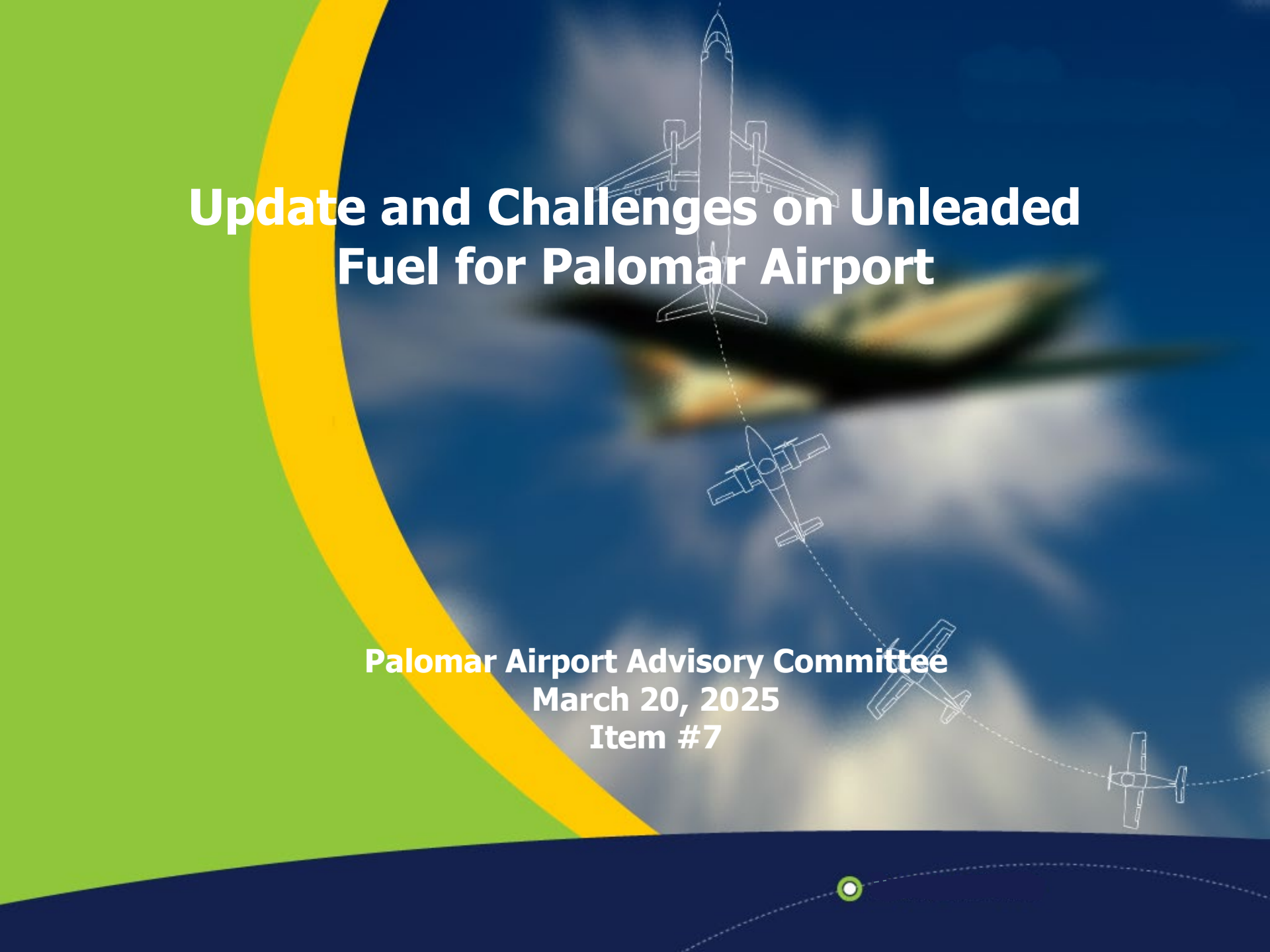




Update and Challenges on Unleaded Fuel for Palomar Airport

**Palomar Airport Advisory Committee
March 20, 2025
Item #7**

EAGLE INITIATIVE

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Eliminate Aviation Gasoline Lead Emissions Initiative (EAGLE) FAA Safety Team (FAAST) Briefing

Saturday, February 22, 2025

9:00 a.m. – 10:00 a.m. Central Time

Eagles Goals and Partners

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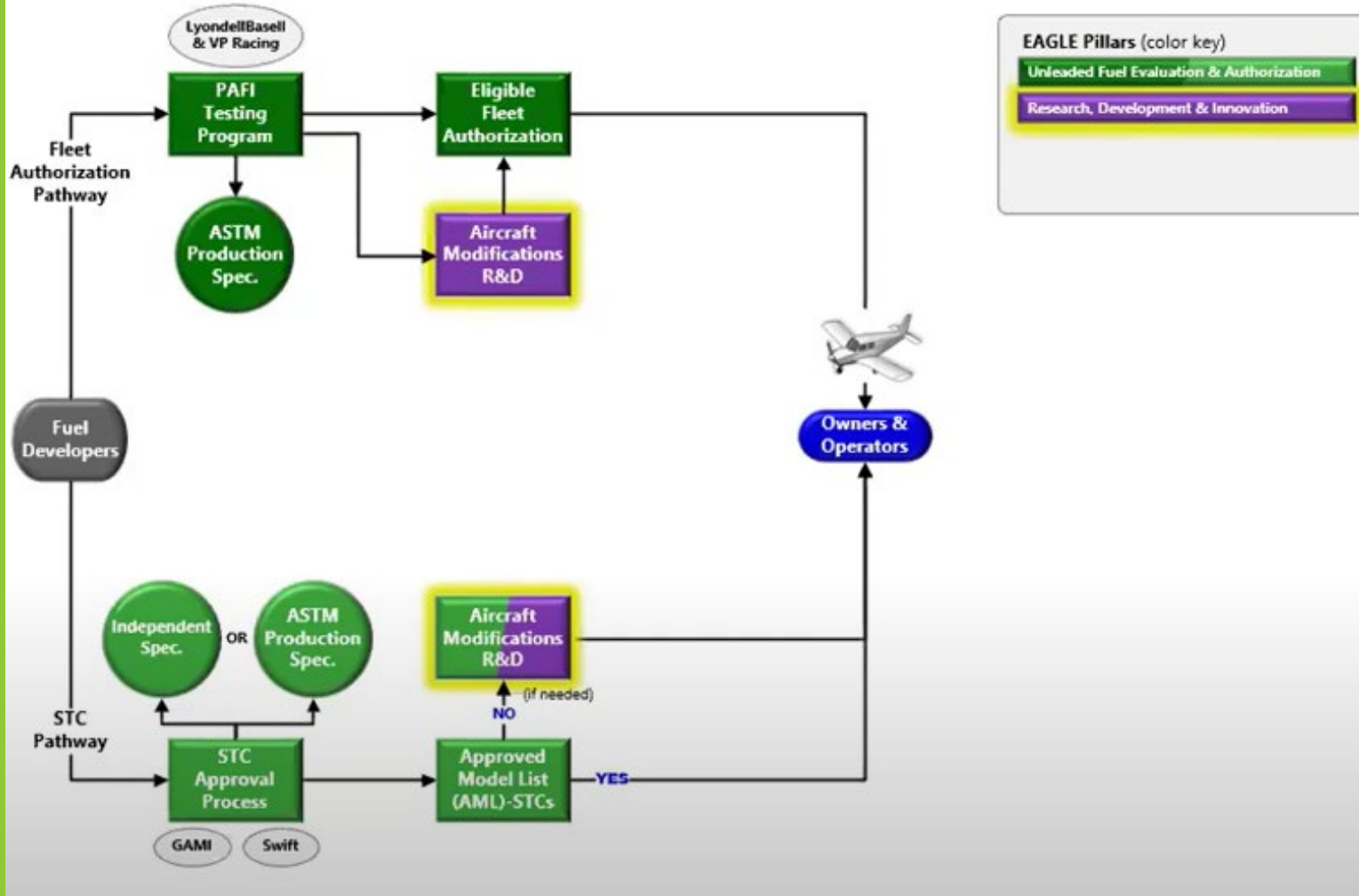
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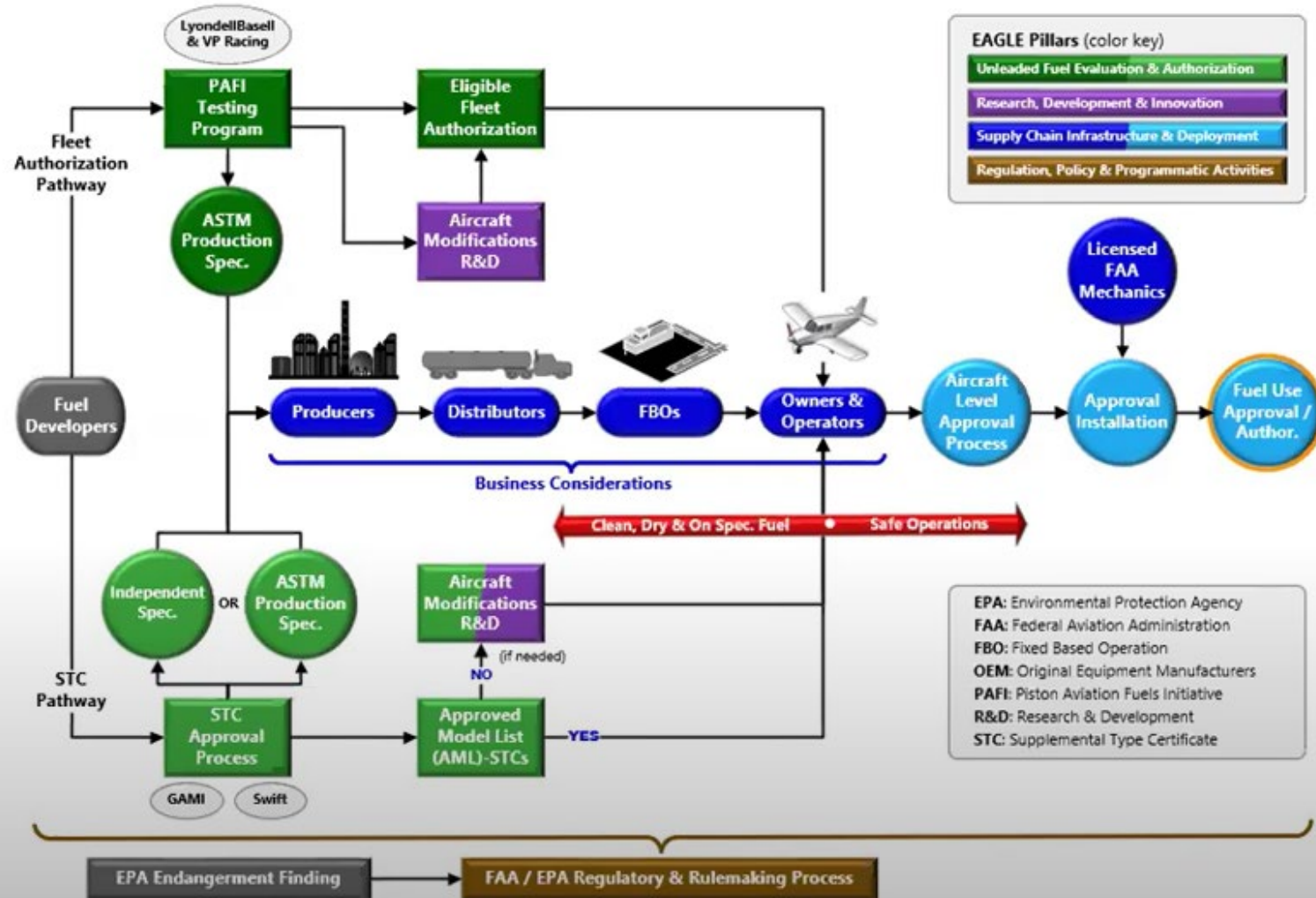
“Eliminate the use of leaded aviation fuels for piston-engine aircraft in the United States by the end of 2030 (2033 for Alaska) without adversely impacting the safe and efficient operation of the existing fleet.”



Research and Development Process



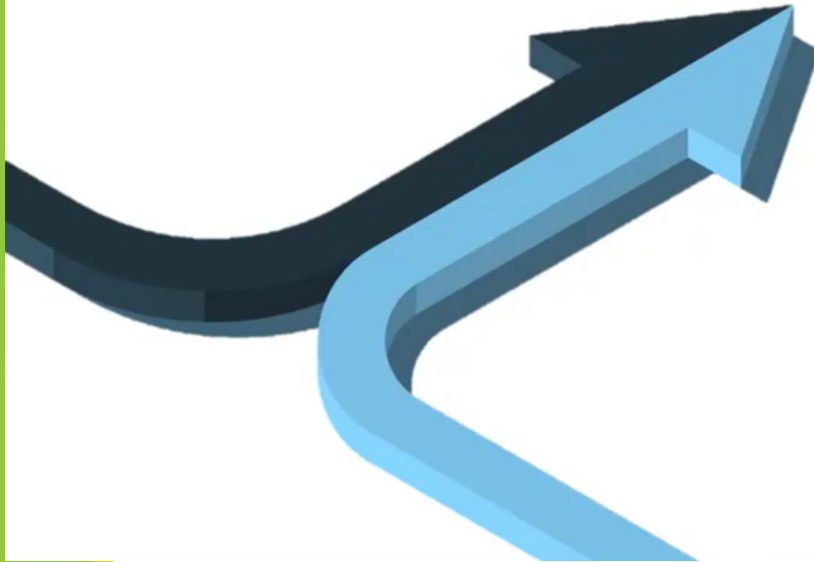
EPA Endangerment Finding and Regulatory & Rulemaking Process



Approval Use of Fuel Process

Supplemental Type Certificate Process

- Traditional FAA aircraft type certification process
- GAMI and Swift Fuels are pursuing FAA STC approval for high-octane unleaded fuel use



Fleet Authorization Process

- FAA aviation fuel fleet authorization process established by Congress through a collaborative industry/government testing program
- LyondellBasell/VP Racing are pursuing FAA authorization of a high-octane unleaded fuel through the PAFI.

Unleaded Fuel Candidates Update

General Aviation Modifications Inc. (GAMI) G100UL

Swift Fuels 100R

LyondellBasell/VP Racing UL100E



Unleaded Fuel Candidates Update

- **GAMI “G100UL”**

- FAA Approved Model List STC (AML STC) – Certified Piston Engine Airplanes
 - SE01966WI Part 33 Engine AML STC includes all FAA type-certificated spark-ignition piston engines
 - SA0196WI Part 23 Airplane AML STC includes all type-certificated fixed-wing airplanes
- Project for Rotorcraft STC Ongoing
- Vitrol Aviation has produced 1.3 million gallons
- G100UL Currently Available at Reid-Hillview-CA, Watsonville-CA, Tupelo-MS



- **Swift Fuels “100R”**

- FAA Issued initial STCs for limited airframe and engine
 - SE4651CH Part 33 Engine STC for Lycoming IO-360-L2A engines
 - SA04652CH Part 23 Airplane STC for Cessna 172 R/S
- Project for FAA Engine & Airplane AML STCs Ongoing
- Working with ASTM International to obtain an industry consensus Production Specification.



Unleaded Fuel Candidates Update

- **LyondellBassel/VP Racing “UL100E”**
 - Fuel Evaluation Testing Being Conducted Under Joint FAA/Industry Piston Aviation Fuels Initiative (PAFI) Test Program
 - Status of Materials, Engine & Aircraft Testing on the following slides
 - Working with ASTM International to obtain an industry consensus production specification



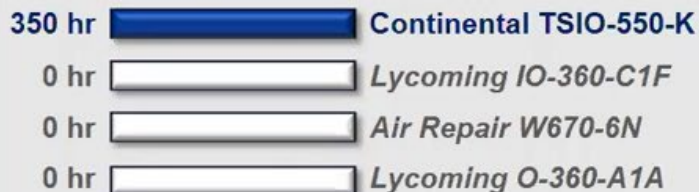
PAFI GATE 4 UL 110E Full Scale Testing

Detonation & Performance

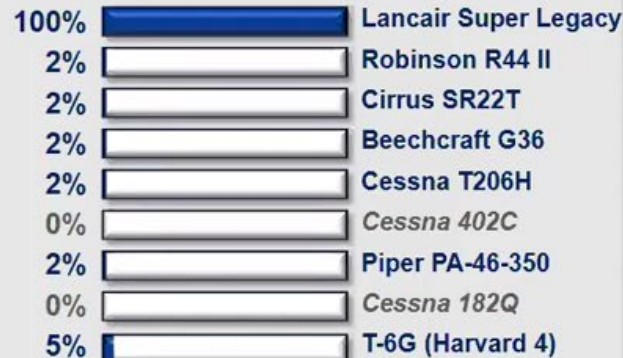


Durability & Performance

(150 Hr. § 33.49 + 200 Hr. flight duty cycles)



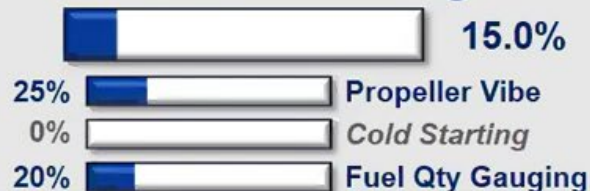
Aircraft Testing (Operation, Cooling Climb, Hot Fuel)



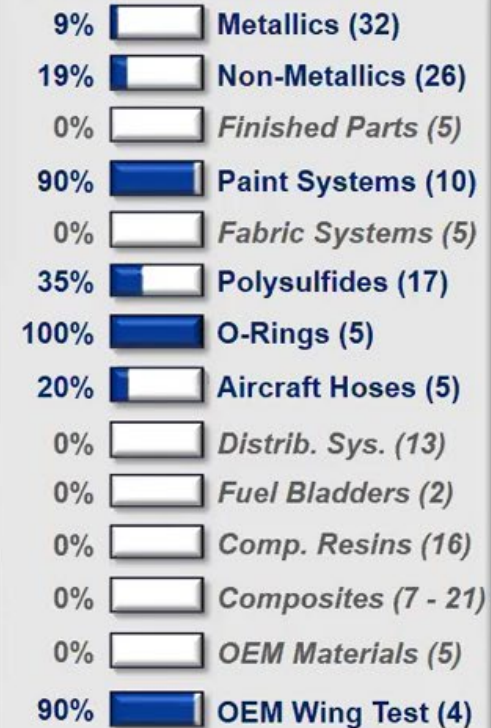
R&D Testing (CHT, OAT/MAT, Timing)



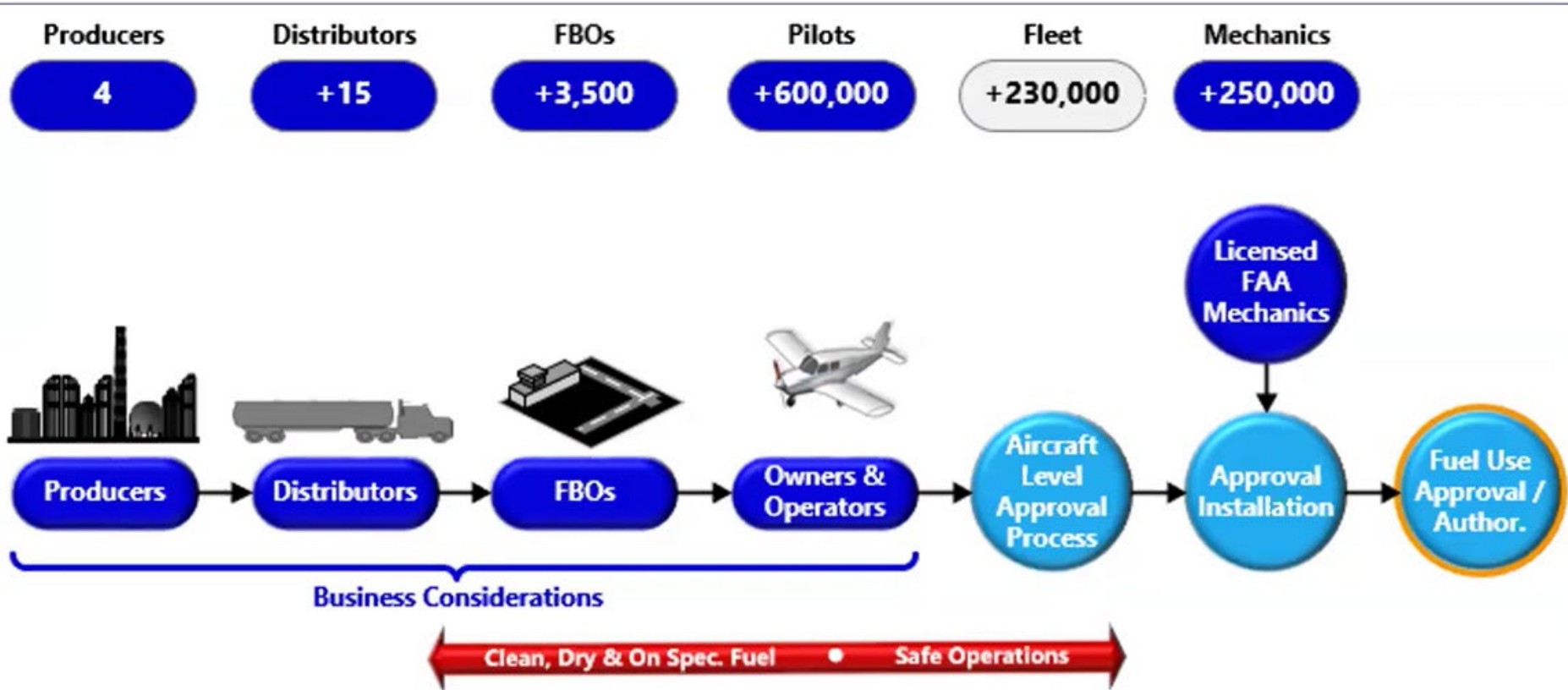
Additional Testing



Materials Compatibility



Supply Chain Infrastructure and Deployment/FBO



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