Design Reference Missions (DRM):
Integrated ODM ‘Air-Taxi’ Mission Features

- Autonomous Flight Planning
- Sense & Avoid (Ground)
- Weather Detect & Avoid System
- Power-Regeneration Range Extension
- Maintain Power Margins for VTOL
- Last 50 ft.
- Regional Noise Abatement
- Trusted Autonomy
- Inter-operability

- Coexist with Package Delivery aircraft
- ODM Pick-up point
- ODM Drop-off point
- Autonomous Separation
- Entry/Exit Controlled Airspace
- Autonomous Flight Planning (Pick-up) (Drop-off)
- Sense & Avoid (Drones)
- Sense & Avoid (Aircraft)
- Contingency Management
- Optional Emergency Landing Site
- Loss of Control / Degraded Systems / System Health
- Real-Time I/O Operator & Geo-Fencing
- Structural Health / Energy Storage / Electric Components
- Structural Health / Energy Storage / Electric Components
- Loss of Control / Degraded Systems / System Health
- Real-Time I/O Operator & Geo-Fencing

Inspired by:
- https://ntrs.nasa.gov/search.jsp?R=20170006527 2020-01-19T09:02:17+00:00Z
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Hybrid Electric Integrated System Testbed (HEIST) flight control

- Improved efficiency for each controller (i.e., Motor, Generator, Turbine Fuel, Batteries)
- Improved Efficiency for integrated Power-Train
- Electric Motors Used as Control Effectors
- Reduce Vertical Tail Size
- Failure Recovery
- Peak Seeking Control
- Optimal Flight Profile
- Recharge Batteries
- Extend Range