



Sustainable Aviation

Electrification & Hydrogen Technologies in Airports

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NREL Science Drives Innovation



Renewable Power

Solar
Wind
Water
Geothermal



Sustainable Transportation

Bioenergy
Hydrogen and Fuel Cells
Transportation and Mobility



Energy Efficiency

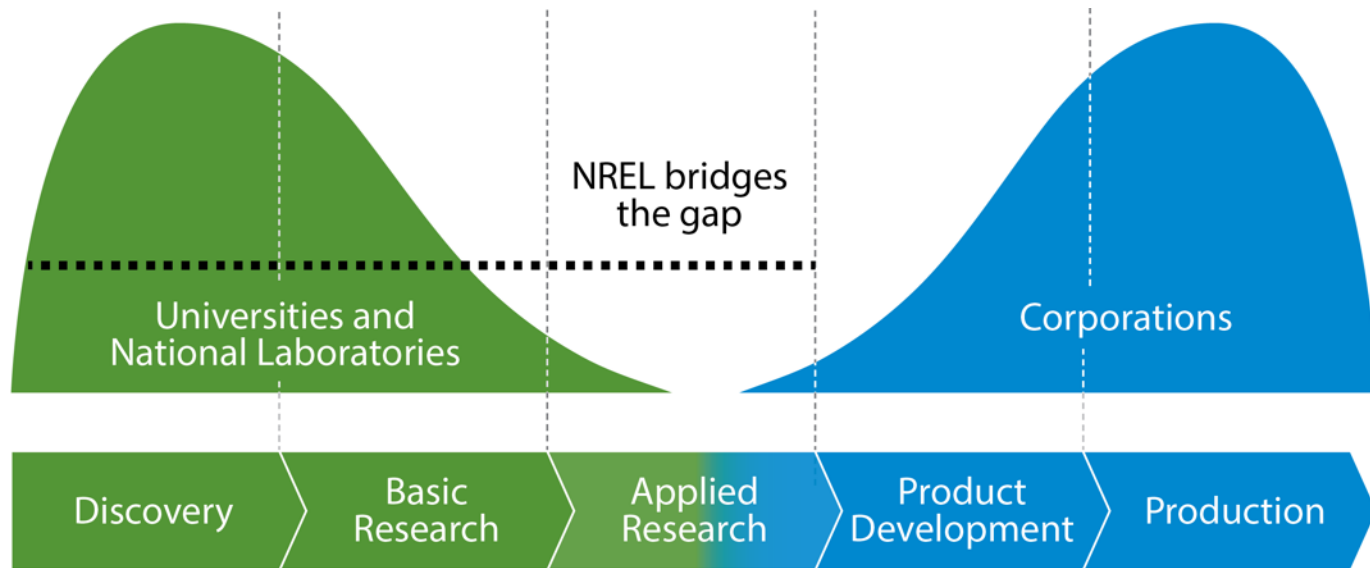
Advanced Manufacturing
Buildings
State, Local, and Tribal
Governments



Energy Systems Integration

Energy Security and
Resilience
Grid Modernization
Integrated Energy
Solutions

We Reduce Risk in Bringing Innovations to Market



NREL helps bridge the gap from basic science to commercial application

Forward-thinking innovation yields disruptive and impactful results to benefit the entire U.S. economy

Accelerated time to market delivers advantages to American businesses and consumers

Sustainable Aviation Overview



Industry aims for net zero carbon by 2050:

International Civil Aviation Organization and International Air Transport Association are both working towards that long-term target.



Petroleum-based fuels transitioning to sustainable alternatives:

U.S. Department of Energy Sustainable Aviation Fuel Grand Challenge aims to meet 100% of aviation fuel demand by 2050.

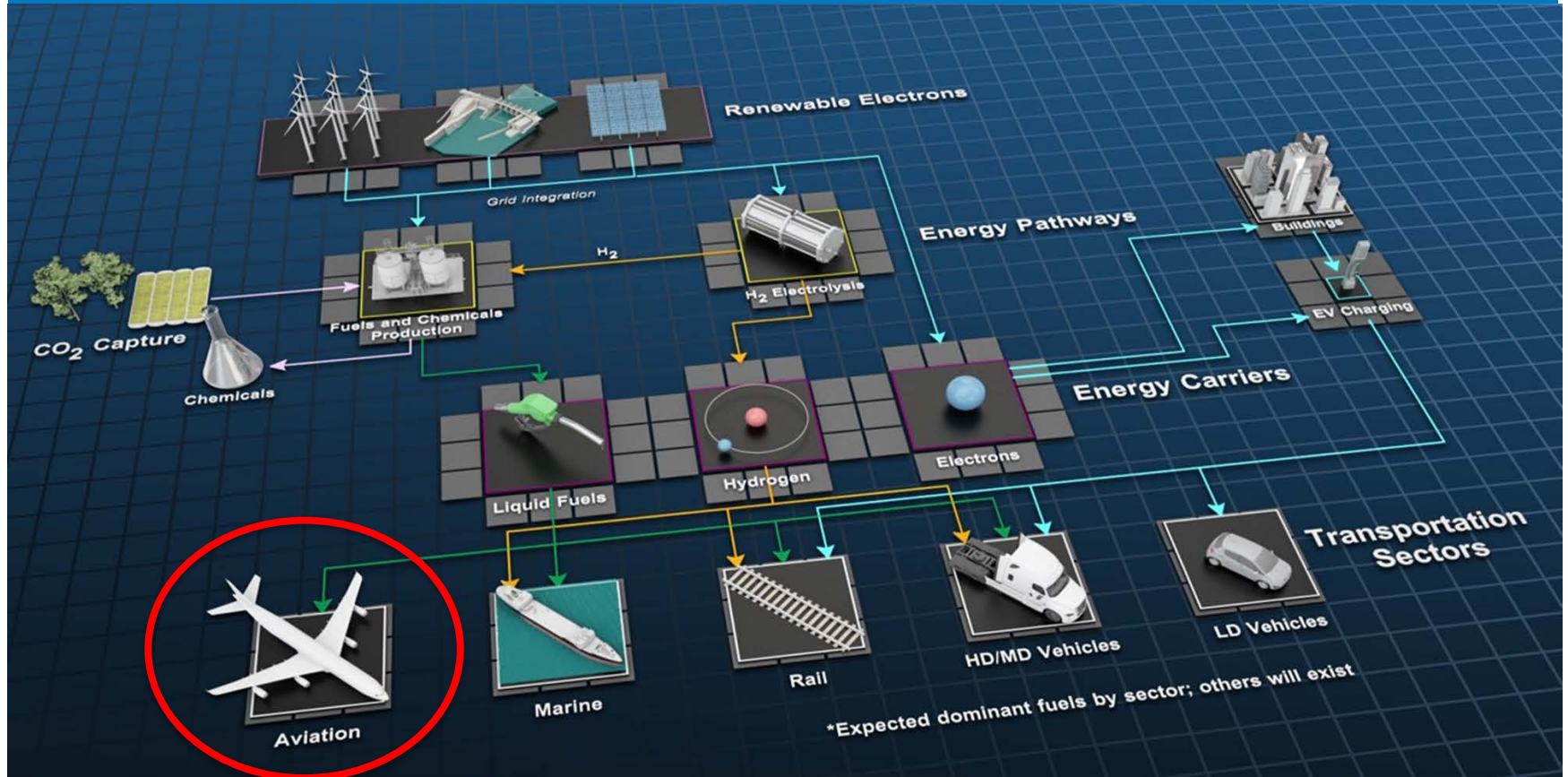
Alternatives include sustainable aviation fuel, hydrogen, power-to-liquids, and electric



Partnerships are reaching across the aviation sector:

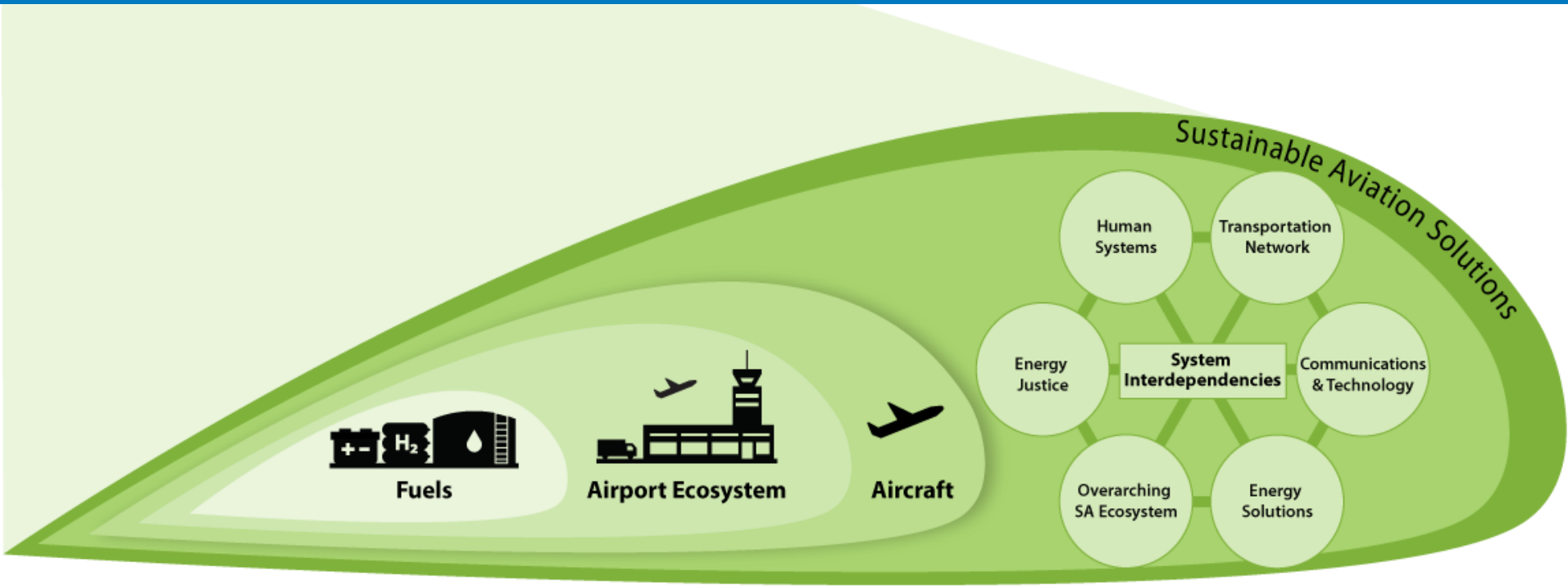
Airports, airline companies, new entrants, utilities, and fuel providers are seeing an increasingly heterogenous and complex energy landscape for net zero aviation.

Sustainable Aviation



Sustainable Aviation Ecosystem

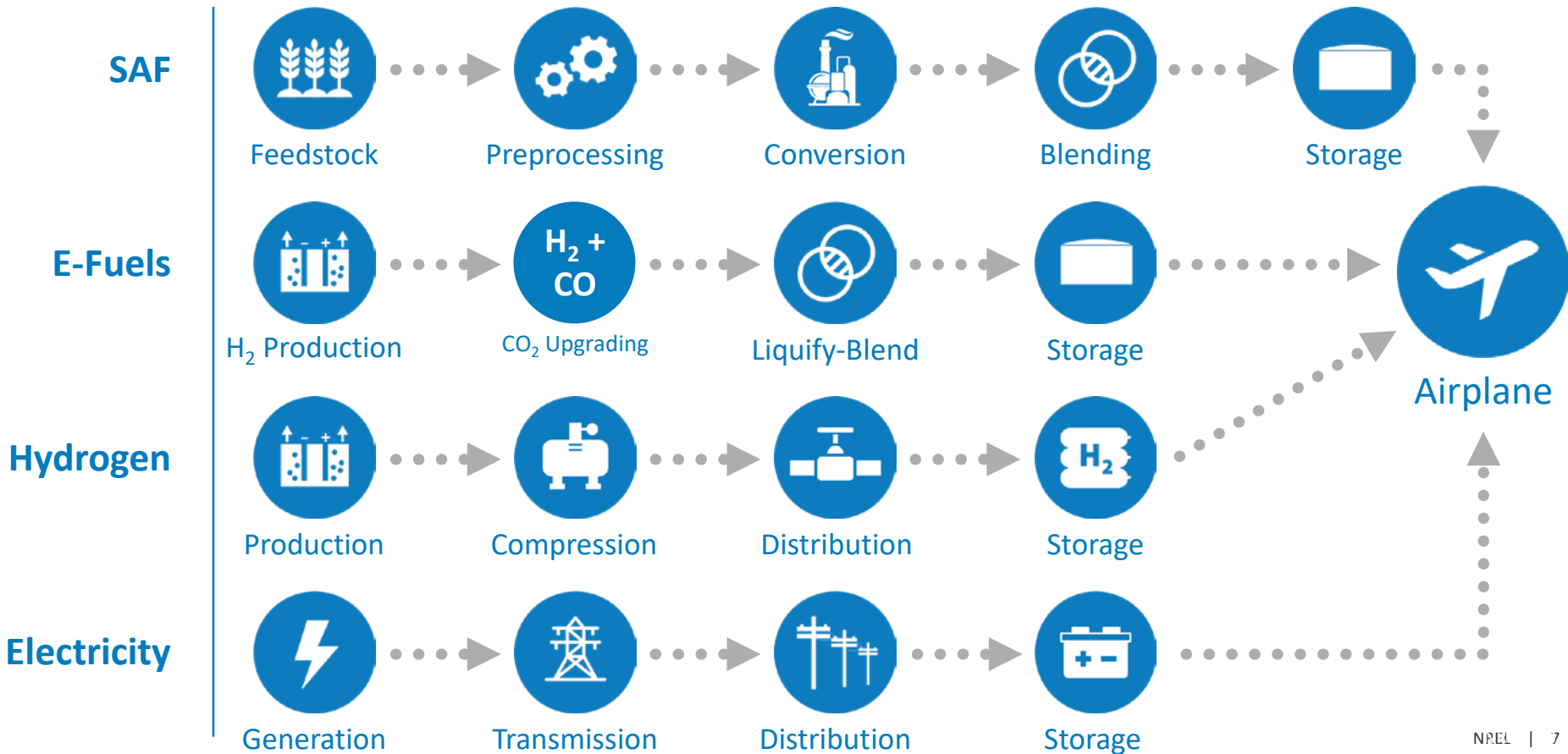
Holistic, sustainable energy solutions to achieve deep decarbonization of the aviation ecosystem



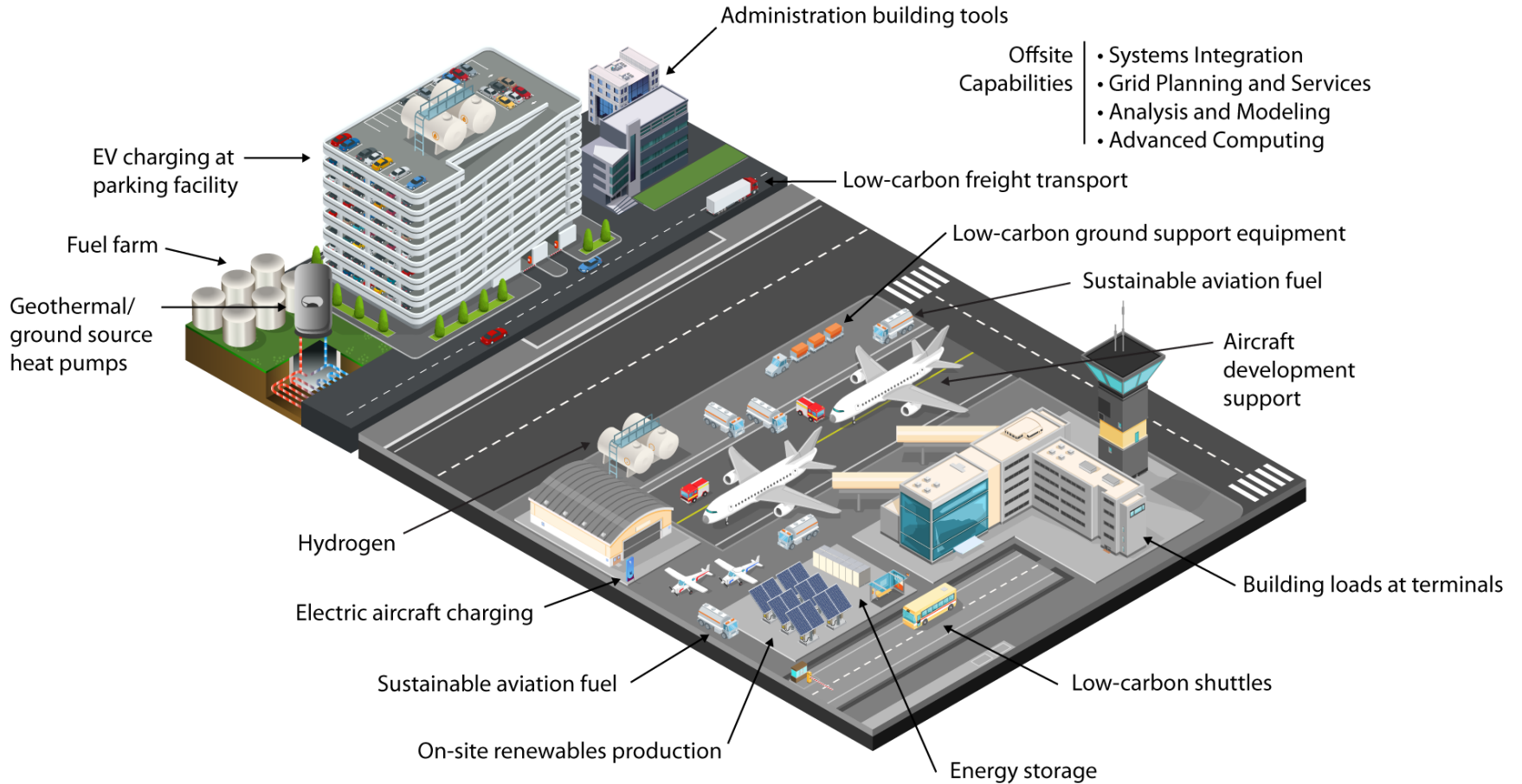
← Required Capabilities: Research, Analysis, Modeling, Validation/Deployment →

An ecosystem of partnerships are needed for realizing Sustainable Aviation

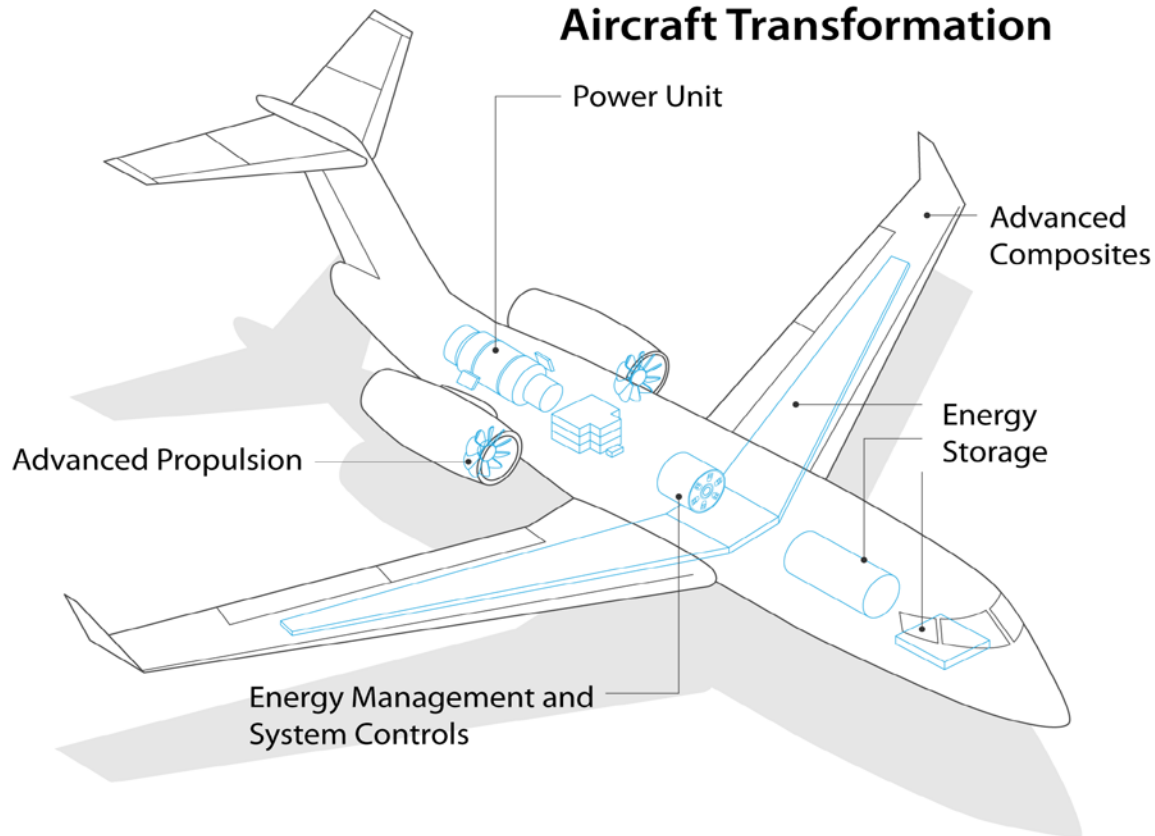
Next-Gen Aviation Energy Supply Chain



Airport/Base System



Aircraft



eVTOL



Regional Air Mobility



Turbine Aircraft

Questions?

Sustainable Aviation

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Thank You

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