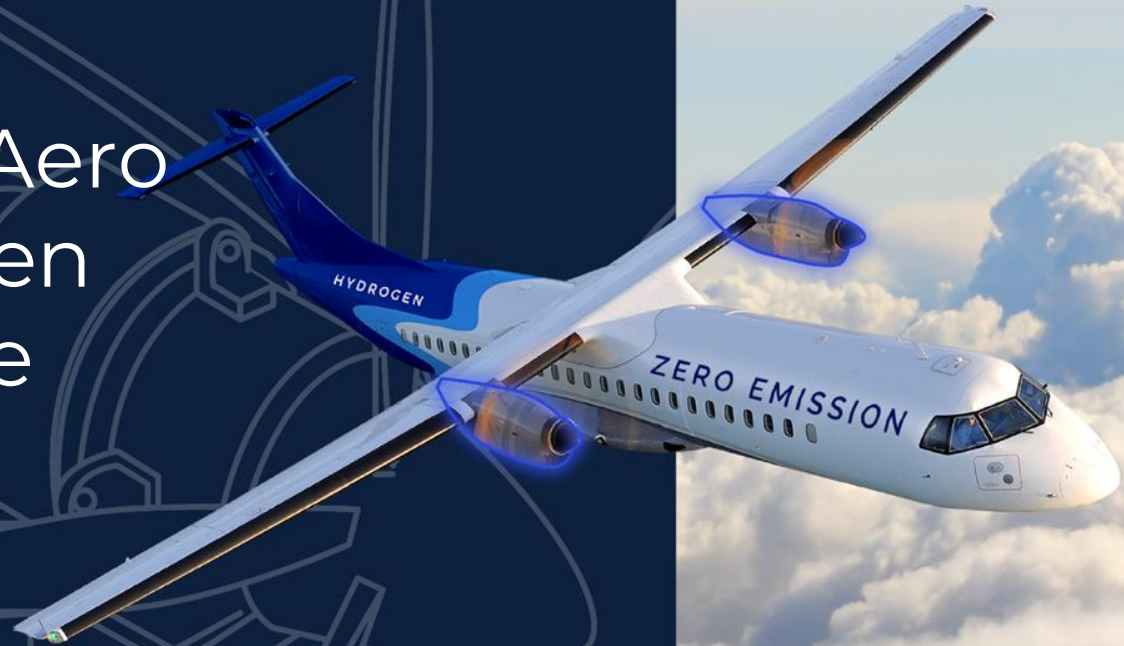


# Revolution.Aero The Hydrogen Aircraft Race

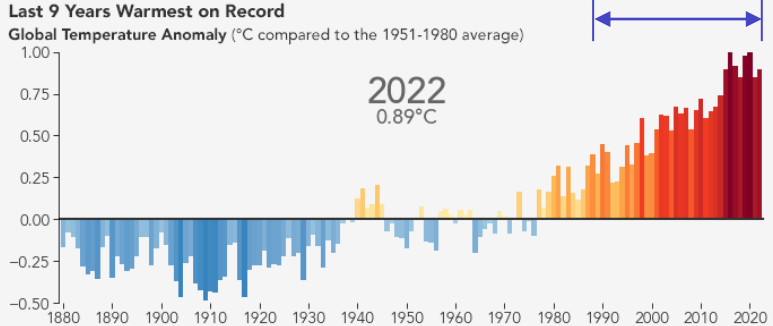
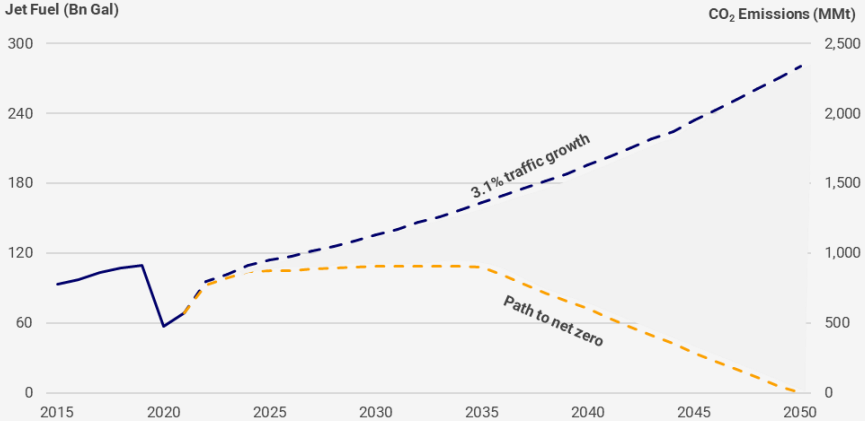
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*April 2023*

**ZEROAVIA**

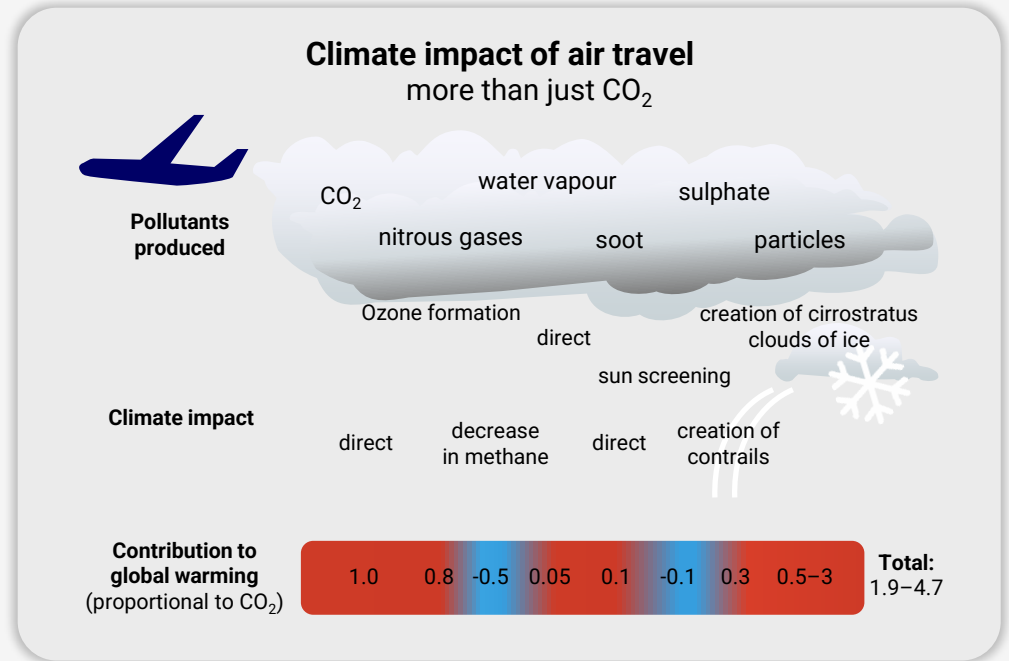


# Why are we in a race?



## Aviation needs a solution to all emissions, not only CO<sub>2</sub>

**Two-thirds of the impact from aviation is attributed to non-carbon dioxide emissions <sup>1</sup>**

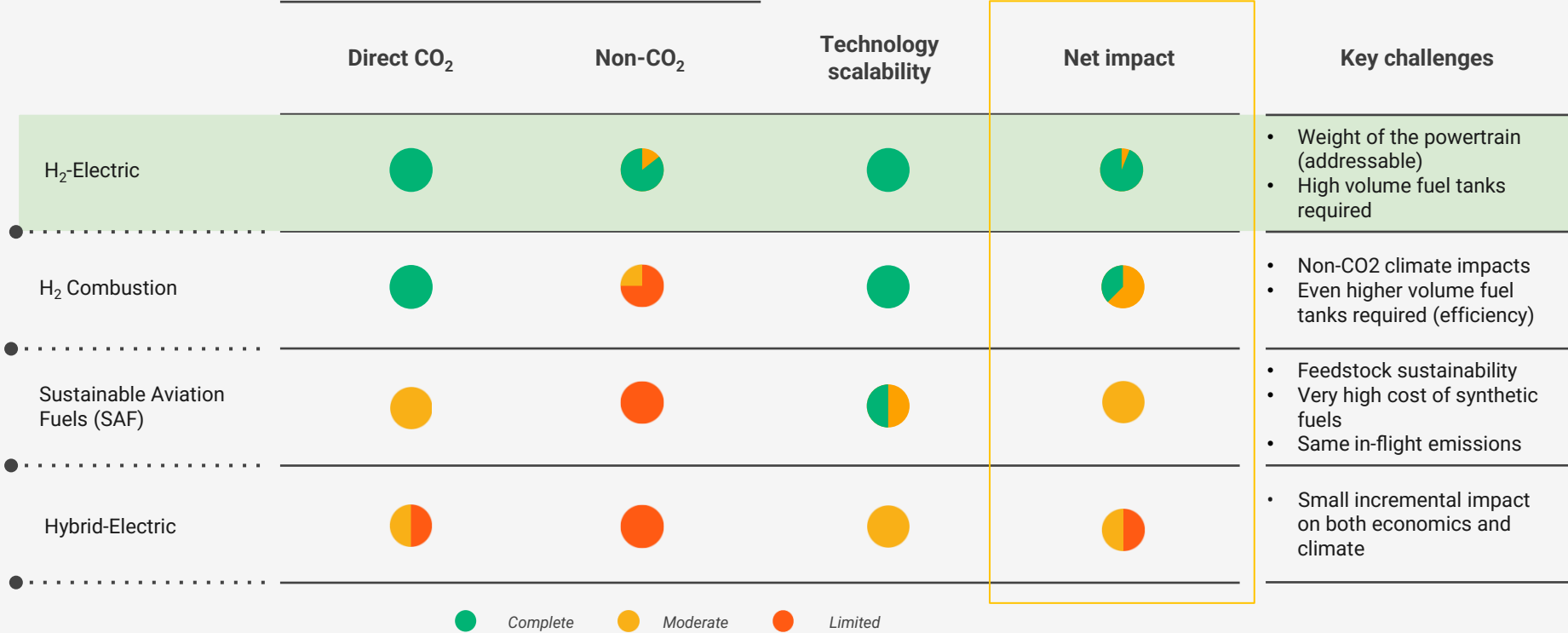


Source: The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018, Lee et al. IPCC (2007).

<sup>1</sup> Per David Lee, Professor of Atmospheric Science at Manchester Metropolitan University and Director of its Centre for Aviation, Transport, and the Environment research group.

# H<sub>2</sub>-Electric - Only Scalable Zero Emission Solution

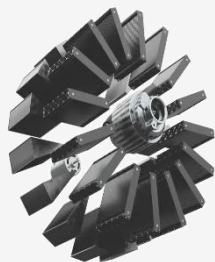
## Reduction in climate impact



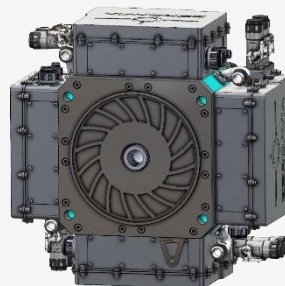
Source: Market research; analyst reports.



## Power Generation System



## Electric Power System



## Hydrogen Storage



## Comparison of aviation and road mobility infrastructure demands

33,000 EV charge stations



8,400 petrol stations

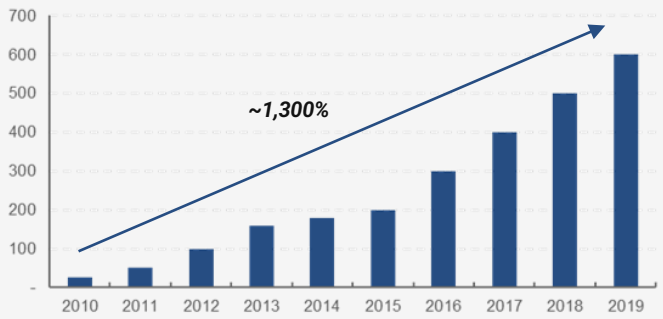


60 medium-large airports

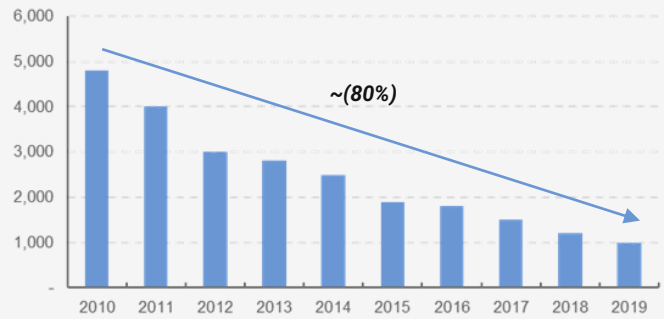


# Decarbonisation has a track record of cost improvement with scale

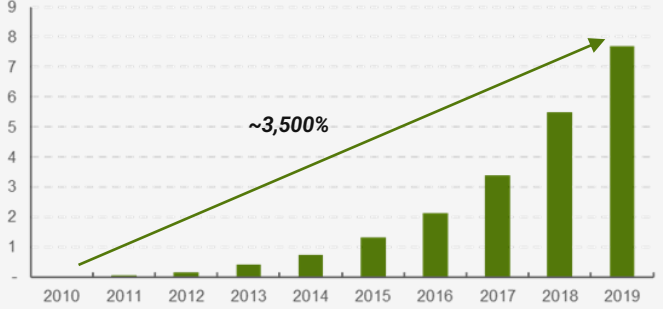
### Installed solar (GW)



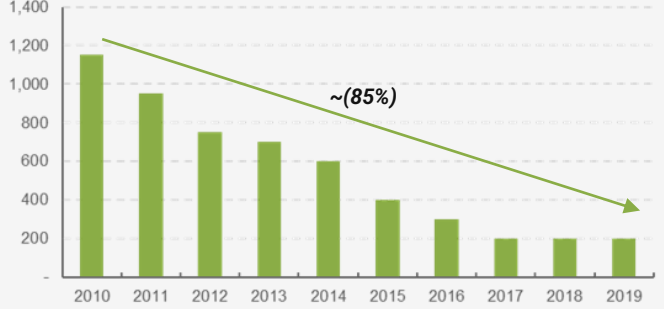
### Solar cost (\$ / kWh)



### Global electric car stock (millions)



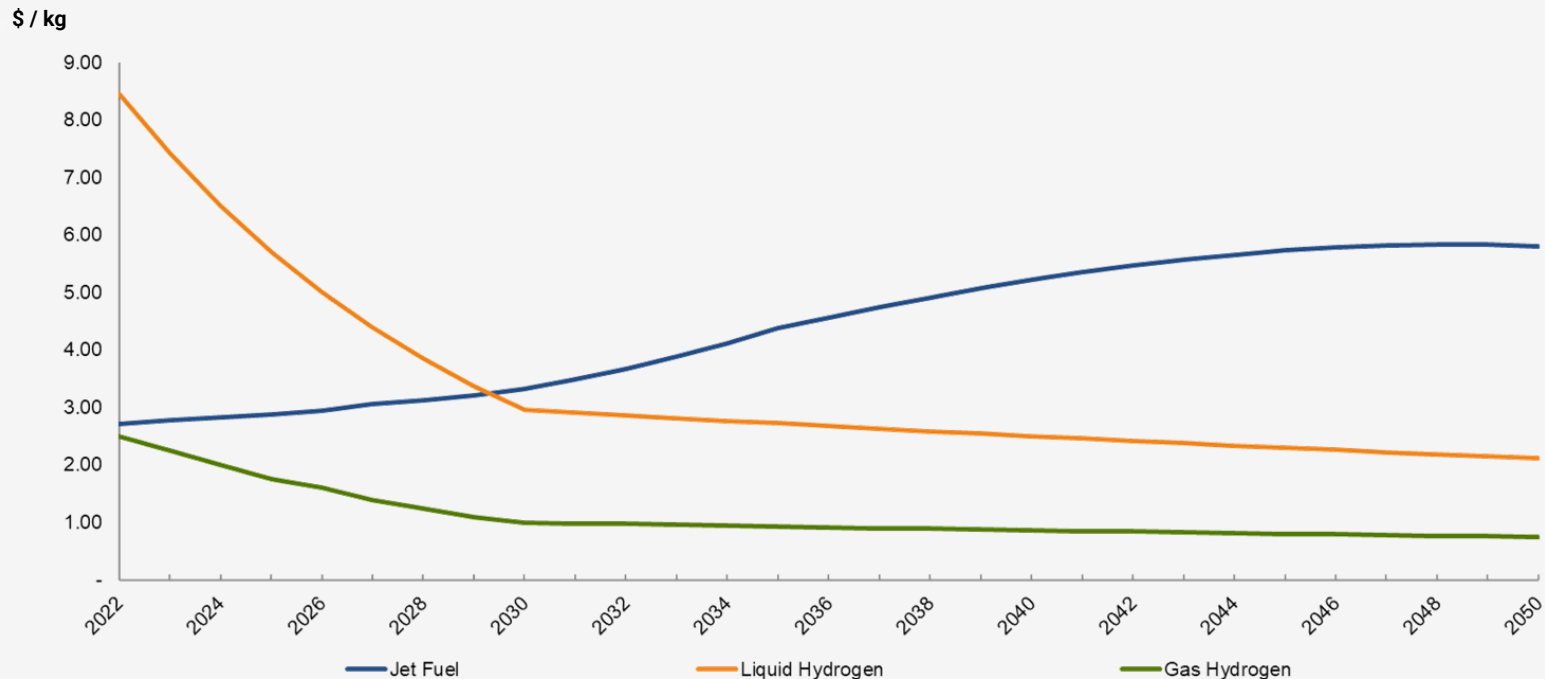
### Battery cost (\$ / kWh)



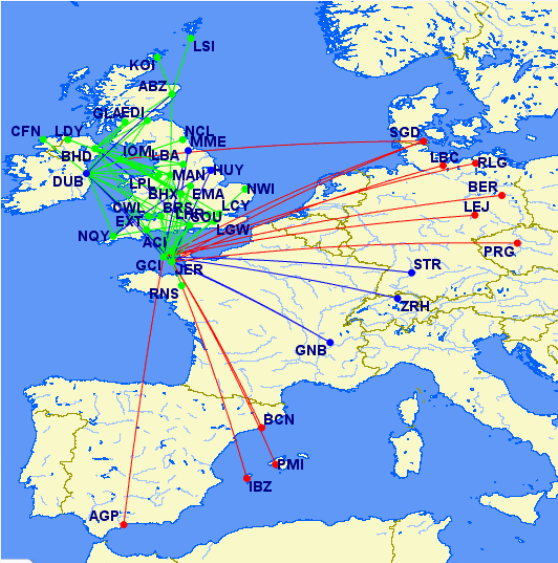


# Gas H2 costs already below jet fuel equivalence, with expectation liquid will competing from 2029

## Energy equivalence cost comparison of gaseous H2, liquid H2 vs Jet fuel (accounting for powertrain efficiencies)



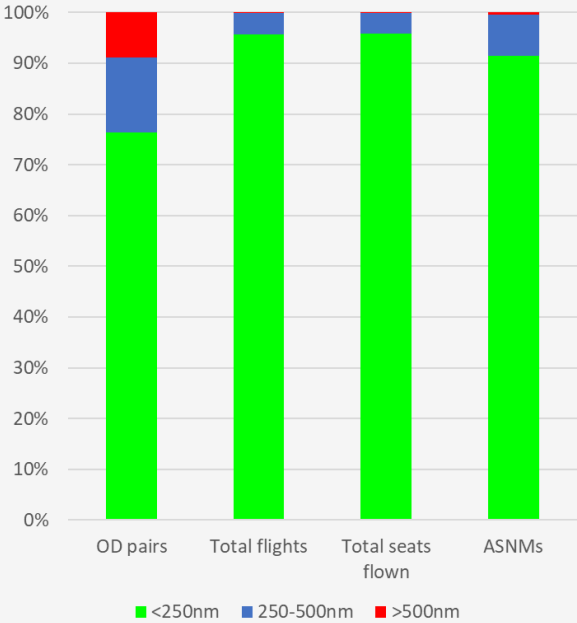
A total of 30 airports are served by ATR72s from the UK and Ireland; 75% or more of the market is <250nm



- Key**
- <250nm
  - 250-500nm
  - >500nm

**Market size by metric and range**

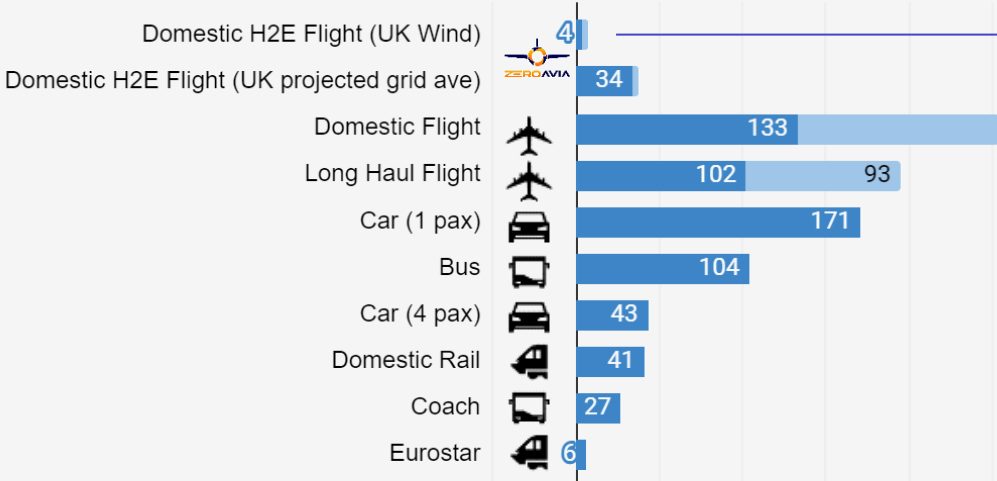
% OD pairs, flights, seats, ASNMs



## Emissions from different modes of transport

gCO2e - Emissions per passenger per km travelled

■ 102 ■ 3.8



*Achieved with about 0.2% of installed off-shore wind in 2032*



Thank you for  
your time

James McMicking

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