



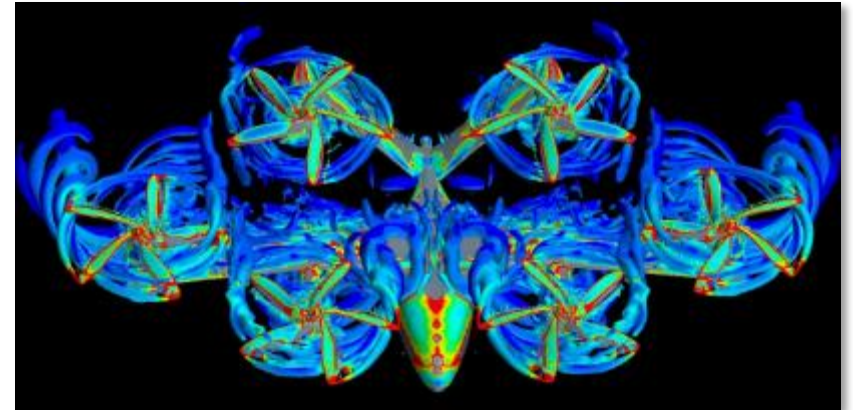
# Advanced Air Mobility



**Mike Hirschberg, Director of Strategy**  
*The Vertical Flight Society*  
[www.vtol.org](http://www.vtol.org) • [www.eVTOL.news](http://www.eVTOL.news)

# What is The Vertical Flight Society?

- The international **professional society of 6,500 members** working to advance vertical flight
  - Founded in Feb 1943 as the **American Helicopter Society (AHS)**
  - Everything from VTOL MAVs/UAS to **helicopters, eVTOL, etc.**
- **Expands knowledge** about vertical flight technology and promotes its application around the world
- Advances **safety and acceptability**
- Advocates for vertical flight **R&D funding**
- Helps **educate and support** today's and tomorrow's vertical flight engineers and leaders
- **Brings together the community** — industry, academia and government agencies — to tackle the toughest challenges



CFD of Joby S4, Aug 2015



VFF Scholarship Winners at Forum 71, May 2015

**Join us today: [www.vtol.org](http://www.vtol.org)**

# VTOL Innovators – Then and Now

1<sup>st</sup> AHS Banquet  
1944



1<sup>st</sup> eVTOL Workshop  
2014



# The Electric VTOL Revolution

- Electric & hybrid electric propulsion enable new possibilities for:

- Regional/Rural Air Mobility (RAM)
- **Urban Air Mobility (UAM)/Air Taxis**
- Urban Cargo Delivery/Disaster Relief
- Personal Air Vehicles
- Ultralights
- Personal Flying Devices (GoFly)
- Urban Package Delivery (sUAS)

↑  
Heavier, Hybrid

“Advanced Air Mobility” (AAM)



# The Electric VTOL News

## www.eVTOL.news

- World eVTOL Aircraft Directory
  - Everything from the silly to the serious
- 894 aircraft (as of Sept 27, 2023)
  - 320 Vectored Thrust
  - 149 Lift + Cruise
  - 256 Wingless (multicopters)
  - 110 Hover Bikes/Flying Devices
  - 59 eHelos & eGyros
- 400 eVTOL companies/designers
- 300+ Vertiflite articles on eVTOL
- Timeline, educational resources, etc.



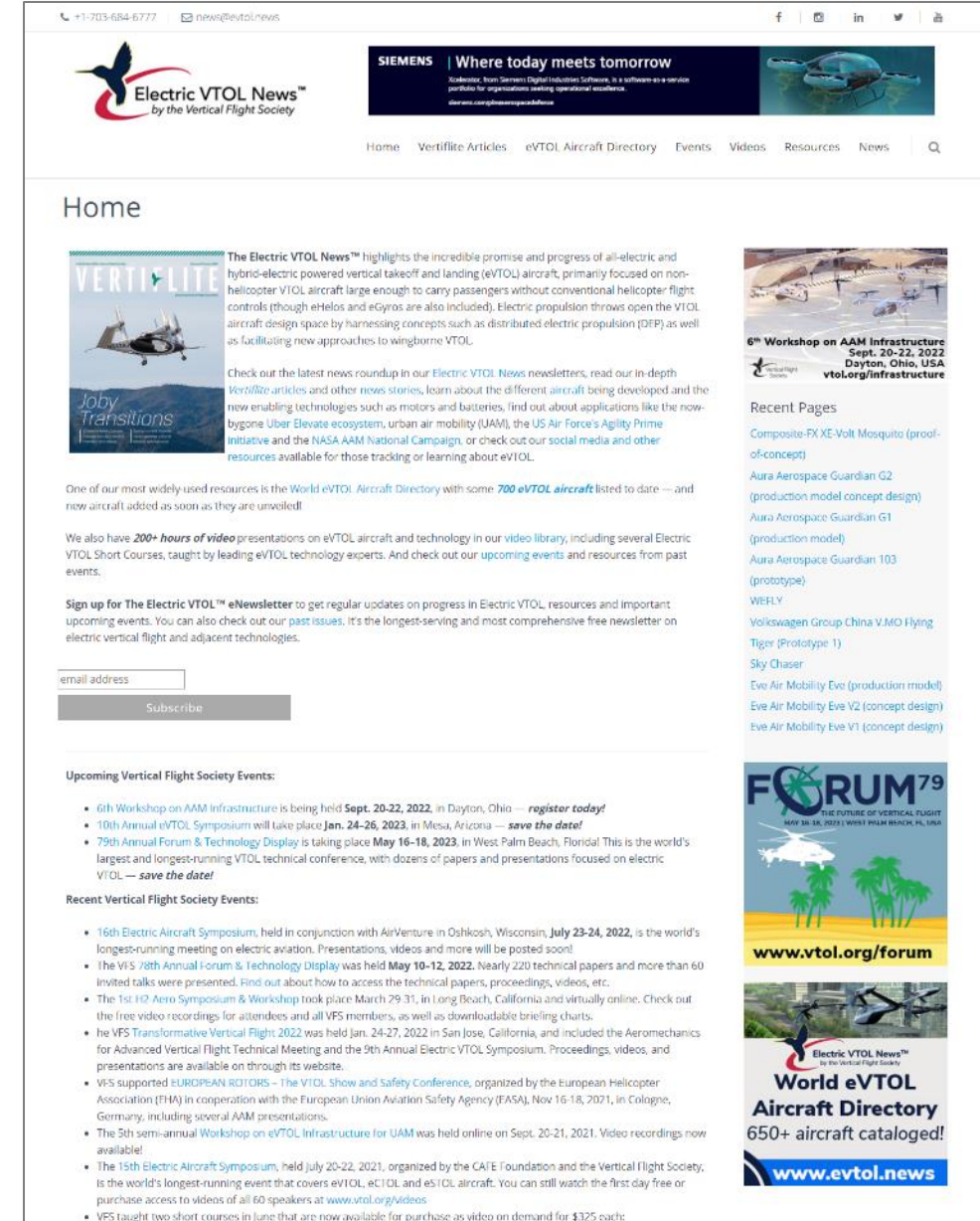
# VFS eVTOL Online Resources

## ■ Electric VTOL News

- [www.eVTOL.news](http://www.eVTOL.news) (900 aircraft concepts)
- [www.facebook.com/electricVTOL](https://www.facebook.com/electricVTOL)
- [www.twitter.com/electricVTOL](https://www.twitter.com/electricVTOL)
- [www.youtube.com/VTOLsociety](https://www.youtube.com/VTOLsociety)
- [www.instagram.com/VTOLsociety](https://www.instagram.com/VTOLsociety)
- [www.vimeo.com/VTOLsociety](https://www.vimeo.com/VTOLsociety)
- [www.linkedin.com/company/vtolsociety/](https://www.linkedin.com/company/vtolsociety/)

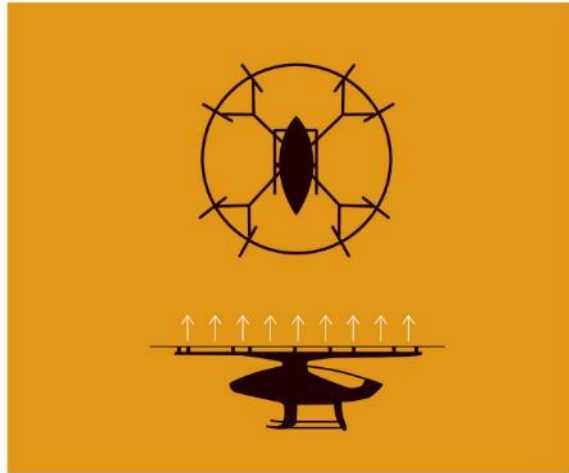
## ■ Also

- Electric VTOL eNewsletter
- eVTOL News videos
- eVTOL video presentations (250+ hours)
- eVTOL short course videos (100+ hours)



The screenshot shows the homepage of the Electric VTOL News website. At the top, there is a navigation bar with the site's logo, contact information (+1-703-684-6777, news@evtol.news), and social media icons. A Siemens banner is visible on the right side of the header. The main content area features a 'Home' section with a featured article titled 'The Electric VTOL News™ highlights the incredible promise and progress of all-electric and hybrid-electric powered vertical takeoff and landing (eVTOL) aircraft...'. Below this, there are sections for 'Upcoming Vertical Flight Society Events' and 'Recent Vertical Flight Society Events', both containing lists of upcoming conferences and workshops with dates and locations. A 'Subscribe' button is located at the bottom of the main content area. On the right sidebar, there are sections for 'Recent Pages' and 'Recent Pages', listing various aircraft models and workshop information.

# VTOL Configurations



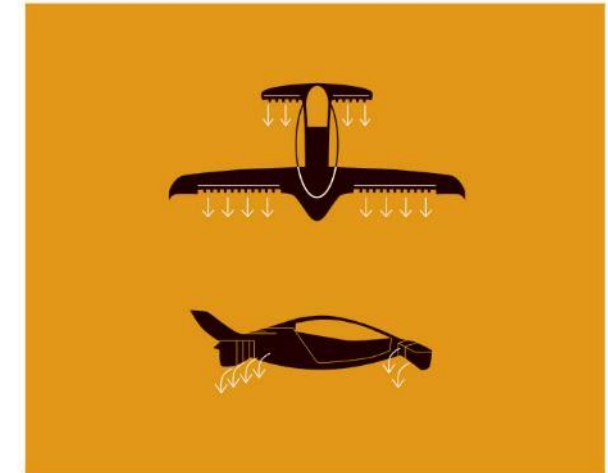
**MULTICOPTER:** Lifting rotors are arrayed around the circumference and spokes of a carbon fiber ring.



**LIFT AND CRUISE:** One group of vertical rotors lift the aircraft and another set provides forward thrust; wings boost cruise energy efficiency.



**VECTORED THRUST:** Tilting propulsors transition the aircraft from liftoff thrust to forward thrust; wings boost cruise efficiency.



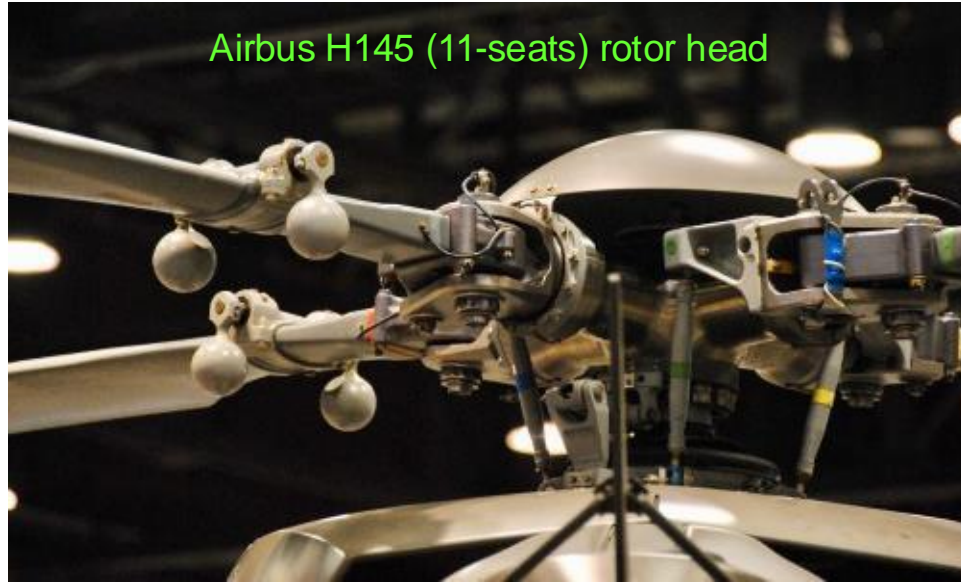
**MULTIPROPULSOR DUCTED FANS:** Multiple, vectorable, electric fans, enclosed in ducts, reduce noise; wings boost cruise efficiency.

- Cheaper
- Lighter
- Slower
- Shorter Range
- Simpler



- Costlier
- Heavier
- Faster
- Longer Range
- More Complex

# Electric Helicopters?



Airbus H145 (11-seats) rotor head



EHang 184 (1 seat) propeller hub



Leonardo AW609 Tiltrotor (11 seats)



Joby 2.0 (5 seats) tilt propeller



# Pre-Historic eVTOL



**NASA Puffin Single-Seat eVTOL  
Study  
(2010)**

**AgustaWestland Project Zero  
1<sup>st</sup> Full-Scale eVTOL Demonstrator  
Unmanned  
(June 2011)**



**Opener BlackFly (SkyKar Rebel)  
1<sup>st</sup> Manned Fixed-Wing eVTOL  
(Oct. 5, 2011)**

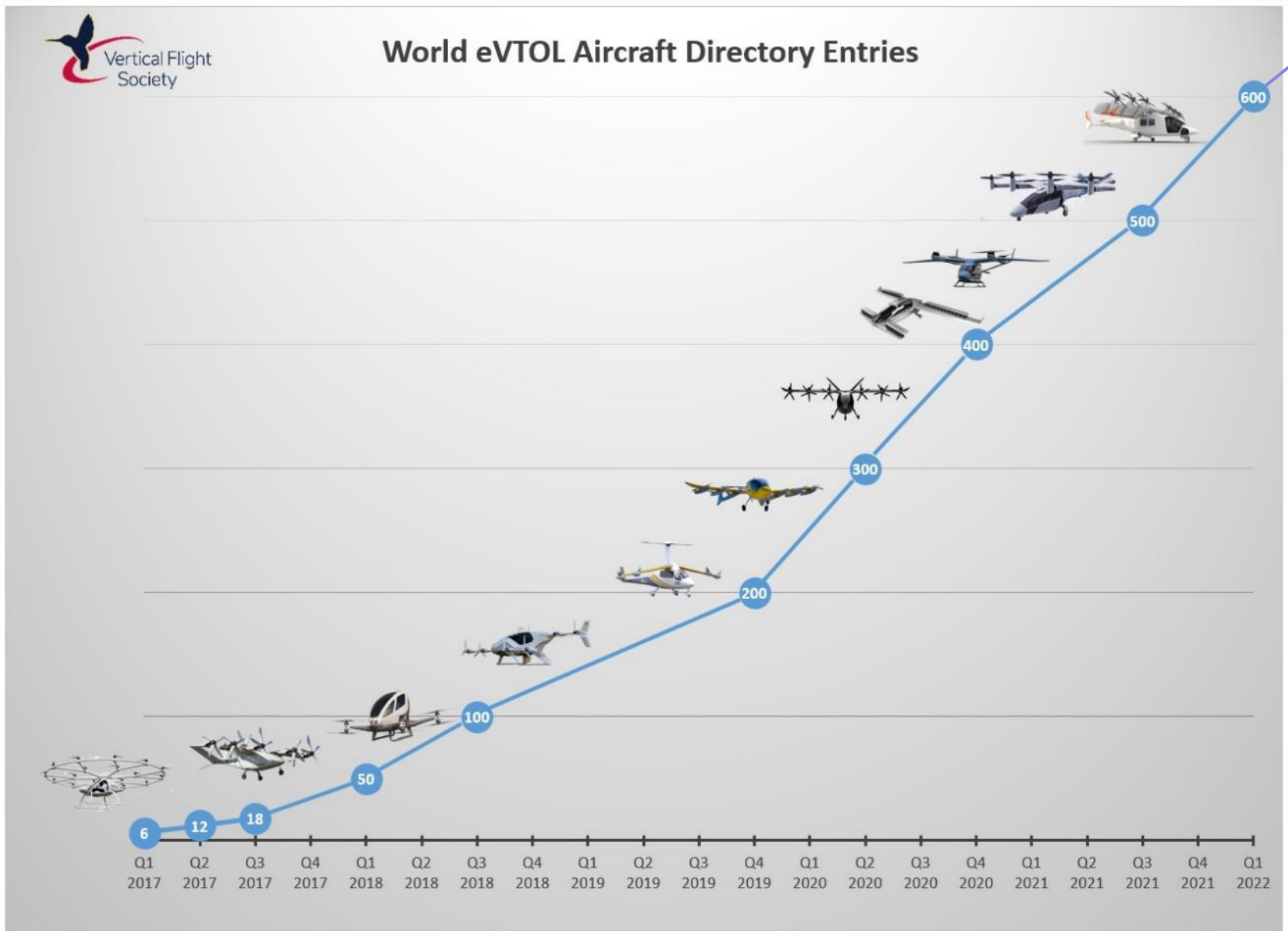


**1<sup>st</sup> Manned Electric VTOL flight  
(Aug. 4, 2011)**

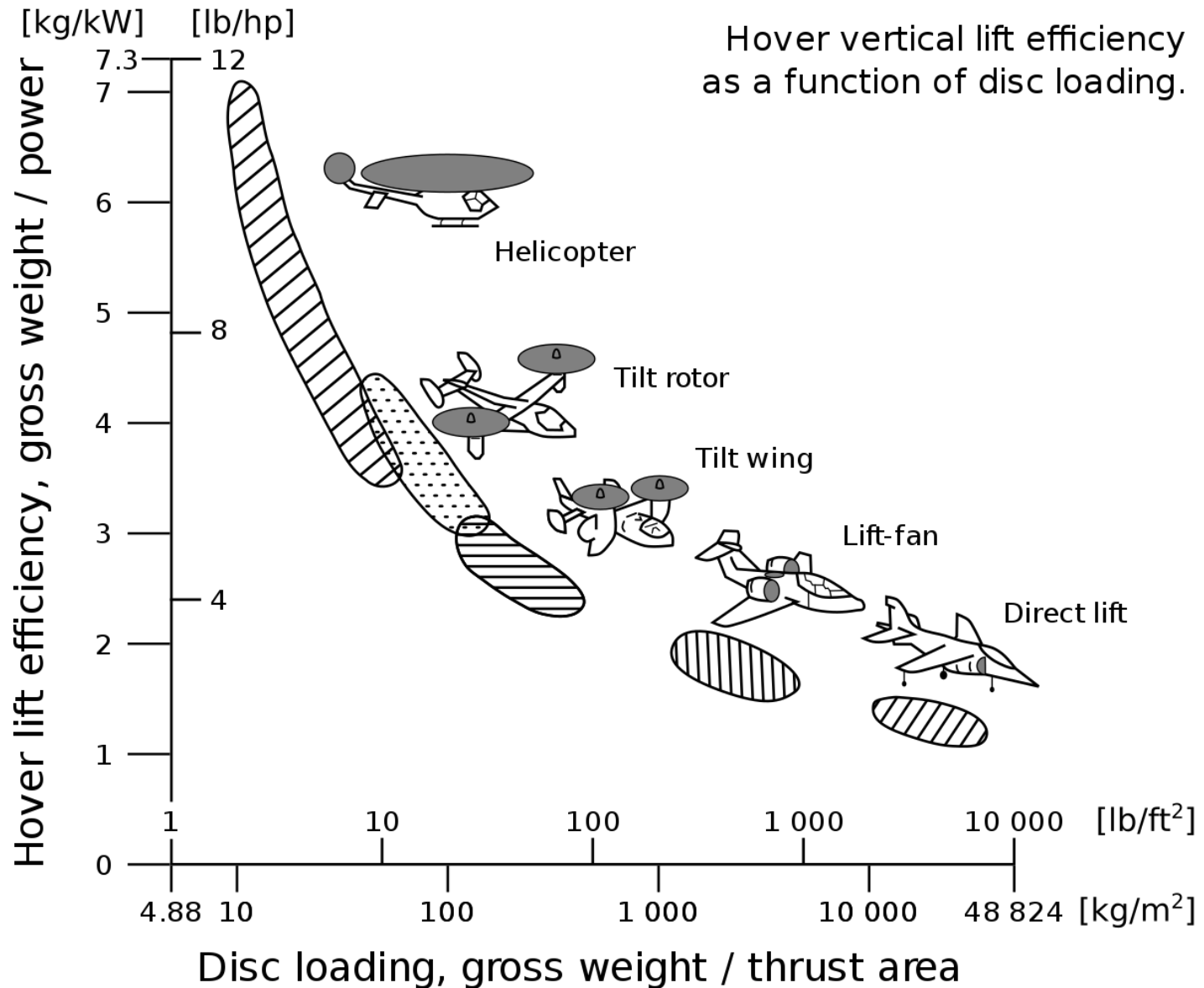


**(e-volo) Volocopter VC1  
1<sup>st</sup> Electric VTOL Multicopter  
(Oct. 21, 2011)**

# Plane Crazy!



# How long do you want to hover?



**Advanced Air Mobility (AAM) Exposition**  
**September 26-28, 2023**  
**Hampton Roads Executive Airport &**  
**Marriott Newport News City Center**



**AAM: Making the Investment for the Commonwealth**  
*Transforming aviation for the future*



- Moderator: Mike Hirschberg, Director of Strategy, Vertical Flight Society
- Rani Plaut, CEO and Co-founder, AIR
- Rob Dickerkson, BETA Technologies
- Ben Marchianno, VP Technology & Innovation, Electra.aero

