

Wildu Aero Project



Bridging The Gap in Health Inequities For Those Living in Rural and
Remote Regions
A/Prof Dries Verstraete



WILDUTM

AERO PROJECT

Why Wildu Aero?

Why a new drone design?

What is our solution?

Why hydrogen fuel cells?

Targeting Health Inequalities



1.4x

People living in remote areas are 1.4 times as likely to die from heart, stroke and vascular disease

250%

250% more potentially avoidable deaths occur in remote areas compared to metropolitan areas.

2.8x

Compared to those in major cities, people in remote areas are 2.8 times more likely to be hospitalised

19 years

Females in very remote areas are likely to die 19 years earlier than their metropolitan counterparts

Targeting Health Inequalities



Remove the barrier to accessing essential healthcare services

travel 3-5 days to receive a basic blood test



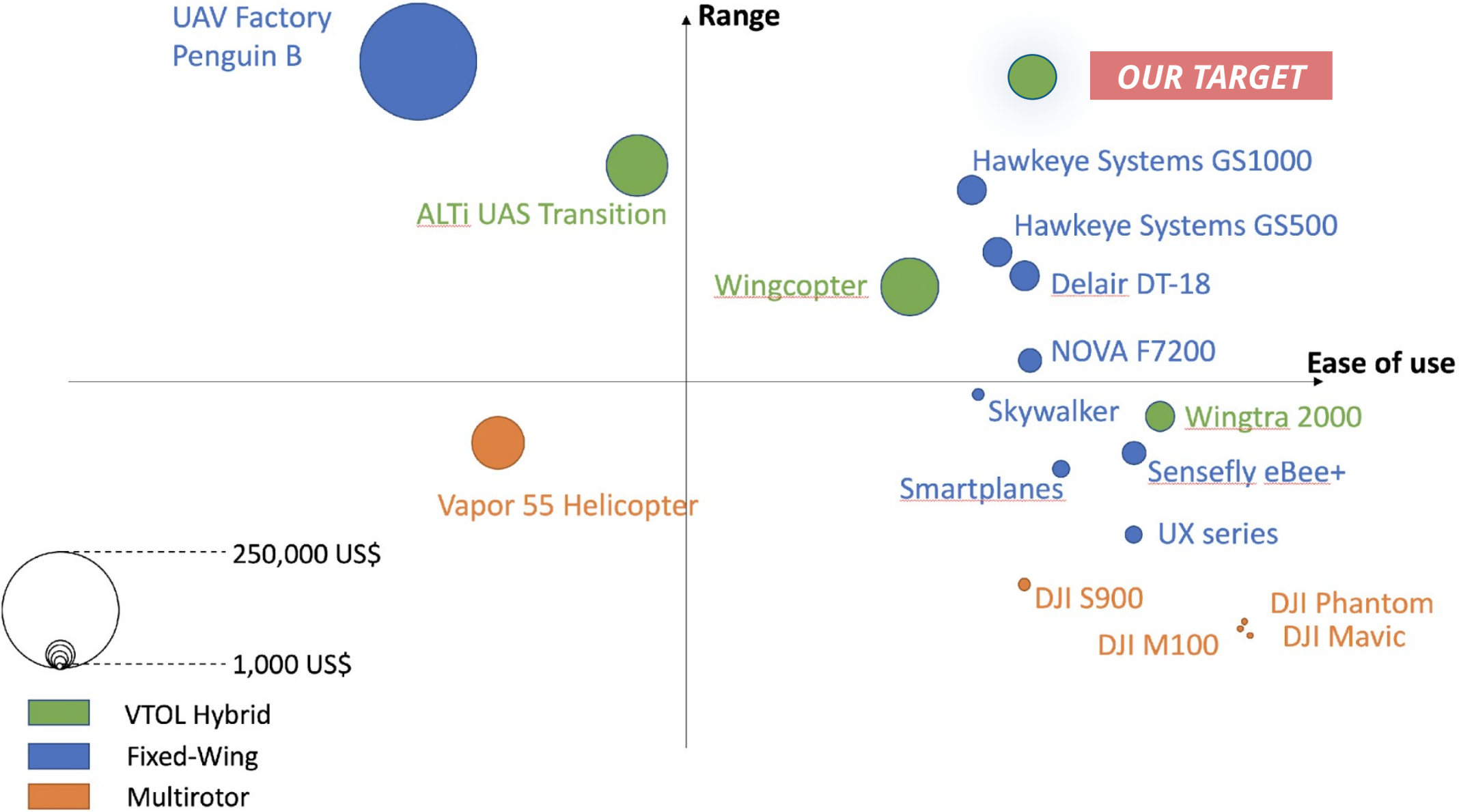
Increase accessibility

to prescription medicines, vaccines, pathology, and other critical medical supplies



To use state-of-the-art technology to bridge the gap in health inequality and health inequity for rural, remote, and regional populations

Surely there are drones that can do this?



Surely there are drones that can do this?

Wingtra



WingCopter



Alti UAS

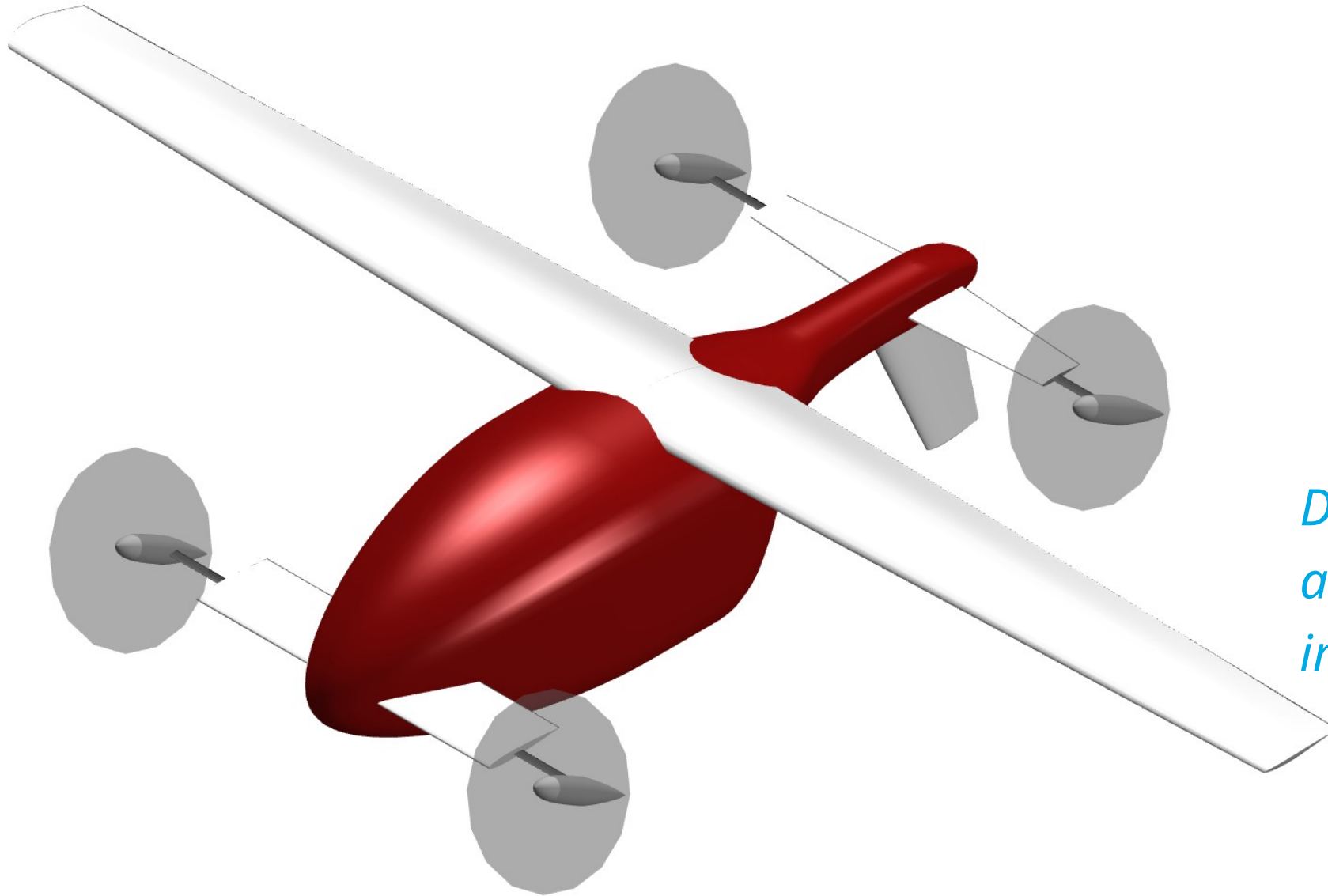


Volansi



Payload / All up Weight	0.8 kg / 3.7 kg	6.0 kg / 16.0 kg	1.5 kg / 15 kg	4.5 kg / 25.0 kg
Endurance	55 minutes	120 minutes	360 minutes	60 minutes
Cons	Ground stability Hard to scale	Limited improvement Hard to scale ↓	Dirty configuration Piston engine 10 minutes hover	Dirty configuration Limited endurance

Our Solution: a fuel-cell-powered eVTOL drone



*Efficient and clean
fuel-cell-based hybrid
propulsion system
using green hydrogen*

*Decoupled horizontal
and vertical lift for
improved scalability*

Six Factors to Drive Success ...

1 A sustainable energy source

Battery weight and recharging time are limitations of the current generation of lithium-ion batteries, and next-generation solutions are a few years away.



2 Mobile networks for low-altitude connectivity

5G will be a boon for eVTOL communications and should be widespread when the first eVTOLs hit the market around 2025.



3 Urban air traffic management

Managing low-altitude drones and eVTOL traffic is a work in progress, with standards for drones coming first, followed by eVTOLs in the next few years.



4 Critical safety and certifications

Compliance with as-yet-to-be-formalized standards is a gating factor for eVTOL companies eager to get their aircraft and services up and running.



5 Competitive service-based pricing

The eVTOL mass market will take time to grow, driven in part by the high per-mile cost of an air taxi compared to other forms of urban transport.



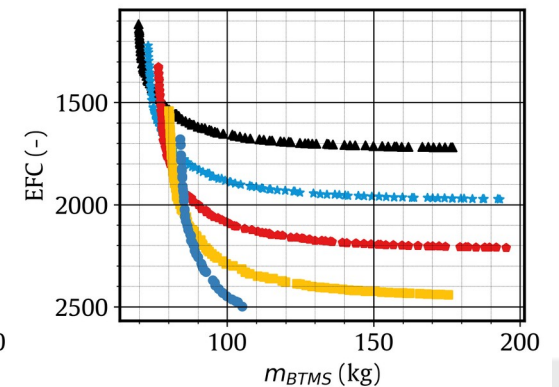
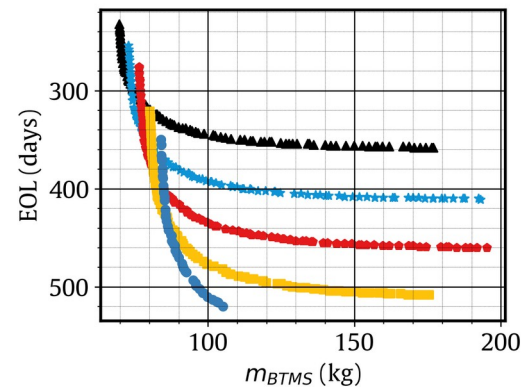
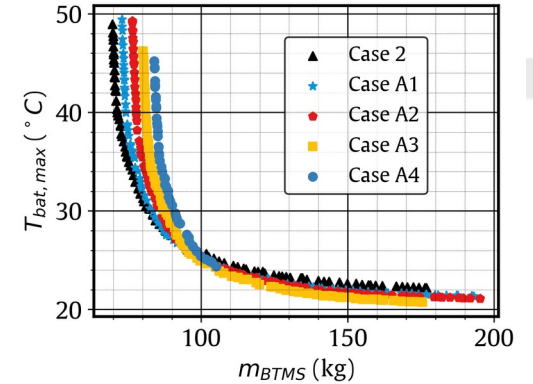
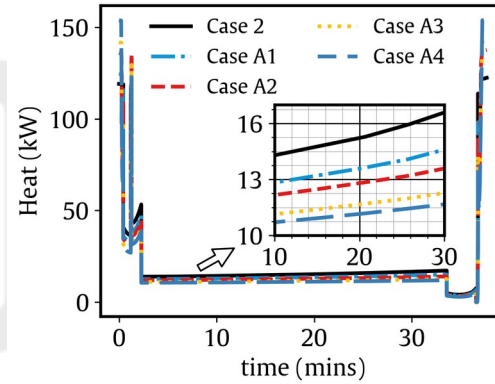
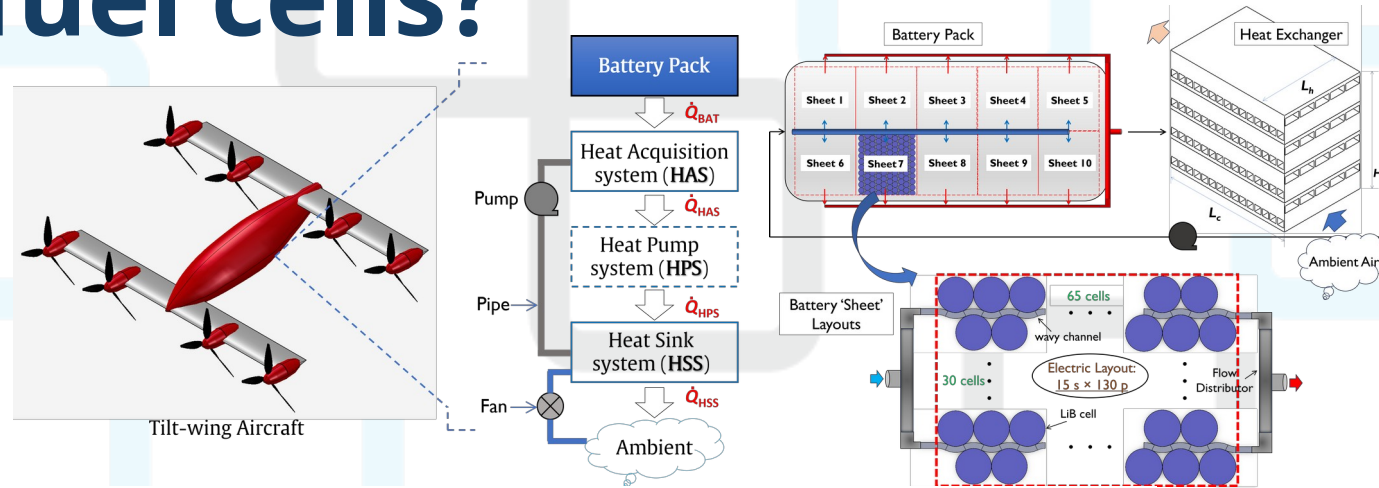
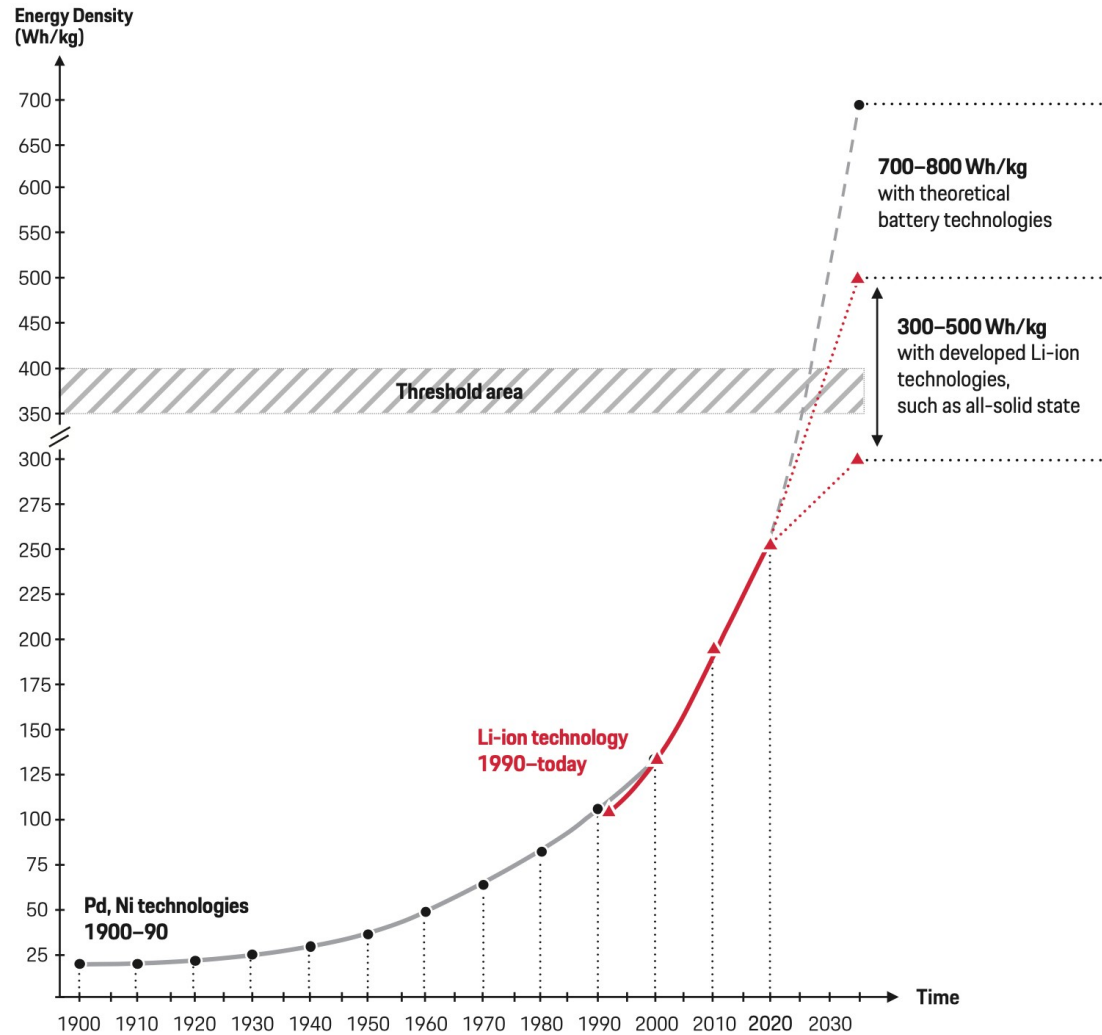
6 Social acceptance

Perhaps the biggest challenge for most prospective customers is a lack of experience with vertical air travel. Fear of flying, noise pollution, and busy skies are deterrents. It might take a generation to get used to eVTOLs.



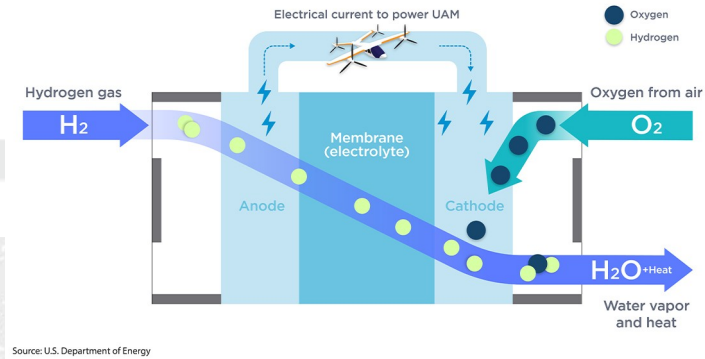
Also medical compliance

Why fuel cells?



Why fuel cells?

HYDROGEN FUEL CELLS vs. LITHIUM-ION BATTERIES



DURABILITY

HYDROGEN FUEL CELLS:
Estimated life span up to 240,000 km

LITHIUM-ION BATTERIES:
Estimated life span up to 160,000 km



ENERGY DENSITY

HYDROGEN FUEL CELLS:
35,000 watts per kilogram

LITHIUM-ION BATTERIES:
200 watts per kilogram



SUSTAINABILITY

HYDROGEN FUEL CELLS:
*No CO₂ emissions
*If produced with green hydrogen

LITHIUM-ION BATTERIES:
High CO₂ emissions



RECHARGING TIME

HYDROGEN FUEL CELLS:
Less than 5 minutes to refuel

LITHIUM-ION BATTERIES:
Up to 5 hours to fully charge



OPERATING TIME

Fuel cells can **outlast** the average battery-powered vehicle by about **160 km**



WEIGHT

Fuel cells have an **energy-to-weight ratio 10 times greater** than lithium-ion batteries



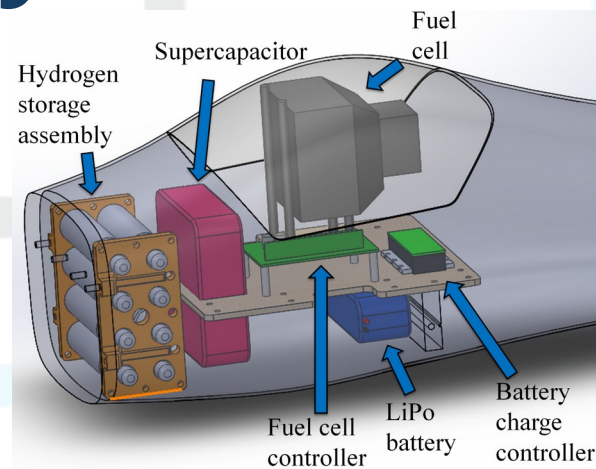
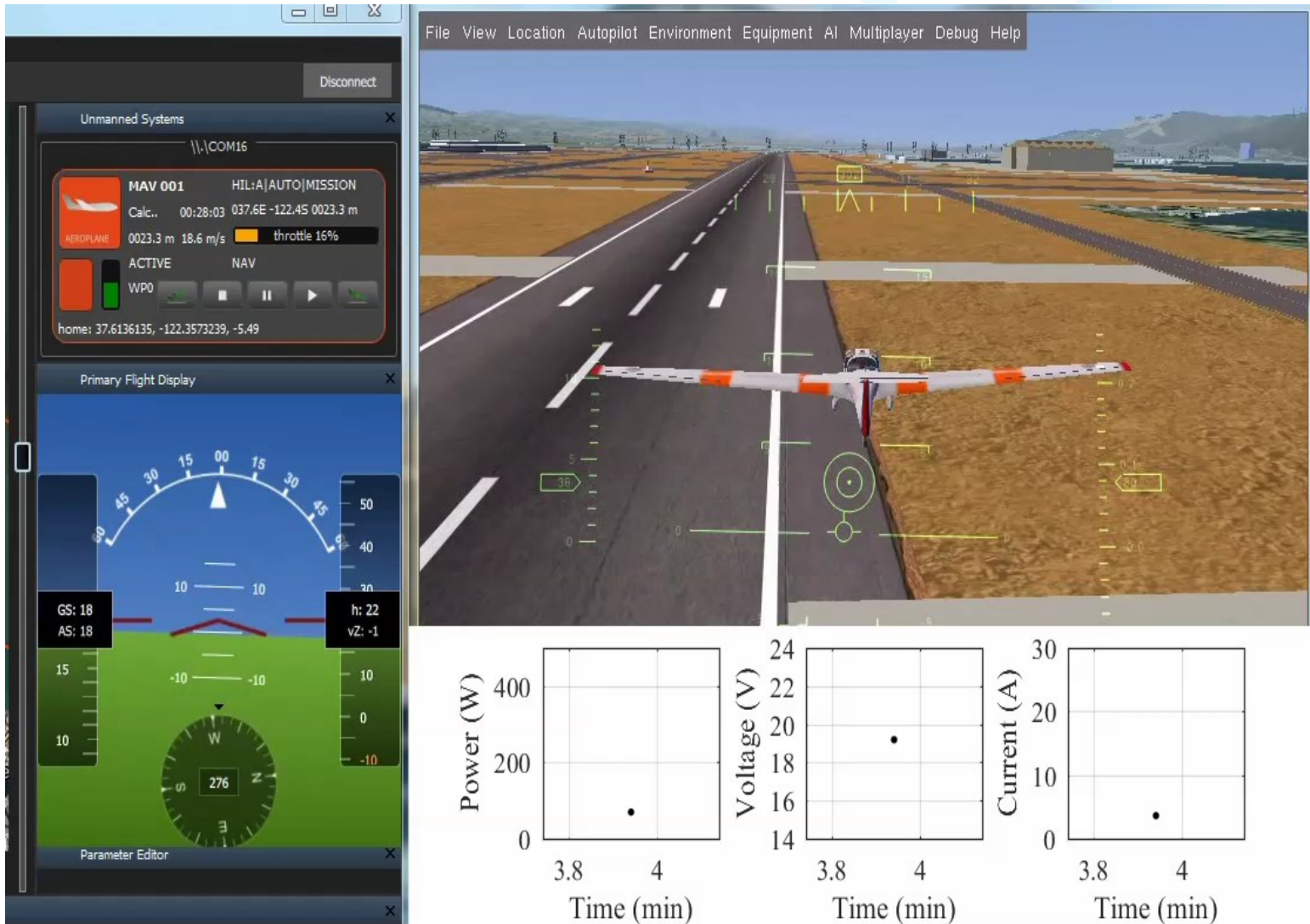
Li-Ion
2h



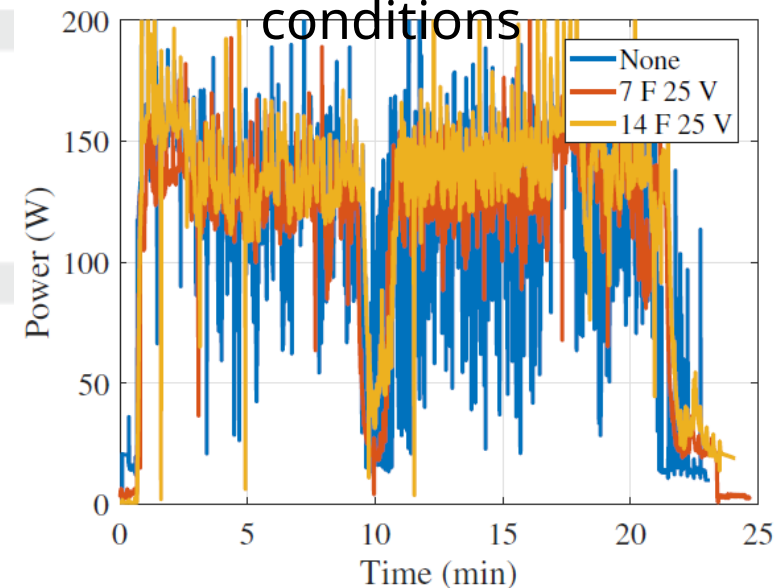
Fuel Cell
8h



Why fuel-cell-based hybrid systems?



HWIL testing demonstrates 67% reduction in power oscillation in gusty conditions



First hydrogen fueled flight - 2018



Contact Details



Anna Klis: Founder and CEO
Email:
anna@asacconsultancy.com.au
Phone: 0407 177 027
Website:
www.asacconsultancy.com.au

