


The Global AAM/UAM Market Map

Sample pages

An aerial night photograph of a dense urban skyline, likely Hong Kong. The image shows numerous high-rise buildings with illuminated windows and balconies, creating a vibrant pattern of lights. A major road with multiple lanes is visible in the lower-left quadrant, with light trails from vehicles. The overall scene is a high-angle, wide-area shot of a modern metropolis at night.

**A guide to advanced and
urban air mobility projects
around the world**

Introduction

The **Global AAM/UAM Market Map** is aimed at advanced air mobility/urban air mobility (AAM/UAM) industry OEMs and supply chain partners, transport planners, finance companies, consultants and local authorities who need a detailed understanding of what programmes are underway around the world and the market opportunities that exist within these programmes. It provides a unique guide to competitive industry information, global/regional market size and trend analysis, with a specific focus on routes, route lengths, host cities/regions and eco-system suppliers.

It is based on many months of research by the worldwide editorial team and the sources of each entry are referenced.

While most AAM/UAM market intelligence studies are focused on the value and forecast for eVTOLs and associated industry suppliers, the **Global AAM/UAM Market Map** analyses operational plans and confirmed industry participation broken down into geographical areas.

The database gives details on plans to develop passenger AAM/UAM services in over 50 countries and 150 cities, with timelines and descriptions along with details on industry participation, broken down into the following areas:

- Cities and routes (with route lengths)
- eVTOL manufacturer partner
- Electric fixed wing platform manufacturer
- AAM/UAM aircraft operators
- AAM/UAM training
- AAM/UAM aircraft operator maintenance and support
- AAM/UAM aircraft charging and power supplies
- Vertiport/airport developer/operator
- Vertiport/airport safety and security
- Airspace integration
- Local authority partner/client
- Others

Information is validated and updated constantly – the sources for all information are outlined in the on-line version of this report.

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Thank you for downloading this selection of sample programmes from the **Global AAM/UAM Market Map**.

If you need any more information about the project, or details on our guide to **Regulations, standards, concepts of operation and roadmaps**, please email the editor, [Philip Butterworth-Hayes](#). Visit the [website](#) for the latest news and insight.

Please note: The sample programmes in this document may not be the most current versions.

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Australia

Country introduction

Australia is likely to be a UAM global pioneer, as Government high-level strategic plans and industry bottom-up plans move closer together. Melbourne was originally chosen as a launch city for Uber's UAM services, but since the takeover by Joby of Uber these plans have been delayed. The city is still on Joby's list of target cities and the company has been reported as working towards launching its first commercial services there as early as 2024, though other operators are targeting the start of 2026 for first commercial operations.

Eve, Joby and Wisk are all developing eVTOL routes in the country, while cities and states are drawing up regional service plans, with Brisbane's target of having air taxi operations in place for the 2032 Olympic Games an important focus for accelerating eVTOL route planning. In parallel, several projects in the country are under way to use eVTOL platforms for medical and emergency services in rural and urban areas.

From a high-level viewpoint, in December 2020 EmbraerX, Embraer's business subsidiary, and Airservices, Australia's Civil Air Navigation service provider, published a new "concept of operations" (CONOPS) for the air taxi market. Using the City of Melbourne, Australia as a model, CONOPS has examined how existing air traffic management solutions can initially enable UAM operations, while simultaneously preparing for the scale of operations through new traffic management technologies.

In July 2022 Australia's Civil Aviation Safety Authority (CASA) published its remotely piloted aircraft system (RPAS) and advanced air mobility (AAM) roadmap. Here are the highlights for the near-term.

Immediate term (2022 to 2023)

Aircraft and aircraft systems

- Publish acceptable industry consensus standards for piloted AAM
- Review applicable maintenance policies for AAM.
- Review international frameworks, standards and methods for certification and assurance of RPAS. This includes consideration of adoption of the FAA durability and reliability process for low-risk RPAS.
- Review applicable maintenance policies for RPAS.
- Publish guidance on the evidence requirements from the OEM versus the operator for RPAS operational approvals.
- Airspace and traffic management.
- Through the AFAF (Australia Future Airspace Framework), develop a transparent, consistent and scalable method to manage Australian airspace that supports RPAS and AAM integration.

- Research how existing separation standards may apply to RPAS and AAM. Identify future changes required including conspicuity and equipage considerations.
- Review existing flight rules against the future needs for RPAS and AAM.
- Work with DITRDC (Australia's Department of Infrastructure, Transport, Regional Development, Communications and the Arts) and Airservices Australia to develop a regulatory oversight framework for UTM.

Operations

- Develop and publish further guidance material for RPAS operations already enabled in existing regulations, including acceptable means of compliance.
- Develop and publish guidance material for approval of research and development operations.
- Review and publish guidance on the carriage of dangerous goods by RPAS.
- Implement regulatory changes from the post-implementation review of CASR Part 101. Conduct a gap analysis of CASR parts to identify regulatory changes required to support RPAS and AAM operations. Publish more standard scenarios and SORA guidance for low-risk RPAS operations and emergency services.
- Talk with model aircraft, drone sport and recreation flyers to find opportunities for improved collaboration and consultation.

Infrastructure

- Develop guidance material, design requirements and regulations for vertiports and other infrastructure required to support AAM operations.
- Develop guidance for the infrastructure required to support research and development activities.
- Work collaboratively across government to understand and establish spectrum requirements for RPAS and AAM.
- Work with DITRDC to set up the National Drone Detection Network and support all safety aspects of the infrastructure planning framework.

From the bottom-up, industry development perspective:

- In January 2022 Skyportz, the Australia-based air taxi infrastructure start-up, announced a partnership with Secure Parking to deliver up to 400 potential new vertiport sites. Skyportz is working with the Australian Federal and State governments to help develop the standards, regulations and zones which will enable "mini airports" in new locations in and around cities and regional centres.
- In September 2021 Eve Urban Air Mobility, an Embraer company, and Microflite, an Australian helicopter operator, announced a partnership to commercialise UAM services in the country by 2026.

- In February 2022 Eve Urban Air Mobility announced a partnership with Aviair and Helispirit leading to “an order of up to 50 Eve eVTOLs”, followed by a collaboration with Microflite in the purchase of up to 40 eVTOLs.
- In July 2022 Switzerland-based Dufour Aerospace announced it had partnered with V-Star Powered Lift Aviation to fly the eight-seat piloted Aero3 aircraft, with a targeted cruising speed of 350 km/h (215 mph), a range of up to 1,020 km (630 mi), and a useful load of 750 kg (1,650 lb) on regional routes throughout Australia. Certification is planned for 2025.

Press reports suggest all-electric flights are planned from Sydney to Canberra three times a day and over the Great Barrier Reef by 2026, following the deal between Sydney Seaplanes, Nautilus and Eve Air Mobility to fly 60 eVTOLs in Australian airspace by 2026. Tourism flight operator Nautilus – which has bases in Cairns, Port Douglas, Townsville, Horn Island and Darwin, plans to fly 10 Eve eVTOLs on scenic flights over the Great Barrier Reef and other tourist attractions. Sydney Seaplanes will also take delivery of 50 Eve eVTOLs by 2026 to fly new routes from the company's Rose Bay terminal (subject to community consultation). Sydney Seaplanes currently operates inter-urban flights from its Rose Bay terminal to destinations such as Palm Beach in Sydney's north.

Australia is also embracing the concept of using eVTOLs in medical and healthcare roles. In November 2020 aeromedical charity CareFlight and eVTOL aircraft developer AMSL Aero – manufacturer of the Vertiia airborne ambulance – teamed up in Sydney to launch a new eVTOL air ambulance service to tackle rural and regional healthcare inequality in the country. The programme is part of an A\$3 million Cooperative Research Centres Project grant from the federal government, for a two-year collaborative project with the University of Sydney and autonomy and sensing specialists Mission Systems. Test flights were planned to take place at the company's facility in Narrm Airpark in regional New South Wales.

In early September 2022 AMSL Aero announced it had received A\$23 million in private equity funding to develop its 300kmph Vertiia eVTOL, with a range of 1,000 km in its hydrogen-powered version. According to a report in the *Australian Financial Review*: “If the aircraft are adopted for commuting between regional areas and cities...people at the outset could expect to pay about USD130 for a trip from Melbourne to Geelong on a 15-minute flight. In NSW, a trip from Sydney to Terrigal would be similar.”

Skyportz has selected Electra as preferred OEM partner with up to 100 eSTOL aircraft for extensive air mobility infrastructure network in Australia. Electra is currently developing a hybrid eSTOL aircraft that can take off and land in a space the size of a soccer field yet cruise at 175 knots, with in-flight battery recharging. The piloted fixed-wing aircraft will initially carry up to nine passengers or 2500 pounds of cargo up to 400 nautical miles in all weather conditions.

Eviation Aircraft in November 2022 announced that Northern Territory Air Services (NTAS), an Australian scheduled airline and charter aircraft operator, has signed a Letter of Intent (LOI) for 20 all-electric Alice commuter aircraft. In a press release the company Alice will typically operate flights ranging from 150 miles to 250 miles.

NTAS is based in Alice Springs, the gateway to the Northern Territory of Australia's outback, providing a link to major airlines for passengers arriving and departing from Alice Springs, Uluru and Mt. Isa Airports. It specializes in scheduled and charter air services for business groups, private and tourist travel, and cargo transport. The company has prioritized the adoption of

carbon-free and sustainable technologies and is working with a range of stakeholders to support the introduction of all-electric flight," said the press release.

In December 2022 the New South Wales Government published its [electric aviation brochure](#). "Our vision is to ensure this new technology is fully integrated into a multi-modal network that benefits passengers....New and emerging electric aviation has the potential to reshape how people and goods travel in regional NSW" reads the statement which continues: "Emergency medical supplies, urgent freight and even passengers could soon be transported by state-of-the-art electric aircraft. Electric planes and drones could make transport cheaper, cleaner and more convenient than ever before. They could open new routes for passengers, connect communities and increase freight efficiency." The statement elaborates further saying "The electric aviation sector must grow in a manner that is safe, secure and considerate of the environment. It should enable economic activity, create new job opportunities and strengthen existing communities."

At the end of February 2023 Skyportz and property developer Pelligra announced a partnership to explore jointly developing vertiport networks to attract air taxi and drone delivery services to Australia.

Skyportz says the agreement builds on previous partnerships between the company and other property owners such as Secure Parking which has hundreds of inner city car parking sites.

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Canberra

Timeline

Planned – to be launched within two to five years; funds have been committed and key industry partners identified

Route(s)

Canberra – Sydney (286 km)

Programme description

The Government of the Australian Capital Territory has published its [National Emerging Aviation Technologies Policy](#) covering drone and eVTOL industries.

Some key passages from the document include:

The ACT Government is optimistic about the potential benefits of drones and drone delivery services, from empowering local businesses to reach more customers, to cutting greenhouse gas emissions and making life easier for Canberrans living with mobility challenges. We are also interested in further exploring the wide range of situations and possible applications for drone technology, including in the context of Emergency Services.

- *The ACT Government supports the proposed policy approach that the Australian Government should lead the development of a coordinated and informed approach to infrastructure planning, investment, requirements and approvals. The two areas that the Australian Government might focus on are:*
- *site selection for “launch” sites for commercial operators, and*
- *site and operational requirements, particularly in relation to technical and assessments considerations once a site has been identified.*

Guidance for operators and land-use regulators on criteria for site selection will be invaluable in the future consideration of drone sites, as well as for the planning of such sites in future land releases. This might include guidance on considerations including appropriate location of such sites, sizes, connectivity to ground-based transport, proximity considerations (e.g. sensitive receptors, utility services and powerlines, vulnerable environments, privacy, potential flightpaths and approach zones, and proximity to other secure facilities), appropriate configuration of sites and compatible and incompatible land uses.

Site selection also raises a fundamental threshold question of when a site and its associated operations are insignificant enough to be considered as a type of “local aviation depot” (albeit closely integrated within the urban environment), and when it becomes a proposal to consider the site to be of greater land use significance with more significant potential impacts, i.e. 4 Paragraph 3.26 Inquiry into Drone Delivery Systems in the ACT, when does it become a de facto airport or heliport for UAVs or eVTOL operations?

Some clarification or guidance at a Commonwealth level about this would be gratefully received. On site and operational requirements currently there is very little, if any, guidance for regulators from the Commonwealth in their consideration of a potential launch/operational site for eVTOL operations. This could potentially cover a wide range of matters, such as sizes of

launch pads, onsite storage facilities and maintenance requirements, securing the site (including fencing, lighting and surveillance requirements), utility services requirements, vegetation clearance requirements, site rehabilitation (in the case of temporary use), likely trip generation rates (and corresponding likely flight generation rates) for different operators, signage, access and parking requirements.

Meanwhile, Press reports suggest all-electric flights are planned from Sydney to Canberra three times a day and over the Great Barrier Reef by 2026, following the deal between Sydney Seaplanes, Nautilus and Eve Air Mobility to fly 60 eVTOLs in Australian airspace by 2026. Tourism flight operator Nautilus – with bases in Cairns, Port Douglas, Townsville, Horn Island and Darwin – plans to fly 10 Eve's eVTOLs on scenic flights over the Great Barrier Reef and other tourist attractions.

Sources:

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Queensland, Brisbane

Timeline

Planned – to be launched within two to five years; funds have been committed and key industry partners identified

Route(s)

Brisbane city centre – Olympic Park (6km)

Great Barrier Reef tourism routes

Country introduction

Skyportz is planning to build a series of vertiports to take visitors from the city centre to the Olympic Village for the 2032 Olympic Games, establishing a Moreton Bay air taxi hub. The hub would be part of the planned Australian Advanced Manufacturing Centre of Excellence, to be constructed in the Moreton Bay council area by 2023.

In parallel, UAM facilitator consortium Greenbird is building an industry collaboration platform to bring together UAM players and engaging with government to develop commercial eVTOL operations for the Olympic Games. According to press reports Greenbird is initially focused on establishing AAM/UAM operations in Queensland in time for the Olympics, with a view to expanding throughout the country.

Founding Greenbird partners comprise eVTOL ground infrastructure specialist Skyportz; Australian eVTOL developer AMSL Aero which has designed and developed the Vertiia electric battery and hydrogen-powered aircraft; Queensland-based helicopter operator Nautilus Aviation, which has an order for 10 of Eve's eVTOL aircraft; specialist helicopter operator Aviator Group; Queensland's Archerfield Airport and Griffith University; clean energy company H2 Energy Company (h2ec); engineering consultancy AvLogix Solutions; and uncrewed systems management platform FlyFreely.

In June 2022 Wisk Aero signed a Memorandum of Understanding with the Council of Mayors, which will see the two organisations "working together to introduce a safe, sustainable and scalable, autonomous air taxi service to South East Queensland".

Wisk intends its presence in Queensland to be "long-term, and will be working with local government toward providing the city with green tourism and transport options. The company will also be displaying its 5th-generation aircraft in Brisbane in July."

Lord Mayor Cr Adrian Schrinner said: "Council of Mayors kickstarted our Brisbane 2032 Olympic and Paralympic Games journey because we knew it would attract global businesses and innovative industries to our region, bringing with it new jobs and new economic opportunities. On the back of the Brisbane 2032 Games, we're delighted to be working with Wisk to look at how South East Queensland can capitalise on the new jobs and economic opportunities associated with this new and exciting industry. We expect to see the emergence of advanced air technology in places like Paris and Los Angeles, and by 2032 I'd love to see it supporting new and innovative experiences for tourism and travel in South East Queensland."

In December 2021 Eve and Nautilus Aviation, a division of Morris Group and Northern Australia's largest helicopter operator, announced a collaboration to develop the UAM ecosystem in

Australia. The partnership will see the introduction of Eve's eVTOL Aircraft serving various Queensland tourism attractions including the Great Barrier Reef. As part of this agreement, Nautilus has ordered up to 10 of Eve's eVTOL aircraft, with flights taking off over the Great Barrier Reef by 2026.

In February 2023 Wisk Aero and the South East Queensland Council of Mayors (COMSEQ), Australia's largest regional local government organization, published a paper outlining the benefits Advanced Air Mobility (AAM) will bring South East Queensland (SEQ). Queensland Government modelling suggests that by 2036, skies across SEQ could host hundreds of daily passenger and freight services. Existing aviation infrastructure, such as Brisbane Airport, Sunshine Coast Airport and Wellcamp Airport, and heliports, are likely to be key locations in SEQ's AAM network.

According to the report:

"It is envisaged AAM will complement existing infrastructure development, like the fully electric fleet from Brisbane Metro and Cross River Rail, and connect with existing modes of transport, such as bus and rail networks. In regional communities such as Scenic Rim, Somerset, Toowoomba and Lockyer Valley, AAM can enable shorter travel times from the city fringe and regional areas to major metropolitan centres and transport hubs. AAM can also provide regional, remote and island communities with enhanced mobility options at significantly lower infrastructure cost.

"Importantly, the geographic distribution of urban and regional centres throughout SEQ presents significant opportunities for air taxi services. Advanced aircraft, such as Wisk's Generation 6 air taxi, will unlock new opportunities that have the potential to transform mobility such as:

- Connecting travellers at Brisbane Airport to the Sunshine Coast in only 22 minutes, saving at least an hour sitting in traffic,
- Opening new tourism possibilities with flights from Brisbane CBD to the islands of Moreton Bay, or to the pristine wilderness areas of the Scenic Rim, in under 15 minutes, and
- Improving health outcomes for regional communities by connecting communities in the regional communities to medical services in major centres in less than 25 minutes.

"With Australia poised to capture around 3% of the global AAM market, according to a recent Roland Berger study, it is projected that AAM could contribute over AUD66 billion, or 3.1%⁹ of national GDP, to the Australian economy by 2040. A recent Nexa Capital study (December 2022) has identified, with the adoption of AAM, the SE Queensland GDP will increase by an estimated USD3.7 billion over the coming 25 years. The revenue forecast for AAM services in the SEQ region over the next 12-15 years is expected to be significant: driving major investment in infrastructure, job creation and advances in technology. Forecasts are for an AAM industry with a combination of passenger, business aviation, urban and regional air mobility to receive revenues of up to USD1.7 billion by 2045."

Partners

eVTOL manufacturer:

AMSL Aero
Eve
Wisk

AAM/UAM aircraft operator:

Aviator Group
Nautilus

AAM/UAM aircraft charging and power supplies:

H2 Energy Company

Vertiport/airport developer/operator:

Skyportz

Airspace integration:

FlyFreely

Others:

Archerfield Airport
Griffith University
AvLogix Solutions

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Odense

Timeline

Imminent – *to be launched within the next three years*

Programme description

A new partnership between HCA Airport in Odense and Copenhagen Helicopter was announced in February 2023 the “first in Denmark to build an infrastructure for electrically-powered flying taxis to ferry people between the country's largest cities” according to UAS Denmark Test Center.

In statement of the company's website it says “The aim is to showcase the first flying taxi by summer 2023, and in the slightly longer term the goal is to establish one or more landing sites, so-called vertipads or vertiports, in Odense – initially on top of Odense Station.

“Initially, the partnership wants to attract foreign AAM operators to HCA Airport, which already hosts the UAS Denmark Test Center. This could be in the form of testing and demonstration activities or, in the longer term, service and maintenance.

“Copenhagen Helicopter offers transport such as taxi flights in traditional helicopters, which the company says is a growth area. According to Martin Andersen, CEO of Copenhagen Helicopter, the company's own calculations, which are based on international and national reports, indicate that the AAM area has huge potential and could transport 84,000 passengers a day and remove 120,000 tonnes of CO2 from Danish roads by 2035.

Partners

AAM/UAM aircraft operator:

Copenhagen Helicopter

Vertiport/airport developer/operator:

HCA Airport

Sources:

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Estonia

Country introduction

The Estonian government is a major stakeholder in the LifeSaver network which will use Airbus eVTOL aircraft as air ambulances.

According to the organisation:

"LifeSaver, a framework co-developed by Airbus and [International SOS](#) (aims) at optimising emergency healthcare systems through innovation and improvements across the rescue chain. The first implementation of the LifeSaver programme is set to take place in Estonia. LifeSaver in Estonia is not limited to technology. It will include operating procedures, accreditation standards, medical guidelines, regulations and more to ensure that individual solutions are operationally viable and deliver clear benefits such as better patient outcomes, greater efficiency and/or lower environmental footprint."

"The goal is to identify and create innovative solutions not only for Estonia, but also for other countries so as to leverage our local capabilities and maximize the export opportunities of Estonian companies involved in the development of solutions," said [Joonas Väänto](#), Director of Invest Estonia.

The organisation reports that among the potential tools mobilised in next-generation medical services, Airbus' fully-electric aircraft prototype CityAirbus NextGen, will target an operational range of 80 kilometres and a cruise speed of 120 km/h, capable of carrying three passengers and a pilot. "In Estonia, the program will evaluate the country's current emergency medical system and identify the most important use cases. These may include reducing response time, providing essential medical care to low-population-density areas, or optimizing the overall medical logistics network."

"We aim to use innovation for better patient outcomes and direct social benefits to Estonian people. We also want to showcase what Estonia has to offer in terms of innovation – if the new technology works in such a mission-critical environment as EMS, it can work everywhere", said Joonas Väänto.

"The capability and unique value proposition of a helicopter in medical services missions are irreplaceable. eVTOLs with zero-emission flights, full electrification and a lower noise profile have the potential to enable new missions and complement the helicopters in supporting the ever-evolving medical services. Helicopters and eVTOLs will both be part of medical ecosystems and work hand in hand", said Balkiz Sarihan, Head of UAM Strategy Execution & Partnerships at Airbus.

As one of Europe's most advanced digital economies, Estonia is embracing the concept of UAM as a potential key component in its target for Estonian aviation to become climate-neutral by 2030 through faster deployment of electric flight, hydrogen, digital aviation and drone technologies.

In June 2022 a meeting organised by the Ministry of Economic Affairs and Communications, Ministry of Environment, Estonian Aviation Cluster, The Netherlands Embassy in Tallinn and the Estonian Parliament discussed a high-level strategy to meet these goals. Minister of Entrepreneurship and IT, Andres Sutt told the seminar: "I see a major opportunity in building the

ecosystem for the entire mobility space – air, sea, rail and road – that takes us to climate neutrality."

"Estonia will become a country-wide sandbox and we work together with the industry to create an enabling framework for innovation with the highest safety standards," said Andreas Sutt, according to an Invest in Estonia post. "Time-distance to Hiiumaa is 20 minutes today with a small, 18-seat aircraft. Air taxis using eVTOLs will cut the time-distance throughout Estonia before the end of this decade to far less than an hour. Helsinki and Tallinn airports will be connected by 'air taxi-highway', making Tallinn directly connected to Asia and North America. And it will all be carbon neutral," he predicted.

One of the first applications will be in first responder services.

In July 2022 the Estonian Government, Airbus Helicopters and International SOS reported they had signed a cooperation agreement for developing and implementing the LifeSaver Estonia programme, a national innovation and investment project, to intensify emergency medicine and the healthcare system in Estonia.

"Airbus Helicopters has developed the LifeSaver programme together with the company International SOS to create a comprehensive emergency medicine system," said Wolfgang Schoder, Vice-President of Airbus Helicopters. "Based on long-term experience and extensive knowledge of cooperation with medical service operators, we want to further develop the system in Estonia, using Estonia's outstanding capabilities in aviation, medicine and the digital field," Schoder added.

One of the project initiators, Asso Uibo, Invest in Estonia's Director of Regional Business Development in South Estonia said: "Our common ambition is to take a big step forward from flashy individual flight tests and move to a full-scale integration phase, where, for example, eVTOLs and drones are a natural part of the emergency medical service." According to him, the plan is supported by R&D units related to the universities of Tartu, Tartu University Hospital, and the network of medical institutions in Southern Estonia.

The press release concludes: "In practice, it means that the programme will evaluate Estonia's current first aid and emergency medicine system and identify the most important use-cases for Estonia. These may include reducing response time, providing essential medical care to low-population density areas, or optimising the overall medical logistics network."

In 2001 EHang announced its EHang 216 and Falcon logistics model had completed Beyond Visual Line of Sight (BVLOS) trial flights for airport transport and parcel delivery in Estonia under the European Union's GOF 2.0 Integrated Urban Airspace Validation (GOF 2.0) project to demonstrate safe, autonomous and eco-friendly urban air mobility (UAM) and the integration of unmanned aerial vehicles and air taxis into manned operations with air traffic management and U-space services. The Estonian Transport Administration issued a special permit to EHang for trial flights in designated Estonian airspace until the end of 2021.

During the trials, the EHang 216 performed a flight mission of passenger VIP transport scenario from Tartu Airport to the Estonian Aviation Museum, with no passenger onboard, to demonstrate the use-cases and scenarios of eVTOL (electric vertical take-off and landing) intra-urban and

peri-urban flights. The EHang Falcon logistics model completed a flight mission of parcel delivery from Tartu Airport to a cargo terminal at the Estonian Aviation Museum, to demonstrate the use-cases and scenarios of automated parcel delivery drones operating at low level.

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Nice

Timeline

Planned – to be launched within two to five years; funds have been committed and key industry partners identified

Route(s)

City centre - airport (7km)

Nice - Monaco (17km)

Programme description

Urban Blue, a company consisting of several airports in Italy (Rome, Venice and Bologna) and one in France (Cote d'Azur) aims to build a network of vertiports in partnerships with eVTOL developer Volocopter and Atlantia, an infrastructure investment holding company. According to a trade Press interview, Aeroporti di Roma is also working closely with Italian Civil Aviation Authority (ENAC) and ENAV, with the first installation in Rome followed by Nice, Venice, and Bologna. Initial services will be connections from the city centre to airports.

In a separate programme the government of Monaco and UTM service provider ADS have outlined a high-level strategy to develop a corridor for drones and eventually eVTOLs between Nice and Monaco (see also [country profile for Monaco](#)).

In June 2023 Lilium and UrbanV, a vertiport design and management company, announced their partnership to develop vertiport infrastructure will enable eVTOL networks for Lilium aircraft and customers with an initial focus on Italy and the French Riviera, where UrbanV says it will launch its operations, with potential for further markets in the future. Lilium says that it will benefit from UrbanV's strong foothold and key airport access in Rome, Venice, Bologna, Nice, Cannes, St. Tropez, and surrounding areas.

Partners

eVTOL manufacturer:

Volocopter

Lilium

Vertiport/airport developer/operator:

Aeroporti di Roma

Aéroport Cote d'Azur

Urban V

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Paris

Timeline

Imminent – *to be launched within the next three years*

Route(s)

Paris-Charles de Gaulle airport-Paris-Le Bourget airport (16km)

Vertiport of Austerlitz barge-Paris Heliport (10 km)

Paris Heliport-Saint-Cyr-l'École (Versailles) (22 km)

Paris Heliport tourist flights

Paris Le Bourget tourist flights

Programme description

Paris plans to have a UAM ecosystem in place in time for the 2024 Paris Olympic Games.

During the 2023 Paris Air Show Volocopter and Groupe ADP confirmed the first UAM routes for the Paris 2024 Olympic Games. "The partners will start with three connection routes and two tourist round trip flights, with several aircraft," said a joint company press release. "Operations in Paris will begin from five vertiports and will gradually grow to cover the whole Paris region over the next decade. VoloCity aircraft, which have capacity for one pilot and one passenger, will be flying at heights below 500m and will not be audible from ground level in urban environments," said the press release.

"Vertiport construction will start over the course of the summer, and by September at the latest, and be in full swing at the end of 2024. The five vertiports in Paris have a development schedule that allows for commercial launch in summer 2024. A special vertiport will be located on the Austerlitz barge on the Seine river, with strong support from the Paris Region. This month, an environmental impact study was submitted to the Environmental Authority, and will be followed by a public acceptance survey in the second half of 2023. These will form the basis for starting construction of the vertiport early next year.

"Each vertiport will feature passenger terminals, with one to three takeoff and landing spots, and integrate the learnings from the Pontoise testbed. More than 1,000 visitors have come to see dozens of flights and other tests that have been executed in Pontoise over the past 18 months...The general public will be able to book flights for the summer of 2024. Subscribers to the Volocopter channels will be the first to learn about booking opportunities, which will be revealed in the second half of 2023.

The testbed was officially opened in November 2022 at the Pontoise airfield. It comprises a permanent vertiport structure developed by Skyports and ADP, equipped with passenger processing equipment expected to be deployed in Paris 2024, including security and passenger weighing systems.

Under the current plans, the VoloCity will fly these routes with a single passenger with hand-luggage and a fast turn-around between flights; during the turn-around, ground staff will replace the nine batteries every flight and the pilot will escort the arriving passenger to the terminal and then pick-up new the passenger and take the to the waiting aircraft.

The commissioning of the Pontoise test area was marked by the trial flights of: Skyports, with a drone flight dedicated to logistics, notably for medical transport (blood bags, health kits, etc.); Thales, with the deployment in real conditions of its onboard anti-collision system inside Hélicoptères; Pipistrel (manufacturer of a fully electric aircraft) with a recharging operation, followed by a flight, carried out using the Green Motion company's certified system, with the support of FFA (French Federation Aviation).

Other test campaigns will be organised around three main themes:

- The noise and vibration impact, with RATP Group carrying out a first measuring campaign in March 2022, in partnership with Bruitparif and the DGAC on the occasion of several Volocopter flights. The aim will be to quantify, predict and model the sound emissions of an eVTOL both close by and far away in order to meet acceptability criteria.
- The proper integration of drones and eVTOLs into conventional air traffic, complying with all the necessary safety conditions, will be tested at Pontoise, to ensure proper cohabitation with other aircraft. These tests will be carried out with the CORUS-XUAM consortium, a project financed by SESAR-JU (Single European Sky ATM Research-Joint Undertaking), under the leadership of Eurocontrol;
- All the various topics of the passenger route will be studied with the creation of a modular vertiport reception infrastructure designed by the British operator Skyports in partnership with Groupe ADP. This facility will enable the testing of boarding and disembarking operations, recharging batteries and vehicle maintenance, starting June 2022.

On 21 March 2022, Volocopter conducted public crewed and remotely piloted test flights at Pontoise as part of a week-long test campaign with the full-scale testing prototype, the 2X, to measure the aircraft's noise emissions. According to reports, the trials proved that noise levels were far less than a helicopter. Compared with a similar-sized Robinson R22, the eVTOL was 10 dB quieter while climbing and 15 dB quieter while hovering at 246'. At that altitude, the 2X had the same noise profile as the R22 at 1,640'.

Skyports is partnering with SITA, an air transport IT specialist, to provide a digital network for its vertiport. The companies said the technology will be in place in September to demonstrate how passengers would be able to navigate the advanced air mobility (AAM) ecosystem and complete a full passenger journey — from arriving at the vertiport terminal to departing in an eVTOL aircraft.

Vertiport manufacturer Skyports has teamed up with SITA and its Smart Path technology so passengers can book and reserve flights through a mobile app powered by SITA's biometric capabilities. When they arrive at a vertiport, SITA's face pods will be used to identify and verify passengers.

During the 2023 Paris Air Show AutoFlight and Groupe ADP signed a Memorandum of Understanding (MoU) to trial eVTOL "Prosperity I" flights from Pontoise Vertiport during the 2024 Paris Olympic and Paralympic Games.

Under the MoU, AutoFlight will conduct experimental piloted flights from the Pontoise Vertiport.

"Pontoise Vertiport offers a comprehensive infrastructure encompassing dedicated take-off and landing areas, a state-of-the-art passenger terminal, a fully equipped maintenance hangar, and advanced control areas," said a press release. "As Groupe ADP is spearheading the development of eVTOL infrastructure in the Paris Region with five additional vertiports in the making (Paris heliport in Issy-les-Moulineaux, Paris Austerlitz, Paris Charles de Gaulle, Paris Le

Bourget, Saint-Cyr l'Ecole), Pontoise offers the optimal setting to experiment AutoFlight's cutting-edge eVTOL technology."

Partners

eVTOL manufacturer:

Airbus
Ascendance Flight Technologies
Autoflight
EHang
H3 Dynamics
Pipistrel
Safran Electronics & Defense
Volocopter
Vertical Aerospace
Zipline

AAM/UAM aircraft operator:

Air France
Hélicfirst
Helipass

AAM/UAM training:

CAE
ESTACA

AAM/UAM aircraft maintenance and support:

Air France
Dassault Falcon Services

AAM/UAM aircraft charging and power supplies:

Green Motion

Vertiport/airport developer/operator:

Skyports

Vertiport/airport safety and security:

IDEMIA I&S
SITA

Airspace integration:

Cergy University and ESSEC (France)
ENAC (France)
Internest (France)
M3 Systems (Belgium)
Thales SIX (France)

Local authority partner/client:

Choose Paris Region
Groupe ADP
RATP Group

Others:

Leosphere: *Lidar equipment provider allowing remote sensing and precise weather forecasts*
Bruitparif: *noise environment technical assessment centre in the Ile-de-France region*

Ecole Polytechnique (France): *engineering school with an Executive Master's specialising in technological innovation and new business models*

Envirosuite: *real-time and localised data collection technologies provider allowing industries to improve their environmental performance*

UC Berkeley Institute of Transportation studies,

NEXTOR: *research university centre in transport and new mobility*

ONERA: *public research centre in the aviation, space and defence industries*

Royal Netherlands Aerospace Centre (Netherlands): *aviation expertise, consulting and research centre*

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Bologna

Timeline:

Planned – to be launched within two to five years; funds have been committed and key industry partners identified

Route(s):

City centre – airport (7.5km)

Programme description

Urban Blue, a company consisting of several airports in Italy (Rome, Venice and Bologna) and one in France (Cote d'Azur) aims to build a network of vertiports in partnerships with eVTOL developer Volocopter and Atlantia, an infrastructure investment holding company.

According to a trade Press interview, Aeroporti di Roma is also working closely with Italian Civil Aviation Authority (ENAC) and ENAV, with the first installation in Rome followed by Nice, Venice and Bologna. Initial services will be connections from the city centre to airports.

In June 2023 Lilium and UrbanV, a vertiport design and management company, announced their partnership to develop vertiport infrastructure will enable eVTOL networks for Lilium aircraft and customers with an initial focus on Italy and the French Riviera, where UrbanV says it will launch its operations, with potential for further markets in the future. Lilium says that it will benefit from UrbanV's strong foothold and key airport access in Rome, Venice, Bologna, Nice, Cannes, St. Tropez, and surrounding areas.

Partners**eVTOL manufacturer:**

Volocopter
Lilium

Vertiport/airport developer/operator:

Aeroporti di Roma
UrbanV

Others:

Atlantia

Sources:

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Norway

Country introduction

The government's "Zero Emission Regional Aviation Northern Norway – ZERA-NN" has been set up to develop a climate neutral aviation area in the Arctic region centring around Northern Norway, within the timeframe 2030-2035. The project centres around two regional based programmes: Bodø Airport development Agency and "Lofoten -Green Islands 2030".

The North Norwegian project has the following goals:

- The region's 26 airports will be launched as a network for testing and approval of new climate-neutral aircraft and the corresponding ground-based infrastructure.
- The region is to be developed into a leading energy producer in Europe, for sustainable aviation fuels, hydrogen or clean electric power.
- The Lofoten Region will be launched as a pilot area for the practical introduction of climate-neutral suitable aircraft, energy supply to the airports and with operational procedures.

In March 2023 Airbus Helicopters announced it had partnered with the Norwegian Air Ambulance Foundation to develop CityAirbus NextGen's future missions for medical services in Norway. "The parties will jointly measure the added value of electric vertical take-off and landing (eVTOL) aircraft for a selection of medical services use cases across the country to integrate the operational requirements right into the configuration of Airbus' eVTOL," says an Airbus press release.

"Focusing on how eVTOL aircraft can be used for different types of air medical missions, Airbus Helicopters and the Norwegian Air Ambulance Foundation will elaborate a comprehensive roadmap toward reducing emergency response time through the researched scenarios in Norway. In order to improve patient outcome and the overall performance of the Norwegian Emergency Medical Services system, the signatories will follow a long-term strategic approach to research the complementarity of existing assets, such as conventional helicopters, and eVTOLs when the technology enters into service. This approach could be further expanded in the region through collaboration with other countries to optimise operations beyond the national healthcare system.

As a result, the first step toward the creation of a medical eVTOL ecosystem will be the evaluation of the efficiency of the current emergency medical system in Norway, to then simulate different air medical services scenarios, integrating advanced air mobility assets, says Airbus. To develop the right concepts of operations for these complementary air medical missions, Airbus Helicopters and the Norwegian Air Ambulance Foundation will drive the definition of the foundational elements of the eVTOL ecosystem in the country, including for infrastructure, traffic management and energy sourcing and distribution.

There are several industry-led consortia planning to develop UAM services in Norway. The country relies on a network of regional airline routes and plans to evolve to develop all-electric short-haul services there by 2040.

In March 2020, EHang announced that the company obtained an operational flight permit for its two-seater passenger-grade AAV, the EHang 216, from the Civil Aviation Authority of Norway (CAA Norway). "This is the first operational flight permit for long-term testing of flight of the EHang 216 in Europe, laying a solid foundation for future urban air mobility (UAM) operations in other EU countries," said the company. "After the assessment of test flight plans and contingency plans, the CAA Norway issued an operational flight permit for EHang 216 to conduct flights together with a local customer for the purpose of testing and certification. According to CAA Norway, it believes the country's geographic conditions suit the testing of unmanned aircraft well. Covered with a long strip of land with an abundance of sparsely populated areas and free airspace, the country has started to build a network of small airports since the 1960s, connecting most territories throughout the country. For the test flight of EHang 216, CAA Norway looks forward to witnessing it at Elvenes Airport."

At the July 2022 Farnborough Air Show Lilium signed an agreement with AAP Aviation Group to develop an eVTOL network in Scandinavia. Under the agreement, AAP Aviation intends to purchase 40 Lilium Jets and collaborate with Lilium to identify and develop landing sites in the Scandinavian countries, starting with Norway.

In November 2021, Embraer's Eve Urban Air Mobility Solutions (Eve) and Widerøe Zero, announced they had signed a Memorandum of Understanding (MoU). This partnership plans to develop UAM solutions, with a focus on deployment of eVTOL operations. Andreas Kollbye Aks, CEO at Widerøe Zero, said: "We expect these highly flexible vehicles to be interesting in a variety of applications including for use in rural areas whether cargo or passenger transportation. Our partnership with Eve is part of our plan to accelerate the development of sustainable aviation, particularly in Norway." By 2026, the company aims to have at least one zero-emissions plane in commercial service. By 2030, Widerøe will start putting into service the zero-emissions plane that will replace the Dash8 fleet currently serving the Norwegian short-haul network. (See also, Östersund (Sweden)/Röros (Norway)).

In June 2023 at the Paris Air Show Eve Air Mobility announced the extension of its partnership with Widerøe Zero; the agreement involves up to 50 eVTOLs, a service and operation solutions package, as well as the implementation of Eve's Urban Air Traffic Management (Urban ATM) software solution. Eve says it will provide comprehensive services to meet Widerøe Zero's needs and specifications. These include eVTOL maintenance, repair and overhaul (MRO), component repair management, spare parts management programs, battery lifecycle management, and data integration solutions, alongside operations solutions, such as training services, consultancy services, and on-site support for fleet Entry Into Service (EIS).

Additionally, the company says the LOI involves implementing Eve's Urban ATM software to optimise the efficiency of Widerøe Zero's UAM flight operations by integrating its eVTOLs with other airspace users in low-level airspace, ensuring optimised performance and safety. Eve's Urban ATM solution offers tailored solutions, including integration with vertiport automation systems, vertiport resource availability management, flight planning and coordination services, and more.

In late April 2023 Nordic research agency Nordregio published a [report](#) which identified the most viable regional/commuter electric aircraft routes. For a route map see "Denmark entry".

The primary focus of this project was to assess route viability based on a fully electric airplane with a 19-passenger capacity, flying a maximum distance of 200 km for a duration of one hour. According to the report:

"In Norway, Bodø is an interesting case study to investigate as a local junction for electric aviation with connections to, e.g., Mo i Rana, Mosjøen and Narvik airports, which are all located close to planned power grid projects operated by Statnett. Additionally, Narvik and Bodø airports have the potential to accommodate routes to Kiruna airport in Sweden."

In June 2023 Norway's Elfly Group has unveiled its design of its pure, all-electric commercial seaplane, dubbed NoEmi (for No Emission) in Oslo.

According to a company press release:

"Noemi is being designed for flexible mobility in Norway with a design inspired by a boat, whose hull will enable the aircraft to take off using little power. The prototype (non-passenger version) of NoEmi is being readied for flight in 2025. Elfly is being designed for 200km air journeys, flying at up to 250kmh speed, from Year 2030. The seaplane, with a non-pressurised cabin, will be powered by two electric motors with up to 1MW combined output.

"Elfly's design is part of a research project, funded by private investors and the Research Council of Norway (RCN).

"The group is working to obtain certification for its EG1A test vehicle to CS23 Level 4, which will enable the aircraft to evolve up to a 19-seat seaplane. Noemi, however, is being offered in three cabin layouts. First and foremost, as a business/executive cabin with nine seats, plus luggage; complemented by a VIP layout with six seats, wherein the whole aircraft could be chartered. A tourist pleasure flight model with 13 seats, minus baggage, will also be offered. In a nod to its flexible functionality, a cargo version is also planned, plus a medevac version. Unlike other electric aircraft developers, Elfly intends to pursue an operator's certificate and bring the first aircraft into service, initially connecting the fjords of Norway. The desire is to have the first 15 seaplanes flying along the west coast of Norway by 2030.

"Thereafter, we could expand into other short hop markets, considering that 80% of the world's population live by the sea," said Eric Lithun, CEO of Elfly.

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el-fly.no

NEOM

Timeline:

Planned – to be launched within two to five years; funds have been committed and key industry partners identified

Programme description

In December 2021 NEOM and Volocopter announced they were collaborating to design, implement and operate the world's first bespoke public vertical mobility system. According to a Press release: "Air taxi and vertical logistics services will be fully integrated with the overall multi-modal and zero-emission public transit system in NEOM." It continues: "The joint venture will be the sole operator of initial public transit routes across NEOM, while enabling an open eVTOL ecosystem for vertical mobility services including logistics, emergency response and tourism."

In June 2023 Volocopter announced the successful completion of a series of air taxi test flights in Saudi Arabia's NEOM. "This marks the first time an eVTOL (electric vertical takeoff and landing) aircraft has received a special flight authorization and performed test flights in the Kingdom of Saudi Arabia," according to a press release. "The flight test campaign lasted over a week and built on 18 months of collaboration between NEOM, the General Authority of Civil Aviation (GACA), and Volocopter, with the aim of implementing and scaling an electric UAM ecosystem and testbed in NEOM. The parties worked closely to ensure full regulatory compliance and safety ahead of the test campaign."

NEOM has placed a confirmed order of 15 Volocopter aircraft to commence initial flight operations within the next two to three years.

The partnership between NEOM and Volocopter is to lead the design and development of "a three-dimensional public transportation system, advancing the technical, regulatory, and infrastructure solutions for eVTOL operations across NEOM" and offers vertical mobility services as an integral part of the city's "multi-modal and zero-emissions public mobility system, providing seamless connectivity for passengers and goods."

The release continues, "Volocopter and NEOM have agreed an initial order of 10 VoloCity passenger and five VoloDrone logistics aircraft to support early activation of flight operations. The joint venture will scale-up its activities from the beginning of 2022 to incubate urban air mobility (UAM) in the region and seed a vertical mobility ecosystem."

NEOM is located in Tabuk at the far north-west of Saudi Arabia. It will cover a total area of 10,200 square miles and extend along the coast of the Red Sea. Saudi Arabia aims to complete the first section of NEOM by 2025. The project has an estimated cost of USD500 billion.

Partners

eVTOL manufacturer:

Volocopter

Sources:

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