



## A Message from the Foundation Committee

Welcome to our Q4/2021 National Newsletter.

We hope this newsletter finds you all well, and looking forward to spending the Festive Season with family and friends “in person”!

We are happy to say that as we slowly return to a “new normal” there is a greater level of certainty around our event and reunion dates. We are looking forward to our reunions in Melbourne, Canberra and the long awaited Grand Milestone Reunion in Sydney at the Qantas Campus on the 30<sup>th</sup> of April.

Of particular interest to many of you will be this edition of the Red Tail News and Reviews section. We cover the news of the Qantas decision to replace its 737s and 717s as well as their focus on emission reduction. Following on from these are an overabundance of articles on emerging electric and hydrogen power plants that are set to become common use in the future of aviation– certainly some very interesting reading.

It has been another challenging year but with the Qantas resilience that has been in-built in us, we move forward and look towards a more positive 2022. From all of us at the Foundation and Chapter Committees, we wish you all a very Merry Christmas and continued good health in the coming year.

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9. Red Tail News and Reviews (Q4 2021)

## 1. Red Tail Grand Milestone Event – Sydney – Saturday 30 April

Red Tail is pleased to announce that earlier this month we were able to secure the Qantas Campus in Sydney as the venue for our Grand Milestone Event and Saturday, the 30<sup>th</sup> of April is the planned date. It will be a luncheon event commencing at 12pm until 4pm.

Planning for the event will commence immediately after the Christmas break and more details will become available by February.

This event will immediately be followed by the sealing of the Time Capsule in Longreach and mark the end of our Centenary Celebrations.

## 2. Red Tail Time Capsule at Longreach

We would like to thank the many of you who have joined us in this initiative. We have received very positive updates from many of you who have mailed your momentos for inclusion in the Time Capsule.

Our plans are to return to Longreach to seal the capsule immediately after the Sydney Grand Milestone Event sometime in May 2022.



### Background on the Red Tail Time Capsule at the Qantas Founders Museum - Longreach

To commemorate our contribution to the 100 years of Qantas and our visit to Longreach in April 2021, the Red Tail committee has organised to leave a time capsule with our member's momentos. The capsule will be positioned under the nose of the 747 which is on display at the Qantas Founders Museum in Longreach.

The capsule will be left open until mid- April 2022. Red Tail Members and Qantas Staff past and present who wish to leave a small momento can do so by mailing it to the Qantas Founders Museum. Members are encouraged to consider leaving a Long Service Pin or something small as space is very limited.

**Attached is a form that you can print out and complete to accompany your momento.**

Include the form with your momento and mail it in a "small" Australia Post Padded Envelope to:

**Qantas Founders Museum  
Attn: Red Tail Time Capsule  
PO Box 737, Longreach. QLD 4727**

For more information on how you can participate email [admin@redtailroadto100.com](mailto:admin@redtailroadto100.com)

### 3. Western Australia Reunion – 16 November

Our Western Australian event was celebrated on the 101<sup>st</sup> Anniversary after a few postponements due to the pandemic. Like all earlier Reunions in other states, WA did not disappoint and also achieved over a hundred attendees, despite their borders being locked out for interstaters. For more photos of the event – [click here](#) to access them on the WA Facebook page.



### 4. Forthcoming Red Tail Chapter Reunions

Planning for the coming State and Chapter Reunions have also recommenced and the following are currently planned or in the planning.

Chapter	Date	Venue	Time
Melbourne	Sunday, 20 February 2022	Windy Hill Venue, cnr Napier & Brewster Streets, Essendon	12.00pm
Brisbane	TBA - early March 2022	TBA	11.00am
Freight – Sydney	Saturday, 26 February 2022	The Rocks	12.00pm
Canberra	TBA - Feb/Mar 2022	Sebel Hotel Canberra Civic	11.00am
Sydney	Saturday, 30 April 2022	Qantas Campus – Mascot	12.00pm
Longreach	Early May 2022	Qantas Founders Museum	12.00pm

Please refer to the Chapter pages on this newsletter for more details on each of these reunions.



## 5. The Future of Red Tail beyond the “Road to 100”

As mentioned on our last Newsletter, the Foundation Committee is working on the plan for the future of Red Tail beyond our Centenary initiative.

Discussion with the various Red Tail committees, external advisors and with Qantas have commenced. A number of concepts and new initiatives have been proposed and these will allow us to develop our new Red Tail objectives.

A more detailed plan is still a couple of months away but discussions are progressing well and we are very encouraged by the feedback we have received, especially from Qantas.

In numerous Member feedbacks, many of you have expressed the desire for Red Tail groups to continue fostering friendships, sharing stories, experiences and attending gatherings. Further feedback has also suggested that most prefer Reunions to be held every two years. It has also been noted that since our trip to Longreach, Members have suggested that we maintain a close relationship with Qantas and the Founders Museum. All these have been factored into our planning. We can also confirm that Reunion gatherings for all Chapters will remain as part of our activities and we are working with Qantas and the Founders Museum to ensure we not only maintain a close relationship, but more importantly, a more active one.

In our last Newsletter we mentioned we would need to modify our name to better reflect our new objectives. Whilst we have every intention to keep “Red Tail” we need to replace “Road to 100” as we move to the next stages and redefine our objectives.

We have received some good feedback on suggestions for the new name and we plan to announce these at the Sydney Grand Milestone Event on the 30<sup>th</sup> of April.

We look forward to being able to provide much more details on our new initiatives in our next Newsletter.



## 6. Qudos Bank

### Qudos Bank wins Best Large Mutual Bank for second year running

The results of the 2021 [Australia's Best Banking Awards](#) from financial comparison site [mozo.com.au](https://mozo.com.au) are out, and for the second year running, Qudos Bank has beaten their competitors to the prestigious title of Australia's Best Large Mutual Bank.

In order to determine the winners, Mozo's panel of judges examined data, assessments and results from multiple Mozo Experts Choice Awards over the past year up to June 2021. In total 89 banks were considered, but only the most outstanding banks, mutuals and credit unions made the final cut.

As part of these awards, Qudos Bank was judged against other large mutual banks, which are defined as customer-owned institutions with over \$4 billion in residential deposits. Unlike your traditional bank, they're committed to putting their profits back towards their customers' needs instead of external stakeholders.

According to Mozo's Expert Judge Peter Marshall, Qudos Bank's versatility made them the obvious pick.

"Qudos won several Mozo Experts Choice Awards over the 12-month period that we reviewed to identify the best all-round banking providers. And for the categories where they didn't win awards, they often still performed very strongly," he said.

On top of Qudos Bank's recent Mozo wins for products like the [Lifestyle credit card](#), [QSaver account](#) and [car loan](#), the mutual also ranked highly in categories including home loans and term deposits.

So whether you're looking to stash away some savings or take out a loan for your next set of wheels, you can rest assured Qudos has some of the most competitive products in the market.

"Qudos offers sharp prices for a wide range of financial product categories, and that consistency is exactly what you want if you're someone looking to have all your banking in one place," Marshall said.

"As a member-owned bank, Qudos aims to take care of their customers by offering great value products across the board. And it looks like they're achieving this goal with this back-to-back award for Australia's Best Large Mutual Bank as evidence."

## 7. From the Archives:

### The Sea Beneath

*The remarkable career of a senior Qantas aeronautical engineer who, in retirement, has looked down from the skies to the sea beneath*



Qantas Flight QF7474 departs Sydney, 22 July 2020

On the afternoon of Wednesday 22 July 2020, **William (Bill) Bourke** and his wife Elizabeth stood and watched, as did many other Sydneysiders, as Qantas Flight QF7474 flew over the City before setting course for Los Angeles and the aircraft graveyard in the Mojave Desert of the USA.

The Qantas jet, VH-OEJ, a General Electric-engined Boeing 747-400 was making the last Qantas 747 'jumbo' flight, marking the retirement of an aircraft much loved by pilots and passengers over nearly 49 years flying with the airline. The 747 was the aircraft that introduced mass air travel to the world at affordable fares.

Bill, Sydney Heritage Fleet's Maritime Records and Research Centre Curator, had special reasons for deep feelings as he watched Flight QF7474 make two low altitude flights through Sydney Heads in a farewell to Sydney and Australia. Bill's eldest son, Liam, also watched the sad event from North Head with a number of his pilot friends; Liam had flown Qantas' third-last 747 to the Mojave Desert just a few weeks before.

Bill Bourke joined Qantas in May 1969 as a junior engineer in its Technical Development Department, a small group of professional aeronautical engineers. When Qantas was the first airline to order the longer range Boeing 747-200B, the group's task was to manage its introduction, including contract arrangements, specification of interiors and aircraft systems. They then managed the delivery in 1971 of the first 747-200B aircraft, with the assistance of Qantas' Technical





The first Qantas Boeing 747SP, VH-EAA, during production. Bill and the Qantas production inspector are on the wing.

Bill took up the position of Qantas Technical Representative at Boeing in the US in March 1980, a post he held until December 1982. He took delivery of two QF 747SP aircraft, he and his family returning for some home leave on the first 747SP's delivery flight to Australia. Also during that time he took delivery of three 747-200B aircraft and managed the return of one of the 747SP aircraft to Seattle for certification of its 5th engine carriage capability. Bill's time in the US Pacific Northwest was a highlight of both his Qantas career and his family's life.





The Qantas acceptance team and Boeing staff at a 767-338 delivery on the flight line at the Boeing Everett plant, north of Seattle, USA. Bill flew back to Australia on the aircraft's delivery flight, with one stop in Nadi, Fiji.

In the years after returning to Sydney at the end of 1982, Bill project managed the introduction of the Qantas Boeing 767-200, the 747-300 (stretched upper deck version), the 767-300 and finally the 747-400 aircraft, the version which made the last flight from Sydney.

Bill was present in Seattle in August 1989 to finalise with the then Civil Aviation Authority Australia, the first Qantas Boeing 747-400 (VH-OJA) aircraft's First of Type Certification of Airworthiness and eligibility for entry on the Australian Register. This occurred prior to Qantas' acceptance of the aircraft, its positioning flight to London and then its record non-stop flight to Sydney.



Seattle, August 1989; Bill and the first Qantas Boeing 747-400 (VH-OJA) aircraft on the flight line at Everett during acceptance procedures.

### **Bill Bourke's aircraft world**

Bill has much to be proud of in the key roles he played in introducing new aircraft to Qantas, but those who know his quiet modesty will understand when he says:

"I feel so honoured, privileged and professionally satisfied, to have dealt with so many past Boeing Vice Presidents, the original designer of the 747, Joe Sutter, the numerous design engineers, the various sales and contract staff at Boeing and the engine manufacturers at Pratt & Whitney, General Electric and Rolls Royce." And Bill is not name dropping when he says:

"I also had a lot to do with Boeing's counterparts at Airbus Industrie, British Aircraft Corporation and Aerospatiale (the Concorde manufacturer) and other manufacturers like McDonnell Douglas and their DC10 and MD 11 aircraft. Lockheed, too, and their L1011 aircraft, Britten Norman on the Isle of Wight and their three engine Trislander aircraft that I introduced to Fiji Airways; and the Japanese manufacturer Namco of the twin turboprop aircraft the YS 11 which I evaluated for Air Nuigini, but was not introduced to the airline. There are many stories I can tell about that exercise!!

"I also had the benefit of working with so many Qantas professional and maintenance engineers dealing with engines, interiors, structures, electrical/electronic and aircraft systems and aircraft performance as well as the professional pilots of our Flight Operations Division, many of them with WWII experience!"



## **International Air Transport Association**

IATA Centre, Route de l'Aéroport 33  
P. O. Box 416  
CH-1215 Geneva 15 Airport  
Switzerland

### TO WHOM IT MAY CONCERN

We are pleased to acknowledge Mr Bill Bourke's participation over many years as the representative of Qantas Airways in the work of IATA on addressing aviation environmental issues. Bill began as an alternate member on the initial Aircraft Noise Advisory Committee (ANAC) in the 1970's, changing to formal Qantas member on the subsequent Aircraft Noise and Emissions Advisory Committee (ANEAC) from 1987. He has held Executive Officer positions on later committees established as a result of governance and structural changes within IATA – notably as vice-chairman of the Aircraft Noise and Emissions Task Force (ANETAF) in 1989/90 and then its chairman from 1991 through 1995, member of the Steering Group of the current Environment Task Force (ENTAF) established in 1995 and then its chairman from November 1998, stepping down at its most recent meeting ENAF/13 in April 2002.

Mr Bourke's long standing and valuable contribution to IATA's work has been at a time of significant activity in the ongoing development of international environmental standards for aircraft, the responsibility of ICAO's Committee on Aviation Environmental Protection (CAEP). Since the early 1990's he participated in either IATA or Australian delegations to CAEP working groups and its formal meetings, notably CAEP/2 in December 1991, CAEP/3 in December 1995, CAEP/4 in April 1998 and its Steering Group in September 2000 in the lead up to CAEP/5 in January 2001. Through that period he was collectively involved in developing industry policy, positions and input to the ICAO forum, a process which has seen the adoption of new standards to the Annex 16 viz. a more stringent oxides of nitrogen standard for jet engines (CAEP/4) and more recently a new Chapter 4 noise standard for subsonic jet aircraft (CAEP/5). This collective effort has also contributed to the adoption by ICAO's General Assembly in October 2001 of a Resolution on aviation environmental protection which amongst other matters promotes a balanced approach to aircraft noise management, a favourable outcome which had been strongly advocated by the airline industry.

In addition he participated in a number of IATA delegations in the 1990's addressing regional and local issues, most notably reviews of the UK Government's night noise regime at London airports and noise issues at Narita and Hong Kong airports, the latter with the assistance of IATA's Regional office in Singapore.

Philippe Rochat  
Senior Director  
Aviation & Environment

An acknowledgement of Bill Bourke's contribution to aviation environment issues from the Senior Director, Aviation and Environment, at the International Air Transport Association (IATA). Bill was involved with IATA from 1970 to 2002.

There was another side to Bill's Qantas career. A large part was to do with aircraft environmental issues; aircraft/airport community noise and aircraft engine emissions. From 1987, after his boss and mentor retired, Bill assumed the role of Qantas' authority on these issues. He represented Qantas

and the airline industry on airport consultative committees nationally and overseas. For many years he was chairman of IATA's various environmental committees and attended numerous IATA and ICAO forums and meetings on these matters.

### **Paying tribute**

Not long before the Qantas 747 era came to an end, Bill and his wife Liz visited the Historical Aircraft Restoration Society's (HARS) museum just south of Wollongong where the first 747-400 aircraft, VH-OJA, which Bill introduced to Qantas, is on display. Bill donated to the museum an extensive album of photographs taken during the aircraft's production.



Liz and Bill Bourke under the wing of Qantas 747-400, VH-OJA, on a 2020 visit to the Historical Aircraft Restoration Society's (HARS) museum just south of Wollongong, where the aircraft is now on display.

### **The big question**

Bill Bourke, in his retirement, is volunteer Curator of Sydney Heritage Fleet's Maritime Records and Research Centre. How does an aircraft engineer, after a career such as Bill's find himself as Curator in a maritime museum?

The answer lay close to home. Bill became interested in, then fascinated by the sea-going career of his father in law, Captain Ronald Charles Pratt, and his family.

Captain Pratt joined the Australasian United Steam Navigation Company (A.U.S.N) in 1927 as a cadet aged 15 years. After a brief period away from A.U.S.N he served with them again from 1933 to 1946, including time as a Merchant Navy mariner during WWII. He joined the Queensland Coast and Torres Strait Pilot Service in July 1948 and remained with them until he retired from the sea in 1976. At the

time of his retirement, Captain Pratt was Senior Pilot of the Service and the first Grand Pilot (to pilot 1,000 ships).

Researching the life of Captain Pratt and his family, introduced Bill to the world of maritime museums, so much so, that he became a volunteer in the library at Sydney Maritime Museum, home of Sydney Heritage Fleet in 2003, not long after retiring from Qantas. On the retirement of the Fleet's long-serving Honorary Librarian, Joseph (Lew) Lewis-Hughes in 2005, Bill became Curator and established the Maritime Records and Research Centre, at the core of Sydney Heritage Fleet's significant Collection of historic ships, artefacts, and research information.

A three-part series, written by Bill on the career of Captain Pratt, was published in the Sydney Maritime Museum's magazine *Australian Sea Heritage* .

The first of a three-part series of articles about the life and career of Bill Bourke's father-in-law, Captain Ronald Pratt, published in *Australian Sea Heritage* magazine.

Unbeknown to Bill when a schoolboy in the 1950s, the ship he saw in the Brisbane River, Pilot Vessel *John Oxley*, was to enter his life again, in connection with his father-in-law's service as a Pilot, and as one of Sydney Heritage Fleet's historic vessels.

Bill serves on the Board of Directors of Sydney Maritime Museum and the Board of Sydney Maritime Museum Custodian which holds the SMM Collection in Trust.

He also finds time for the retirement hobby of painting. Needless to say, ships figure in his output.



Bill Bourke's painting of Manly ferry South Steyne laid-up in Berrys Bay

No matter the current pull of the sea for Bill, it was to the skies that he looked as the Qantas 747-400, Flight QF7474, departed Sydney and took with it an era of flying remembered with great affection by so many around the world.

## 8. Chapter Newsletters:

### Western Australia



Patron  
Dick Chandler



Reunion Director  
Chris Shearwood



Secretary  
Robbie Murray



Committee  
Tony Mc Grath



Treasurer  
Val Jolley

### *Western Australia Milestone Reunion: 16 November 2021*

**When:** Tuesday, 16 November 2021  
**Where:** Mount Lawley Golf Club  
1 Walter Road West, Inglewood WA 6052  
**Time:** From 6pm till late

ALL SMILES AND HAPPY FACES AT THE WA RED TAIL ROAD to 100/101<sup>st</sup> Reunion!



Chris Shearwood  
Honorary Red Tail Director WA  
on behalf of the **WA Red Tail Road to 100** committee  
[gantas100birthday@gmail.com](mailto:gantas100birthday@gmail.com) [www.redtailroadto100.com](http://www.redtailroadto100.com)

## Australian Capital Territory



Patron  
Charles Wade



Reunion Director  
David Fisher



Treasurer  
Dick Collard



Committee  
Pat Williams (nee Esguerra)



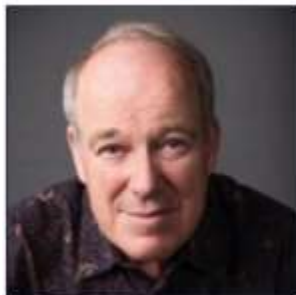
Committee  
Mike Torpy

### *ACT Milestone Reunion: February or February/March 2022*

**When:** February/March- Dates TBA  
**Where:** Sebel Hotel Canberra Civic  
197 London Circuit, Canberra ACT  
**Time:** 11.00am  
**Theme:** Cocktail style function

*David Fisher – Reunion Director – ACT*

## New South Wales



Patron  
Jim Bradfield



Reunion Director  
Ian Robinson



Committee  
David Thompson



Committee  
Judy Rose

### *Sydney Grand Milestone Event: March 2022*

Planning of the Grand Milestone Event in Sydney has commenced with more details to follow shortly.

#### **Save the Date**

**When:** Saturday, 30 April 2022  
**Where:** Qantas Campus,  
10 Bourke Rd, Mascot NSW 2020  
**Time:** 12.00pm – 4.00pm  
**Cost:** TBA  
**RSVP:** TBA

*Your Sydney Committee, Judy Rose, David Thompson, Ian Robinson*



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## Queensland



Patron  
Phil Thow



Reunion Director  
Peter Kinnane



Treasurer & Secretariat  
Max Ellerman

### *Queensland Milestone Reunion: Early March 2022*

**Where:** TBA  
**When:** Early March

We are working with several venues to host our March 2022 event, more details to follow shortly.

## Far North Queensland



Patron  
Phil Thow



Reunion Director  
Frances Mellick



Committee  
Val Dudley



Committee  
Geoff Jensen



Committee  
Fiona Nicholl

### *FNQ Chapter – Cairns*

Your Redtail FNQ Committee wishes you all a Merry Christmas and a Happy New Year.  
Any further news will be advised on our Facebook page - Red Tail Road to 100 FNQ Reunion.

Stay well.

Frances, Geoff, Val and Fiona.



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## Victoria



Patron  
Rod ('Chirpa') Robson



Reunion Director  
Pat Williams



Secretary  
Ian Carew-Reid



Committee  
Robyn Walters



Dave DeBono  
Committee



Mike Menner  
Committee

### *Victoria Milestone Reunion: 20 February 2022*

**Save the date for our Centenary Milestone Reunion.**

- When:** Sunday, 20 February 2022  
**Where:** Windy Hill Venue,  
cnr Napier & Brewster Streets, Essendon **5**  
**Time:** From 12.00noon for lunch – till late  
**Cost:** **\$35 per person**  
**RSVP:** Please [click here](#) and complete your expression of interest

Enjoy the Cocktail Food menu selection, tea & coffee. Drinks at own expense, bar prices.

#### **Payment Details:**

- BSB - **704-865** (Qudos Bank, may appear as Indue Ltd)
- Acct Nbr - **02299049**
- Acct Name - **Patricia Williams** (Committee members, Robyn Walters & Ian Carew-Reid are signatories on account)
- Remember to Add name/s in **Description**

We are keen to hear from you. Please [click here](#) and complete your expression of interest.

**Pat Williams - Reunion Director Victoria - [pat.1203@gmail.com](mailto:pat.1203@gmail.com)**



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## Junior Commercial Trainee



Patron  
Bruce Baird



Reunion Director  
Chris Kewley

I wish my fellow JCTs and families a very merry Christmas and I sincerely hope that 2022 is a much better year for you all, compared to the previous couple of years.

Until next year.

Kind regards  
Chris Kewley  
0419.628848 (m)

## Qantas Flight Hostess Club Inc.



Patron  
Joan, Lady Cutler



President  
Annie Oeding



Secretary  
Jane Pickhaver



Treasurer  
Liz Laughlin



Editor "Hostess"  
Robyn McGaw



Co-Author  
50<sup>th</sup> Anniversary Book  
Karen Hayward



### FROM THE PRESIDENT

Dear Members and Friends

The time has arrived for me to take a rest after ten years and over 40 Issues of 'Hostess' your newsletter.

I recall Robyn Treseder's comments in the 50<sup>th</sup> Anniversary Edition book printed in 2015 and posted to all members at the time, Robyn said...

'Late 2011 the Qantas Flight Hostess Club began communicating via the internet with HOSTESS, the brainchild of the then president Lynn (Barnett) Hutchinson and Secretary Robyn (Wilson) McGaw. It arrived in members 'mailboxes', did not require inserting in envelopes and without the postage costs.

Little did I know that my time as editor would continue until now.

I would like to thank all members and friends, together with the Melbourne and Queensland Branches, for their contributions over the years, stories of their functions and lots of photos as well as other snippets. Your contributions have been very much appreciated as, without them, we would not have our regular newsletter to keep people up to date.

I hope you have all enjoyed the issues and the beautiful colour photos inserted with the stories. I will miss communicating with you all and 'pulling teeth' to get the information.

However, I would now like to wish your new Editor in bringing you a new and vibrant edition of 'Hostess' your newsletter.

**Robyn McGaw**  
EDITOR



## FROM THE PRESIDENT

It has been my pleasure to have served as your President for almost three and a half years. I will be handing over my term at the end of today's meeting and cannot thank my Committee enough for all their hard work and dedication. It has been fun and fruitful and, dare I say, eventful negotiating the lockdowns. Best wishes to each one of you and Season's Greeting for the coming Yuletide.

**Annie Oeding**  
PRESIDENT

## ANNUAL GENERAL MEETING

The Annual General Meeting of the Qantas Flight Hostess Club Inc. was held on Monday 15 November 2021, at Deckhouse, Woolwich. Due to lockdown we were only two months late holding this meeting. However, a lovely day was had by all in beautiful surroundings. This was an election year for the Club and the new Executive and Committee are as follows:

## YOUR NEW EXECUTIVE

President	Beverley Cohen
Vice President	Annie Oeding
Secretary	Louise Flitcroft-Paisley
Treasurer	Liz Loughlin
Membership Officer	Marj Howard
Editor Newsletter	Robyn Treseder



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## FROM THE MELBOURNE BRANCH

Thursday 15 July at Vaporetto Bar and Eatery at 12noon for our 2021 A.G.M.

Our first meeting took place on the 11 January and was a casual Ladies get together at 'Giorgios' on High Street, Armadale for morning coffee. This was after an absence of some 13 months and it was great to see your lovely smiling faces again.

Next on 6 February came the function held at 'McCrae' the lovely beach house of Lorraine our hostess. It was a lovely sunny day, we had a very good turn up of some 14 attendees. Everyone enjoyed the ambience, the hospitality and the company.

Not to let the momentum diminish, the committee hosted a high tea at (our home) on 29 April. Also well attended, it was so good see so many members and partners free to join us and it was a lot of fun.

We would love to build our club membership again and we ask anyone who may know of lapsed members to encourage them to join with us again, they would be very welcome.

This was not an election year, so everyone could relax and gather their reserves in order to be on the committee next year. It is after all a rewarding thing to take on and will secure the continuation of our treasured club and would certainly enhance your resumé.

Your committee members, Lorraine McKenzie and Jane Shipp, have been a great support during this year to myself, as it was impossible to even contemplate going down to Melbourne. Thank you Lorraine and Jane for all their splendid help and bringing such good energy to our meetings and functions.

Which brings us to the topic of the "Famous Christmas" party and the modified version that we have had to adopt because of those uncertainties. The venue we have chosen is casual but still a rather nice place to meet up and raise a glass of good cheer, which is what this is all about. I have booked a table at the Malvern Vale Hotel situated at 1321 Malvern Road, Malvern. We will have a long table all set up nicely, people can go and order their own meals, pay for them and go to the bar to buy their own beverages. This event will take place at 12.30 pm **Saturday 4 December...** and will continue until we all go our separate ways. RSVP me no later than 27 November please.

**Geraldine Black**  
PRESIDENT

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## FROM THE QUEENSLAND BRANCH

### From the President Report of Pat Guest

It was especially pleasing that eighteen ladies were able to attend, and as usual nine of our loyal members travelled

It should be noted that thirty four years ago, Anne Lewis and Bronwyn MacLeod brought us together to form the Queensland Branch of our Qantas Flight Hostess Club.

We may have come together in the name of Qantas, but nearly thirty four years later we remain firmly together as friends.

Once again, many, many thanks to my hard working committee for all your support and friendship.

We have been together now for three wonderful and rewarding terms of office.'

On Tuesday, 7th July we were able to enjoy our first meeting of the new financial year. Over lunch at The Terrace Restaurant, Emporium Hotel, Southbank, we optimistically organised tentative arrangements for our 32nd AGM.

Fortunately, there were no new Covid regulations to disrupt our AGM plans and on Wednesday 5th August 2020 we successfully held our 32nd Annual General Meeting at the United Services Club.

This was an election year for the Queensland Branch and we thank Pat for her many years as President and her hard work keeping her girls together.

### THE NEW COMMITTEE ARE:

President Jill Ryder  
President Pat Guest  
Secretary Deirdre Mooney  
Treasurer Ria Illich  
Committee: Libby Elscome-Schmidt, Sheila Wybrow,  
Gillian Drew, Irena Harrington, Diana Bite

60 members and friends attended our Christmas Luncheon at City Tattersalls Club on Wednesday, 24th November.

Photos: Taken at the Queensland Branch Melbourne Cup luncheon at the home of Jill Ryder.

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For all life's destinations

## The Americas



Patron  
John Rowe



Reunion Director  
Jim Prasad



Committee  
Patrick Clark



Committee  
South America  
Bill Duplak



Committee  
Northern California  
Carla Boy



Committee  
Arizona & Nevada  
Donna MacEachern



Committee  
East Coast USA  
Anne Fullford



Committee  
Texas/Oklahoma/Louisiana  
Maxine Cole Coday

### *The Americas Milestone Reunion: Los Angeles, Second Half of 2021*

## Tales from Red Tail the Americas

### Tales from the Red Tail The Americas for Forth Quarter 2021

We are optimistically hopeful that 2022 and beyond will bring life back to normal or a new normal. As we emerge from the Covid 19 restrictions of the past 2 plus years and continue to gain confidence that the pandemic is finally visible in the rear-view of our journey and the future looks safe and clear.

During 2021 some of us lost families and friends, not all due to CIVID but other causes too, but unfortunately, due to covid restrictions, we could not provide support during their time of grief.

On a lighter note, we had to postpone our 100<sup>th</sup> birthday celebration in 2020 and 2021 too but hope to schedule one in 2022.

Last month, Nirupa and I took our first flight in 2 years to Vancouver, Canada. Had to get 3 Covid tests for a 10 day trip. In our opinion, flying is safe but not fun yet. Hopefully it will continue to get better.

Wish all our Red Tail family and friends in the Americas and around the world a very merry Christmas and a healthy, prosperous and safe new year.



For all life's  
destinations

## 9. Red Tail News and Reviews (Q4 2021)

### How Qantas Justifies The Return Of The Airbus A380

- by [Andrew Curran](#)

December 7, 2021

Qantas has surprised many airline industry observers with a decision to bring back 10 of its 12 Airbus A380s. The Australian airline has brought forward the aircraft's re-entry into service date and now plans to have five A380s in the air by mid-2022.

#### **A big plane with a big environmental footprint**

But the A380 is a big plane with an oversized environmental footprint. On that point alone, how does Qantas, an airline that proudly spruiks its eco-credentials, justify bringing the jumbo back into service?

This is especially so when the refurbished A380s re-entering service will contain fewer seats than before (a refit topped up the number of premium seats at the expense of main cabin seats, reducing the overall seat count). The outcome is the A380's emissions per seat will increase.

There's a simple reason why the [Qantas A380](#) is coming back – the airline believes it can fill the plane. Speaking at a CAPA conference on Tuesday, Qantas CEO Alan Joyce said it was a matter of meeting demand. But he admitted Qantas was conscious of the A380's environmental footprint.

*"The environment and what we do on it is the next big item and the biggest challenge for us – we are very conscious of that,"* Mr Joyce said.



It's a matter of meeting market demand says Qantas CEO Alan Joyce about returning the A380 to service. Photo: Getty Images

#### **Qantas has spent a lot of money on their A380s**

After a lengthy sojourn at Victorville, California, the first Qantas A380 returned to Sydney last month. As more A380s arrive back, Qantas will resume operating the aircraft on the Sydney – Los

Angeles – Sydney run in late March and [Sydney – Singapore – London – Singapore – Sydney from in July.](#)

Timelines have proved a constantly changing beast, but right now, Qantas plans to have five A380s in the air by July, six by the end of 2022, and the remaining four arriving throughout 2023.

While several other airlines have withdrawn their A380 fleets from service, Qantas maintains the A380 can work well on long-haul routes. The plane has always proved popular with passengers, and Qantas was busy refitting its A380s with the airline's most up-to-date seats when they decided to ground the fleet in 2020.

*"We spent a lot of money on them,"* admitted Mr Joyce earlier this year. In addition to the cabin overhaul, Qantas spent US\$1 billion on fleet write-downs last year that included the A380s. That charge was a big short term financial hit for Qantas but makes operating A380 flights in the future much cheaper. That significantly bolsters the business case for the A380's future at Qantas.



Qantas has invested a lot of money in recent years in its A380 fleet. Photo: Getty Images



**Hard to avoid the environmental elephant in the room**



But it's difficult to avoid the elephant in the room – the A380's environmental impact. Qantas plans to be carbon neutral by 2050. One potential short-term solution is carbon offsets, but Mr Joyce has mixed views on this solution.

*“There is a lot of bad stuff out there that's given carbon offsets a bad reputation,”* Alan Joyce told CAPA. He says the Qantas carbon offset program is high quality but expensive, adding 11% of customers across the entire [Qantas network](#) now buy carbon offsets when booking a flight.

As far as medium-term aviation environmental fixes go, Mr Joyce is a fan of sustainable aviation fuel (SAF) and says an announcement on the subject from the airline is imminent.

*“We think that (SAF) has to be the way we get through this,”* Mr Joyce said. *“You have to use all of the weapons in your arsenal to minimize your impact.”*

But what (if any) role the A380s will play in Qantas' impending trials and takeup of sustainable aviation fuels remains unknown.



[Andrew Curran](#)

Lead Journalist - Australasia - A Masters level education and appetite for travel combines to make Andrew an incredible aviation brain with decades of insight behind him. Working closely with airlines including Qantas and Virgin Australia, Andrew's first-hand knowledge of the challenges and opportunities facing Australian airlines adds exciting depth and color to his work and sees him providing commentary to ABC News and more. Based in Melbourne, Australia.

## Airbus beats out Boeing: Qantas to order A321XLR, A220 jets

Winning the multi-billion dollar order for Qantas' future fleet is sweeping victory for the European plane-maker.

By [David Flynn](#), December 16 2021



- Airbus A320neo series jets replace Boeing 737 to become new domestic workhorse
- Airbus A220 series to replace regional Qantas Boeing 717s
- Up to 134 new jets will arrive between 2023 and 2033

Qantas will embark on a sweeping overhaul of its domestic fleet with the popular A320neo family – including the extended-range A321XLR – replacing the Boeing 737 as the airline’s domestic and short-range international workhorse.

Airbus edged out Boeing and its 737 MAX in what Qantas termed ‘Project Winton’ – named after the airline’s 1920 birthplace in central Queensland – which will redefine its fleet for decades to come.

Also on the way out are the ageing Boeing 717s flown by the regional QantasLink service – they’ll be upgraded to the Airbus A220.



*Boeing's out and Airbus is in, with the A321XLR as Qantas' new domestic workhorse.*

In announcing the deal, Qantas Group CEO Alan Joyce described it as "a generation decision on what aircraft will serve our domestic passengers for the next 20 years."

Qantas' initial order will start at 20 A321XLRs and 20 A220s: this will be finalised by mid-2022, with the first factory-fresh aircraft expected to arrive by the end of 2023.

Subsequent deliveries from an additional 94 purchase right options, along with the total spend, will be spread "over a 10-plus year delivery window" as the Boeing 737s and 717s are gradually phased out.

The first 40 Airbus jets carry a combined list price of at least \$6.5 billion before the typical 30-50% discount enjoyed by airlines.

This sees the total order for as many as 134 single-aisle jets top a staggering \$20 billion – and while discounting could have slashed that to \$10 billion, it remains a staggering sum for almost any airline at almost any time, let alone an airline hammered by Covid-19.

However, Qantas says that this is the perfect time to go shopping for new aircraft due to soft demand from airlines, and to reinvest in its future with an eye towards driving massive improvements in cost and overall efficiency, including reduced fuel burn and lower emissions.



*Qantas CEO Alan Joyce is all smiles over his stunning deal with Airbus.*

"This is a long-term renewal plan with deliveries and payments spread over the next decade and beyond, but the similarly long lead time for aircraft orders means we need to make these decisions now," said Qantas Group CEO Alan Joyce.

"Qantas is in a position to make these commitments because of the way we've navigated through the pandemic, which is a credit to the whole organization."

"This is a clear sign of our confidence in the future and we've locked in pricing just ahead of what's likely to be a big uptick in demand for next-generation narrow-body aircraft."

Mix and match

Settling on an all-Airbus domestic fleet gives Qantas added flexibility for flying different types of aircraft on different routes, Joyce says.

"The combination of small, medium and large jets and the different range and economics they each bring means we can have the right aircraft on the right route."

"For customers, that means having more departures throughout the day on a smaller aircraft, or extra capacity at peak times with a larger aircraft, or the ability to start a new regional route because the economics of the aircraft make it possible."

Qantas can also switch up its orders over the ten-year deal, opting for variants within the A220 and A320neo families "depending on our changing needs in the years ahead," Joyce added.

The Qantas order will also be combined with Jetstar's existing A320neo-family orders, and the Qantas Group's existing deal for up to 36 A321XLRs, resulting in a total order book of almost 300 jets which can be divided between the airlines as needed.

And as you'd expect, Airbus is pretty chuffed with the result of what its Chief Commercial Officer Christian Scherer described as "an especially exciting campaign that has pushed the boundaries of technical, operational and financial evaluation, with in addition, a specific focus on sustainability."

"With the combination of the A220 and A320neo families Qantas is charting a course to operate one of the most modern, sustainable and fuel efficient fleets in the world... while offering its passengers the highest levels of aircraft cabin comfort in both the domestic and regional market segments."

## What to expect from the Qantas Airbus A321XLR

While Champagne corks will be popping at Airbus' headquarters in Toulouse, it's Qantas passengers who will be the real winners.

The A320neo-series jets are noticeably quieter than the Boeing 737, and while their cabin is only slightly wider, the near-vertical interior walls and modern 'Airspace' interior cabin design make it feel far more spacious.

Roomy overhead bins can stow not only more bags but larger ones, in a welcome nod to travel trends.



*More room for more (and bigger) bags...*

In short: think of the A320neos as pint-sized versions of the twin-aisle A350, right down the LED mood lighting.

And while most people don't know if they're flying on an Airbus or Boeing jet, the A320neos will also give Qantas a greater chance to differentiate itself from Virgin Australia, which will begin flying the Boeing 737 MAX [from the middle of 2023](#).

Joyce says the airline has "some exciting plans for the next-generation cabins we'll put on these aircraft, which will offer improvements for passengers that we'll share in coming months."

The long-legged A321XLR and A321neo can carry between 180-220 passengers in a standard two-class configuration, as opposed to the 174 seats of the current Boeing 737; the smaller A320neo brings this back to 150-180 seats.

Airlines flying A320neo-series jets have rolled out everything from conventional business class seats to the [fixed-shell deep recliners](#) of Cathay Pacific's A321neo...



*Cathay Pacific's A321neo Business Suite seats recline into their own shell.*

... to the lie-flat beds of JetBlue's A321LR Mint Suites, which also boast a sliding privacy door...



*JetBlue's A321LR Mint Suites.*

... and see the two front-row suites upgraded to an even more spacious and better-appointed Mint Studio.



*JetBlue's A321LR Mint Studio.*

Seats like that could be a must-have for any Qantas A321LRs and A321XLRs, especially with their ability to reach into Asia – all the way up to Tokyo, in fact – well beyond the scope of their domestic brief.

This could open up non-stop flights to and even between smaller cities which couldn't justify larger twin-aisle jets such as the Airbus A330 or Boeing 787, and which would otherwise require a stopover.

**A321XLR\*** Xtending the A321neo success:  
Unbeatable fuel efficiency now flying Xtra Long Range

Up to **4,700 nmi / 8,700 km**

+15% range | +15% range

A321neo | A321LR | A321XLR

**180 - 220** Typical Seating  
2-class

AIRSPACE cabin

A321neo unbeatable economics  
**-30%** fuel burn per seat\*

What is an A321XLR?

MTOW 101t | Rear Centre Tank & optional Additional Centre Tank

**AIRBUS**

“That changes the economics of lots of potential routes into Asia to make them not just physically possible but financially attractive,” Joyce remarked after inking the initial A321XLR order in 2019.

These direct 'thin' routes would prove a value time- and hassle-saver for business traveller, although passenger comfort will come to the fore on these eight-to-nine hour treks.

What to expect from the Qantas Airbus A220

Qantas will also trade up from its 20 ageing Boeing 717 jets with an average age of some 20 years to the Airbus A220 series.



*The Airbus A220 will be the future of QantasLink.*

Among the dozen international airlines already flying the A220 are Air Canada, Delta, JetBlue and Swiss.

As with the larger A320neo family, the A220 is quieter and far more modern inside.

The overhead bins can accommodate one roller bag for every passenger – an established sore point on the Boeing 717.



Inside JetBlue's Airbus A220.

Business class in the Airbus A220 is arranged in a 2-2 manner, with the premium seats at 21 inches wide – a smidge more than on the Boeing 717.

And the possibilities for Qantas' A220 business class are wide open, especially as the airline says these nimble jets could end up darting between capital cities.

By way of example, here's what US carrier Breeze – created by JetBlue founder David Neeleman – selected for the pointy end of its A220s.



Breeze Airways' Airbus A220 first class 'Nicest' seating.

In economy, the A220 adopts an interesting layout of three seats on one side of the aisle and two on the other.

Yes, there's a dreaded middle seat – but Airbus says the A220 can be configured with that middle seat at a slightly wider 19 inches across, compared to 18 inches (the same as the Boeing 717) for window and aisle seats.



Inside JetBlue's Airbus A220.

Qantas will place its initial order for the A220-300 series, which can carry anywhere from 120-150 passengers – compared to 110 on the Qantas Boeing 717 – in a two-class configuration.

However, the airline says it will also hold purchase rights for the smaller A220-100, capable of seating 100-120 passengers – around the same amount as the Boeing 717 – in a two-class layout, giving it "a fleet mix that can deliver better network choices and route economics."

"The small and medium size A220s provide the Group with flexibility to deploy these aircraft throughout most of its domestic and regional operations," Qantas elaborates.

"They could be used during off peak times between major cities and on key regional routes to increase frequency."

## A big change is coming to Qantas flights with the national carrier switching to sustainable petrol on one of its flagship routes.

As of next month, the Australian aviation company will purchase blended sustainable aviation fuel (SAF) for its flights from London to help reduce its carbon emissions by around 10 per cent.

It will be the first time the airline will buy the petrol on an ongoing basis for a regular scheduled flight.

After signing an agreement with BP, it will buy 10 million litres of SAF in 2022 and will have the option to purchase up to another 10 million litres until 2024 from Heathrow Airport.



It will be produced with certified bio feedstock and used cooking oil or waste products that are blended together with regular jet fuel.

According to Qantas, the use of the fuel increased particularly in Europe, the UK and the United States in a move to try decarbonise the aviation sector.

The company's chief sustainability officer Andrew Parker said climate change was “incredibly important” to its customers, employees and investors and the sustainable fuel was key to the airline meeting its net zero emissions target by 2050.

“Zero emission technology, like electric aircraft or green hydrogen, are still a very long way off for aviation and even further away for long haul flights like London to Australia,” he said.

“SAF and high quality carbon offsetting are therefore critical on the path to net zero.

“Aviation biofuels typically deliver around an 80 per cent reduction of greenhouse gas emissions on a life cycle basis compared to the jet fuel it is replacing and is the most significant tool airlines have to reduce their impact on the environment.”

Martin Thomsen from Air BP said the company aspired to be the leading supplier of SAF.

“We are committed to working with customers to scale up its use,” he said.

“We believe it is one of the key routes to reducing carbon emissions in the aviation industry.”

## Qantas unveils new menus for in-flight passengers and First Class lounge

*The national carrier will launch an entirely new menu when international travel kicks off again – and passengers will notice one big difference.*



[Natalie Wolfe](#)

@natwolfe94

2 min read

October 29, 2021 - 9:52AM

Qantas will launch a new menu when it takes flight next week following the end of the international travel ban.

And passengers will notice one key difference when they head overseas with Qantas – the permanent addition of a plant-based option.

Speaking at Sydney International Airport yesterday, Qantas' chief customer officer Stephanie Tully said the addition of a vegetarian option, across all cabins, was in response to customer demand.

“One of the things we’ve been spending a lot of time talking to customers about over the last few years, and we really listen to what they want to see, so we are introducing plant-based options for

the first time for all customers in all cabins which is responding to that real customer need,” Ms Tully said.

Chef Neil Perry, who is in charge of Qantas’ food and menus, developed the new plant-based options.

Some examples of the plant-based options include celeriac gratin with roasted fennel, peas, mushroom and onion sauce and a ratatouille pasta bake with herb crumb, cauliflower and green beans.



Potato and celeriac gratin with roast fennel, peas, mushrooms and onion sauce. Picture: Qantas



Rigatoni with oyster mushrooms, roasted eschalots, rocket and almond pesto. Picture: Qantas



Tandoori roast carrots with spicy tomato and green bean kasundi and moong dal with roti paratha.  
Picture: Qantas

Qantas will still keep meat options on its menu and Ms Tully said due to the international reopening date being pushed forward by a few weeks, the menus would be “gradually introduced” over the next couple of weeks.

Iconic Australian ice-creams will also be added to the in-flight menu including Paddle Pops and Splices.

Another change passengers will notice is the end of the economy snack bar – a section of the plane where passengers could grab free food throughout their flight.

Due to Covid, Qantas has had to ditch the snack bar but is instead offering a new “movie service”.

“It’s one great example of our team pivoting with the times ... so we’ll be roaming the economy cabin constantly with snacks and drinks, so it’s almost like a roaming movie service,” Ms Tully said.



Beef fillet with Paris mash, green beans and salsa verde. Picture: Qantas



Salad sandwich of slow cooked chipotle lamb with sweet onions, mint salsa and salted chilli. Picture: Qantas



Kung pow king brown mushrooms with choy sum and jasmine rice. Picture: Qantas

The airline has also launched a new cocktail, the Qantas Sky Spritz – developed by SOFI and featuring Australian botanicals including Davidson Plum and Finger Lime.

Inside Qantas' First Lounge, which will open on Monday to first and business class passengers, Qantas club members and gold frequent flyers, until the airline's Business Lounge opens, passengers will also be treated to a new menu.

"Neil Perry's team has been flat out creating a new menu," Ms Tully said.

"They've kept some old favourites like the salt and pepper squid and the steak sandwich.

“The steak sandwich has obviously been a staple on our menu and in the lounges for over 20 years, we’ve served nearly a million of them so we’re excited to have it back.”

Perry and his team have also ordered 125 punnets of strawberries and 25kg of passionfruit to create his famous pavlova.

New menu items in the First Lounge include buttermilk pancakes with fresh blueberries, toasted pecan and baked rhubarb, Neil Perry’s lasagne with shaved fennel, lemon and parsley salad and finally, paprika and garlic chicken with chickpeas, roasted capsicum, sherry vinegar and rice pilaf.

## Australia unveils \$78 million plan to get aviation industry back to ‘pre-pandemic levels’

The federal government is spending another \$78 million to help Australia’s aviation sector recover from the COVID-19 pandemic.

Deputy Prime Minister Barnaby Joyce has unveiled an aviation recovery framework aimed at rebuilding the workforce and upgrading regional infrastructure.

A strategic aviation advisory forum will brief the federal government and provide annual “health checks” about the state of the sector.

“As a critical enabler of economic activity, the government is focused on ensuring the industry returns to pre-pandemic levels as soon as it is safe to do so,” Mr Joyce said.

“We are putting in place policies and regulation to foster a competitive, safe and secure aviation sector that all Australians can rely on, and not just for travel and leisure purposes.”



International airline carrier planes are seen on the tarmac at Sydney International Airport in Sydney. Credit: BIANCA DE MARCHI/AAPIMAGE

The framework also includes support to rebuild the workforce, boost general aviation, drive emerging technologies, modernise regulation and reduce red tape.

It’s accompanied by \$78 in new funding, including \$4 million to increase the number of women in the sector and \$15 million to upgrade remote aerodromes.

Another \$29 million will be made available through the third round of a regional aviation infrastructure program.

A \$30 million rebate program will help general and recreational aviation operators upgrade aircraft safety.



Deputy Prime Minister Barnaby Joyce. Credit: MICK TSIKAS/AAPIMAGE

An existing regional airline support program is also being extended until March 31.

Funding also includes \$32.6 million through a previously announced program aimed at emerging aviation technologies such as drones.

Before the pandemic, Australia's aviation sector supported more than 90,000 jobs.

Since then, the sector has reaped more than \$5.3 billion in government support.

Qantas expects domestic capacity to be at 102 per cent of pre-pandemic levels in the third quarter of 2022. This is expected to rise to 117 per cent in the final months of next year.

## Squirrel-cheeked liquid H2 airliner will take you anywhere in two hops

By Loz Blain December 06, 2021



FlyZero's midsize liquid H2 concept will fly as fast as current airliners and nearly as far, linking any two airports on Earth with a maximum of one stop Long-haul aviation presents a tough challenge for decarbonization, but a group of 100 aerospace experts working on the UK government's FlyZero project says 279-seat liquid hydrogen airliners will connect any two points on the globe with just one stop.

The FlyZero team, led by the UK's Aerospace Technology Institute but featuring talent seconded from a range of aviation companies, was put together to examine all promising paths to zero-carbon intercontinental aviation, and propose solutions that can be put into service by the end of the decade. With experts from across the aviation and clean fuels spectrum, the approach is holistic, and covers technology, design, manufacturing, operational and marketing elements of possible solutions.

The team examined the pros and cons of batteries, gaseous hydrogen, ammonia, liquid hydrogen as a combustion fuel and liquid hydrogen used in fuel cells. Batteries were off the table pretty much immediately, being too heavy and bulky for the job. Ammonia was dropped due to excessive harmful NOx emissions and the heavy weight of the required fuel and propulsion systems – although it could come back into the discussion at some point when the technology to extract energy from ammonia evolves.

	Battery	LH <sub>2</sub> Fuel Cell	LH <sub>2</sub> Combustion	Gaseous H <sub>2</sub>	Ammonia
CO <sub>2</sub> Emissions	Green	Green	Green	Green	Green
NOx Emissions	Green	Green	Yellow	Yellow	Red
Contrails	Green	Yellow	Yellow	Yellow	Yellow
Fuel Volume	Red	Yellow	Yellow	Red	Yellow
Fuel+Propulsion System Mass	Red	Yellow	Green	Red	Red
Airport Infrastructure	Green	Red	Red	Yellow	Yellow

The FlyZero team evaluated a range of zero-emissions energy sources before settling on cryogenic liquid H<sub>2</sub> in a combustion powertrain

The FlyZero team evaluated a range of zero-emissions energy sources before settling on cryogenic liquid H<sub>2</sub> in a combustion powertrain FlyZero / Aerospace Technology Institute

That left hydrogen. Gaseous H<sub>2</sub>, while promising for shorter flights, takes up too much space, and the heavy tanks and fuel cell systems make it inappropriate for long-range planes. Cryogenic liquid H<sub>2</sub>, the team decided, offers the best path forward, burned as a combustion fuel in large turbofan engines. Combustion beat out liquid H<sub>2</sub> fuel cells and electric propulsion systems simply on weight.

Using liquid H<sub>2</sub>, the team has put together a concept mid-size airliner it says can fly at the same speeds as today's airliners, carrying up to 279 passengers and delivering range figures up to 5,250 nautical miles (6,040 miles, 9,723 km) in a single hop. That's not quite Dreamliner level – those can cover 7,532 nautical miles (8,668 miles, 13,950 km) on a tank of kerosene jet fuel, carrying around 242 passengers. But these hydrogen airliners would still make very practical long-haulers, capable of linking any two airports on the planet with just one refueling stop.

It's a chubby-looking thing; liquid hydrogen powertrains will take up more space than conventional ones, so the FlyZero team has supplemented the cryogenic fuel tanks in the aft fuselage with a pair

of smaller "cheek" tanks that expand the lower forward fuselage and give the plane its signature "squirrel with its cheeks stuffed full of nuts" look. These tanks also help balance the plane as fuel loads dwindle during flight.

The FlyZero midsize concept would carry 279 passengers up to 5,250 nautical miles between fuelling stops

The FlyZero midsize concept would carry 279 passengers up to 5,250 nautical miles between fuelling stops  
FlyZero / Aerospace Technology Institute



The team also projects that these machines will "have superior operating economics than conventional aircraft from the mid-2030s onwards," as hydrogen prices fall.

There's still some technological and logistic mountains to climb, though. "The challenges of realizing liquid hydrogen," reads FlyZero's energy source comparison and selection report, "include, but are not limited to; the storage and distribution of a cryogenic fuel onboard an aircraft, developing sustainable technologies for stable and reliable hydrogen combustion in gas turbines, efficient energy conversion and thermal management of hydrogen fuel cells and hybrids thereof, minimizing the generation of other climate impacts i.e., NOx and contrails, minimizing the impact on aircraft structural mass and drag, and developing a sustainable hydrogen fuel production infrastructure."

The team is preparing a detailed report for early 2022, including three final aircraft concepts for regional, narrowbody and mid-size airliners, technology roadmaps, economic and marketing reports and sustainability assessments.

**Source: Aerospace Technology Institute via FutureFlight**



Boeing's future developments won't focus on hydrogen too closely. Photo: Boeing

## Why Boeing Isn't Focusing On Hydrogen As A Fuel

- by [Joanna Bailey](#) December 6, 2021



Boeing's commitment to sustainability has accelerated with the appointment of its first-ever Chief Sustainability Officer, Chris Raymond. Chris is leading the way towards a lower carbon future, with a strong emphasis on fleet renewal and sustainable aviation fuels. Simple Flying caught up with him to better understand why hydrogen is not such a big priority for Boeing right now.

### Hydrogen is a challenging fuel type

With the aviation industry pushing towards a greener future, there are still big questions over what the fuel of the future should be. Big leaps are being made in electric aviation, but its applicability for larger aircraft remains in doubt. [Sustainable fuels](#) hold great potential, but can we produce enough in time? And then there's hydrogen.

At first glance, hydrogen appears a very appealing prospect. It's lighter than fossil fuels; it produces only water vapor as a by-product and has around 2.5 times more energy per kilogram than kerosene. However, it's also difficult to utilize in its natural form, and needs to be supercooled and super-compressed before it can be used as a fuel.

Chris Raymond is Boeing's first-ever Chief Sustainability Officer, a role that was created in mid-2020 to advance Boeing's approach to sustainability. Simple Flying caught up with him on the sidelines of the Dubai Air Show, where he explained the challenges involved in developing a [hydrogen plane](#). He said,

*"Liquid hydrogen is probably the best way to use it as a fuel, but it requires big cooling systems and big storage systems. Hydrogen requires about four times the volume to get the same amount of energy, so you end up with a plane that is more fuel tanks than it is passenger capacity – and that risks the efficiency overall."*



Chris Raymond is the first person to hold the newly created post of Chief Sustainability Officer at Boeing. Photo: Boeing

### Is aviation the best use of hydrogen?

As well as the design challenges, Boeing is not yet convinced that the pathway to turning it into a fuel is an equitable one. Producing hydrogen requires huge amounts of electrical energy, and if that energy is not supplied by renewable sources, the hydrogen is no longer a clean energy source at all. Large electrolyzer plants for producing green hydrogen are under development. For example, Whitelee, on the outskirts of Glasgow, is home to a future electrolyzer site that will use a 40MW solar farm to produce up to eight tonnes of green hydrogen a day. It would be the biggest electrolyzer in the UK, producing enough to power 550 daily bus trips to Edinburgh and back.



Even the UK's largest hydrogen plant could only produce enough for five to six regional flights per day in a turboprop. Photo: Getty Images

But [Kearney](#) estimates that even a small [turboprop aircraft](#) would require 1.4 tonnes of hydrogen to go 1,500 km (930 miles). So what's better – 550 fifty-mile bus trips between the Scottish cities, or five to six short return flights in a turboprop? Chris Raymond shares these concerns, stating, *“Taking that hydrogen that you make using all that electricity, is the best thing to do with it to then further process it into a fuel? We just aren't convinced yet on it. We're not saying it's not possible. But when you get to the lifecycle carbon assessment of that, right now, our assessment is it'd actually be worse than fossil fuels.”*

With no infrastructure in place to efficiently get liquid hydrogen to airports, there's the added downside of fleets of trucks driving it around the country. It's a bit of a minefield at the moment, which is one of the reasons Boeing is not focusing too much on hydrogen at this stage of the game.



Boeing flew the first hydrogen fuel cell-powered aircraft in 2008. Photo: [Adambro via Wikimedia](#)

### Hydrogen is not being ignored

Saying that Boeing isn't focusing on hydrogen doesn't mean Boeing is ignoring hydrogen. Indeed, Boeing has worked with hydrogen for many years, and in fact, flew the world's first crewed flight using fuel cells back in 2008. As Raymond explained,

*"Boeing's flown five different airplanes on hydrogen. Four of them have been some form of fuel cell, using that to produce electrical power, and then we flew an airplane in 2011 that was liquid hydrogen ... our view is not that it's impossible, we are studying still, we just don't think the timeline for that to really enter the market in a big way is anytime soon."*



2011 saw Boeing fly the Phantom Eye on liquid hydrogen. Photo:

Boeing Airbus, of course, came out and put a timeline on the first flight of a 100% hydrogen aircraft by 2035. But that could well be a maiden flight for an experimental aircraft, which is a very long way indeed away from changing the landscape of commercial aviation. Entry into service could be five or even ten years later, and replacing the thousands of aircraft already in service would likely be several decades beyond that.

And so, although Boeing remains actively involved in the development of hydrogen as an alternative fuel source, Chris Raymond firmly believes that time and investment are better placed elsewhere in the short term, into projects that can have an impact now and not a couple of generations into the future.



Boeing is firmly focused on SAF as the most timely sustainability solution. Photo: Boeing

### **SAF is where it's at**

Although hydrogen has the potential to decarbonize aviation at some point in the future, other solutions need to be explored if the industry is to make a significant reduction in the near term. Chris Raymond believes the immediate focus must be on fleet renewal because that's where the biggest quick wins can happen. Beyond that, he says that *"...there's no question that we have put more emphasis on sustainable aviation fuel."*

*"Our view is, if the goal is to lower carbon emissions, then we really have to all be focused on SAF in the near term, because we need something that can lower the carbon emissions of all the airplanes that are flying right now."*



*Work on SAFs is common across both OEMs. Photo: United Airlines*

To an outsider, this could almost look like yet another Boeing vs. [Airbus](#) scenario, where both OEMs have thrown their hats in the ring for different technology types. But there's more joined-up thinking between the two planemakers than some might believe.

*“We agree with Airbus and Airbus agrees with us – we both say we’re going to need a lot of sustainable aviation fuel. I think we’re actually more aligned in what we both say than maybe some people believe us to be. They put more emphasis on hydrogen, we put more emphasis on SAF, but we both know that we need to make aviation cleaner.*

*“If we don’t make it cleaner, we’re going to risk it not growing as much in the future. It’s not good for any of us if the benefits of flying start to be taken away because the industry starts to be viewed as not doing enough to lower carbon emissions.”*

Boeing has already set itself a goal of ensuring all its aircraft are 100% compatible with SAF by 2030. While hydrogen is certainly still on Boeing’s radar, the immediate focus is on those things which will make the most significant difference right now.



**[Joanna Bailey](#)**

Managing Editor - Joanna has worked in publishing for more than a decade and is fast becoming a go-to source for commercial aviation analysis. Providing commentary for outlets including the BBC, CNBC, Reuters Thomson and others, she works closely with IATA, AviaDev and various airlines and suppliers to get the inside track on the global marketplace.

## 10 unique eVTOL aircraft that do things very differently

By [Loz Blain](#), December 07, 2021



*Joby Aviation's remarkable tilt-prop S4 is among the front-running aircraft in the nascent eVTOL sector, but there are plenty of other companies out there throwing even stranger ideas at the wall to see what might stick*

**Eric Adams / Joby Aviation**

*Joby Aviation's remarkable tilt-prop S4 is among the front-running aircraft in the nascent eVTOL sector, but there are plenty of other companies out there throwing even stranger ideas at the wall to see what might stick*

Electric VTOL aircraft stand poised to change your world, if you believe the hype around this new category of air transport. Greener, faster, quieter and vastly cheaper than helicopters, they promise to bring vertical commuting to the masses like never before, reshaping our cities and lifestyles in the process.

And right now, we're enjoying a fascinating creative period in the emergence of these next-gen air taxis. It won't be long before they're everywhere – a settled, reliable and frankly slightly boring transport option – or nowhere, a multi-billion dollar boondoggle that never took off, so to speak. My money would be on the former, but I've certainly been swept up in magical, futuristic tech dreams before and come out with egg on my face.

Until a weight of data declares a winning architecture, the floor remains open for interesting and left-field eVTOL designs that do things differently from the crowd, and with 2021 drawing to a close, we thought it might be time to gather some of our favorites together in a roundup.

Strap in!

### The Big Bessie: Kelekona's 40-seat VTOL air bus



New York City startup Kelekona is proposing a mass transport-sized eVTOL air bus service capable of carrying 40 people long distances [Kelekona / rabbit75 dep/Depositphotos](#)

Most leading concepts are crystallizing around two- to seven-seat cabins, following the model of taxis – but [Kelekona](#) is from New York City, where mass transit is already a way of life, and this young company doesn't see why eVTOLs shouldn't carry a busload of people.

Kelekona's *Thunderbirds*-style lifting body design will seat 40, and its monstrous 3.6-megawatt-hour battery pack has the potential to deliver enormous range figures up to 375 miles (600 km) at speeds around 200 mph (320 km/h). What's more, Kelekona tells us in [our interview from June](#) that it'll land on the same sized helipads as a typical five-seat Joby. Remarkable.

### The Tiny Tim: Zeva's one-person flying saucer



*Zeva's one-person eVTOL aircraft: a tail-sitting flying saucer design with some interesting advantages*  
Zeva Aero

On the other end of the scale, Zeva reasons that most people commute solo, so why waste weight and seats on passengers that aren't there? Starting out with the idea of creating something super compact, the [Zeva team has proposed a single-person, tail-sitting UFO design](#) unlike anything we've seen.

It stands upright on the ground, taking up about as much garage space as a motorcycle, then takes off vertically and tilts forward until you're flying head-first, Superman-style on your belly, over the traffic for up to 50 miles (80 km) at speeds up to 160 mph (257 km/h). If you can get past the vertigo, the view's going to be incredible.

### The Cyclogyros: Austria's Cyclotech and Russia's Cyclocar

*The Cyclocar will carry six people, or up to 600 kg of cargo, up to 500 km (310 miles) thanks to a hybrid powertrain and that unconventional propulsion system* Russian Government

Instead of standard propellers, these machines use Voith-Schneider arrangements: fast-spinning barrels whose "walls" are formed by a series of variable-pitch wing blades. Using a swashplate arrangement much like what's on top of a helicopter, it's possible to continuously vary the pitch of the blades as the barrels spin, meaning that these things can increase, decrease or redirect thrust nearly instantly through 360 degrees, without needing to wait for motors to spin up.

[Cyclotech is proposing a four-seat air taxi](#), and Russia's Foundation for Advanced Research is looking at [a six-seat hybrid Cyclocar for military purposes](#), capable of 155 mph (250 km/h) and ranges up to 310 miles (500 km). Both have flown decent-sized prototypes.

### The supercar: Urban eVTOL's Leo



*This is an outdated render; the Leo will use just 16 vertical lift fans of higher diameter, with banks of three in the front and five in the rear. A separate system pushes it forward from the rear* Urban eVTOL

Ground space will be at a premium once there are thousands of eVTOLs in the air, and Urban eVTOL believes a compact footprint will be an advantage if that comes to pass. Thus, it's created Leo, a three-seat double-box-wing design that it claims can offer 250-mph (400 km/h) top speeds and a wild 300-mile (483-km) range, while only running 66 kWh of battery, and fitting in a car slot.

[In our recent interview, co-founder Pete Bitar tells us](#) Leo will land on asymmetrically inflatable "cat's paws," and will also offer pilots the chance to enjoy some pretty extreme flight dynamics. Oh, and the pilot seat hangs from the ceiling so back-seat passengers can look down through a glass floor.

### The Lego set: Talyn's detachable lift system

*Talyn's autonomous Lift vehicle has its own glider-style wing and pusher props, allowing it to rendezvous with the Cruise vehicle*

The trouble with typical lift-and-cruise eVTOL designs is that the lift system immediately becomes a draggy, energy-sucking pain in the neck once the aircraft's in cruise mode operating like a plane. So a pair of ex-SpaceX Falcon 9/Scaled Composites engineers decided to take a page out of the rocketry handbook and simply jettison the lift system once it's done its job.

[Talyn's detachable lift system](#), essentially a big autonomous lift-and-cruise drone, will then fly back to base and sit on the charger, ready to rendezvous with another cruise stage, hook onto it in mid-air and bring it down gently when required. The cruise stage, meanwhile, burns none of its battery power in the VTOL phases of flight, so it's capable of an impressive 300-mile (480 km) range at 200 mph (320 km/h). A fascinating, if very complex, approach.



### The featherweight box wing: ASML Aero's Vertiia



*The box-wing Vertiia: a long-range, lightweight, low cost, hydrogen-powered eVTOL from Australia*  
AMSL Aero

Australian company AMSL Aero tells us [the Vertiia should be one of the lightest and most efficient eVTOL designs on the market](#), as well as one of the most affordable. Designed to cover the long distances typical in many Australian emergency flights, it'll debut running a hydrogen fuel cell system that'll carry five passengers up to 620 miles (1,000 km) on a tank, at speeds upwards of 186 mph (300 km/h).

This relatively narrow box-wing design, with energy storage in the wing tips, could end up as much as 1,000 lb (450 kg) lighter than [Joby's S4](#), reducing energy use. And AMSL says another cost advantage lies in the long service life of the fuel cell system, which should outlast several battery pack replacements on a lithium-powered aircraft. The company will shortly have a full-scale prototype flying.

### The super-efficient transformer: PteroDynamics' Transwing

*The Transwing promises truly exceptional eVTOL efficiency, range and cargo carrying capabilities with a tiny ground footprint - PteroDynamics*

PteroDynamics isn't immediately targeting the air taxi sector with this design, starting out instead on smaller unmanned cargo drones, but the company says its [clever, dihedrally-folding Transwing system](#) will be the most efficient eVTOL design of them all, with some other huge advantages to boot. Folded up in VTOL mode, it's got a tiny ground footprint, needs very little space for VTOL operations, and operates pretty much like a multicopter. Once aloft, it can then fold out a huge set of wings for highly efficient flight. Since the wings tilt as they fold out on their dihedral pivots, the lift props gradually become cruise props, making for a smooth transition.

PteroDynamics claims "Transwing aircraft have much greater range, endurance, and cargo carrying efficiency as compared to all other VTOL designs." And "given any aircraft footprint size and payload requirements, Transwing aircraft will fly several times as far as any VTOL competitor." You've really got to [see the prototype video](#) to understand the potential of this one.

### **The biggest rotors in the game: Karem's Overair Butterfly**

*The Overair Butterfly is a unique and fascinating eVTOL design that leverages parent company Karem Aircraft's pioneering experience in military helicopter and tilt-rotor development Hanwha Systems*

Karem Aircraft has a wealth of experience in large military tilt-rotor aircraft, and it's [spun off Overair as an eVTOL play](#). Where just about everyone else in the eVTOL space will be using plain ol' propellers or ducted fans, Overair will be deploying enormous tilting rotors with highly redundant, all-electric control over individual blade pitch.

Those massive rotors stand to deliver significantly more thrust per kilowatt of power than pretty much anything else on the market, which should give the Butterfly a handy efficiency boost in VTOL mode. In cruise mode, it'll have bigger props than any comparable conventional fixed-wing plane, so big that they'd drag on the ground if it tried to do a conventional landing. The variable pitch rotors enable this thing to autorotate to the ground under certain failure conditions, or develop asymmetric lift on individual rotors to compensate if another is lost. Noise may prove a problem in urban operations, but that's yet to be proven.

### **The frontrunner by a country mile: eHang's EH216**



*China's eHang says its EH216 autonomous air taxi is "hopefully" going to be fully certified and commercially operational within months eHang*

The eHang EH216 isn't much different from the rest of the class in a technical sense. It uses about the simplest architecture in the game: a simple 16-prop coaxial multicopter. It'll only fly at 80 mph (130 km/h), and it's got a piddly 22-mile (35-km) range. But mark my words, it's different from the pack, because it's Chinese, and the [Chinese aviation authorities have fast-tracked it for fully autonomous certification](#) years ahead of anyone else on the market. So while nearly everyone else

with a prototype is flying it remote-controlled, these guys have *already made more than 2,800 manned trial flights*, and they're [starting to ramp up mass manufacture at a 6-acre \(2.4-ha\) factory in Yunfu](#).

Indeed, eHang's executive team says it hopes to have the EH216 fully type-certified and ready for its first commercial air taxi services *within a few months*. Nothing in America or Europe is targeting a date before 2023 – and even when they do get airborne, they'll be carrying the added weight of a pilot everywhere they go. China's willingness to take an "innovation mindset" and push autonomous technology forward could give eHang a five-, or maybe even ten-year head start on its international competition – and that might make this bog-standard manned multicopter the biggest outlier of them all.

[Loz Blain](#) - Loz has been one of our most versatile contributors since 2007, and has since proven himself as a photographer, videographer, presenter, producer and podcast engineer, as well as a senior features writer. Joining the team as a motorcycle specialist, he's covered just about everything for New Atlas, concentrating lately on eVTOLs, hydrogen, energy, aviation, audiovisual, weird stuff and things that go fast.

## Australian tourist companies order 60 electric planes to launch air taxi services in Sydney and over the Great Barrier Reef



### **Queensland helicopter operator Nautilus signed up for 10 eVTOL which will be ready by 2026**

Two Australian tourism operators have snapped up 60 electric planes with plans to start air taxi services in Sydney and the Great Barrier Reef.

Sydney Seaplanes ordered 50 electric vertical take off and landing aircraft (eVTOL) from Brazilian aviation giant Embraer SA, while [Queensland](#) helicopter operator Nautilus signed up for 10.

The companies said they wanted to be at the forefront of the electric-powered transition that will provide zero emissions when charged with solar panels and cost far less than current gas-guzzling engines.



**Sydney Seaplanes ordered 50 electric vertical take off and landing aircraft (eVTOL) from Brazilian aviation giant Embraer SA. Pictured: An impression of what the planes will look like**

'We believe there will be a revolution in aviation. This is the way of the future,' Sydney Seaplanes chief executive Aaron Shaw said last year in his plan to go green.

'Combined with our commitment to use solar technology in our charging facilities, this puts us in a very strong position to become the world's first fully-electric nil-emissions airline, subject to the speed of regulatory approvals.'

The tourism operator is known for its seaplane daytrips from Rose Bay in Sydney Harbour to holiday spots like Palm Beach.

The company also teamed up with US-Australian engine maker magniX and Dante Aeronautical, to convert its Cessna plight planes into electric hybrids.

Pending regulatory approvals, the fleet is expected to be up and running by the first quarter of 2023, with the order of 50 electric planes set to take off by 2026.

'The environmental benefits are clear, with nil-emissions travel already technically possible on shorter journeys and with the exponential improvement in battery technologies range will continue to increase,' Mr Shaw said.

'This will enable us to expand our electric services to other New South Wales and ACT destinations, including Canberra.'

Embraer SA, the world's third biggest manufacturer of civil aircraft behind Boeing and Airbus, will also work with Nautilus Aviation, which run scenic helicopter flights through Queensland and over the Great Barrier Reef.

The South American firm's subsidiary Eve Urban Air Mobility Solutions will manufacture the eVTOLs, but so far the cost of the orders remains confidential.

'We believe economic success and environmental sustainability go hand-in-hand and aim to strengthen and enrich the environments in which we work,' Nautilus Aviation chief executive Chris Morris said.

'Eve's eVTOL technology will integrate seamlessly into our operations to deliver a range of exciting zero-emission tourism experiences.

'This will allow us to provide emission-free and quiet tours over the Great Barrier Reef, providing an unmatched eco experience to our customers.'

Embraer SA's stock price took off following the announcement, rising over five per cent on the New York Stock Exchange to US\$14.23 a share.

The company unveiled its electric-powered plane fleet in October to coincide with the COP26 climate summit in Glasgow, as industries and world leaders target net-zero emissions by 2050.

## The More Electric Aircraft – Cleaner, Greener And More Reliable

Commercial aircraft have historically relied on hydraulic and pneumatic systems to provide many essential functions. But using bleed air to drive these systems comes at a cost of efficiency. Replacing such systems with electric alternatives can drive down fuel burn, while also boosting the reliability of the part. Simple Flying caught up with the leading supplier of More Electric systems, Collins Aerospace, to find out more.



*The A380 was one of the first commercial aircraft to use more electric systems. Photo: Getty Images*

### **The case for a more electric aircraft**

Historically, many functions of an aircraft rely on bleed air to provide the power they need. Things like environmental control systems, wing deicing systems and flight control surfaces usually rely on hydraulics or pneumatics that are powered by bleed air. It makes sense – it's hot, it's already compressed, and it's readily available.

However, systems that divert high-speed air from the engines rob conventional airplanes of some thrust and increase the engine's fuel consumption. Collins Aerospace is leading the way in replacing many of these systems with electric alternatives, a project known as 'More Electric.' Simple Flying

spoke with Todd Spierling, Senior Technical Fellow at Collins, to find out more about the benefits of switching to more electric systems. He said,

*“Today, compressed air is the single largest secondary load on an aircraft. 90%+ of fuel is used to actually move the airplane, but around 6% of fuel is used to provide these services. And the creation of compressed air is one of the biggest draws of that. Compressed air is a convenient source, but it’s not terribly efficient. By going from pneumatics to electricity, we’re able to increase the efficiency of that portion of the aircraft’s fuel usage.*

*“About 6% of the fuel that you use or 6% of the carbon that you emit is due to these secondary systems. If we can implement more electric and cut that usage in half, if we could get 2 – 3% fuel burn savings by this implementation, that’s millions of gallons of jet fuel saved and tens of millions of tonnes of carbon emissions reduced every year.”*



[Click here to view video](#)

As well as increasing the efficiency of the aircraft, switching to more electric systems has another advantage in that the systems can be more reliable and have lower maintenance than the alternatives. Systems using pneumatic or hydraulic components are mechanical, with moving parts. Replacing these with electronics can drive down maintenance costs while simultaneously boosting the reliability of the equipment.

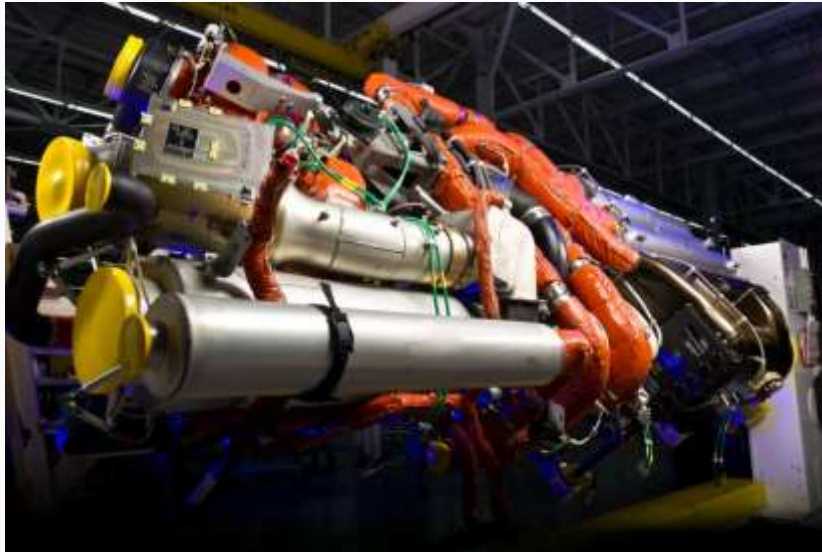
There’s a weight saving to consider here as well, although this issue is perhaps not as cut and dry as you might think. An electric actuator, for example, actually weighs more than a hydraulic actuator. However, when you take into consideration all the other equipment that goes along with hydraulic, all the distribution of the fluids being moved around the aircraft, the net result is a marginally more lightweight operation.

#### **Where are more electric systems being used right now?**

One of the largest implementations of more electric was with Boeing’s flagship widebody, the 787. An example is its electric environmental control system (ECS), provided by Collins, which is the first time a no-bleed electrical system has been used for a commercial aircraft in this way.

Rather than robbing the engines of compressed air to feed the ECS, electrically driven compressors provide the cabin pressurization function, with fresh air brought onboard via dedicated cabin air

inlets. As well, the 787 uses Collins electric systems for wing ice protection and for engine startup. All in, Boeing projects that around 3% fuel savings are being achieved through the elimination of traditional hydraulic and pneumatic components.



***The 787 uses a more electric environmental control system (ECS). Photo: Collins Aerospace***

In addition to the fuel savings, there are passenger experience benefits too. Spierling noted,

*“The electric compressor equipment enables a significantly improved cabin experience relative to traditional passenger jets. Part of what we did with the 787 ECS was to operate it at higher pressures to simulate a lower cabin altitude and reduce the “jet lag” effect on long haul flights. The electric compressor pulls fresh air directly into the cabin, decoupling it from the engine system, and improving the air quality in the cabin so it makes for a better passenger experience.”*

While Boeing targeted the replacement of pneumatic systems with more electric alternatives on the 787, Airbus took a different approach. On the A380 and A350, the European planemaker worked with Collins to replace hydraulic systems instead. Specifically, these planes moved to electric flight controls, using electric actuation such as that found on the US military’s F35.

### **What’s the future for more electric planes?**

As with any new technology, there are lessons to be learned and improvements to be made. Collins is continually improving and investing in making its more electric systems better. Notably, it faces challenges in developing electrical generation systems that are smaller and lighter, to really exploit the weight reduction advantage of replacing pneumatic and hydraulic systems.

At present, no single aircraft has fully realized the potential benefits of a completely more electric architecture. The 787 came close, but is still not a wholly electrified plane. The A350 and A380 embraced some electric systems, but kept some pneumatic systems for redundancy too. When something is new, it can be difficult to let go of what’s old and familiar.

Nevertheless, the future for more electric planes has strong promise, and Collins is driving this seismic shift. From electric landing gear to more electric braking and more, the team is constantly evaluating, evolving and improving the products that will see fewer hydraulic and pneumatic components on the planes of the future. [Joanna Bailey](#)

## What Boeing Means By ‘Laying The Foundations’ Of Its Next Jet

- by [Joanna Bailey](#) December 10, 2021

The eyes of the aviation community have long been on Boeing to see what comes next. The US planemaker has appeared to be on the cusp of announcing a clean sheet aircraft design for many years, but as yet, nothing is firm. CEO David Calhoun recently said that it was ‘laying the foundation’ for the next Boeing jet – but what does that actually mean?



What does Boeing mean by ‘laying the foundations for a new plane? Photo: Getty Images

### Laying the foundations

Boeing’s last clean sheet aircraft was announced almost 20 years ago, with the concept for what was known at the time as the 7E7. Finally entering into service as the [787 Dreamliner in 2011](#), this aircraft brought together new technologies, new manufacturing techniques, and modern systems to create a more efficient, more futureproofed airplane.

Now the market is crying out for Boeing to bring it a brand new, clean sheet aircraft for the future. During Boeing’s [Q3 earnings call](#), CEO Dave Calhoun said that the company was “*beginning to lay the foundation for our next commercial airplane development program.*” But what does that actually mean?

Speaking at Simple Flying’s recent Future Flying Forum, Scott Hamilton, managing editor of Leeham News, threw some light on what Boeing’s CEO probably meant by ‘laying the foundations.’ He said



*“What Boeing means by laying the foundation for the next commercial jet, at this stage, is getting their production system in a very advanced state. We know that when the 787 was created in 2003, the idea was to have a production system that would basically allow a snap together final assembly line.*

*“The underlying concept of trying to reduce the assembly and design stages has been an ongoing effort by Boeing, and that’s what they mean when they say they’re laying the foundation.”*



Advanced production techniques could speed up output and drive down costs of design, development and assembly. Photo: Getty Images

Advanced production and assembly would allow Boeing to speed up production as well as reducing costs. And it’s a process the planemaker has been perfecting in another area of its remit. Over on the defense side, the front fuselage of the first Boeing-Saab T-7A Red Hawk advanced trainer was joined perfectly with its aft section in less than 30 minutes. Using model based engineering and 3D design, Boeing completed the digital splice in 95% less time than traditional splices, and with substantial quality improvements.

*“That’s one step in these advanced production techniques, digital design. So there are just a whole slew of steps and the next airplane, whatever it is, is intended to converge all of these production techniques into a commercial airliner for the first time. It’s a moonshot in production,”* noted Hamilton.



What should Boeing build next then? Photo: Getty Images

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### **What will the next airplane be?**

There's been plenty of talk about Boeing's next clean sheet aircraft. For many years, the anticipation was that it would tackle the gap in its product line between the smallest 787 and the largest 737, with a brand new midsize aircraft. Many thought it would be a twin aisle jet with single aisle operation costs, but for one reason and another, it was [never launched](#).

And that's not the only option facing Boeing. The 737 has been twiddled with and tweaked for more than half a century. There are only so many times you can reiterate such a vintage aircraft, and a [clean sheet narrowbody](#) could see Boeing clawing back market share in this segment from its European rival.



A clean sheet narrowbody could prove popular with airlines looking for an alternative, modern solution. Photo: Getty Images

Hamilton said,

*“Boeing and the industry recognize that Boeing has to do something. It’s getting its clock cleaned by Airbus with the new A321. The 737 is on its last iteration. So the question is, what is the next new airplane going to be?”*

While Boeing has delayed any announcement of a new aircraft type, the world has been changing around it. Efficiency has always been a key goal for any new aircraft, but now the sustainability game has moved on significantly. Hamilton said,

*“There has always been something of a background recognition that emissions had to be reduced, that the lifecycle the airplane had to be altered in such a state that instead of going into landfills, you could recycle as much of the airplane as you possibly could. That’s been out there for quite a while. But now because of climate change, global warming, just generally emissions concerns, there’s a much greater emphasis now on eco aviation.”*



The world is looking for a solution to eco aviation. Photo: Getty Images

Boeing will need to pay attention to this, and create a step change in aviation design to provide its customers with the tools they need to make a positive change for the environment. But there are many questions, as Hamilton noted,

*“So is the next airplane step change going to be something that would be based on electric battery power? Is it going to be electric hybrid, is going to be hydrogen? Or is it going to be sustainable aviation fuel? Or is it going to be the conventional engines that have some dramatic improvements in the reduction of fuel burn and therefore emissions reductions that will be powered by SAF? So it is a major question.”*

It is a major question, and the jury is out on which will be the long term winner for a sustainable aviation future. Nevertheless, research is ongoing in all those fields, with leaps in technological development happening all the time. For Boeing, its [immediate focus is on SAF as a short term, impactful solution](#). Does that give us some clues as to what its next aircraft will be? For the answer to that, we’ll have to wait and see. [Joanna Bailey](#)

## We Could All Be Flying in Electric Planes Sooner Than You Think

Carbon-neutral aviation is coming soon, but with no thanks to the industry's big players.

By [Tristan Kennedy](#)

03 February 2020, 10:58am [Share](#) [Tweet](#) [Snap](#)



One evening in November of 2016, Omer Bar-Yohay – a former paratrooper turned tech entrepreneur – was having a few drinks after work when he had an unusual Eureka moment. Eviation, the company he'd co-founded with a friend who used to fly F-16s, had set itself a fairly fantastical-sounding goal: producing a fully-electric, zero-emission passenger plane. Technologically, the team had made great strides, but they were yet to come up with a name.

"Honestly, it was just a drunken night at the workshop," Bar-Yohay remembers. They were listening to music – Jefferson Airplane, obviously – when "White Rabbit" came on: "*Alice in Wonderland* just seemed to fit what we were trying to do."

There have been electric aircraft before, of course. Earlier that same year, a single-seat experimental Swiss plane called Solar Impulse 2 had completed a lengthy circumnavigation of the globe. But making a plane that could carry enough passengers over a long enough distance to be commercially viable still sounded like a pretty crazy dream. Last June, however, after three more years down the rabbit hole, the Eviation team took a huge step towards making that dream a reality as they unveiled their plane at the Paris Airshow. Its name: Alice.

In a world where new models are usually known by numbers (Airbus' A380, or Boeing's ill-fated 737 MAX), that moniker alone was enough to turn heads. It also helped that Alice, with its enormous windows, sleek lines and composite bodywork, looked like the airborne equivalent of a Jaguar E-Type. But the main reason it "stole the show", according to aviation experts, was that this was more

than just a prototype. In fact, Eviation announced, one American regional airline had already made "a double digit order". It sounded like the future of flight had already landed.



ALICE AT THE PARIS AIR SHOW. PHOTO COURTESY OF EVIATION.

Despite all that excitement, we're not quite there yet. Orders for new Boeings and Airbuses will far outstrip those for Alice this year, and although big players like these have dabbled in carbon-neutral alternatives to jet fuel, they're yet to throw their weight wholeheartedly behind it. The airlines which drive the market prefer to offer offset schemes, or trumpet bans on single use plastic, instead of tackling the real issue. But despite the lack of interest and investment from major manufacturers, the dream is tantalisingly close.

Assuming all goes well from a testing and regulatory point of view, Alice will enter active service by 2023, and there are other carbon neutral aircraft which could start carrying paying passengers even sooner.

MagniX, the company that makes the engines which power Alice, has been working closely with a Canadian airline called Harbour Air to retrofit their fleet of DeHavilland Beaver floatplanes with electric engines. It's not been an easy task, according to CEO Roei Ganzarski. "It's a 62-year-old aircraft, and it's surrounded by water – which, for an electric plane, is a challenge." But despite all this, on the 10th of December, 2018, the first electrified Beaver conducted a successful flight over Vancouver.

Closer to home, a startup called ZeroAvia received a £2.7 million grant from the UK government last September to pursue the development of a carbon neutral plane powered not by lithium-ion batteries (like the MagniX or Eviation models) but by hydrogen fuel cells. Founder Valery Miftakhov, who holds a recreational pilot's license and flies all his own test vehicles, is betting that this

alternative fuel source will help him get his "product" – a modified 20-seater able to fly 500 nautical miles (920 km) – off the ground more quickly than the battery-powered alternatives.



VALERY MIFTAKOV (SECOND FROM RIGHT) AND THE ZEROAVIA TEAM.

As impressive as these efforts are, there's no escaping the fact that the size and range of these aircraft is limited compared to fossil fuel-powered alternatives. "Instead of the standard 455 miles (732 km) a Beaver can do on a full tank of fuel, the electric Beaver does 100 miles (160km)," says Ganzarski. Alice, meanwhile, will be able to carry its nine passengers 540 nautical miles (just over 1,000 km), enough to fly from San Francisco to LA, or London to Berlin, but still miles away from the performance of the planes most of us take today. A Boeing 737, by comparison, can fly up to 6,000 km, carrying around 150 passengers.

The issue is weight. Generating the electricity needed to get a plane that size into the air – and power it over that distance – would require batteries so heavy it could never possibly leave the ground. "The energy density of fuel is just so much better than the energy density of batteries," Bar-Yohay explains. While Miftakhov believes hydrogen fuel cells offer an advantage, their power-to-weight ratio is still a long way off what's needed to fuel a large airliner.

The technology is developing all the time, of course. According to Dr Euan McTurk, an electrochemist who works with batteries, "the energy density of lithium-ion battery tech is improving at a rate of about 10 percent per year". But even if this were to speed up dramatically, we'd still be decades away from an all-electric 737.

This explains in part why, despite funding some promising projects, larger aircraft manufacturers like Boeing and Airbus have been slow to push this new technology. "Those companies are very, very conservative," says Bar-Yohay, while Roei Ganzarski compares them to Kodak – "the company that invented the digital camera" but failed to pursue it "because of their film cash cow".

But if these major manufacturers see a technology that isn't yet good enough for the market, the startups see a market ripe for disruption.

Their argument is based on simple economics. Batteries might not be able to power big planes yet, but the electricity needed to recharge them – even when generated entirely from renewables – is far cheaper than jet fuel. This means when you start looking at the "cost per passenger mile", it doesn't matter that Alice can only carry nine people: each seat, it's estimated, will still cost roughly the same as on a 150-seat 737 – around seven US cents per mile. Electric aircraft can be much smaller and still make sense when it comes to operating costs and ticket prices.

Using smaller planes may also actually give airlines an advantage. "We have trained our brains to think of aviation as something that takes us to a hub," says Bar-Yohay. But he points out that, given the choice, most people would rather not fly from the outskirts of one major city to the outskirts of another. "You drive for hours to a sorting hub, and then fly to another hub, only to sort yourself again, much like a parcel. But we are not parcels." If airlines could afford to operate many more smaller, cheaper flights, he argues, people could get "from point A to point B, not from point A to point C and from there to point D and E and then to point B".

Follow this line of thinking to its logical extreme, and we could end up with thousands of tiny battery-powered aircraft ferrying small groups of passengers door-to-door, like a fleet of airborne Ubers. Indeed, some engineers are already working on this. In May of last year, a German manufacturer called Lilium successfully flew the prototype of what will eventually be a five-seater, vertical take-off aircraft they're calling an "air taxi". But getting to the point where we're all buzzing between city centre rooftops, Jetsons-style, will require further technological leaps – not to mention regulations that have yet to be invented, and a whole host of new infrastructure.

The infrastructure needed for electric planes like Alice to replace today's fossil-fuel megabuses, on the other hand, already exists. "There are already roughly 20,000 airstrips in the continental United States," explains Bar-Yohay. Currently, many of these are only used by hobby pilots, but "maybe 12,000 of them have a runway long enough to accommodate a plane the size of Alice", and, by comparison, only "around 2,000" of them are used by today's commercial carriers. The suggestion is that by operating multiple smaller electric planes, airlines could offer flights to six times as many destinations, all while keeping ticket prices much the same.



Alice and its competitors still have regulatory hurdles to clear before that promise is realised. Lithium-ion batteries on planes haven't had a great reputation since Samsung's phones started blowing up in mid-air back in 2016, and the last time a hydrogen-powered aircraft made global headlines was the Hindenburg disaster in 1937 – although, as Valery Miftakhov points out, "some time has passed since then, and safety has improved a little bit".

Certainly both he and Omer Bar-Yohay are confident that their aircraft will soar over these barriers in time to hit their 2023 delivery dates. And after that? Well, the sky's the limit. As Miftakhov points out, "The engine market is worth \$100 billion, the aircraft market \$200 billion and the fuel market is another \$200 billion. In those three you have half-a-trillion dollars."

Even leaving aside the huge environmental benefits, those are the kind of numbers that would make any businessman, however hard-nosed, sit up and take notice. All of which makes it doubly surprising that Airbus, Boeing and others aren't throwing the kitchen sink at the problem. But then, perhaps that's inevitable.

As Omer Bar-Yohay puts it, "In any industry with major incumbents, there needs to be a cheeky, small, nimble company to kick everybody in the butt – and I really hope it's us."

*@Tris\_Kennedy - This article originally appeared on VICE UK.*

## Do you know: Can We Have Electric Planes?

Updated: Apr 6

What could a future with electric planes look like ?

Companies have been betting on battery-powered planes for better and cleaner future. But even though electric planes have been around since 1970s, they haven't really taken off. So what's keeping them grounded ?

In late 1800s, two French army officers experimented with electricity to power an airship, but they ran into problems when the battery just couldn't hold the enough energy. This would become a recurring problem for the next 100 years. When Nickel-Cadmium batteries were invented, the first flight with an electric motor took off, but it only lasted less than 15 minutes. Then in 1980s Lithium-ion batteries were invented. They could store more power than ever before leading to planes like Solar Impulse 2.





Starting in 2015, the solar powered aircraft spent 16 months flying around the world, except it flew at an average speed of 28-34 mph. Solar Impulse 2 is a part of movement in recent years to develop alternative energies, especially when people and government started realizing just how bad flying was for the environment. The aviation industry emitted about 1 billion tons on carbon dioxide in 2019. That's about 2.5% of global carbon emissions. That might not sound like a lot, but it's almost as much as an entire continent of South America emits in a year. We need to make changes to the industry, and electrification is the biggest trend which will hopefully reduce the burden on the environment.

Electric planes have been on people's mind for a while but two big problems are keeping electric grounded.

1. Technology
2. Certification

The technology is not quite ready. When you're trying to get an electric plane off the ground, you want a battery that packs a lot of punch in a little package but batteries are not as efficient as gas. A battery's efficiency or ability to hold power is measured in specific energy. Right now, even the best batteries have specific energy of only 250 watt-hours per kilogram, but we have to get closer to around the figure of 800 to really get to flying and that is still nothing compared to jet fuel's specific energy which is nearly 12000 watt-hour per kilogram. Another factor is that batteries are heavy. So, if you want to add more power to a plane, you need to get a bigger battery and to get the plane airborne despite the weight, you will need even bigger battery which is more powerful, but that means more weight.

But even if the engineer's design a plane around the shortfall in battery tech, they have to take on the industry's second hurdle - **Certification**. Companies have to prove every inch of their aircraft is safe, passing a series of test, one of which is to make sure that battery cells wont catch fire. If something goes wrong, you can't stop. You can't pull to the side of the road. There's only one place for the airplane to go and so the regulatory stringency is much higher, the requirements for reliability, redundancy, and safety are much higher for a good reason. You have no alternative. The certification takes years to complete. So the companies have got creative. They have started to retrofit the old planes i.e. they take out the gas-guzzling, emission-creating engines and the fuel system and replacing that space and weight with the electric-propulsion system. Retrofitting has happened in phases. The problem, though, is that limits you to what the plane structure is already built for. So if the original motor is, say, thousand pounds and you remove it, then you will have to replace for that weight in order to balance and maintain the force and the thrust. Electric motors are smaller and lighter than gas ones but remember, those batteries are heavier. So you lose range because batteries with same weight are less powerful.

For the electric planes to be successful in long run, they'll have to go farther. Each electric plane in development is different, but they all have one thing in common that they are going after flights under **500 miles**. And while it may not seem like an impressive distance, these short-range electric planes could solve a major problem in travel. In 2018, a little less than half of all air tickets sold globally were for flights under 500 miles, but instead of using small, efficient planes designed for

these shorter routes, we often use expensive airliners built to fly thousands of miles. These planes are most efficient if they are able to cruise for a long period of time but on a flight that's 50 minutes, these planes go up and they come right back down. In the last four decades flying regional with commercial jets got so expensive for airlines in the US, Europe and Australia that they began stopping service to regional airports. Today of the 20,000 FAA approved runways in the US, only 2.5% are currently active. The regional airports left are running at a loss or even going bankrupt but electric planes could be a fix and there is already an infrastructure for them to function. Omer says that 11,000 of those 20,000 runways could support electric planes which is a lot cheaper to operate. Its a ten fold increase of the potential destinations, all the while not having significant burdens on the communities of noise and pollution. As for the distant future, electric aviation could come in all kinds of forms.



**Uber is already working on an electrical vertical take off and landing vehicle. Even big players like Airbus, Boeing and Rolls-Royce are betting on this future.**

## United's Future All-Electric Regional Aircraft Now Boasts a State-of-the-Art Flight Deck

10 Dec 2021, 06:58 UTC ·

by [Otilia Drăgan](#)

Earlier this year, we were telling you about the fully-electric regional passenger airplane that was perfect for vacation flights in difficult-to-reach areas, such as certain exotic islands. Now, the Swedish ES-19 electric airliner takes a step further by integrating customized avionics from world-renown specialist Garmin.



Together with a Phoenix-based regional air carrier, United purchased 200 electric aircraft from Swedish company Heart Aerospace, with the goal of making regional commercial flights better for the environment while still being fast and comfortable. The ES-19 was designed as a clean energy alternative for short-distance travel to places that are hard to reach by car, such as locations on mountainous terrain.

According to the manufacturer, besides from flying with zero emissions, this 19-seater is also exceptionally cost-effective, with an electric motor that's almost 20 times less expensive than a conventional turboprop of the same size and maintenance costs that are 100 times lower. Powered by a 400 kW electric motor and a lithium-ion battery pack, the ES-19 can fly for over 250 miles (400 km), but its range is expected to increase as battery technology continues to evolve.

Not just emissions-free, cost-effective and silent, the ES-19 also boasts top-level performance, thanks to the new Garmin G3000 integrated flight deck that was customized and optimized to meet the specific requirements of this electric aircraft. Featuring high-resolution flight displays that are also lightweight, the G3000 integrates perfectly with the airplane's management systems for its electric drivetrain and battery for advanced navigation and communication. Plus, it's designed to continue to support future upgrades as electric flight technology keeps evolving.

The major purchase agreement signed with United confirmed that island-hopping onboard this 19-seat electric aircraft is a certainty. Located in Gothenburg, Heart Aerospace was born as a spin-off from a government-funded research program and was also awarded a grant from the European Investment Council in 2020. The first ES-19 is expected to take off in 2026.

## Radically different Transwing eVTOL design offers some huge advantages

By [Loz Blain](#) July 30, 2021

Southern California's PteroDynamics has somehow escaped our attention thus far, but this company's radically different take on the electric VTOL aircraft is well worth a look, and the company claims this will be the most efficient design by far.

The Transwing is an entirely different concept to anything else in development. It's not a basic multicopter like the [Volocopter 2X](#), a lift and cruise design like the [Archer Maker](#) or [Vertical Aerospace VA-1X](#), or a vectored thrust configuration like the [Joby S4](#) or [Lilium Jet](#). It's not a typical tilt wing design either, like the one [Dufour Aerospace](#) is working on.

Instead, it uses a unique (and patented) folding wing design. Propellers on propulsion pods are distributed down the length of a very long set of wings, which are designed to fold back on dihedral pivot points a short way out along the wing, operated by control rods fixed to moving actuators on the main body. When fully folded, the wings sit vertically, parallel with the sides of the aircraft, such that the props all point skyward in a typical multicopter configuration.

The Transwing system is "aerodynamically benign" at all stages of transition between the fully folded and fully extended states, so there's no loss of control as you shift from hover onto the wings. They'll be more comfortable for passengers than multicopter designs that require the cabin to tilt in order to achieve horizontal movement.



So what's the big deal? Well, there's only so much room on a helipad. The Transwing design is incredibly compact on the ground and in VTOL operations, but once it unfolds, it's rocking a set of enormous wings for extremely efficient flight. This design has potential to scale way beyond the size most long-range eVTOL competitors can, while still being compact enough to land at an urban vertipad.

Even before you scale up, the effect is enormous; for a given wingspan, these things require about a quarter of the landing space that a fixed-wing vectored thrust or lift and cruise design, and in terms of parking them at some facility to charge, you can fit 5.5 times as many into a given space. Hell, you can get a decent size Transwing on a trailer and drive it around in a ready-to-fly configuration; that's going to be super handy when these things need to go in for maintenance at HQ.



And then there's the sheer efficiency of using a large wing; this system completely negates pretty much any disadvantage around using a broad wingspan, so PteroDynamics is free to go big. That has a pretty huge effect on the cargo-carrying efficiency of this design if the company's figures are to be taken at face value.

As PteroDynamics puts it, "Transwing aircraft have much greater range, endurance, and cargo carrying efficiency as compared to all other VTOL designs." And "given any aircraft footprint size and payload requirements, Transwing aircraft will fly several times as far as any VTOL competitor."

It doesn't have to be electric, either. The company is happy to build one with any fuel system, and if it doesn't use fast-responding electric motors, PteroDynamics will happily put variable-pitch rotors on it for super-quick thrust balancing in the hover mode. You might as well spec those for your electric version anyway; the company says they can further increase range "by a factor of at least two."

It sure looks like a promising idea. So what's the likelihood of this thing happening? PteroDynamics has built and flown scale prototype Transwing aircraft with 4.2-ft, 6.6-ft and 12.3-ft (1.3, 2 and 3.5-m) wingspans. There are plenty of flight videos on the company's [YouTube channel](#), showing stable and smooth takeoff, soaring winged flight and well-controlled landings. They look great in the air, but there's a bit too much wing wobble on touchdown for my personal liking. I'm sure that's solvable as development progresses, but boy do those pivot points need to be strong and reliable.

The company has said it's happy to license the patented tech, but it's also planning to manufacture and even to run its own flight services, starting out with small-scale cargo drones and up-spec military and government models, with a view to eventually moving up to passenger air taxis. [Representatives told FutureFlight](#) that PteroDynamics is setting up a 9,200-sq-ft (854.7-sq-m) engineering HQ in Colorado to advance its R&D operations, and that it's also close to signoff on a deal that could see the Transwing delivered for use under an experimental license within 12 months.

Beyond that, it's hard to say where these guys are at on the path to commercialization. Little is public about their funding situation, although they've been supported to some degree by a company called [Kairos Ventures](#) since 2020. So a fascinating piece of tech, and we'll just have to wait and see what PteroDynamics can achieve with it.

To really get a sense for how neat this mechanism is, you'd best check out the video below.

<https://youtu.be/3uNboCgDOKQ>

Source: [PteroDynamics](#)