



# Advanced Regional Air Mobility

# Problem

## Accessibility

### Airport Independence

Airports are expensive to build+operate and they are not everywhere. Time is wasted on airports and getting there.

## Noise

### Community Acceptance

Helicopters are very noisy.  
  
VTOLs are 100x quieter - so they can land near cities and on the rooftops.

## Ecology

### Carbon Footprint

Currently used combustion jet or turboprop engines have a severe environmental impact.

## ZURI hybrid VTOL

A biofuel<sup>1</sup>-enabled hybrid aircraft capable of vertical take-off (VTOL), with significantly greater range and payload capacity than any eVTOL<sup>2</sup>.



VTOL  
for flexibility



STOL  
for efficiency



Hybrid powertrain  
extending range



Biofuel enabled  
turbine engine



Very low  
acoustic signature

*1. Renewable energy source derived from microbial or plant materials, with significantly lower emissions. 2. pure electric Vertical Take-Off and Landing aircraft.*

## ZURI 2.0 overview



700+ km  
range <sup>1</sup>



300-350 km/h  
cruise speed



26x26m  
landing area

1. Plus 30-minute reserve



A white Zuri passenger eVTOL aircraft is shown in flight over a city street at sunset. The aircraft has a sleek, aerodynamic design with a large cockpit and a cabin. It features eight rotors, four on each wing, which are tilted at an angle. The background shows a city skyline with tall buildings and a body of water. The sun is low on the horizon, creating a warm, golden glow.

## Passenger version

**1 pilot and 4 passengers.**  
*Once full autonomy becomes certified, the passenger count increases.*

*The winged design saves energy during horizontal flight and provides additional safety.*

*8 propellers tilt between vertical and horizontal position. Distributed electric propulsion gives redundancy.*

*Unified flight control system to reduce pilot workload when changing flight modes.*

# Cargo



**Large cargo bay**  
to easily fit two EUR6  
palettes or a single  
EUR/EUR 1 pallet.

*Fuselage and wing construction is made of  
advanced carbon composite materials.  
= high strength and stiffness at low weight*

*The high-density  
batteries with quick  
recharge capabilities.*



## Search & Rescue



*The SAR market is one of many ways to take advantage of vertical take-off and landing.*

***ZURI hybrid VTOL can be more efficient and faster than a helicopter thanks to its wings. This allows rescue personnel to arrive at the scene of an emergency earlier.***

# Zuri proven in flight tests



## **Subscale model in transition flight**

(this is 4th generation subscale model; we achieved transition with previous ones as well)

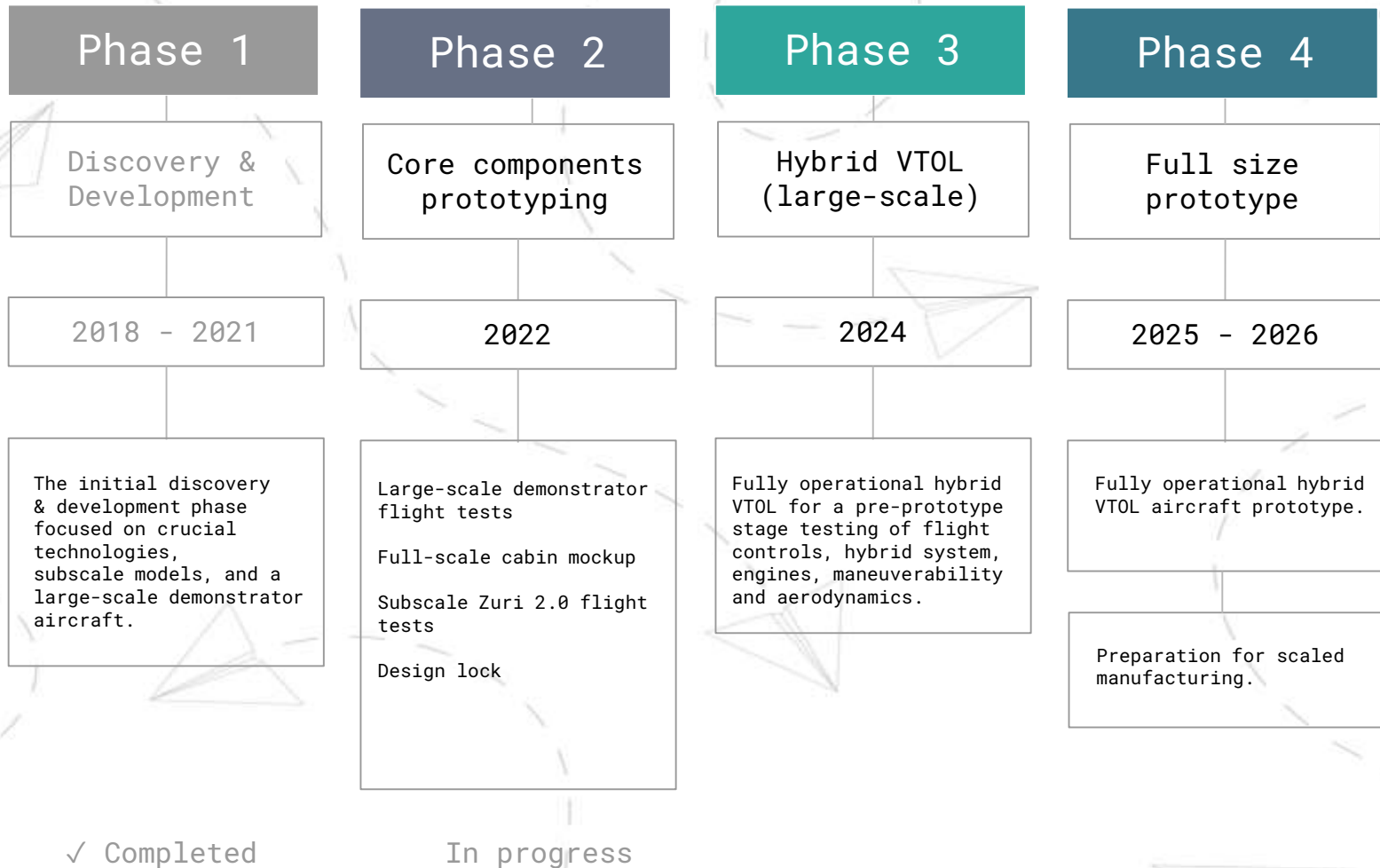
## **Large scale (11 meters) demonstrator in hover flight.**

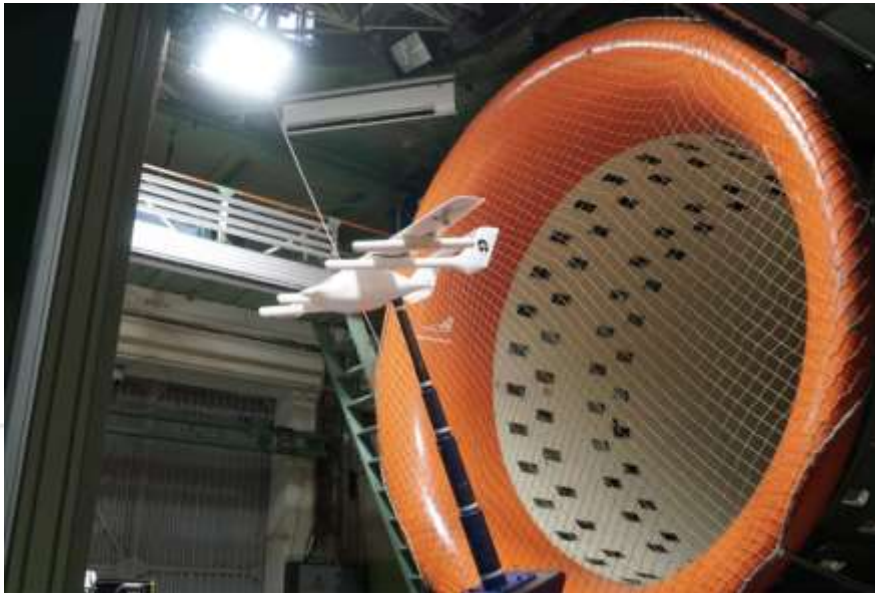
For comparison: Archer at its IPO (\$ACHR, valued at \$1.7b) had only a ground demonstrator. Now, a year later they are doing hover tests of the demonstrator (no transition yet).





# 04 Timeline







# Competition

Direct competition in the hybrid VTOL segment is minimal as most VTOL manufacturers develop pure electric VTOL aimed at Urban Air Mobility. We consider only small single or twin engine helicopters to be in direct competition with ZURI outside of the VTOL segment.

	JOBY S4	Archer Midnight	Lilium Jet	<b>ZURI 2.0</b>	Airbus H125
aircraft type	eVTOL	eVTOL	eVTOL	hybrid VTOL	helicopter
range (absolute)	240 km	96 km	261km	900 km	630 km
range (30min reserve)	100 km	30 km	100 km	700 km	500 km
max. speed	320 km/h	240 km/h	300 km/h	350 km/h	252 km/h
passengers <sup>1</sup>	1 + 4	1 + 4	1+ 6	1 + 4	1(2) + 6

All-electric VTOLs have 7x smaller usable range.

Helicopters are noisy,  
2x more expensive to  
operate and slower.

*1. Number of passengers will increase as EASA and FAA regulations permit fully autonomous flights (est. 2030-2035).*

# 07 Hybrid advantage

## 5x more energy

Best batteries:  
**230-280 Wh/kg<sup>1</sup>**

Hybrid powertrain  
**1360 Wh/kg<sup>2</sup>**

## Lower emissions

**2x** less fuel consumed (than a helicopter)

**-20 %** savings from turbogenerator<sup>3</sup>

**-75 %** emissions thanks to biofuel

Cumulative advantage:

**10x less emissions<sup>4</sup>**



1. Wh/kg means specific energy - energy stored per mass.

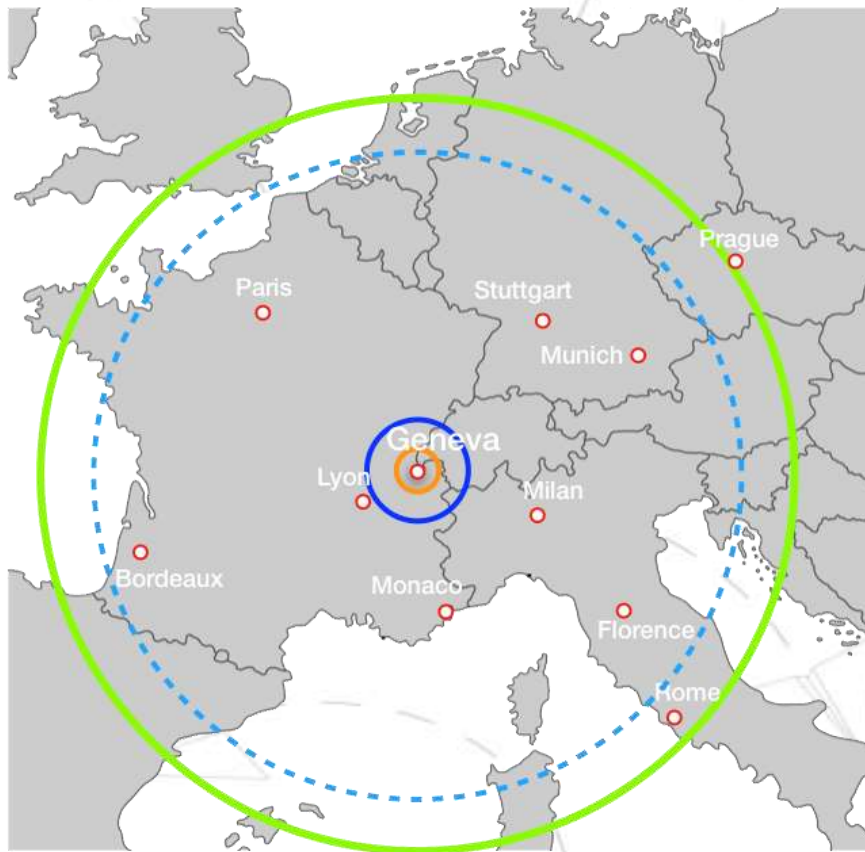
2. Weights are an example of 225 kg turbogenerator producing 600 kWh in 2 hours from 216 kg of fuel

3. Turbogenerator runs in optimal rotations per minute all the time, the peaks are covered by battery.

4. All three savings together:  $0.5 * 0.8 * 0.25 = 0.1$

For comparison: Hydrogen is around 900 Wh/kg (total system weight, optimized for 2 hours)

## Competitive advantage: Range



- ZURI 2.0 hybrid VTOL, range 720 km (30 min reserve)
- - - Airbus H125, range 630 km (30 min reserve)
- JOB Y S4 eVTOL, range 100 km (30 min reserve)
- Volocopter VoloCITY, range 35 km (no reserve)

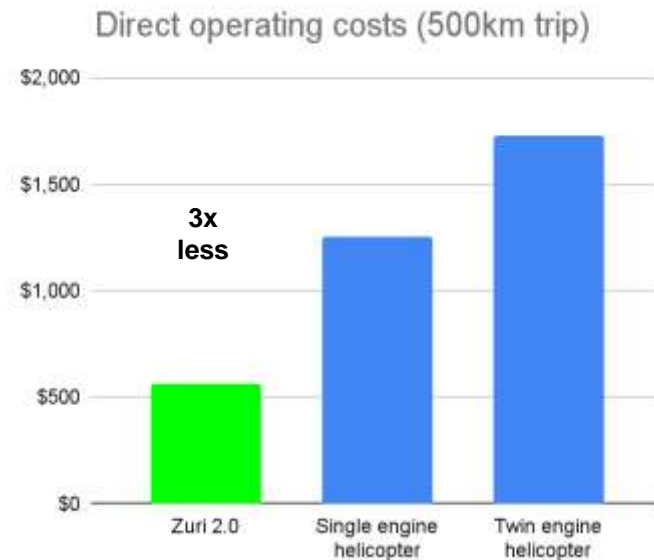
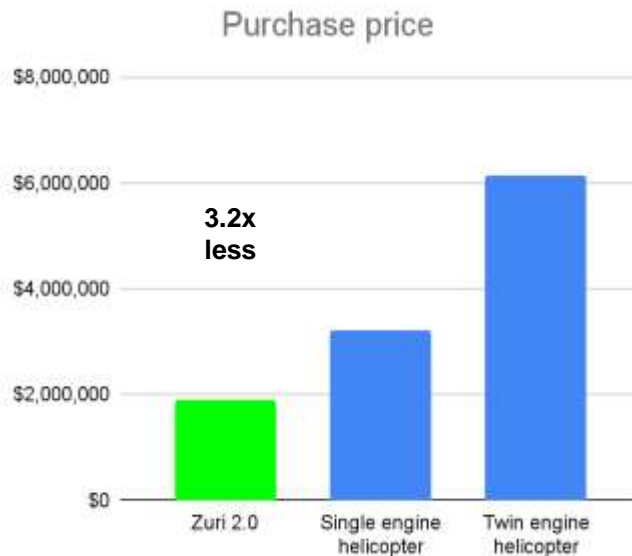
Thanks to the hybrid powertrain,  
Zuri has 7x larger range than eVTOLs.  
That's 50x more area covered.



# Competitive advantage: vs Helicopters

Compared to helicopters, Zuri is:

- safer (no single point of failure, 8 propulsion units for redundancy)
- 3x cheaper to operate
- 3.2x cheaper to purchase
- 100x quieter
- more ecological - hybrid, biofuel compatible




Source: <https://air.one/compare/airbus-helicopters-h125,airbus-helicopters-h135>

Airbus H125 and H135 used as examples of single and twin engine helicopter (they are the most popular in the category)

Zuri DOC include fuel, electricity, engine maintenance fund, pilot and maintenance.

# Executive summary



**Vertical takeoff aircraft for regional travel** = no need for airports.  
It's hybrid = **7x larger usable range** than all-electric VTOLs  
**3x cheaper to purchase and operate** than comparable helicopters.  
**Zuri is extremely money-efficient** - took just €2M to build and flight test large demonstrator.  
**Huge market** (\$590B in 2035, \$1.5T in 2040).



Thank you.







**ELECTRIC  
FLYTRAIN**

**Albatts Webinar**

# WHO WE ARE

## The Core Team



TESLA

Blickfeld

ARRIVAL



Google

# PARTNER NETWORK

## Board and Partners

### **Our Board**

*Strategic Investors from the  
Aviation Industry*



*Expansive Network and  
Experience*

### **HC-Concepts**

*Our Partner Company*

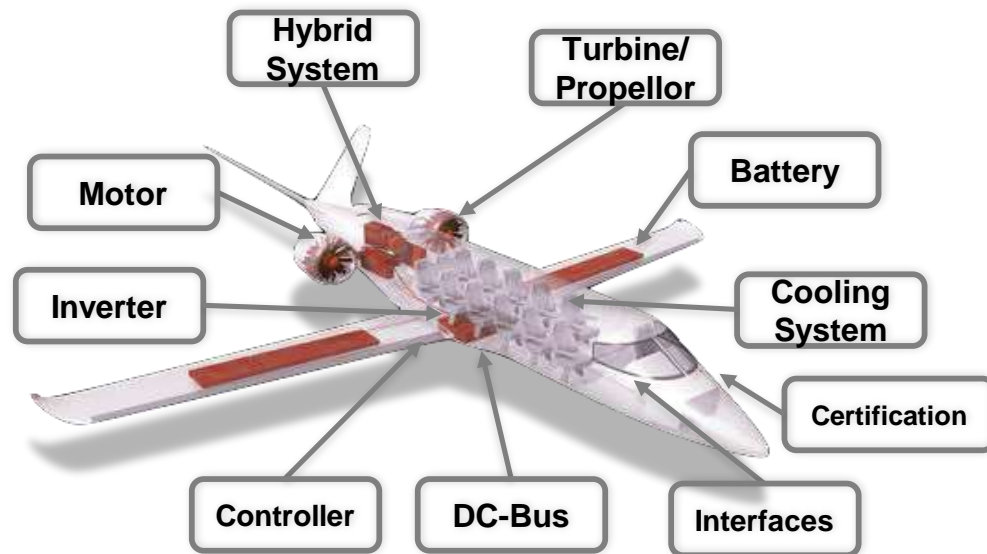


*Development of engines and  
full powertrain packaging*

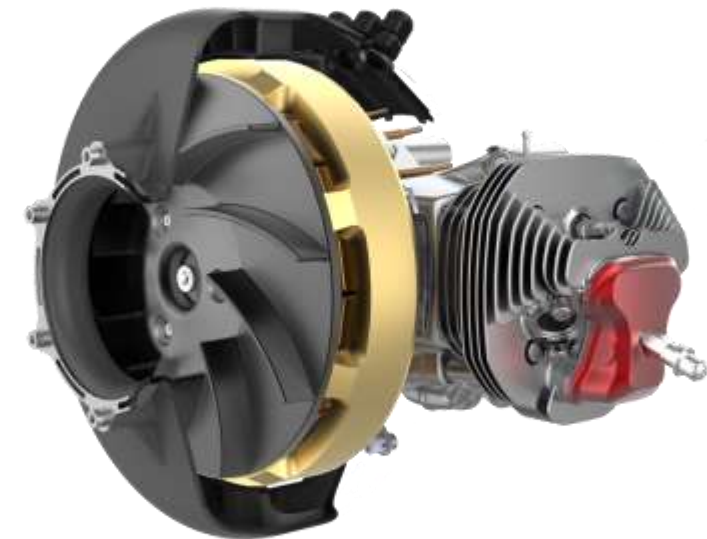


# WHAT WE DO

## Two foundations



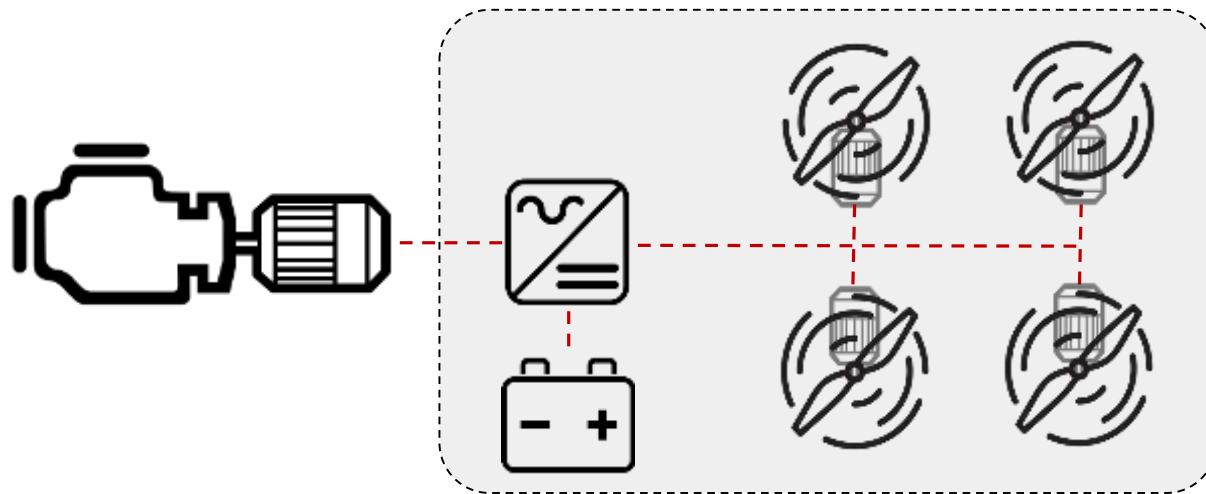
**Development Partner of Electric  
Powertrains**  
*to existing aircraft manufacturers*



**Hybrid Electric Powertrain**  
*by Electric Flytrain*

# OUR PRODUCT

## Hybrid-electric Powertrains - a necessary bridging technology



↑ **High Payload**  
+  
↑ **High Flight Time (>5h)**

**Hybrid-electric Powertrain**  
*from Electric Flytrain*

# VALUE PROPOSITION

## UAVs with increased Payload + Flight Time

### Search & Rescue

*(Police, Emergency Response)*



**10kg Sensor &  
5 Hours Flight Time**

*90% of the functionality of a  
helicopter for 1% of the price*

### Crop Spraying

*(Agriculture)*



**40 kg Spraying Liquid &  
1.5 Hour Flight Time**

*50% more Payload and 6x more  
flight time than fully electric*

### Payload

*(Logistics)*



**5-40 kg Payload &  
1-8 Hours Flight Time**

*6x more capabilities than fully  
electric system*



# OUR PRODUCT IN A NUTSHELL

## EFT-Hybrid-1x

### Key Specifications Genset:

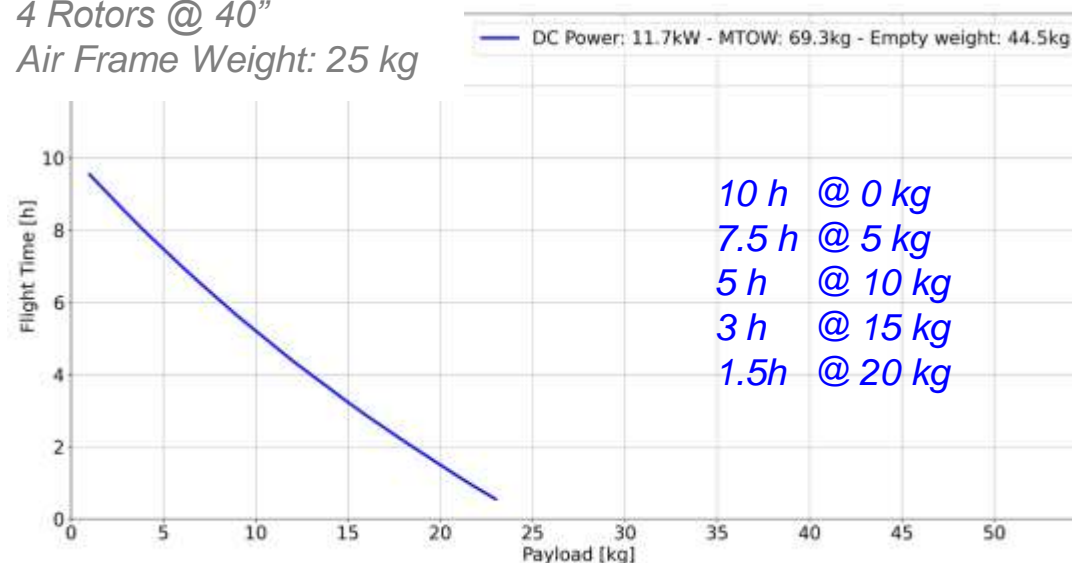
- *Continuous electric power: 11.7 kW*
- *Weight Genset (incl batteries, excl fuel): 19,5 kg*
- *Max Fuel Consumption: 3.7 kg/h*

### Key Features:

- **Fully Redundant:** *Emergency Landing possible after battery or genset failure*
- **Smart:** *Advanced operating strategy, data logging and alert processing*

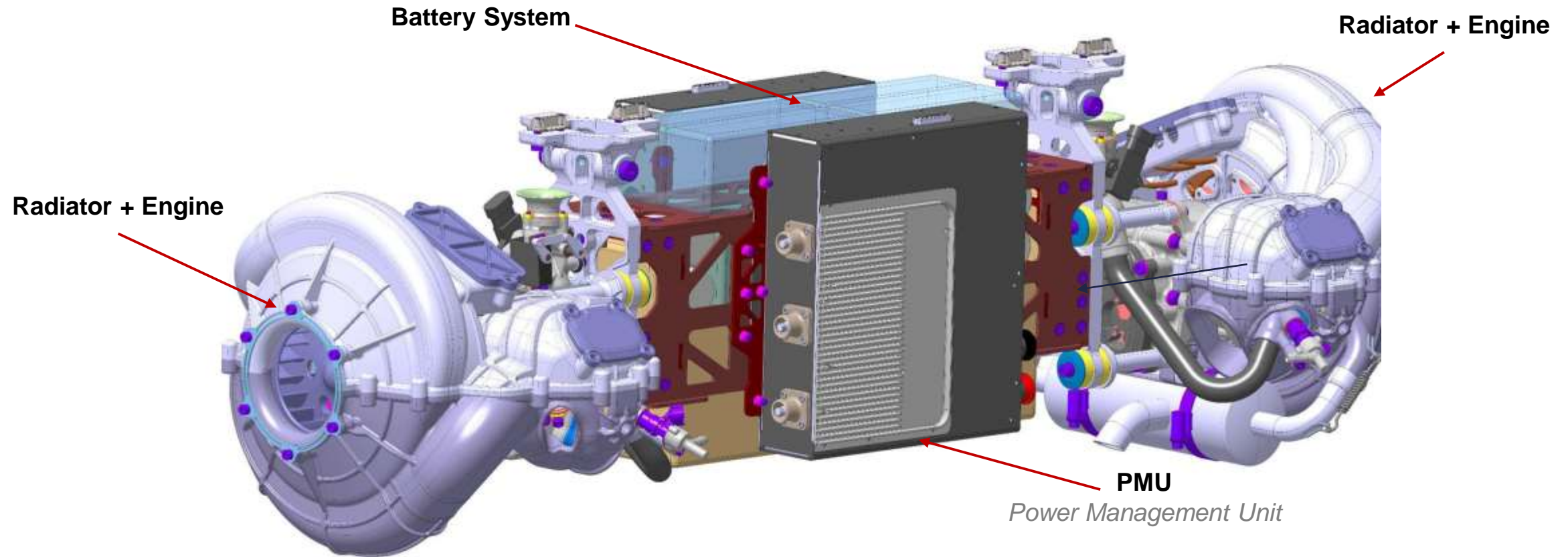
### Drone Configuration:

- *4 Rotors @ 40"*
- *Air Frame Weight: 25 kg*



# OUR PRODUCT STATUS

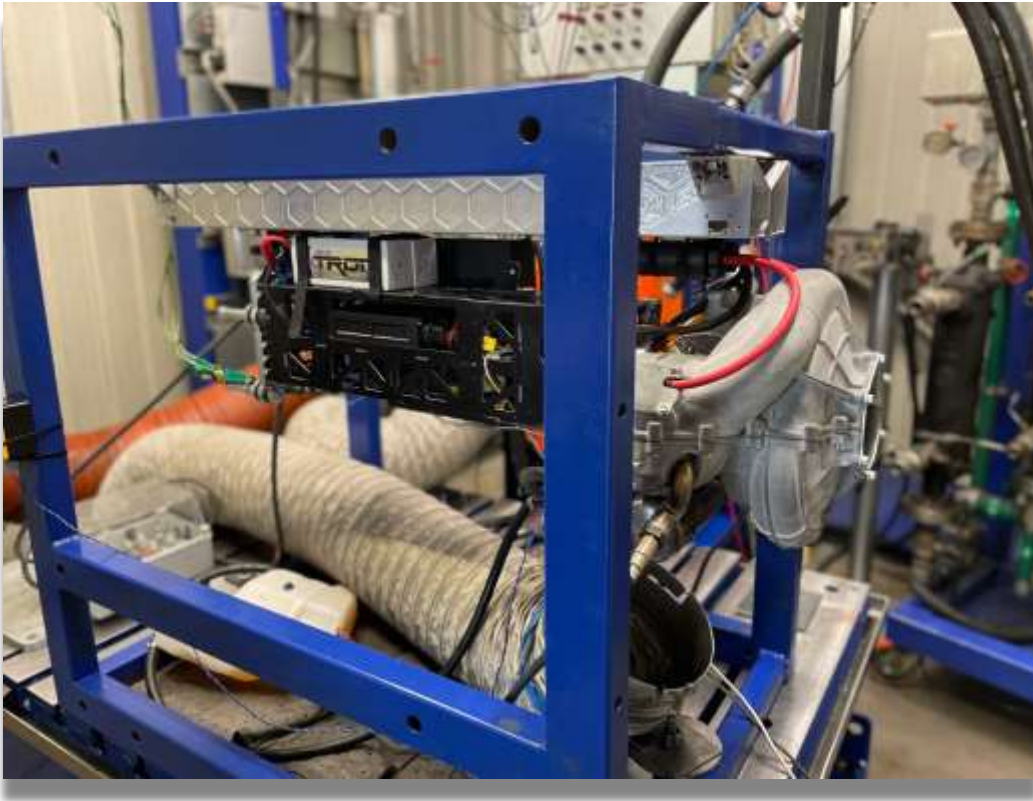
## EFT-Hybrid-1x - 2nd Generation, UAV Package



**HC-Hybrid-1x Genset**  
*by EFT and HC-Concepts*

# OUR PRODUCT STATUS

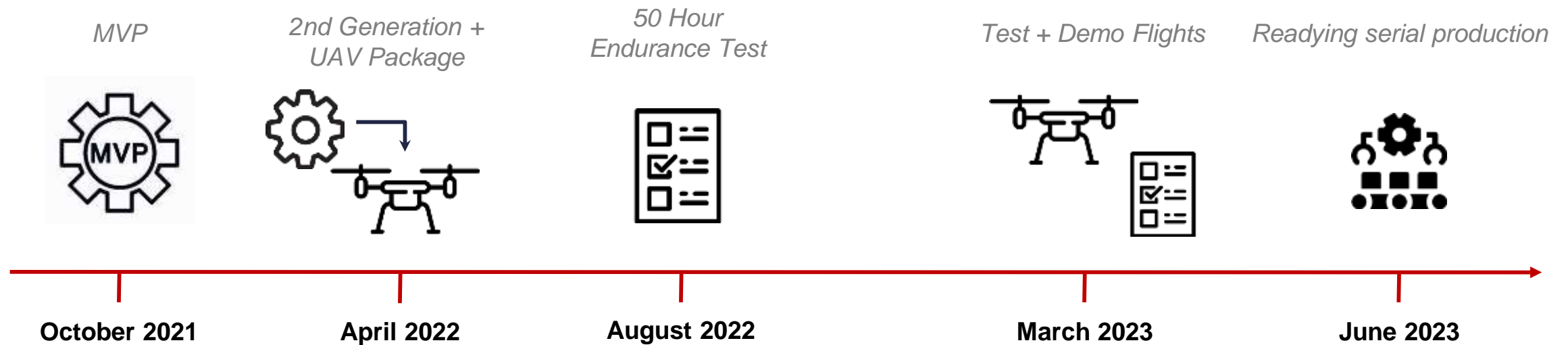
## EFT-Hybrid-1x - Package





# OUR PRODUCT STATUS

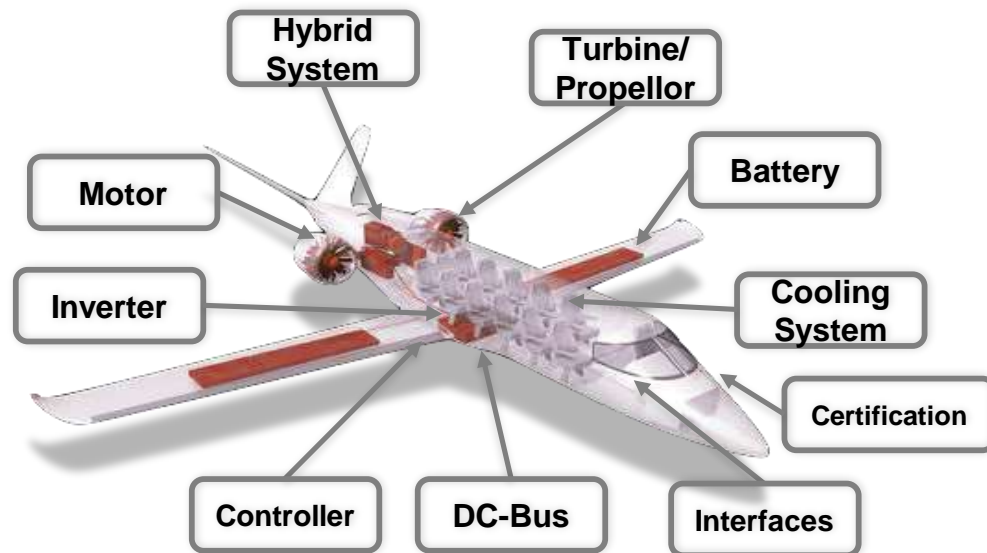
## Development Timeline



**Sales:**  
4 Units Sold  
+ in negotiation for 10 Units

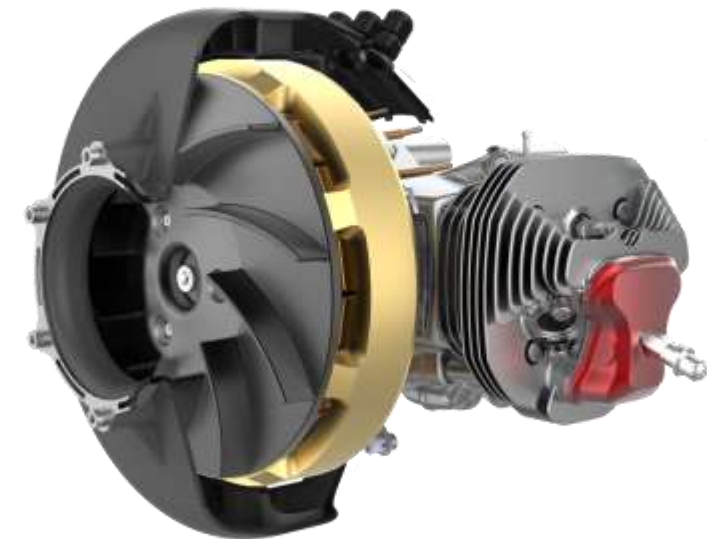
# WHAT WE DO

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*to existing aircraft manufacturers*



**Hybrid Electric Powertrain**  
*by Electric Flytrain*

# DEVELOPMENTS

## Our focus areas



**Powertrain System  
Architecture**



**Battery Design**



**Controller Development**



# REFERENCES

## Electric Flytrain Projects



One of globally largest  
eVTOL companies



FLYING  
WHALES



RS.aero  
A REINER STEMME COMPANY

Powertrain System  
Architecture



✚ kopter



der Bundeswehr  
Universität  München

Battery Design



BEE appliance

Controller  
Development



  
GRIFF  
AVIATION



ROTAX®

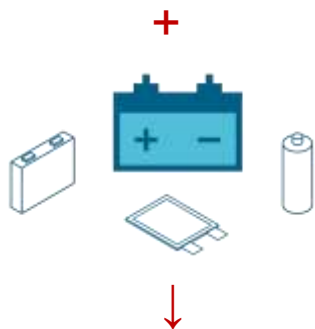
Other

# Battery Technology Selection in Aviation



**Step 1:** Determining the relevant system parameters

→ quantitative and qualitative assessment criteria



**Step 2:** Identification of all energy storage technologies



**Step 3:** Assessment of energy storage technologies based on relevant system parameters and pre-selection of targeted technology

→ Energy storage technology database

→ Funnel energy storage technology based on relevant system parameters

# Battery Technology Selection in Aviation



## **Step 4: Cell + Module Database**

→ Creating a database of market available cells and modules



## **Step 5: Assessment of market available cells**

→ Energy storage requirements

→ Funnel energy storage selection based on requirement fitting & Availability / Industrialization



# Battery Technology Selection in Aviation

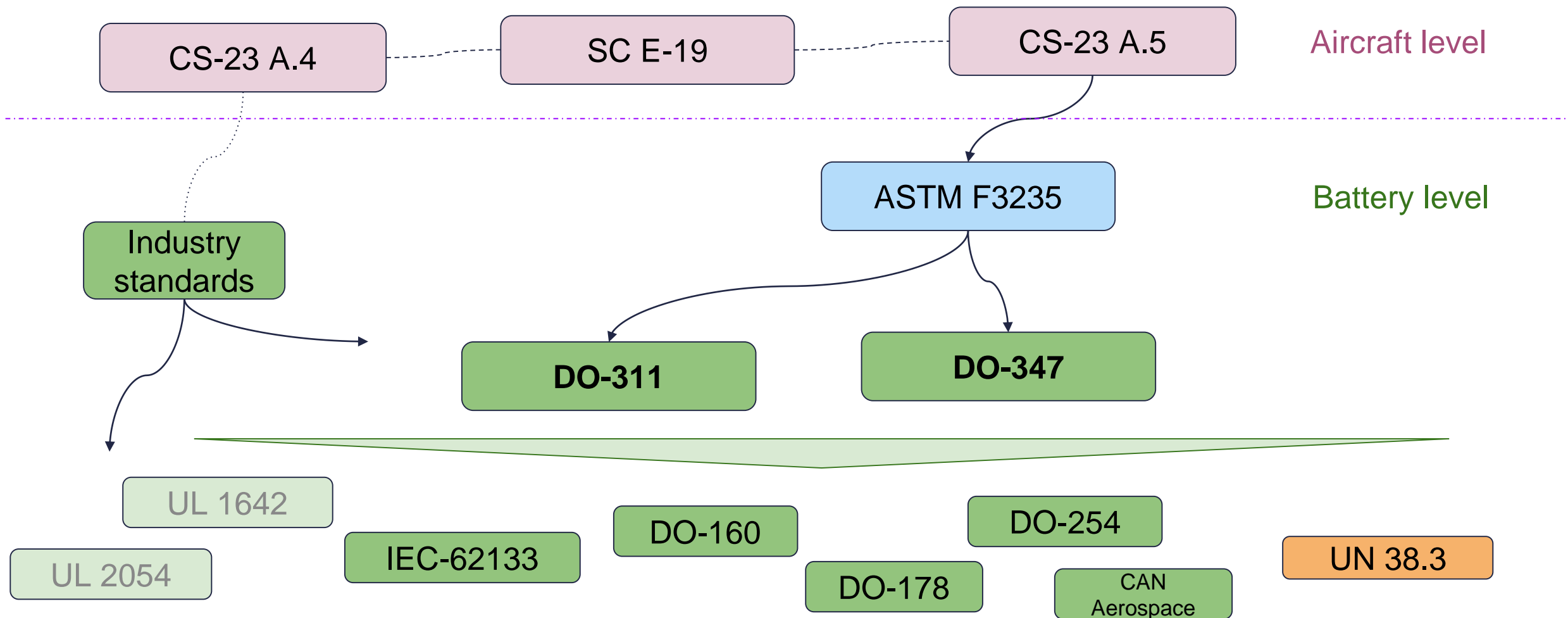
## **DETERMINING ALL RELEVANT SYSTEM PARAMETERS**



1. Specific Power
2. Specific Energy
3. Safety
4. Voltage
  - Maximum
  - Nominal
  - Minimum
5. Temperature Range
6. Calendar Life & Maintenance
7. Applications
8. Cost

# Certification Standards

## Identified standards & guidelines for batteries in (hybrid) electric aviation





THANK YOU

## Contact us:

Address	Heßstraße 89, 80797 Munich, Germany
Website	<a href="http://www.electricflytrain.com">www.electricflytrain.com</a>
Email	<a href="mailto:tobias@electricflytrain.com">tobias@electricflytrain.com</a>
Phone	+49 (0)179 426 7950