Transport and Infrastructure Net Zero Consultation Roadmap

Take the survey

Department of Climate Change, Energy, Environment and Water

Response received at:
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1 Confirm that you have read and understand this privacy notice.
Yes

2 Please indicate how and if you want your submission published.
Public

3 Published name
Australian Association for Uncrewed Systems (AAUS)

4 Confirm that you have read and understand this declaration.
Yes

5 First name
Greg

6 Last name
Tyrrell

7 Email
[redacted]

8 Phone

[redacted]

9 Who are you answering on behalf of?

Organisation

10 Organisation name

Australian Association for Uncrewed Systems (AAUS)

11 What best describes you or your organisation?

Not for profit

12 What sector do you represent?

Other: "Uncrewed Systems including advanced air mobility and drones"
Infrastructure

13 What state or territory do you live in?

Victoria

14 Postcode

3133

15 What area best describes where you live?

City

16 1. Do you support the proposed guiding principles?

Not answered

17 1.1 Please add details to your response.

Not answered

18 2. Do you support the use of the avoid-shift-improve framework as a tool to identify opportunities for abatement?

Not answered

19 2.1 Please add details to your response.

Not answered

20 3. Do you agree the development of a national policy framework for active and public transport will support emissions reduction?

Not answered

21 3.1 Please add details to your response.

Not answered

22 4. What should be included in a national policy framework for active and public transport and how should it be developed?

Not answered

23 5. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the movement of people contributes to transport emissions reduction?

Not answered

24 6.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure that the movement of goods contributes to transport emissions reduction?

Not answered

25 6.2. How would these actions address the identified challenges and opportunities for emissions reduction in the movement of goods?

Not answered

26 7. Do you agree with the proposed net zero pathway for light road vehicles?

Not answered

27 7.1 Please add details to your response.

Not answered

28 8. The Australian Government is currently developing an Australian New Vehicle Efficiency Standard and has already begun to implement actions in the National Electric Vehicle Strategy.8.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce light vehicle emissions?

Not answered

29 8.2 How would these actions address the identified challenges and opportunities to reduce light vehicle emissions?

Not answered

30 9. Do you agree with the proposed net zero pathway for heavy road vehicles?

Not answered

31 9.1 Please add details to your response

Not answered

32 10. The proposed pathway for heavy road vehicles relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels.Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.

Not answered

33 10.1 Please add details to your response. Why did you rank them in that order?

Not answered

34 11. What role should low carbon liquid fuels play in the heavy vehicle decarbonisation?

Not answered

35 12. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce heavy vehicle emissions?

Not answered

36 13. Do you agree with the proposed net zero pathway for rail?

Not answered

37 13.1 Please add details to your response.

Not answered

38 14. The proposed pathway for rail relies on a mix of battery electric, hydrogen fuel-cell and low carbon liquid fuels.Rank from 1 to 3, the order in which these should be prioritised for emissions reduction.

Not answered

39 14.1 Please add details to your response. Why did you rank them in that order?

Not answered

40 15. What role should low carbon liquid fuels play in rail decarbonisation?

Not answered

41 16. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce rail emissions?

Not answered

42 16.1 How would these actions address the identified challenges and opportunities to reduce rail emissions?

Not answered

43 17. Do you agree with the proposed net zero pathway for maritime?

Not answered

44 17.1 Please add details to your response.

Not answered

45 18. The Australian Government is engaging in consultation as part of the development of the Maritime Emissions Reduction National Action Plan and those consultations will also inform the final Roadmap and Action Plan. 18.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce maritime emissions?

Not answered

46 18.2 How would these actions address the identified challenges and opportunities to reduce maritime emissions?

Not answered

47 19. Do you agree with the proposed net zero pathway for aviation?

Not answered

48 19.1 Please add details to your response.

Not answered

49 20. The Australian Government has already engaged in consultation on aviation decarbonisation through the development of the Aviation White Paper and those consultations will also inform final Roadmap and Action Plan.

Not answered

50 20.1 What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce aviation emissions?

Not answered

51 21. Do you agree with the proposed net zero pathway for transport infrastructure?

Not answered

52 21.1 Please add details to your response.

Not answered

53 22. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to reduce transport infrastructure emissions and ensure that transport infrastructure is ready for and enables low-emission transport modes?

Not answered

54 22.1 How would these actions address the identified challenges and opportunities to reduce transport infrastructure emissions?

Not answered

55 23. What additional actions by governments, communities, industry and other stakeholders need to be taken now and in the future to ensure the energy mix is ready to support transport emissions reduction?

Not answered

56 24. How should the use of low carbon liquid fuels (LCLFs) be prioritised across different transport modes over time to achieve maximum abatement?

Not answered

57 25. What are the best ways for the Australian Government to work collaboratively with industry, business, governments and communities to implement the proposed pathways?

Not answered

58 25.1 What are good domestic or international examples of partnership and collaboration on transport and transport infrastructure emissions reduction that could inform the final Roadmap and Action Plan?

Not answered

59 25.2 What opportunities can Government leverage to show leadership in Australia and internationally?

Not answered

60 26. What measures and metrics should be used to evaluate the final Transport and Infrastructure Net Zero Roadmap and Action Plan?

Not answered

61 26.1 What other data and evidence could governments use and how could this offer further insights on the pace, scale and location of transport emissions reduction pathways?

Not answered

62 27. Do you have any feedback on the proposed review process?

Not answered

63 28. Do you have any further feedback on the Consultation Roadmap and proposed pathways?

Not answered

64 28.1 Is there anything missing? Are the sections appropriately integrated? Is the Roadmap appropriately ambitious?

Not answered

65 29. Is there any further information or documentation that you wish to be considered with your submission?

Not answered

66 Would you like to upload a document?

Yes

67 Have you removed any identifying information from your submission?

Yes

68 Upload a submission

180 Redacted AAUS_Submission_Transport_and_Infrastructure_Net_Zero_Consultation_20240731.6afb62a7.pdf

69 Upload a submission

Not answered

70 Upload supporting file

Not answered

71 Upload supporting file

Not answered

AAUS Submission:

Transport and Infrastructure Net Zero Consultation Roadmap

July 31, 2024

About AAUS

Founded in 2009, the Association for Uncrewed Systems is Australia's oldest and largest industry advocacy group for the Drone and Advanced Air Mobility (AAM sector).

AAUS is a not-for-profit organisation which represents the drone and AAM industry across three domains: land, sea, and air. AAUS' objective is to promote a professional, safe and commercially viable uncrewed systems and AAM industry. AAUS achieves this through its industry advocacy and promotion, education and outreach, and networking activities.

AAUS provides a single representative voice for the full breadth of the drone and urban AAM industry. AAUS' 4,500 members spans small-to-large enterprise, manufacturers, licensed and unlicensed operators, training providers, academic institutions, Government, and other supporting technical and professional services in the Australian drone and AAM industry.

Overview

AAUS congratulates the Government on its initiatives to decarbonise transport and the broader economy.

The focus of this submission is on role of Drones and AAM can play in the decarbonising the overall transport ecosystem.

AAUS has engaged with some of its Drone and AAM member advisory groups to develop the content contained in this submission.

This submission is divided into 4 parts:

1. A brief introduction to drones and AAM
2. An overall summary of AAUS member views on the importance of drones and AAM as a transport decarbonisation lever
3. Feedback on the proposed net zero pathway for aviation (q19/q20)
4. Feedback on the proposed net pathway for transport infrastructure (q21/22)

We welcome the opportunity to discuss the aspects of the industry in more

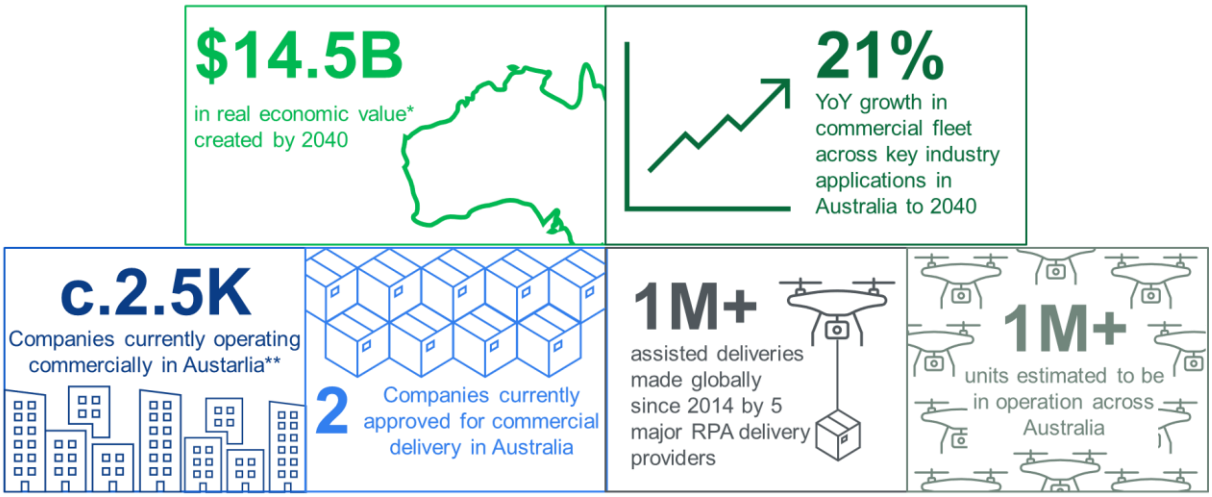
1. Defining Drones and AAM

Drones

The Aviation Green paper defines Drones as the colloquial term for what are referred to as Remotely Piloted Aircraft Systems (RPAS) in Australian legislation. ICAO also uses the term RPAS in its materials. Other common terms include Uncrewed Aerial Systems (UAS).

RPAS is the correct Australian legal terminology, however, drones will be used in this document as it is the term most commonly understood in the broader community. As used today, drones typically have a freight capacity of up to 10kg but can be larger and have multitudes of use cases from precision agriculture through to last mile delivery of small parcels and consumer goods.

Drones are a significant industry globally and in Australia and this is expected to continue to grow significantly in the next 20 years**.**



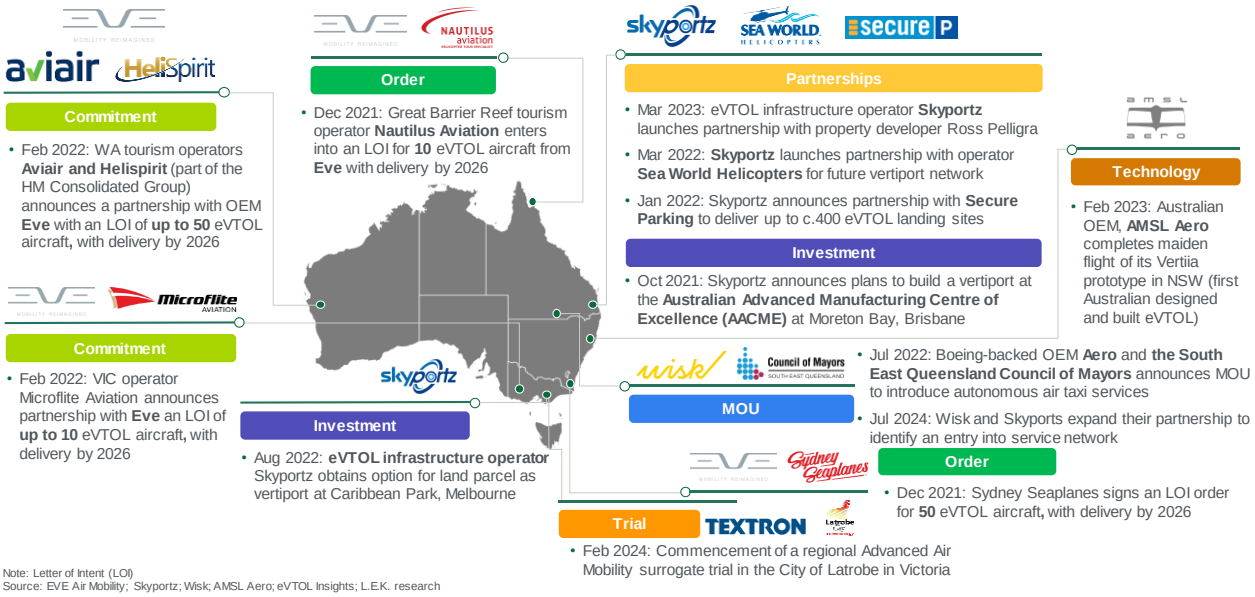
Notes: * At a 7% discount rate ** Inclusive of companies and organisations, estimated by the number of ReOC holders. This count includes licenses for training as CASA's database is unable to filter by those for aerial only
Source: Department of Infrastructure, Transport, Regional Development and Communications; Norton Rose Fulbright; FAA; CASA; L.E.K. research and analysis

AAM

AAM is a new transport ecosystem for the movement of people and freight by air in urban and regional areas, and the provisions of services, utilizing novel electric or hybrid-electric aircraft capable of vertical take-off and landing (VTOL) or short runway take-off and landing (STOL) operations.

The Civil Aviation Authority (CASA) describes AAM as comprising a range of aircraft types (both crewed and uncrewed) which will transport passengers and larger freight, that are not propelled using traditional hydrocarbon fuel sources.

There is significant development of the AAM sector across Australia:



Note: Letter of Intent (LOI)
Source: EVE Air Mobility; Skyportz; Wisk; AMSL Aero; eVTOL Insights; L.E.K. research

2. The importance of drones and AAM as a transport decarbonisation lever

Drones and AAM will be significant part of the aviation sector and need to be considered as a material pathway to decarbonising of the aviation industry.

Drones and AAM will continue to grow to eventually become the largest sector of aviation not only in terms of scale but also in its economic, social and environmental contribution to the Australian Commonwealth.

Australia, through its enduring efforts to address the tyranny of distance, has potentially far more to gain from the realisation of drones and AAM sectors than most other nations.

The industry is already significant today

> There are over 2,700 organisations certified to operate drones commercially and a further 35,000 accredited operators in Australia today. These drone operations span the construction, agriculture, mining, parcel/food delivery, medical and emergency services industry
> There are over 100 MOUs and orders for eVTOL aircraft from Australian companies. Our members expect AAM to be commercially operational by 2027 in Austarlia.

The industry is expected to be a significant in the future

> Drones are projected to deliver a $14.5 billion benefit to Gross Domestic Product (GDP) and create 10,000 jobs over the next 20 year[1].

[1] Aviation green paper

- By 2050, there could be around 37 million passenger trips annually made using AAM. This would drive an increase to 8-10 million annual aircraft movements, primarily through AAM replacing road-based modes of transport.[2]
- Commercial drone flights are predicted to increase by an average of 20% per annum over the next 20 years – culminating in 60 million flights in 2043. This increase will be driven primarily by drones being used for goods deliveries[3].

Using green energy sources, AAM and drones offers a sustainable and zero-emission means transportation that can contribute towards our national commitment to attaining net zero emissions.

The Net Zero Consultation paper is silent on the role of drones in the transport industry and does not adequately identify the opportunity AAM can play in the role of decarbonization.

3. Feedback on the proposed net zero pathway for aviation industry

Drones and AAM will also play an important role in helping the Commonwealth achieve its sustainability commitments – offering greener alternatives to existing transport services.

Drones and AAM can be a zero-emission alternative for the aviation industry and be used to displace single use passenger car trips.

Drones can reduce emissions by taking over last-mile deliveries, which are often the least efficient part of the logistics chain. Electric drones produce fewer emissions than traditional delivery vehicles.

Most drones in use today and eVTOLs on order have battery electric motors, with significant investment underway for additional zero emission propulsion alternatives (e.g. Hydrogen). This means they have no direct emissions, and if energy can be sourced from renewable sources AAM and drones can be a zero-emissions aviation alternative to existing transport options.

The Transport net zero roadmap should include elements of support to enable low to zero emissions aviation technologies such as drones and AAM in Australia.

Drones

Drones are currently being used to support emission free first/last mile commercial delivers, medical deployments in hard to access areas, and to support complex or difficult locations during search and rescue, disaster relief, and surveillance. Similarly, drones used in these applications are typically displacing otherwise emissions intensive vehicle trips. For example:

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[2] L.E.K. Consulting (2023), 'Aviation White Paper Scenario Analysis of the Future of Australian Aviation Final Report', report to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts, L.E.K. Consulting.

[3] Scyne Advisory (2024), 'Sizing the Future Drone and Advanced Air Mobility Market in Australia'.

- Wing has been delivering up to 1000 packages per day in the suburb of Logan in Brisbane, and has expanded its network to the Eastern suburbs of Melbourne
- Swoop Aero is delivering important medical supplies to over 40,000km2 in regional QLD
- Police and Fire agencies are starting to use drones to replace some tasks usually performed by helicopters and aircraft

These types of activities are expected to increase significantly in the next 20 years with improvements to the technology as well as evolution of aviation regulatory and air space management systems.

AAM

- AAM offers a sustainable alternative to other ground and air transport options which are not zero emissions. AAM is one of the only forms of aviation that can achieve zero emissions flight. It will be an important decarbonisation pathway for short-haul and the general aviation industry. Advances in early applications of AAM can also inform future innovation in zero-emission aviation.
- As well as commuter point to point transport use cases, AAM will be able to support the growth of sustainable aviation tourism and other use cases including emergency services and freight. This will displace the need for otherwise emissions intensive single journey passenger vehicles trips.
- Our members expect we will see first commercial AAM flight by 2027. The successful scale up of AAM will lead to a substantial increase in GA activity in the medium- to long-term. AAM could also replace some private vehicle trips (e.g., taxis, ride share) on selected journeys greater than c.20-25km[4].

The future pathways for decarbonisation of aviation are highly uncertain, AAUS recommends taking a diversified approach to decarbonisation pathway selection.

The consultation paper relies heavily on SAF as a pathway for decarbonisation of the aviation sector.

We would recommend taking a more diversified approach where other emerging aviation technologies, including drones and AAM are considered fulsomely in the decarbonisation toolkit.

SAFs will likely make a significant contribution to reducing emissions for medium and long-haul flights. However, supply is not expected to meet required levels by 2050, without significant investment, and SAFs may lose legitimacy as they still produce CO_2. Furthermore, the cost premium of SAF over conventional jet fuel and limited SAF production capacity in Australia and globally are major barriers to wider use in the short- to medium-term.

[4] Aviation green paper – scenario analysis

4. Feedback on the proposed net pathway for transport infrastructure

Drones and AAM will displace the need for significant carbon intensive fixed infrastructure, compared to road-based alternatives

Choices about mode shift and transport infrastructure investment need to be considered in a holistic manner. These choices must take into account embodied emissions within the infrastructure investment that the transport mode requires.

AAM and drones can be deployed with limited fixed infrastructure. Vertical take off technologies such as eVTOL and drones require comparatively less fixed infrastructure than road-based transport modes. Future investment in transport should prioritise low build modes such as AAM and drones.

The investment in infrastructure that is required to enable emerging aviation technologies, will be important for many transport modes. For example, power/grid connections, renewable energy sources, communications and spectrum and connectivity with multi-modal transport systems. This needs to be considered as part of the overall net zero roadmap.

Furthermore, drones are already being used in the response to climate change. They are being used to improve the sustainability and efficiency of our agricultural, energy and mining sectors, managing and protecting our lands and waterways, in our response to natural disasters and climate change, and protecting our borders and maritime resources.

Contact

AAUS would be pleased to provide additional information to the Department on the matters contained in this submission.

We would also welcome a discussion to provide more information on Drones and AAM.