (KL: TENAGA) through consumers' electricity bills. In Singapore, this is taking the form of a green fuel levy on flights from 2026 onwards.

Why is this required? The idea is that such activities — aviation and electricity generation in this case — generate significant carbon emissions that result in global warming and other negative social and environmental impacts. The current prices do not take into consideration the true cost of these activities, and thus, more funds are needed to introduce greener practices.

The push for the aviation sector to reduce emissions from international flights is especially strong since it is not covered under the climate targets of countries. In 2022, the aviation sector accounted for 2% of global energy-related carbon emissions, according to the International Energy Agency, and has risen faster in recent decades than rail, road or shipping.

A major step was taken in 2016, when member states of the International Civil Aviation Organization (ICAO) introduced the Carbon Offsetting and Reduction Scheme for International Aviation (Corsia), which is the first time a single industry sector has agreed to a global market-based solution to mitigate climate change.

"There's nothing like this for shipping, agriculture or the palm oil industry, for example. That's why Corsia is interesting, because it's regulated and also industry specific and industry driven, and the first one that has a collective approach," says Yap Mun Ching, chief sustainability officer of Capital A Bhd (operating AirAsia) (KL: CAPITALA) and chairperson of the National Corsia Task Force.

In general, Corsia attempts to cap emissions from international flights, with the baseline year of 2019, by requiring airline operators to report their emissions and, after each three-year compliance period, purchase Corsia-eligible carbon credits to offset the increase in emissions.

The first phase of Corsia kicked off this year and will last until 2026, covering flights between states that volunteered to participate in Corsia. From 2027 onwards, the mandatory phase will begin and all international flights — with certain exceptions, like flights to and from small island developing states — will be subject to Corsia's requirements.

Malaysia volunteered to be part of the first phase in 2022, alongside 114 other countries. Notably, China and India are missing from the list.

"As a developing country with ambitious climate goals, participation in Corsia demonstrates Malaysia's commitment towards long-term environmental sustainability in the aviation sector," says Minister of Natural Resources and Environmental Sustainability Nik Nazmi Nik Ahmad in response to *ESG*. "Through Corsia, Malaysia will enhance its reputation at the international level among an increasing number of environmentally conscious stakeholders, including countries and companies."

According to the Ministry of Transport (MoT), four Malaysian airlines are participating in Corsia: AirAsia X Bhd (KL: AAX), Firefly Sdn Bhd (with technical exemptions), Malaysia Airlines Bhd and Batik Air.

RACE AGAINST TIME

The global aviation industry was badly hit by the pandemic in 2020, and thus, the industry did not exceed the Corsia baseline that was set at 2019 levels. As aviation activities picked up post-pandemic, the baseline was lowered to 85% of 2019 levels for the period between 2024 and 2027.

Emissions from international aviation are expected to exceed the new baseline this year, which means offsetting requirements for all airlines in Corsia-participating states will begin.

By the end of each year, airline operators must submit audited emissions reports to their respective civil aviation authorities, who will send them on to ICAO. The total emissions for international aviation will be calculated and compared to the baseline. If the baseline is exceeded, the ICAO will proportion out the offsets that the eligible airline operators have to meet.

The airline operators will know by the end of the next year how much they are liable to offset for this year.

"But you don't have to complete the transaction yet. You only need to do it at the end of the three-year period. So, by the end of 2027, you will know for the three-year period how much you need to offset, and you have until 2028 to complete all your offsetting transactions and submit your documentation to ICAO," says Yap.

Four years may seem like a long time for airlines to prepare, but many challenges remain. For one thing, they have to find the resources to upgrade their equipment and increase efficiency, which would reduce emissions growth and offset needs.

But solutions like SAF are expensive, and there is a dearth of Corsia-eligible carbon credits globally. Even if the bottleneck for the latter problem is solved, the rising demand for carbon credits could mean sky-high prices that are unattainable for Malaysian airline operators. These costs could be passed on to consumers eventually.

"Our biggest challenges encompass several areas, including the availability and cost of SAF, the quality and availability of offset projects, stringent measurement, reporting and verification requirements, policy uncertainties and the financial burden of compliance," says Philip See, group chief sustainability officer and CEO of Loyalty & Travel Solutions for Malaysia Aviation Group (MAG). "To address these challenges, collaborative efforts are essential among airlines, governments, industry stakeholders and international organisations."

Industry players have been engaging with the government to formulate a strategy. Two task forces were established: one on Corsia, which is led by Yap, and another on SAF, which is chaired by MAG. A Malaysian aviation decarbonisation blueprint is also being drafted.

"It's not going to be a perfect document but that's because there are many changing parts. But we feel that it's really important to have it out there, and it has really good coverage because every relevant ministry is involved and invited to give feedback," says Yap.

For the blueprint to be effective, each stakeholder must follow through on their pledges, she adds.

"For example, if the government says we want to improve airspace efficiency, it has to put in place the mechanism to really deliver. It shouldn't just be a nice document but should outline some targets that we all work towards."

The carbon surcharge, as announced by the MoT, was also a result of these engagements.

But this has to be done gradually, and the ultimate goal is to find the most cost-effective solutions without raising airfares too much.

"Our goal is to keep costs as low as possible while meeting these international targets. We communicated this quite effectively to the government and that's why it said it would leave it to us as a commercial decision ... but it would do the monitoring," says Yap.

ESG reached out to MoT for comments and was directed to refer to the announcements that were already made by the minister, who said that the levy can be charged once amendments to the Malaysian Aviation Commission (Code of Conduct) Regulations 2018 are finalised by the Malaysian Aviation Commission. He said that there must be a transparent mechanism to show how airlines spend the levy.


SHAHRIL BASIR/THEEDGE

As a developing country with ambitious climate goals, participation in Corsia demonstrates Malaysia's commitment towards long-term environmental sustainability in the aviation sector.
Nik Nazmi, Ministry of Natural Resources and Environmental Sustainability

AirAsia is replacing its fleet with newer aircraft that are more efficient. It has also introduced various solutions to increase operational efficiency and reduce emissions.

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LOW-HANGING FRUIT: EFFICIENCY

The most effective and affordable method to reduce emissions is to improve operational efficiency, whether it's by optimising flight routes or upgrading planes. This is because the technology already exists and the cost is relatively affordable compared to solutions like SAF.

Yap explains that there are four major ways to reduce emissions for the sector. The first is to upgrade aircraft and the second is to practise green operating measures.

"In layman's terms, it's about how a pilot flies the plane. The pilot can use different procedures aided by software to fly a plane in a way that it burns less fuel," says Yap.

AirAsia will be replacing its entire fleet with 362 A321neos, which emit 24% less emissions per seat compared with the classic A320 model. This fleet will be delivered between 2024 and 2035. Its green operating measures include reduced flap landings, idle reverse landing and using the Descent Profile Optimiser, which minimises the amount of time spent at inefficient levelling off.

In its latest sustainability report published in May, AirAsia achieved its lowest carbon emissions per available seat kilometre and carbon emissions per revenue passenger kilometre, in large part due to its operational efficiency measures. This resulted in a total carbon avoidance of 129,469 tonnes, equivalent to savings of US$40 million (RM190 million) in fuel costs.

Yap estimates that these measures can help airlines reduce emissions by up to 5%. Another 10% can be reduced by improving the efficiency of the airspace.

"Aeroplanes don't just fly any way they want. There are particular tracks to follow and many were developed long ago, when aircraft were not so advanced," says Yap.

With newer and more efficient aircraft in operation, it is necessary to review these flight paths and procedures to make it more efficient.

"This is a low-hanging fruit, and the minister has assured us that this will be the government's commitment to the industry to help us. By doing this, it also reduces fuel consumption, and this is the only pathway compatible with reducing emissions, costs and fuel consumption," says Yap.

SAF AN EXPENSIVE ENDEAVOUR

Probably the most widely promoted solution currently is the use of SAF, which is a biofuel made from feedstock such as agricultural residues and used cooking oil (UCO). It can be blended with conventional fuels and used in normal aircraft.

Malaysia is keen on tapping this demand, with a particular focus on how palm oil waste can be used as a feedstock. MAG tested its first flight using a 38% SAF blend from UCO in 2021 and has said it plans to expand the adoption of SAF.

But See also notes that the commercial availability of SAF remains limited. This would likely be exacerbated by the European Union's requirement that fuel uplifts in its airports must contain at least 2% SAF by 2025. Singapore mandates all flights departing from the country to be fuelled with SAF by 2026.

More will need to be done to increase SAF production capacity and reduce production costs. According to the International Air Transport Association, the price of SAF in 2022 was around 55% higher than the price of jet fuel, and the estimated output was 0.1% of the overall volume of jet fuel.

"The Malaysian government's effort to utilise locally available resources for SAF feedstock such as palm oil biomass, palm oil waste and UCO is a positive step towards sustainability in the aviation sector," says See. "These readily available feedstocks offer potential cost benefits and can contribute to a circular economy by utilising waste products."

There are concerns, however, regarding whether palm oil-based feedstock can be considered "sustainable", given its association with deforestation by some countries. This will need to be discussed by the Malaysian government with its foreign counterparts.

Aside from that, See suggests exploring more diverse sustainable feedstocks as well, such as non-food biomass and crude algae oil; promoting more research and development; and ensuring

CONTINUES NEXT PAGE

THE BOTTLENECK OF CARBON CREDITS

If airline operators have to purchase Corsia-eligible carbon credits from abroad, it will significantly increase their cost. It also means funds that could otherwise support local carbon credit projects will flow outwards.

What is required to increase the local supply?

Project developers need to consider the cost of conducting feasibility studies and undergo consulting, validation and registration, says Soon Hun Yang, CEO of Eco-Ideal Consulting Sdn Bhd. This could add up to a few hundred thousand ringgit.

"With the current market price for carbon credits, only large projects would make sense," he says.

Financial support is needed so developers won't have to bear all the upfront costs and are protected from volatile carbon prices.

"Malaysia has huge potential [to meet the demand for Corsia-eligible carbon credits], but Corsia must accept more schemes that are currently popular, like Verra. Perhaps airlines can provide the seed money to conduct feasibility studies as well as partially undertake the upfront costs as a means to share risks with project developers. These costs can probably be offset once the credits are generated," says Soon.

ECO-IDEAL

> Perhaps airlines can provide the **seed money** to conduct feasibility studies as well as partially undertake the upfront costs as a means to **share risks with project developers.**
>
> **Soon, Eco-Ideal Consulting**

To make local Corsia-eligible carbon credits more commonplace, there will need to be grants to make the cost of certification and project development more affordable.

When asked, Minister of Natural Resources and Environmental Sustainability Nik Nazmi Nik Ahmad points towards the RM10 million seed money to kick-start the voluntary carbon markets announced in March 2023; the RM150 million under the Khazanah Nasional Impact Fund to support carbon markets; the biodiversity sukuk of RM1 billion under Budget 2024; and the RM5 million allocated for the Forest Carbon Development Fund to develop forestry carbon projects.

At the moment, details on how the funds can be accessed are unclear.

There is also the proposed additional tax deduction of up to RM300,000 for companies that incur expenses on measurement, reporting and verification related to carbon project development under Budget 2024.

"These expenses can be deducted from the income from the sale of carbon credits traded on the Bursa Carbon Exchange," says Nik Nazmi.

Another oft-cited major challenge arises from the jurisdiction over land use between the central government and the province or state.

This has slowed the development of carbon removal credits in several countries, says Ralph Dixon, CEO of YTL-SV Carbon, which is part of YTL Corp Bhd (KL: YTL).

Deforestation rates that have not declined since 2000, based on findings by Global Forest Watch and Mongabay, also meant many previously eligible projects for carbon credits are no longer additional.

"Finally, the recent focus of investigative reporting on the integrity and quality of removal projects has meant that a number of project developers are reluctant to move forward [with their carbon projects] in the face of heightened reputational risk," says Dixon.

The scrutiny of the environmental and social impacts of carbon credit generating projects is heightened. Faced with these pressures, higher development costs and no guarantee of successful outcomes, "the return on investment for removal or other eligible projects is not as attractive as it was just four or five years ago", he adds.

Producing Corsia-eligible carbon credits may also not be easy, since Corsia's technical advisory body has only approved two registries to provide credits for the first phase with no exclusions based on project types, while another three, including Verra, received conditional approval.

"Notably, despite its prior approval during the pilot phase, the Clean Development Mechanism (CDM) was not deemed eligible to supply credits for Phase 1," says Dixon.

The CDM was set up under the Kyoto Protocol, and Malaysia has generated carbon credits under the scheme in the past.

"Furthermore, a potential requirement for post-2020 Corsia-eligible credits is that they must undergo corresponding adjustments to avoid double counting. Hence, it is shown that for a credit to be Corsia eligible, project proponents must undergo more stringent requirements, which may be one of the bottlenecks for the generation of Corsia-eligible credit."

Despite these challenges, there are opportunities for carbon credit developers in Malaysia. One of these is for entities subject to carbon taxes in Singapore. Companies can use carbon credits to offset up to 5% of their taxable emissions but they must be Corsia eligible.

YTL-SV CARBON

> ... it is essential that the national or **federal** governments **and state governments work hand in hand on the same objectives and goals in a seamless and collaborative relationship.**
>
> **Dixon, YTL-SV Carbon**

The rollout of a local carbon pricing scheme, such as an emissions trading scheme, would also be conducive to supporting local carbon credit project developers.

"There is probably little value in the development of a national registry similar to Verra or Gold Standard since all the tools already exist at national and global levels. However, enhancing the role of validation and verification bodies and rating agencies, combined with local capacity building, will be critical in developing the national carbon credit ecosystem," says Dixon.

"Lastly, it is essential that the national or federal governments and state governments work hand in hand on the same objectives and goals in a seamless and collaborative relationship." — *By Tan Zhai Yun*

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Boost needed for supply of local carbon credits

FROM PREVIOUS PAGE

responsible crop production through stringent certification processes.

Yap sees the potential in waste residues from processing palm oil, specifically the palm fatty acid distillate, which has a low life cycle emissions factor.

"Malaysia's government can establish clear policy, regulations and standards for the production, blending and certification of SAF to ensure safety, quality and environmental sustainability," says See. "[The government could also] develop policies mandating a certain percentage of aviation fuel to be sourced from sustainable sources, gradually increasing over time to encourage market adoption."

LACK OF CARBON CREDITS

Carbon credits will undoubtedly need to be part of the strategy. But the dearth of carbon credits recognised by Corsia — or Corsia Eligible Emissions Units — is a problem, as is the cost of procuring these units. When the mandatory period kicks in after 2026, the demand will rise significantly.

Two carbon credit standards — the American Carbon Registry and Architecture for REDD+ Transactions (ART) — were approved without exclusions, while the Climate Action Reserve, Global Carbon Council, the Gold Standard and Verra's VCS Programme were conditionally approved.

There is only one Corsia-eligible carbon credit project now, which was issued in February by Guyana. A total of 7.14 million credits were issued by ART, 2.5 million of which were sold at a floor price of US$20/t. These credits were a result of Guyana's efforts in 2021 to sustain its tropical forest coverage.

It's a wait-and-see situation now for airlines, as they anticipate what other Corsia-eligible carbon credits will become available at the right price and when they should purchase them by the 2028 deadline.

"For us, it's a balancing act. Ideally, we would like to be able to secure some credits, especially in Southeast Asia or Malaysia. That will be our priority if we can," says Yap. "We hope that more understanding about Corsia creates a market for carbon credits that are Corsia eligible."

Similarly, See acknowledges that MAG will have to initiate offset purchases before the deadline.

"MAG is currently establishing an internal carbon trading policy and framework to delineate the process of procuring credits, including when and where to do so. Additionally, we have engaged in multiple discussions with companies in the carbon credit sector to enhance our grasp of the carbon market dynamics," he says.

More will have to be done to encourage carbon offset projects that are Corsia-eligible to be developed in Malaysia, whether it's to do with reforestation or renewable energy.

According to some carbon project developers in the country, there is potential for Malaysia to meet this rising demand, but the conditions to produce Corsia-eligible credits are strict, and other challenges like volatile prices and high upfront costs for project development remain.

The usual criteria for robust carbon credits must be met, of course, which include permanence and additionality. The former refers to the guarantee that the project will remain in operation for a long duration, while the latter refers to the requirement that the project must not have occurred if not for revenue from the sale of carbon credits.

Updates on corresponding adjustments to carbon credits by the government will have to be observed as well. If carbon credits in Malaysia are claimed for international aviation, these cannot be counted towards the country's own decarbonisation target. Currently, Malaysia has a ban on the sale of carbon credits for non-domestic purposes without state authorisation. But without a carbon pricing regime, local demand for carbon credits is likely to remain low.

"If you can release some for Corsia because the compliance period has already started, you can create a virtuous loop. Some financing [from the sale of credits] will incentivise the industry to develop," says Yap.

SAM FONG/ THE EDGE

MAG is currently establishing an internal carbon trading policy and framework to delineate the process of procuring credits, including when and where to do so.
See, Malaysia Aviation Group

When asked, Nik Nazmi says the government is still developing a National Carbon Market Policy (DPKK), which considers the issue of corresponding adjustments and will serve as a guide for interested carbon project developers.

"Selling ITMOs [internationally transferable mitigation outcomes, or authorised carbon credits] outside of Malaysia requires careful consideration to ensure that it would not jeopardise Malaysia's Nationally-Determined Contribution achievements. Thus, analysing the risk of overselling is also an element studied under the DPKK," says the minister.

Another alternative is to allow consumers to purchase carbon offsets should they wish to do so.

"It is important to make customers an integral part of our sustainability journey, so we are encouraging our passengers to take a proactive step towards reducing their carbon footprint by participating in our voluntary passenger carbon offset programme through the Malaysia Airlines website," says See.