Deputy Premier
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Commonwealth Government's Aviation Green Paper – WA Submission

Aviation is an integral part of Western Australia's economic and social wellbeing. I commend the Australian Government's initiative in clearly articulating its policies on desired aviation outcomes regarding efficiency, safety, sustainability and competitiveness of Australia's aviation sector to 2050.

The Western Australian Government has undertaken key initiatives to improve the cost of air travel for regional Western Australians. These initiatives include the successful Regional Airfare Zone Cap, which supports affordable regional community airfares, and the Regional Airports Development Scheme, which helps fund regional public airport infrastructure.

I am pleased to submit the Western Australian Government's response to the Australian Government's Aviation Green Paper and look forward to the release of the White Paper in mid-2024.

Yours sincerely

HON RITA SAFFIOTI MLA
DEPUTY PREMIER
MINISTER FOR TRANSPORT
14 DEC 2023

Att

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WA Government Submission to the Aviation Green Paper

Chapter 2 – Likely future directions out to 2050

What emphasis should the Australian Government place on these trends to help guide the future of the sector? Are there any other trends the Australian Government could add?

While the Western Australia (WA) Government supports the emphasis placed on the current trends across supply, demand and sustainability drivers, emphasis could also be placed on investment attraction and the key role that incentives and other enabling mechanisms play in supporting emerging aviation technologies.

In the global context, incentives are playing a significant role in the business decisions of many multinational corporations, particularly in high-demand industries that support decarbonisation and the clean energy transition.

Chapter 3 – Airlines, airports and passengers – competition, consumer protection and disability access settings

What types of data and analysis should the Australian Government produce to support aviation competition outcomes?

The Australian Government should produce reports that track overall capacity and seat utilisation into Australian airports, and the correlation this has on the price of airfares. By doing so, the Australian Government will be fully informed on the relationship between capacity and price, and how capacity is imperative for healthy competition in the Australian market.

The Australian Government should also monitor airport slot availability at major Australian airports. Airport slots are specific points in time allotted for an aircraft to land or take off at an airport. Where the demand for slots exceeds the available supply, the airport can be considered 'capacity-constrained', which may provide pivotal information to governments regarding infrastructure requirements to sustain aviation growth.

What should the Australian Government take into account in designing the terms of reference for the proposed Productivity Commission Inquiry?

Any further opportunities to increase the competitiveness of airfares would be of benefit to a much wider section of the population, and on this basis the WA Government supports the proposed Productivity Commission Inquiry. It is recommended that the Australian Government consider the following when designing the terms of reference:

- assess the breakdown of passenger types where information is available, such as resident / tourism / government / business – this will help demonstrate the economic role that domestic and international tourism plays in regional communities and how this is hampered by high airfares;
- assess the types of aircraft used for regional aviation and their age – given there are limited options to replace like-for-like – and consider how the services may be able to be offered in larger aircraft, and the implications for security screening at regional airports;
- assess the success of intra-regional and inter-regional services compared to hub and spoke models;

- consider the WA Department of Transport's Regional Airfare Zone Cap for market saturation, value for money, impact on other fares and scope of application (it does not apply for services from remote or regional communities to regional centres);
- sustainability of air services in regional Australia, both in terms of routes and air service providers;
- consider how to design fit-for-purpose, sustainable and cost-effective infrastructure for which the cost may be recouped without unduly impacting regional airfares;
- ascertain the reliability of services in regional communities compared to major airports; and
- identify how many charter air services go into Regular Public Transport airports.

The Productivity Commission should be encouraged to use its 2017 Study Report, *Transitioning Regional Economies*, and specifically its developed single metric Adaptive Capacity tool that measures how a regional community will respond or adapt to any particular disruptive event, to fully appreciate the impacts on regional communities from domestic airfares on routes to and between regional centres.

What improvements can be made to aviation accessibility that are outside the scope of the Disability Standards for Accessible Public Transport?

The Disability Standards for Accessible Public Transport 2002 exempts "small aircraft" from many of the requirements where a "small aircraft" is an "aircraft with less than 30 seats for the carriage of passengers". While it is understandable that this is the case due to the design and size of these aircraft, carriage of disabled persons should be considered consistently across smaller aircraft and communicated well to passengers. Smaller aircraft are predominantly used on lean routes, which in most cases relates to regional air services.

When investigating five regional airlines operating in Western Australia, three specifically state they will not assist passengers in navigating steps to the aircraft, though carers may provide assistance, and there is or may not be an alternative to stairs available. The advance notice period required by airlines to provide any assistance for passengers with disability varies from a minimum of 48 hours' notice to 72 hours' notice.

Understanding that there are variations in aircraft and crewing, a minimum of three days' notice to expect crew support for an airport wheelchair to the aircraft stairs and stowage of a collapsible wheelchair seems unreasonable. Like all passengers, sometimes disabled passengers will need to travel on short notice and should not feel like an imposition when requesting assistance. Review of the communication protocols for support for disabled people, including proclaimed notice periods, should be considered.

What are the specific challenges faced by people with disability wishing to travel by air in regional and remote areas?

In many regional and remote communities, services are provided by piston or turboprop aircraft. The limited aircraft size (particularly space to navigate into and around the cabin) may lead to a lack of dignity when manually assisted by a carer, where this is even possible. Depending on the level of disability, some passengers may not be able to access these aircraft at all. There may be limited infrastructure at the airport to support passengers, depending on the size and remoteness of the airport (for example, at Kalumburu, for passengers there is a toilet and shaded waiting area only).

What measures should be taken to ensure Australian aviation markets operate efficiently, improve competition settings, and deliver optimal consumer outcomes?

The Australian Government should proactively look to enter into Open Skies Agreements with the remainder of our key traffic markets. This promotes growth, allowing airlines to add extra capacity, therefore reducing the average costs of airfares for the consumer.

Are the Aeronautical Pricing Principles fit-for-purpose? How could they be improved?

The WA Government recognises the essential role of major airports as crucial ports for national and international transit and commerce. The timely delivery of new infrastructure at major airports is essential and can have significant impacts on national and state economies if infrastructure projects are not delivered to schedule. The WA Government supports the timely and constructive resolution of disputes between airports and their customers for reliable delivery of essential major airport infrastructure. The delayed delivery of major airport projects is a matter of concern to the WA Government, and rigorous steps by the Australian Government should be available to ensure such scenarios can be avoided.

The Aeronautical Pricing Principles should emphasise the importance of a streamlined process for delivery of approvals and commercial negotiations required for timely delivery of airport infrastructure projects and all processes should work to transparent, agreed, and reasonable timeframes. A pragmatic approach should be taken to resolve protracted commercial negotiation disputes with a clear goal to arrive at equitable outcomes for all parties involved.

Chapter 4 – Regional and remote aviation services

Aviation plays a pivotal role in WA's economic and social development as well as supporting emergency and defence services. This is particularly the case for regional areas in WA given the vast distances between major centres. Regional WA is often dependent on aviation infrastructure to meet the basic access and economic development needs of many remote communities, facilitate tourism and support resource and other emerging industries. Accessibility and affordability of air services for regional communities is a key factor contributing to liveability in regional WA.

The WA Government reiterates its submission on the Terms of Reference for the Aviation White Paper that 'fit for purpose airport infrastructure and access to air services are critical to the liveability of many remote communities across Australia.'

The WA Government supports the development of airport infrastructure to include aircraft instrument approach systems and increased available access to jet fuel (until other sustainable fuels are developed) in regional WA as it applies to support emergency services aviation.

Where should the Australian Government focus its engagement in regional and remote aviation, including helping achieve Closing the Gap outcomes, noting established state, territory and local government responsibilities and programs?

WA is vast, and communities with Regular Public Transport air services are hundreds of kilometres apart. Most of the Regular Public Transport airports in regional WA are operated by local governments, many of which have small ratepayer bases.

This means that local governments are developing and maintaining critical assets that service a broader population than their ratepayers, ensuring inbound and outbound residential access, tourism, business, government services and freight. The criticality of airport infrastructure has led to a level of dependence on state and federal grants for significant infrastructure renewals, unexpected maintenance or changes in security screening infrastructure requirements.

Joint responsibility between commonwealth and state agencies is required to ensure regional and remote aviation infrastructure and services are fit-for-purpose, appropriately funded and well-managed. Collaboration in the form of information-sharing between commonwealth and state agencies and co-ordinated engagement to enable co-funding of regional aviation infrastructure is recommended to support strong and sustainable regional aviation development. The WA Government recommends ongoing collaboration between the Australian and WA Governments to ensure aviation infrastructure at regional airports is fit-for-purpose and consistent with responsible financial management principles. The WA Government is concerned that regional airfares may be significantly and unnecessarily increased due to poor infrastructure investment decisions that result from poorly informed financial decisions. The WA Government has established a Strategic Airport Asset and Financial Management Framework to assist small to medium sized regional airports in planning and managing their assets and financial operations.

The Australian Government should consider establishing and maintaining a minimum infrastructure standard for Aboriginal community airstrips, consistent with existing or previous Civil Aviation Safety Authority aerodrome standards and operational requirements of service providers such as the Royal Flying Doctor Services and Police Air Wing. The establishment of this minimum infrastructure standard will ensure quantifiable metrics exist to guide commonwealth and state investment decisions.

Continued co-contributions from the Australian and WA Government toward the upgrading of, and the ongoing essential maintenance of, key aviation infrastructure in remote communities will support achieving Closing the Gap outcomes. Skilling Aboriginal communities in airport operations, upgrades and maintenance would improve capability and opportunities for future employment. One major remote airstrip in WA (Djarindjin Airport in the Kimberley) is already 100% owned and operated by the local Aboriginal community. Improving airport infrastructure (increasing accessibility for essential services including health services) and skilling Aboriginal community members (for economic participation) would contribute to Closing the Gap outcomes.

The Australian Government should also look to provide funding support to regional airports that may be considered as potential 'divergent' airports. Given the distance and remoteness of several Australian airports, divergent requirements can deter international airlines or require them to operate at lower weight limits to meet divergent flight contingencies, impacting on route profitability. Support for regional airports to upgrade existing infrastructure, making them a more viable option for a diversion could help to address these challenges.

The investment into regional airports will also make it more attractive for potential new international, domestic and intrastate services, unlocking new air services into the region. This will stimulate the local economy through increased visitation and visitor spend.

Traditionally, subsidies for intra-state aviation services have been carried by state and territory governments. Does this remain the best structure?

State and territory governments are best placed to understand which routes should be subsidised and how they should be governed. However, Australian Government support is recommended in the following areas:

- ongoing support of the Australian Government through the Remote Air Services Subsidy Scheme, which is essential to mitigate the significant costs driven by vast distances for remote Aboriginal communities;
- a contribution from the Australian Government where it is necessary to ensure the economic viability and success of certain routes (e.g. routes with lower levels of commercial and business travel); and
- Australian Government support for Northern Australia, considering the unique challenges faced in remaining connected to major capital ports, in particular high operating costs. Airlines and associated operators within Northern Australia are facing significant pressures due to increased operating costs. Resulting business pressures could see detrimental impacts to regional access and airfare affordability.

What opportunities do emerging aviation technologies present for regional and remote Australia?

Emerging aviation technologies have the potential to increase accessibility to regional and remote areas, which can support:

- regional and remote areas to attract investment, with flow-on effects of economic growth, regional development and increased productivity;
- local industries in regional and remote areas to grow and develop, particularly for the tourism industry;
- improved employment opportunities and access to essential services;
- movement of people and freight across cities, regional and remote centres;
- the connection of transport hubs and regional centres, increasing travel options for regional and remote communities; and
- sustainable travel solutions through technologies powered by electricity and hydrogen.

New technologies also provide potential benefits with regards to emergency access to goods and services. Should Advanced Air Mobility be able to be supported in regional locations, these aircraft may open up opportunities for delivery of critical supplies to households or communities stranded due to natural disasters such as bushfires, floods or cyclones.

Despite some inputs for these emerging technologies (such as sustainable aviation fuels (SAF)) being regionally sourced, the labour market may not be present where manufacturing or value-add is being proposed. Standing up an industry without the regional infrastructure or community to support it may lead to FIFO-type arrangements as is the case with the mining industry, which would put additional strain on the aviation sector (and result in more emissions). While FIFO does provide economic benefit, unless the employees or supporting businesses are based locally the 'on-the-ground,' regional benefits from the industry are limited.

Regional and remote airports and airstrips will likely fall behind the transition to new fuels and aircraft types due to limited investment capability, reduced economies of scale, limitations on the supporting infrastructure (such as electricity grids) and the diversity of operations. A small-town Regular Public Transport airstrip may house waterbombers, facilitate Royal Flying Doctor Service transfers, support a small aero club and receive two or three weekly Regular Public Transport air services in a small aircraft currently incompatible with SAF.

Should a target or regulation be set to require a minimum level of service or discontinue certain practices, it is essential that the industry and regional airport operators be engaged and consulted, and a transition period be determined. How to support the transition will also need to be carefully considered, including potential funding sources. Those who live in regional and remote Australia should not be responsible for absorbing significantly higher costs for a standard that their metropolitan counterparts can achieve with nominal additional cost.

What are specific issues experienced by the regional and remote aviation sector in the context of decarbonisation? What elements should the Transport and Infrastructure Net Zero Roadmap and Action Plan include to recognise the specific circumstances of the regional and remote aviation sector?

There is a limited ratepayer base for local-government-managed airstrips in regional WA, meaning infrastructure may lag behind that being developed in major centres, which may in turn reduce the viability of decarbonisation initiatives. The capacity of electricity grids may also prove limited in some regional and remote locations.

Consideration should be given to an appropriate transition or dispensation for long distance, lean regional routes that will be supported by piston or prop aircraft in the medium term and which may struggle to convert to SAF or batteries and be supported by cost-effective on-the-ground infrastructure. Parallels can be drawn with the conversion to electric vehicles in regional areas.

Emergency response air services also need to be considered. For example, the Royal Flying Doctor Service and waterbombing may be operating in unseasonal or difficult conditions and may not be able to wait for an aircraft to recharge a battery before being redeployed.

According to the Green Paper, "approximately 50 per cent of propeller powered flights under 500 km are likely to be flown by electric aircraft by 2050" (p.154). Using the current model whereby the majority of regional towns receive Regular Public Transport flights to or from Perth, only Geraldton, Mount Magnet and Albany are within this range. While more competitive routes can be operated by larger aircraft that may be able to use SAF, there are a number of airports that are not large enough to generate sufficient demand for larger aircraft. Using the above proposed future electric aircraft range, smaller airports in the Kimberley may hypothetically be serviced from the centres of Broome and Kununurra.

Aircraft currently carry enough fuel to divert, but it is unclear how this will be managed with electric aircraft. For Advanced Air Mobility operating across metropolitan or suburban areas, alternative airports, vertiports or landing facilities may always be within range. But in regional and remote locations, passenger-carrying Advanced Air Mobility services may be some distance from an alternative location should an airport become unavailable for any number of reasons.

What are the challenges faced by regional and remote aviation and airports posed by our changing climate?

There are already limitations on passenger numbers when aircraft are departing airports in the Pilbara on days of extremely high temperature. With climate change expected to increase the number of high temperature days, the frequency of this impact will increase and is likely to affect more airports/aircraft. Limiting passenger numbers reduces operational and environmental efficiency. Extreme heat may also affect infrastructure or maintenance works, as occurred in Newman in 2013 where the airport was required to be closed as the runway was too sticky.

Climate change events are likely to continue to impact on land-based supply chains, requiring air support for emergency response (firefighting and evacuation) and provision of critical services and goods. In January 2023, there was significant rainfall leading to inundation of communities around the Fitzroy Valley in the Kimberley region of WA. Air support included transport of emergency services workers to Broome, critical patient transfers and supply drops, and evacuation of residents. As extreme weather events become more frequent, dependence on air services support will continue to increase.

To minimise the future impacts of the physical climate change impacts on regional and remote aviation and airports, it is recommended that the Australian Government support and collaborate with climate change risk assessments for these services and airports and consider what role they can play in supporting the subsequent adaptation actions identified to better manage the priority climate risks identified.

Chapter 5 – Maximising aviation's contribution to net zero

How can Government work with industry to ensure a strong and sustainable aviation sector that supports emissions reduction targets while growing jobs and innovation?

The WA Government supports green initiatives and SAF alternatives for the Aviation Sector, in alignment with its net-zero initiatives.

Governments have a key role in ensuring that strong policy and regulatory frameworks are in place that establish clear emissions reduction guidelines. Government can also explore options to incentivise research and projects that aim to develop and create new industries to produce alternative green fuels/SAF.

The WA Government supports the Australian Government's approach to work with industry to ensure a strong and sustainable aviation sector that supports emissions reduction targets on the path to net zero by 2050.

In international compliance markets, Australian-produced SAF is expected to be a premium product due to its high-sustainability value and low carbon intensity based on initial Life Cycle Analyses. The sustainable development of an Australian SAF industry is to be supported.

The WA Government also supports the establishment of the Australian Jet Zero Council as a key mechanism for high level and strategic cross sector consultation and engagement.

As the SAF industry is a complex industry—comprising many different resources, technologies, products, coproducts, stakeholders and markets with a regulatory and policy environment that sits across state and commonwealth governments—to provide for comprehensive industry engagement and participation, the Jet Zero Council should be supported by an industry and government consultation and engagement plan that enables small, medium and large businesses across the aviation sector and SAF value chain to be engaged, participate in and inform the development of policy, strategies and actions to sustainable SAF market activation and development and supports the creation of jobs and innovation.

The WA Government supports strategies, actions and/or policies that:

- build social licence for SAF;
- build confidence in SAF integrity;
- explore more flexible accounting arrangements to better recognise SAF use;
- create demand through government procurement;
- review fuel excise arrangements;
- create opportunities for industry partnerships;
- develop guidance on land utilisation for SAF feedstock development;
- consider the role and opportunity for mandates, targets or low-carbon fuel subsidies.

Supporting the development of a domestic SAF industry will increase jobs and innovation in the regions. SAF supply chains are immature and co-location of biorefineries with biomass feedstock and access to renewable hydrogen is key to commercialisation. Unlocking industrial land, streamlining approvals and investment in innovative production pathways and regional feedstock aggregation will accelerate SAF production to support emissions reduction targets and grow jobs, particularly in agricultural regions.

High-integrity carbon offsets with strategic co-benefits are aligned with the WA Government's Carbon Farming and Land Restoration Program and Carbon Farming Industry Development Plan. There is an opportunity for carbon offsets to be linked to SAF production through carbon plantings for harvest e.g. short rotation mallee agroforestry.

There is currently strong land use demand to support zero emissions technology development (e.g. wind and solar), carbon offsets and existing industries such as mining and agriculture. It will be important that industry development for SAF fuels addresses the interaction with these competing land use needs.

Government and industry can work together to explore opportunities to support SAF producers by ensuring off-take from their projects at an economically viable price.

Given there are a number of measures that industry and Government could pursue to help achieve net zero by 2050 in aviation, are there specific measures that more emphasis and support should be given to?

In 2019-20 (pre-pandemic period), Qantas and Virgin together contributed approximately 85% of WA's domestic aviation emissions. Both Qantas and Virgin state that jet fuel use accounts for at least 95% and 98% of their overall emissions. As such, SAF, as the direct substitute to the conversional jet fuel, should be given more emphasis and support.

Emphasis and support could be given to measures that enable the development of resilient and technologically advanced SAF production pathways, including:

- financial incentives to support research and attract investment in growing feedstock for the development of SAF;
- initiatives to streamline and simplify accessibility to finance or funding;
- mechanisms to regulate and certify SAF quality and credentials; and
- investments to support technological readiness in the production of SAF.

What should be included in relation to aviation in the Australian Government's Transport and Infrastructure Net Zero Roadmap and Action Plan (including for sectors such as GA and airports)?

The Transport and Infrastructure Net Zero Roadmap and Action Plan could explore options to ensure that there is adequate market disclosure and reporting on carbon emissions.

One way to achieve this could be an annual reporting obligation. However, careful consideration would need to be given to the nature, scope, and application of any such obligation.

Most SAF pathways will co-produce other biofuel products such as renewable diesel. Renewable diesel (or hydrotreated vegetable oil) has the potential to decarbonise road transport. As such, these co-products should be included in the Net Zero Roadmap and Action Plan.

The WA Government is currently supporting the development of a Renewable Diesel Project in Western Australia through the State's Clean Energy Future Fund.

How can the Australian Government ensure all emitters in the aviation sector play a role in meeting Australia's emissions reduction targets?

The emissions of Australia's largest airlines have been managed through the Safeguard Mechanism. Under the reformed Safeguard Mechanism, the baselines (emission limits) of all covered Safeguard facilities are required to reduce by 4.9% per annum to 2030. As of 2021-22, the Safeguard Mechanism applied to three airlines operating in WA: Qantas, Virgin and Alliance. Alliance's emission is on the edge of SM threshold of 100,000 tonnes. It is most likely Alliance will be out of the Safeguard Mechanism scheme in 2024-25 and thus may not be impacted by the reformed Safeguard Mechanism.

Alliance and other airlines currently contribute almost 20% of the WA's domestic aviation emissions. As the advanced technologies such as electric and hydrogen aircraft will not be technologically or commercially viable until the mid to late 2030s, a SAF blending mandate should be introduced to ensure all emitters in the aviation sector contribute to the emission reduction targets. Differentiation of the blending target between large commercial aircraft fleets and small regional fleets should be considered from an equity perspective.

The Australian Government could explore options to transition ground facilities and vehicle fleets at airports to alternatives that use renewable energy.

What are the benefits and risks associated with updating the National Greenhouse and Energy Reporting (NGER) scheme and/or other policy mechanisms to enable unique claims on sustainable aviation fuel (SAF) sourced through common infrastructure? How can risks be managed?

The benefit of updating the NGER scheme to enable unique claims on SAF sourced through common infrastructure is early adoption of SAF and demonstration of the technology. The risk of not enabling unique claims through common infrastructure is delayed uptake by Safeguard and NGER scheme obligated facilities/entities.

The Commonwealth's Guarantee of Origin ("GO") scheme currently in development for hydrogen and other products produced in Australia provides a potential framework for tracking and certifying SAF fuels.

Potential risks with this approach include:

- uncertainty, including uncertainty about how SAF are produced, the type of feedstock used, and the 'whole of process' emissions;
- the extent of 'net carbon' added to the atmosphere, as a result of using a particular feedstock and process, must be verifiable and documented; and
- it will be important to distinguish between the nature of feedstock.

What types of arrangements are necessary to support industry confidence in the quality standards and sustainability certification of SAF?

Options to support industry confidence in the quality standards and sustainability certification of SAF could include:

- the creation of a statutory body with responsibilities designed to assure the quality standards of SAF and oversee green certification;
- quality and sustainability certification, similar to those used for conventional fuels;
- suitable certification of imported SAF to ensure it is from sustainable sources i.e., palm oil free and waste biomass by-products rather than virgin sources; and
- product certification for batches allowing for full traceability from land to fuel tank similar to the FSC/PEFC certification for timber products.

A sustainability certification for domestic SAF would enable price differentiation in the market and provide integrity to SAF sustainability and local content claims. This will also increase consumer and public confidence in social licence of SAF products.

Additionally, local production of SAF will ensure sustainability of supply by having direct control over ensuring it does not compete with land for food, deforestation, and emissions from complex global supply chains.

Should policy and regulatory settings be refined to support development of domestic SAF production capability and industry take-up of SAF?

Domestic SAF production capability is intrinsically linked to existing petroleum refining/production capabilities and existing markets for co-products like renewable diesel. Policy and regulatory settings need to consider the entire value chain, but most significantly scope needs to include and consider renewable diesel as a pathway to SAF and an essential enabler to the commerciality of SAF.

Australia's canola industry is potential enabler for promoting the SAF industry. The country produced 6.8 million tonnes of canola last year, with WA accounting for 43% of national production. Due to the lack of a local commercial-scale SAF industry, Australia is currently exporting canola to other countries. Belgium, Germany and the Netherlands are the biggest markets for Australian canola, with a significant proportion going to SAF production in the European Union. To promote domestic industry growth and secure SAF supply, a policy should be implemented that requires a significant share of Australia's canola supply to be used domestically. Similar to the gas industry, where a proportion of supply is reserved for domestic consumption, this policy would prioritise the needs for Australian SAF productions over foreign export.

Agriculture, fishing and forestry is a significant regional industry that continues to evolve and grow and generally utilises residential workforces. Future opportunities in feedstock or manufacturing of biofuels and green hydrogen to support a more sustainable aviation industry would further support regional development, particularly where the value-adding can be located within regional areas, condensing the supply chain and improving future employment opportunities and regional capability.

Policy options to incentivise airlines to switch to SAF could be particularly useful and could also address issues associated with the SAF price differential. Differentiation of the blending target between large commercial aircraft fleets and small regional fleets should be considered from an equity perspective. Within the context of international travel, policy settings must balance the need to ensure a level playing field so that Australian airlines are not disadvantaged.

What are the current and future challenges in developing an Australian SAF production industry, including challenges associated with growing, refining and consuming feedstocks?

Current challenges in developing a SAF industry are associated with:

- slow environmental approvals processes related to novelty of production processes and plant location in agricultural areas – projects are being treated as waste-to-energy which have significant emissions;
- immature or non-existent biomass supply chains for agricultural residues;
- competition for biomass and Australian Government/state policies prioritising investment in compost production;
- availability and location of feedstock, which is often in limited supply and geographically far from refineries and lack of industrial land co-located with biomass resources e.g. in agricultural regions;
- divestment in oil refining/processing infrastructure and capabilities;
- costs and lack of supply, and access to, sustainably produced synthetic and biofuels;
- lack of economic renewable hydrogen supply for hydrotreatment process;

- limited workforce, social infrastructure and housing in agricultural regions;
- a lack of education around the improved sustainability and technical capabilities of second-generation biofuels e.g. food vs fuel debate and other social licence issues, Original Equipment Manufacturer issues, Fuel Quality Standards issues for co-products such as renewable diesel;
- limited investments in research and development to explore the refining capacity for feedstock;
- competition for land with existing and emerging industries;
- sunk capital in existing assets and asset life challenges in the commercial business case for transitioning fleets in the near-term;
- limited access to transport infrastructure (ports, road, and rail) that facilitates the receipt and distribution of high volumes of oversized materials and infrastructure requirements/needs for projects; and
- technological readiness and commercial-scale availability of low and zero-emissions heavy haulage.

Future challenges include:

- climate change impacts on agricultural productivity
- competition for land with agriculture, plantation forestry, large-scale renewables (hydrogen) and carbon farming
- competition for finite biomass resources and with other biofuels e.g. bio-methanol for shipping.

How can policy and regulatory settings support research and development and subsequent investment in emerging low and zero emission technologies and related infrastructure?

To support research and develop and investment in emerging technologies, the Australian Government could explore policy and regulatory settings to support a broad range of emerging opportunities and technologies. This could include:

- dedicated support for pilots and projects through targeted grant programs;
- incentives to accelerate the update of readily deployable abatement solutions such as accelerated depreciations, tax incentives, rebates, grants, subsidies or other financial arrangements; and
- targeted support for the development and commercialisation of abatement technologies, particularly for hard-to-abate sectors.

Hydrogen-powered aviation is not forecasted to be available until 2040. Policy settings could be leveraged to encourage (with cross-subsidy) the use of SAF that can be produced from feedstock treated with renewable energy sources, such as hydrogen. To support this, certificate schemes could be established to capture the use of renewable power in the SAF production process.

In instances where there are challenges in accessing hydrogen (e.g. supply chains and proximity), targeted support for synthetic fuels could be considered given that they do not rely on natural or agricultural sources for production and will not generate demand for renewable hydrogen.

First movers and/or fast followers are usually essential in initiating the transition for advance technologies. However, being first movers can be costly and uncertain. Similar to UK's Aerospace Technology Institute Programme, a strategy to prioritise zero emission aircraft technologies and a research and development funding packages can be introduced to support first movers and/or fast followers for accelerating technology advancement.

Ideally an electric aviation strategy should be developed over the next two years. This should have a frequent review element to allow for updates in response to evolving battery technologies and their applications for aviation. The strategy could include the installation and trialling of charging infrastructure along selected routes to demonstrate evolving technologies. An implementation strategy that considers assistance measures for broader charging infrastructure rollout should also be considered over this period given the implications for electricity networks, particularly in remote areas.

Australian businesses are already investing in aviation charging infrastructure and electric aircraft design, providing examples of near-term projects that could be considered for scaling.

What information and guidance is needed to support regional aviation's net zero transition in the context of these emerging technologies?

To support regional aviation's net zero transition, there needs to be greater awareness about SAF and their role as a near-to-medium term option to facilitate the transition.

In addition to this, consideration should be given to the establishment of a governance mechanism that could be leveraged as a platform to share information, provide guidance and discuss key considerations.

Chapter 6 – Airport development planning processes and consultation mechanisms

The WA Government supports airspace planning and the creation of flight paths through controlled airspace to enable emergency services aircraft to transition through this airspace more quickly (instead of being directed around), thereby decreasing emergency services aircraft's response times.

How could the Australian Noise Exposure Forecast, and use of the ANEF in Government planning processes, be improved?

The WA Government currently does not support Guideline A – Managing Aircraft Noise while it contains a proposed alternative noise metric ('Number Above' noise metric/N contours) to ANEF and has requested that this metric be subjected to thorough research and documentation. While it is recognised that there is a need to adequately portray noise and its impact to the community, for the purposes of planning decisions, the continued use of the ANEF contours is supported.

Do these processes provide sufficient opportunity for impacts on the community to be identified and taken into account? How can they be improved?

Planning for the impacts of aircraft noise should be considered at the earliest possible stage of planning and identified in the relevant planning instruments. This will ensure the protection of any future airports (or future runways/flight paths) from encroaching incompatible development, particularly residential housing.

What can be done to proactively mitigate noise impacts by better informing residents and land-use planners?

The preparation of a 'Community Engagement Standard' by Airservices Australia, including proposed different 'levels' of engagement, commensurate with the level of impact, is supported. It is considered that good community engagement is critical, with easy-to-understand explanations and collaboration at the very earliest stages. The Community Engagement Standard should consider this.

What can be done to facilitate increased adoption and implementation of the National Airports Safeguarding Framework principles for land planning to optimise land-use activity and reduce community impacts?

The Green Paper focuses on noise considerations with respect to the range of issues that the National Airports Safeguarding Framework addressed. There is not a strong focus on other National Airports Safeguarding Framework Guidelines. Consideration could be given to other potential impacts to/from communities including but not limited to protected airspace, public safety areas and other matters as reflected within the National Airports Safeguarding Framework, such as where these may have an impact on existing or planned development, and development rights in accordance with the current planning framework.

How could the Australian Government improve regulation to facilitate efficient planning and development while preventing environmental harm and protecting airports for aviation use?

Concerns have previously been raised by the WA Government regarding the level of commercial/retail development proposed and being undertaken on the Perth Airport estate. The extent and type of non-aviation development planned for airports should aim to minimise the potential adverse impacts for surrounding centres and businesses; consider the cumulative impact of all airport-related commercial and retail development; and have regard to the relevant local and state planning framework. Of key concern has been the potential impact new retail/commercial land uses on the airport estate can have on the viability of surrounding retail/commercial centres (outside the airport estate) and the flow-on equitable access and availability of services in those centres to the surrounding communities.

For completeness, the WA Government supports retail/commercial development within the airport estate that is of a scale/size to support surrounding industrial/logistics and airport services and related employees.

Airport planning should ensure that opportunities for complementary land uses are sufficiently considered as early as possible in the planning process, including engagement as early as possible with state and local planning authorities. This includes, for example, efficient inter-modal passenger and freight transport and relevant reservations in region planning schemes to protect/secure alignments for future use.

Do current master planning processes adequately account for climate risks and if not, how could they be improved?

Comments have previously been provided through master plans/major development plans regarding the benefits of undertaking a strategic environmental assessment to determine cumulative impacts to environmental values. Often airport master plans/major development plans propose offsets for environmental impacts, but these may not always be appropriate given the localised nature of some environmental values.

Chapter 7 – General Aviation

General aviation permeates all aspects of regional life. General aviation supports Western Australia's agricultural sector, essential services and goods deliveries to remote communities, pilot training through small aero schools, medical evacuations and transfers by the Royal Flying Doctor Service, waterbombing operations for firefighting, scenic flights in both fixed wing aircraft and helicopters, surveillance and more.

This is an incredibly diverse industry, and technology is changing quickly in introducing new types of unmanned aircraft, including drones. Drones, unmanned aircraft and other Advanced Air Mobility aircraft can assist in some of these existing general aviation functions, but many will continue to operate in existing and aging aircraft that are not compatible with SAF and that cannot be replaced with comparable new models. How we manage this industry's transition without a reduction in service level or significant additional cost for these regional and remote communities is a high priority.

Chapter 8 – Fit-for-purpose agencies and regulations

Do you have concerns with current arrangements of roles and responsibilities within the Australian Government? Are there opportunities to improve these arrangements?

The stakeholder feedback suggesting that industry would benefit from clarification and better coordination of the roles and responsibilities of government agencies on cross-cutting issues is supported. Given the complexity relating to airport planning, development and regulation, it can be difficult for stakeholders at times to determine the relevant agencies to contact in relation to issues/processes.

Do you have any suggestions to improve current reform processes?

In relation to the discussion regarding data-sharing initiatives, the coordination of relevant data such as Australian Noise Exposure Forecast contour plans, operational airspace (OLS/PANS-OPS) mapping and other documents relevant to planning decisions in a central accessible location could be beneficial to facilitate access of these documents by relevant decision-making agencies.

Do you support the Australian Government introducing enhanced security obligations?

The WA Department of Fire and Emergency Services supports an 'all hazards' regulator approach to support security legislation towards aviation systems.

Do you have any comments about current security screening arrangements?

The WA Government notes the essential role of practical and effective security arrangements for the safety of aviation operations. Increased aviation security requirements for regional airports, depending on the passenger throughput (which sometimes drop below security thresholds), impose increased financial impacts on such airports in the form of initial capital costs and increased operational expenses. In regional and remote locations, the airport operator's ability to staff screening equipment can be difficult, as often staff will need to be called in for one departure and paid a minimum fee. Screening costs need to be set to not only cover operational costs but also recoup the cost of infrastructure and maintenance.

The financial support for installation of security screening infrastructure from both the Australian Government and WA Government at many regional airports is recognised, but ongoing costs can still be burdensome where there are limited services operating at the airport.

The Productivity Commission noted in its report on the Economic Regulation of Airports (2019) that many regional airports do not have sufficient demand to cover the costs of running the airport. The WA Government is concerned these financial burdens will be passed onto consumers in the form of rapidly and significantly increased airfare prices. This would be detrimental to the work done by the WA Government and the WA aviation industry through programs such as the Regional Aviation Zone Caps, which seek to improve community outcomes through affordable regional airfares.

The WA Government recommends the Australian Government take into consideration the financial burden on regional airports for meeting increased security infrastructure and operational requirements. Security thresholds applied to airports should be regularly revised to ensure these thresholds remain appropriate and consistent with developments in the aviation industry and airline fleet composition. The Australian Government is urged to ensure thorough consultation is undertaken with regional airports and relevant stakeholders prior to the implementation of new security thresholds. Such measures will provide transparent criteria for assessing and setting security thresholds and modelled economic impacts of changed security requirements.

Chapter 9 – Emerging aviation technologies

How could the Australian Government create an environment that fosters private investment in emerging aviation technologies?

The Australian Government can support enabling activities that can alleviate common barriers to growth, enhance Australia's value proposition as a desirable investment destination, and attract private sector investment in emerging aviation technologies.

This includes investments and support for:

- investment attraction mechanisms, including financial and non-financial options such grants, subsidies, land-based incentives, targeted strategies and plans and agile investment and trade networks that foster and support relationships with investors across key markets; and
- a skilled and productive workforce to support industry growth and enable the transferability of labour and skills to meet the needs of emerging industries.

The WA Government supports the Australian Government continuing to fund programmes such as the 'Emerging Aviation Technology Partnerships Program,' which facilitates Government-industry joint partnerships. Programmes such as this enable trials, support the development of infrastructure and promote further advancement in emerging aviation technologies. Further funding programmes in emerging aviation technologies can increase confidence, collaboration and secure investment in these technologies which are at early stage of development.

The WA Government supports the restriction of drone use (other than by state governments) over sensitive areas, such as government buildings, emergency incident scenes, hospitals with helicopter landing sites and airports. It also supports the development of drone detection and drone shield technology, as well as the associate rules and legislation to protect the above-mentioned areas and other critical infrastructure.

What skills are needed for the emerging aviation technology sector workforce?

There are a wide range of emerging skills needs for the aviation technology sector workforce as it transitions to net zero. New skills are needed in the safe use of hydrogen and biofuels, automation and industry 4.0, electrification of vehicles including helicopters and aeroplanes, future batteries, and drones.

Current skills shortages are impacting the aviation sector, particularly in the regions. This has an impact on the number of workers available for upskilling for the transition to net zero. Licensed occupations within the aviation workforce such as pilots, aircraft maintenance engineers and aerodrome reporting officers will need new regulations and licencing as the introduction of new technologies impacts their roles.

The shortage of electricians and electrical engineers across WA and the nation is impacting current projects and the transition to net zero. This shortage impacts multiple industries as sectors compete for workers, particularly across electrification and hydrogen fuel. Digital capability will need to be improved across the whole workforce, from autopilot increases to automation of airports. The workforce will need transition, reskilling and retraining in preparation for future technologies.

More detailed information is provided below.

<u>Hydrogen and other new fuels</u>

- Shortages of electricians and electrical engineers may constrain development of hydrogen.
- First responders at airports will need training and upskilling to manage emergency situations involving new fuels including hydrogen and biofuels.
- The Western Australian Renewable Hydrogen Strategy sets out the strategic areas of focus for the development of the hydrogen industry.
- Reliance on hydrogen to power the aviation industry will require substantial improvements to hydrogen production transport and capacity particularly in regional Western Australia. This may also be the case for biofuels.

<u>Electric vehicles</u>

- Aircraft maintenance engineers will require new skills in electrical propulsion for electric planes and helicopter maintenance.
- Potential new skills for engineers could include managing digital interfaces, maintaining electrical, hydrogen and other renewable powered systems, and maintenance of automated systems.
- The national Future Battery Industries Cooperative Research Centre was established in Perth in 2019 to provide industry-led research capability to grow Australia's competitiveness and contribution in the global battery industries value chain. About 50 industry participants, eight universities, the CSIRO and Australian and State Governments will collaborate over the next six years to support industry expansion and growth. South Metropolitan TAFE has been engaged as an associate and education and training partner of the Research Centre to lead the development of strategies to address current and future vocational skills gaps for the Australian future battery industry. This initiative provides South Metropolitan TAFE with the opportunity for early evaluation of the skills needs of the future battery industry nationally including electric vehicle repair and maintenance (used within the airports).

- New skills will be needed in the conversion of conventionally powered aircraft into hybrid-electric power.
- FlyOnE, a Perth based company, developed Australia's first electric aviation charge node network in 2022, and is currently developing an Australian-built long-range four-seat electric aircraft that allows for the establishment of electric air-taxi services.

Industry 4.0 and automation of airports

- Airport automation impacts the roles for baggage handling and border security. The introduction of automation for border security with UV screening and biometric scanning may require upskilling of current baggage workers and new skills around managing automation.
- Cyber security skills become essential once automation is introduced.
- Industry 4.0 technologies, such as remotely piloted or autonomous systems, as well as innovations that apply machine learning, cloud adoption and rapid manufacture, may be needed for airport automation.
- New skills may be required for the construction and maintenance of energy hubs at airports.

Remotely piloted aircraft systems/Drones/Advanced Air Mobility

- Remotely piloted aircraft systems are a large growth area as drones can reach remote areas easily. They are used widely, from mustering and crop management, environmental monitoring, vaccine delivery, filming and data capture, to first responders for surf lifesaving, bushfires, police, and military operations. These systems will require their own maintenance, and this is a potential growth area for aircraft maintenance engineers.
- Research and stakeholder consultations indicated further work is needed to understand and plan for training in the use and maintenance of drones.
- Drone shield skills will be required for defence and airport exclusion zones. New skills will be needed in the development, operation, and security of these shields.
- Drone usage is limited by payload sizes but as technology advances this may change how and when drones are used.
- Agribusiness use of agricultural drones allows monitoring of crop and livestock conditions, safely watches for potential issues, and helps optimise field management.

Unmanned Aerial Vehicles (UAVs)

- Orbital UAV, based in Perth, is involved in advanced manufacturing of UAVs for US defence.
- New Vertiport designs for air taxis are under consideration. This will need to be monitored to determine its impact on training and skills development as advances in this area continue to be brought into line with regulations, policies, and procedures.
- Leading WA-based aviation and tourism businesses, Aviair and HeliSpirit, in 2022 announced their partnership with Eve Air Mobility, an Embraer company, which will introduce a fleet of up to 50 new zero-emission electric vertical take-off and landing aircraft (eVTOL) with flights commencing as early as 2026. Aviair and HeliSpirit carry more than 70,000 guests each year, and being able to provide an emission-free, low-noise solution for both tourism and business travel is an important step forward toward the company's net-zero emission goal.

- The availability of an appropriately skilled workforce is a key enabler to develop support the net zero economy in WA. A lack of certainty in projects going ahead (and skill requirements) is a barrier to training investment (noting it takes 3-4 years lead time for VET, university graduates).
- Supporting investment in research, manufacturing, and development of clean energy technology within the aviation sector will enable businesses to commit to the adoption of new clean energy and technology.
- The training system will need to be flexible and responsive to handle changes as the sector evolves. This will require both industry and government to have a role in identifying potential skills gaps and improving aviation skills pathways.

How can the Australian Government best work with states and territories to foster a supportive environment for investment in manufacturing of these technologies?

The Australian Government can work with state and territory governments to identify the outcomes that are required and agree on a combined program of grants, funding and incentives to encourage manufacturing of these technologies. These programs can be promoted in-market in key international markets through the investment and trade networks of each state and territory and the Australian Government.

Chapter 10 – Future industry workforce

Past consultations by the Department of Training and Workforce Development (DTWD) reiterated many of the findings of the 2018 Expert Panel on Aviation Skills and Training Report and the recommendations to government, including interaction with CASA and the impact of Australia's aviation regulations on the sustainability of the industry; consideration of where government policy has impacted on the industry with unintended consequences; and opportunities for growing the aviation training export market.

Throughout the consultation process, there was a strong message from industry of the importance of a joined-up approach to addressing the key issues by all levels of government, including stronger partnerships between the aviation industry, major training providers and government.

According to the 2021 census the WA aviation workforce has around 2,800 workers, 11% of the national aviation workforce, in line with the State's share of the national population. This is a considerable decrease from the 4,500 employed at the time of the 2016 census. While COVID-19 had a significant negative impact on the aviation sector workforce, recent labour force data for pilots and aircraft maintenance engineers shows an increase in their employment from 2021.

There have been several challenges for regional aviation operations due to the size of their operations and the economic base of their regional area. There has been a lack of critical mass of staff to replace staff on leave or backfill when staff change jobs. Further, staff need to have a wide range of skills that go beyond what is the normal job description, which is a challenge for training. Large and small airports operating in regional WA, especially those in the northwest, were experiencing challenges due to the ability to retain staff following expensive training. Regional airports have a very transient workforce, with some airports experiencing 100% attrition annually. Regional workforces were also constrained by housing shortages and an extreme shortage of childcare places. Additionally, regional aviation employers were finding their employee wage levels challenging as they were competing with a highly visible mining and resources workforce.

How should governments and industry prepare Australian workers for the new skills required for the technological transition and net zero fuels?

The WA Government's Collie Just Transition program is an example of an effective joint Government and industry program to support workers in carbon-intensive industries transition into new roles. Based on an internationally renowned framework, the initiative has directed investment in new projects and industries to the town to create new high quality blue-collar jobs. Green manufacturing and clean energy are targeted as priority areas for investment. The recently completed Collie Resource Recovery Centre project is an example of a joint State and Australian Government investment. The plant uses technology developed in WA at Curtin University and will convert household rubbish and biomass waste into commercially viable products with applications in construction, carbon sequestration, fuel, manufacturing, and horticulture. It will create up to 12 local full-time jobs in Collie.

Support has also been provided to help workers reskill and identify new career opportunities by opening a new Jobs and Skills Centre in Collie. Jobs and Skills Centres work with both jobseekers (providing free training and employment advice, skills assessments, and training transition plans) and local businesses (providing training needs plans, skills gap analyses, and recruitment assistance).

To further support worker transition, there will also be an onsite facility in Collie which will provide a new fully equipped training site to support the delivery of a range of civil, construction and mobile plant related tickets and qualifications. Also available is the Collie Futures Curriculum Fund which is designed to engage curriculum writers to develop industry specific training curriculum to meet emerging industry and workforce skill needs.

Governments and industry can support workers to upskill in new technologies, provide access to short courses and micro credentials, and offer skill sets in safety for new fuels. TAFE centres of excellence could provide avenues for workers to reskill and upskill in clean energy fuels and electrification.

The Transport and Infrastructure Net Zero Roadmap will coordinate future emissions reduction efforts across the transport sector. This will aim to support investment decisions in the decarbonisation of assets and fleets.

Can alignment of training with regulatory and licensing requirements be improved?

Improvements to alignment of regulatory and licencing requirements was previously highlighted in the Aviation Training Strategy Discussion Paper (2020). Concerns were raised about the lack of alignment of training programs with regulatory changes and industry training practice. It is understood some improvements to this alignment have been achieved in aircraft maintenance engineering as CASA established a technical working group and it is progressing.

The introduction of new technologies and transition to net zero is likely to have an ongoing impact on the alignment of training with regulatory and licencing requirements. Previous regulatory reforms impacted the aviation industry with increased timeframes, higher costs and at times overly burdensome audits. This is an area that will require ongoing improvement if the transition to net zero is to occur in a timely manner.

How can government policy enable industry to support the net zero economy and the future skills, training, and workforce needs that entails (including future fuels)?

Government policy can enable industry to support the net zero economy and the future, skills, training, and workforce needs, through partnership with universities and TAFEs to deliver education and training to develop the clean energy workforce. Working with the skills system to ensure targeted investment and build capabilities to deliver training outcomes that meet industry expectations.

Government and industry could also consider a national workforce development plan which includes consideration of the establishment of a comprehensive training school(s) in Australia, which provides an industry wide career pathway program from initial training through to transitioning to major airlines. It should have input and involvement from state and territory governments, and the wide sharing of relevant workforce and training data.

Government can work with industry to prepare their workforces to adopt innovative technologies and delivery new business outcomes, this may include the need to upskill/reskill workers. It may also involve reprioritising end use sectors receiving research and development funding, and support research and development in green commodities research including future fuels.

CSIRO reports considerable work is being done exploring bio-chemical and thermochemical pre-processing routes through technologies like advanced fermentation, pyrolysis and hydrothermal liquefaction or carbonisation to support SAF. Existing workers may need upskilling and reskilling workers to safely handle and manage these new fuels.

With a large percentage of clean energy jobs expected to be based in regional areas, strategies also need to be investigated to attract, recruit, and retain workers regionally and overcome the extra barriers associated with regional workforce development. Previous programs in WA have been successfully used to recruit and retain regional workers, such as Horizon Power's Remote Communities Utility Worker Apprenticeships - targets people in remote Aboriginal communities, giving them the skills to maintain electrical networks while living and working in their communities. Horizon Power provided support to these apprentices with skilled and experienced supervisors, as well as Horizon Power's internal Aboriginal engagement team.

The WA Government has previously implemented policies that support TAFE college lecturers to undertake placements with industry relevant to their teaching area, to allow them to upskill, maintain familiarity with current industry standards, and increase their awareness of the skills that industry currently requires.

It has also committed funds towards attraction and retention incentives for regional TAFE lecturers, in the form of $15,000 payments in the Pilbara and Kimberley and $10,000 in Kalgoorlie, with half paid up front and the remainder after 12 months of employment.

There is a high cost for regional aerodromes associated with sourcing and accessing trainers, given the low number of trainees who are required to complete this training and/or refresher courses for aerodrome reporting officers. Some regional aerodromes are collaborating to share costs of the training by sending their employees together to attend the same training session. However, this is not always viable for all regional aerodromes the distance between regional/local government areas. Due to the critical shortage of workers, transporting aerodrome reporting officers to the metropolitan area is also no longer viable, as there are no other workers to replace them while on leave as they attend the training.

Smaller airports in regional WA may need extra support to transition to clean energy solutions. The large distances in WA could impact the uptake of electric and hydrogen fuel alternatives as reskilling and upskilling current workers is already a challenge for these airports.

Government policy needs to support the supply of current workers and enable capacity growth to respond to high demand in a constrained labour market. This will support regular public transport and charter operations.

Partnerships and industry working groups are needed to create better links with industry and registered training organisations. This would assist registered training organisations and TAFEs to foster more and varied opportunities for staff to return to industry to maintain their currency. In addition, it would assist RTOs and TAFEs to ensure they are aware of industry issues, challenges, and any barriers to training, particularly for those in regional and remote areas.

Would an analysis of future skills and workforce needs help position the aviation industry to pre-emptively respond to emerging needs?

Analysis of future skills and workforce needs is strongly encouraged as it could help the aviation industry respond pre-emptively to new and emerging skill needs and mitigate future skill shortages.

Gaining detailed information of the relevant skills needed and numbers of workers, would also allow the education and training sectors to respond and prepare students for future employment opportunities. This is essential given the lead times can vary from short upskilling micro credentials to new full-length courses.

DTWD works closely with industry to anticipate skills and workforce needs for existing and emerging sectors to support the State's economic diversification agenda. DTWD's annual WA Jobs, Education and Training Survey is deployed to regional and industry stakeholders to inform the development of policy and programs, including industry workforce development plans, the State Priority Occupation List and State Nominated Migration Program occupation lists each year. Part of the industry information is provided through WA's network of Industry Training Councils. Councils regularly consult with industry, and employers, peak bodies and unions are represented on Council boards of management.

DTWD research and stakeholder feedback indicated a focus at both the state and national levels will be imperative to addressing current skill shortages and emerging skill needs, including stronger partnerships between the aviation industry, major training providers and Government. This should include the establishment of industry wide career pathway programs from entry level through to employment with the major airlines.

This stakeholder feedback also highlights the need for improved data to inform aviation training. This needs a joint approach between the aviation industry, commonwealth and state governments and training providers.

There are major gaps in current data sources that complicate the measurement of the clean energy workforce without significant additional modelling. Engaging with the clean energy and aviation industries in consultation and surveys will be important to develop a baseline understanding of the clean energy workforce and inform future skills needs.

Existing data sources do not capture the many emerging occupations and industries within the clean energy workforce. To understand the varying skills industry requires, novel "big data" sources can be leveraged to provide insights into demand for these occupations and industries until they reach a sufficient scale to be added to ANZSCO and ANZSIC classifications.

Compliance and registration timeframes will also need to be considered if the aviation industry is to respond quickly to emerging technologies. Skills needed to review registration requirements and safety for emerging technology will also be important.

There may be increased competition for skilled workers as many clean energy jobs cut across multiple sectors and industries. Reaching net zero by 2050 will require substantial investment across sectors. Change is likely required across manufacturing, maintenance, operation, and fuelling workforces. Regional workforces may struggle to implement new fuels and technologies. Currently accessing training is difficult when there is not staff available to fill in. This is going to be an ongoing challenge for regional airports as they transition to net zero.

While most aviation industry roles (mechanics, engineers, pilots) are based in major centres, there should be some thought given to how the future industry workforce may be able to be decentralised and encourage employment at regional hubs as well, perhaps for the "spoke" components of a service in smaller, shorter-distance Advanced Air Mobility.

How can industry and Government help industry to attract a more diverse workforce, and increase the number of women and young employees who pursue aviation careers?

Industry and government can collaborate on career promotion material in schools, the tertiary sector and within the community to promote the various career opportunities within the aviation sector. Strategies targeting diverse cohorts, such as First Nations and culturally and linguistically diverse backgrounds would be strongly encouraged. Specific targeted strategies to raise the female participation would also be strongly encouraged.

Addressing the barriers to entry faced by many cohorts would also be strongly recommended. This may be costs associated with training and licensing, the development of pathways to support literacy and numeracy or overcoming culture barriers preventing diverse workforce from remaining in industry.

To boost the number of trained pilots, flying instructors and aircraft maintenance engineers and address the issues of cost, a partnership approach between the Australian Government and industry be instituted. For example, the Australian Government and Industry could establish a scholarship scheme to cover the additional costs of achieving accreditation as a flying instructor.

Young people training to be a pilot are faced with considerable costs. Increasing fuel costs are having a significant impact on the already high cost involved with gaining enough flying hours for a pilot's licence. A fuel subsidy program for pilot training could improve the uptake of this training for young people.

Stakeholder feedback suggested making improvements to training pathways to support surge activity without compromising safety, compliance, and quality. Stakeholders also raised the importance of workforce planning capability to support growth and optimise resources.

WA's Year 9 Career Taster Program is an example of a program currently being utilised to raise the profile of careers in STEM and energy specifically to school students. The program is designed to connect school students with hands-on, industry led activities like classroom visits and excursions to inform their later education and career choices. Expansion of this program to Year 10 students may assist students consider different fields of study and emerging occupations.

Licensed aircraft maintenance engineers are an ageing workforce with an average age over 50 years. Many left the industry during COVID-19 and did not return, taking with them years of industry experience and knowledge. The strong industry demand for licensed aircraft maintenance engineers can make it difficult to train new entrants. Supporting new aircraft maintenance engineer entrants and their progress to become licensed is essential to the industry.

CASA is offering a scholarship for aircraft maintenance engineers to help them achieve their Civil Aviation Safety Regulation Part 66 engineer licence. This enables them to move from an aircraft maintenance engineer to a licenced aircraft maintenance engineer. Consideration could be given to expanding this scholarship program to more than three $5,000 scholarships a year. More than 90 applications were submitted in 2023 and the standard of applications exceeded the evaluation panel's expectations.

While female participation in aviation overall is high compared to other industries, there is low participation in the key licenced occupations of pilots, flying instructors and licensed aircraft maintenance engineers.

Discrimination, poor workplace culture and harassment all impact the number of women commencing and continuing in the aviation industry. Cultural change is an important driver to improving conditions for female workers.

Pilots and aircraft maintenance engineers are all affected by long and unsociable work hours. For workers with families, finding childcare for non-standard work hours is extremely difficult. Regional childcare places are also very hard to find. Flexible work arrangements could help retain women in these roles.

Aircraft maintenance engineer licences are perpetual, but to keep licences current, aircraft maintenance engineers are required to have six months experience in the field during the previous 24 months. This licence requirement may impact how women in this field can manage family and work, particularly if they need to take time off for children.

As a comparison, teacher registration includes a non-practising registration to allow breaks in employment and this occurs after five years of not actively teaching. Young female entrants to the aircraft maintenance engineer occupation may consider whether becoming a licenced aircraft maintenance engineer would suit their longer-term plans.

One of the WA Government's priorities is to support under-represented cohorts participate in the workforce including a $3 million package to create new TAFE scholarships for women in traditionally male-dominated trades. Other initiatives include a Women in Engineering program with a focus on the defence industry and employer incentives and scholarships for First Nations people or under-represented cohorts.

To assist First Nations Australians into training and employment, WA's Jobs and Skills Centre network employs approximately 30 Aboriginal employment and engagement officers. They work closely with employers and other key services providers in their area to integrate services and maximise training and employment opportunities for Aboriginal clients and ensure culturally appropriate employment and career services are provided.

A key priority of DTWD's Strategic Plan 2023-2028 is to lift the participation of First Nations People and under-represented groups in training and employment. DTWD has commenced engagement to place First Nations People at the forefront of developing strategies to Close the Gap on employment and training measures and develop the skills to realise their economic and community development priorities.

What role can reforms to skilled migration pathways play in addressing immediate aviation personnel shortages?

Jobs and Skills Australia has included aeroplane pilot, flying instructor, aircraft maintenance engineers (avionics, structures, mechanical) and aircraft baggage handler and airline ground crew on the 2023 Skill Priority List as in shortage in WA. In WA, aeroplane pilots, flying instructors and aircraft maintenance engineers (avionics, structures, mechanical) are all state priority 1 on the 2023 State Priority Occupation List. This means they are considered a critical market and policy priority.

Current worker shortages in the aviation industry are not local to Australia. The aviation industry is a global industry, and many local employers lose their workers to higher paying jobs overseas. This places increased pressure on businesses to retain their staff and may impact the transition to net zero emissions.

Skilled migration will continue to play an integral role to ensure Australia has the right skills to support the overall economy and drive future growth by addressing critical skill and labour shortages, including in the aviation sector. Skill migration is intended to complement local workforce supply. The priority for workforce development in WA will continue to be boosting local skills supply.

In WA, some occupations in the aviation industry, such as aeroplane and helicopter pilots, flying instructor, air traffic controller, aircraft maintenance engineers (avionics, mechanical and structure) have been relying on higher proportions of skilled migration for skills supply, compared to the average for all occupations. In contrast, flight attendant, aircraft baggage handler and airline ground crew are almost fully reliant on local workforce supply.

Stakeholder feedback has indicated the approval process of visa applications is impacting the pool of potential candidates. These candidates are being lured to other countries with faster processing times. This will make it harder for Australia to compete in the global demand for pilots, flight instructors and aircraft maintenance engineers.

Are there opportunities to improve recognition of overseas training qualifications?

The Australian Government's Department of Employment and Workplace Relations is currently reviewing skills assessment processes for skilled migrants, for which a national response is required.

Most aviation occupations are regulated, requiring registration and licensing, which sometimes can create complexities, requiring overseas skilled migrants to undertake skill-gap training, to meet Australian standards.

Consistent with WA's submission to the independent review of the national migration, the national review report also highlighted the need for an efficient and robust skills recognition that:

- maintains safety and quality in ensuring skilled migrants are appropriately skilled;
- provides certainty in pathways for migrant workers; and

- maximises the user experience through affordable and timely skills recognition.

The Australian Government could consider alignment of qualifications with other countries with similar safety records to ensure that qualified workers are able to meet the strict standards of our aviation sector.

North Metropolitan TAFE provides training which enables overseas qualified electrical workers to attain the necessary requirements to apply for an unrestricted Western Australian Electrician's Licence from the Electrical Licensing Board.

The knowledge and skills of many overseas qualified electrical workers may be very high, but there are differences in the application of this technical expertise, differences that represent a gap.

Australian electrical regulators are concerned that the gap be addressed in regulated trade vocations such as electrical, where the work context may differ markedly in overseas countries to that of Australia and such differences could endanger lives, infrastructure, or systems.

The 10 day nationally accredited course fills the skills gap and is approved by Building and Energy WA and provides the Minimum Australian Context Gap training to holders of an Offshore Technical Skills Record or Technical Skills Assessment Record for the UEE30811 Certificate III in Electrotechnology Electrician qualification.

A similar approach may be possible for overseas qualified aviation workers where a short course could provide the gap qualification needed to meet the safety requirements of the Australian aviation industry.

Chapter 11 – International aviation

Are there other issues or concerns associated with the Australian Government's approach to negotiating aviation bilateral agreements that you wish to highlight? What opportunities exist to improve the approach to international negotiations?

Australia needs to be proactive in liberalising Air Services Arrangements. While it is acknowledged that Australia has adopted a liberalised approach to aviation in regard to New Zealand, the United States and Singapore, it needs to continue adopting a proactive approach to further liberalisation in regard to arrangements.

Available capacity through Air Services Arrangements should be in front of demand to enable carriers and destinations to plan for and accommodate growth. The arrangements should be expanded to ensure that there is sufficient room for competitions. There should also be sufficient room for more than one carrier from each country to enter the route. Carriers from one country should not be restricted from increasing its capacity if the carrier from the other country is not utilising its full entitlements. This restricts potential growth.

The WA Government has requested that the capacity entitlements for several different countries be increased. These requests have been submitted through a submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts. There is no timeframe defined regarding the outcome of these submissions, which therefore limits the State's ability to negotiate with airlines regarding additional services when the capacity limits are close to being reached.

The WA Government is of the view that there should be more transparent communication regarding how the applications for capacity increases are assessed and an indicative timeline on how long it may take for the revised capacity entitlements to take effect.

What areas should Australia target through its international aviation programs? Are there opportunities for improvement and where would the greatest benefits be achieved?

International aviation is critical to the international education sector. Cost and the availability of flights, particularly direct routes, are important considerations for international students when they are considering where to study. To support the international education sector, international aviation programs should consider opportunities to support and grow existing key markets for international education, as well as opportunities to diversify into new and emerging markets.