

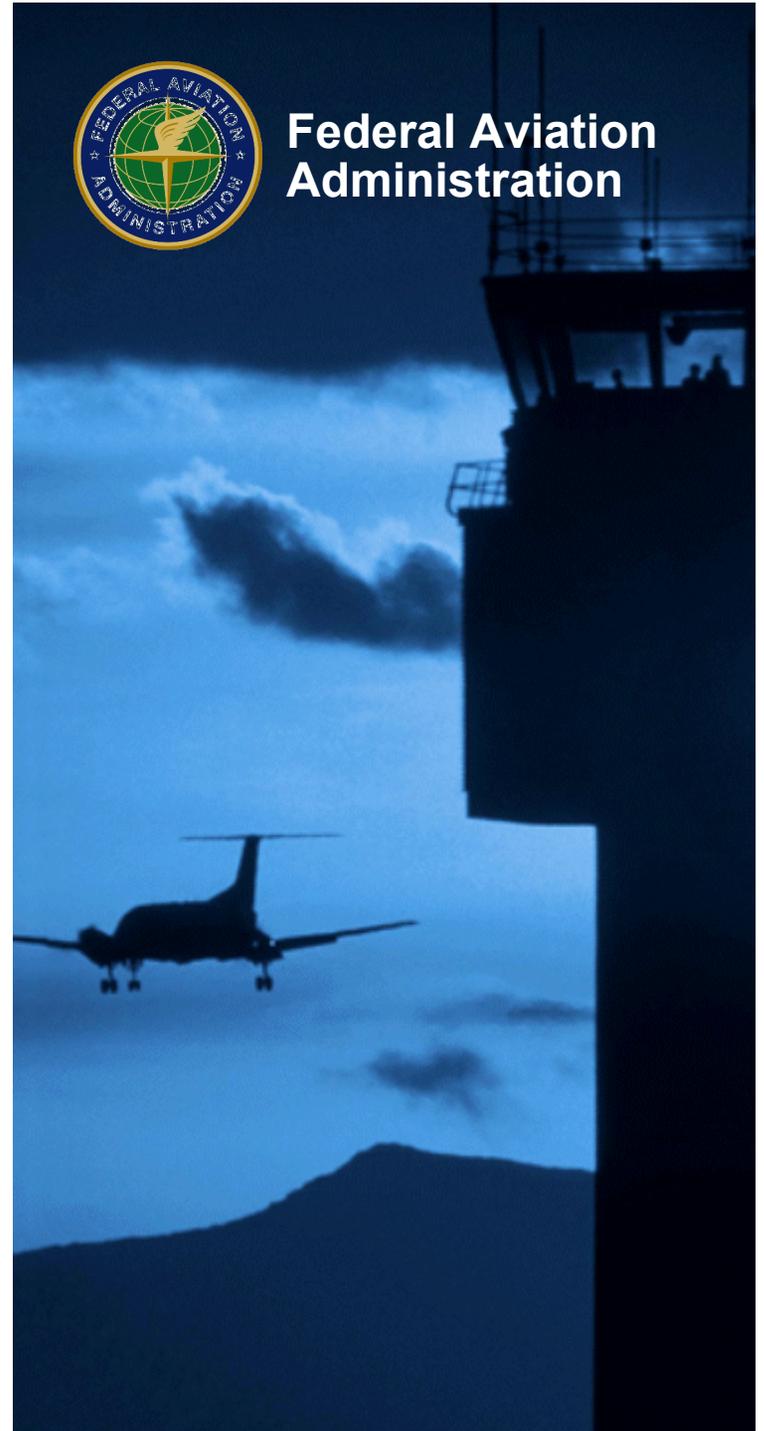
Aviation Gasoline

Status and Future Prospects

Presented to: 34th Annual FAA Forecast Conference
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Federal Aviation
Administration



Presentation Overview

- **Background**
- **Status**
- **Challenges**
- **Prospects**

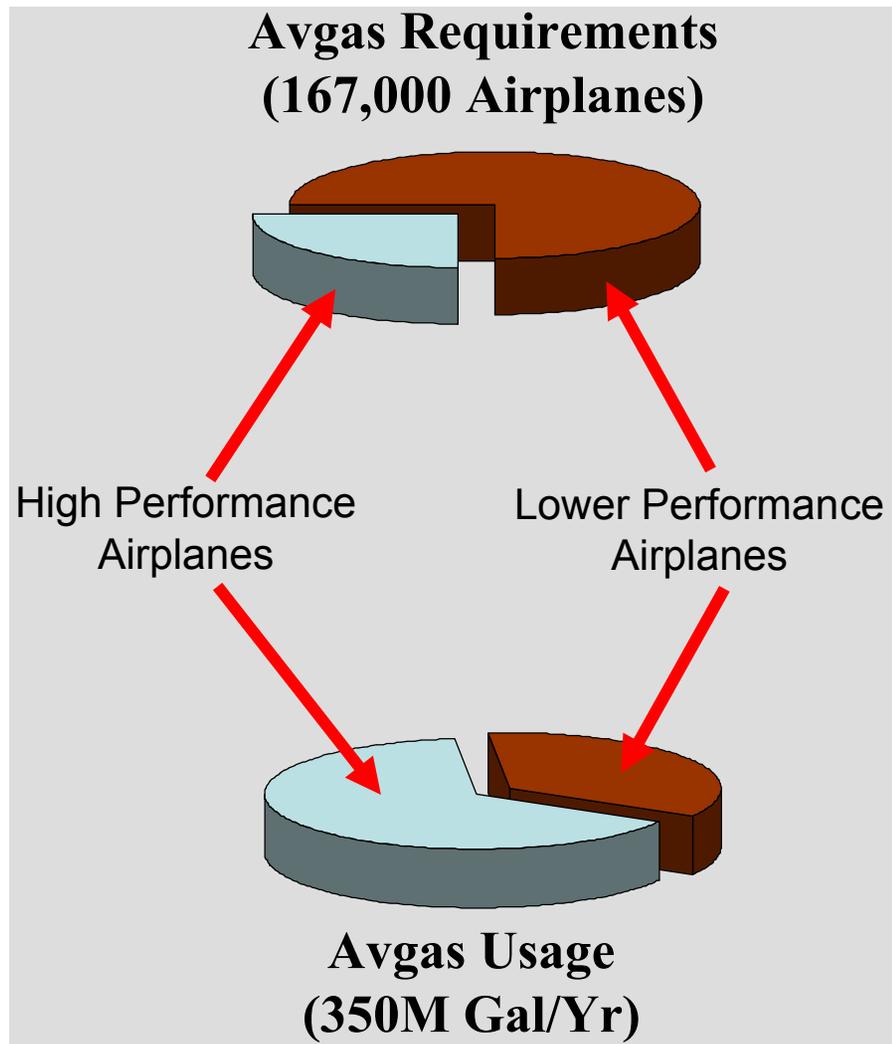


Background

- **Aviation Gasoline Contains Lead**
 - Enables Higher Power Output for Aircraft Engines
- **Current Threats to Continued Availability**
 - Environmental
 - 1990 Clean Air Act
 - Other Periodic Petitions to EPA to Eliminate Lead
 - EPA National Ambient Air Quality Standards (NAAQS)
 - Economic
 - Supply of Tetra-Ethyl Lead (TEL) Additive
 - Lead-Containing Avgas Distribution Infrastructure
 - Environmental Costs of Distribution



Status



- **Available Aviation Fuels**

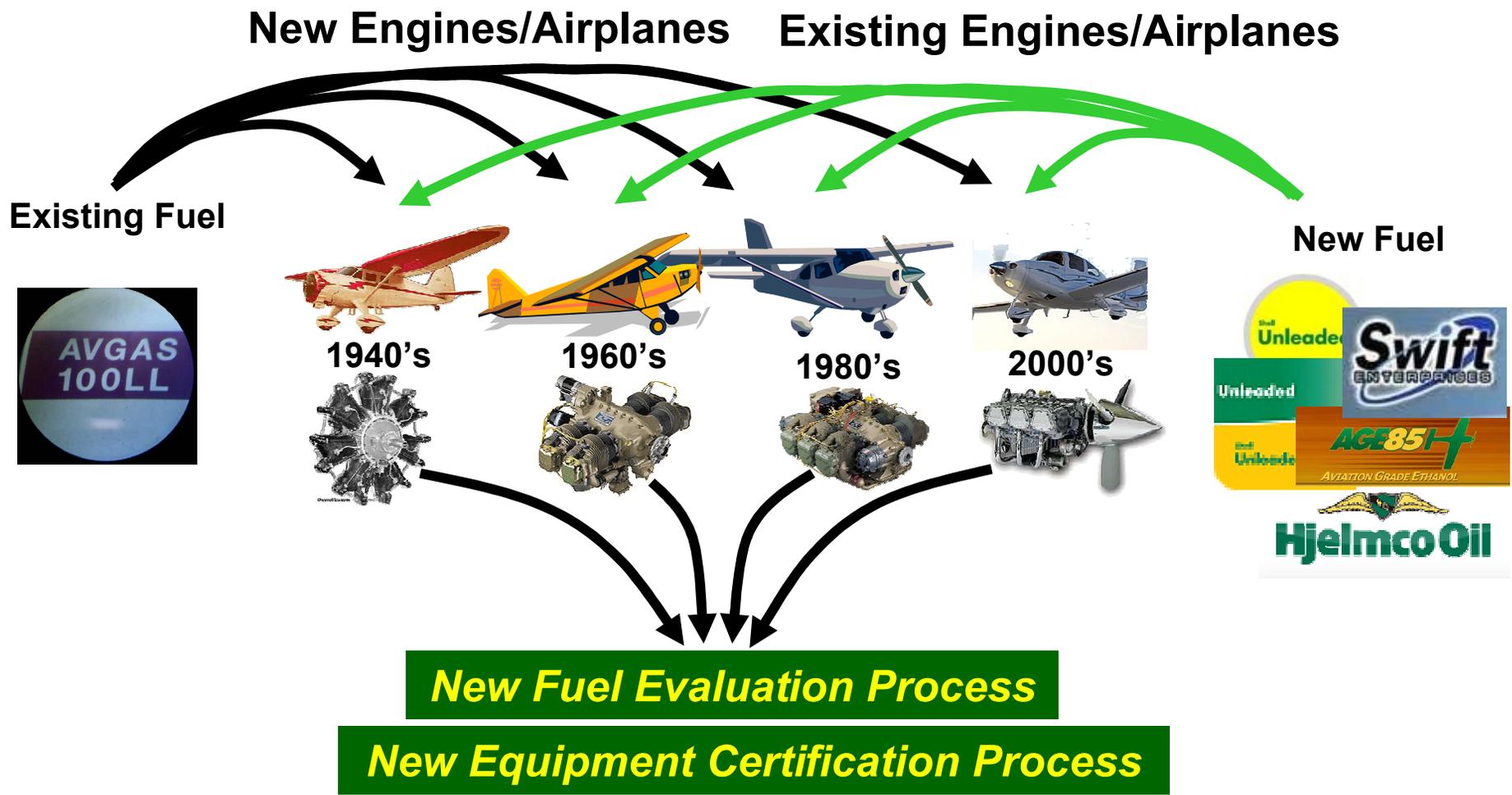
- 100LL
 - Good for All Engines, but...
 - Contains Lead
- Autogas (Unleaded)
 - OK for Low Perf Engines
- Ethanol
 - High Octane, but..
 - Range Impact
 - Other Issues
- 82UL Aviation Gasoline
 - OK for Low Perf Engines
 - Spec Issued, but...
 - Not Currently Produced
- Jet Fuel (Kerosene)
 - Only for Diesel Engines

Challenges – Fuel Development

- **Industry Research for UL Replacement Fuel**
 - No Transparent Replacement for 100LL
 - Coordinating Research Council (CRC) Working Groups
 - Investigated Fuel and Engine Interactions
 - Experimental Formulations
 - Octane Rating of Aircraft Engines
 - Supported by the FAA Tech Center
 - Uncertain Funding in Future
- **GA Industry Collaboration**
 - Resource Allocation Challenges
 - Potential Future Problem
 - Who “Owns the Issue”?
 - Aircraft/Engine OEMs?
 - Fuel Companies?
 - Recent Economic Downturn
 - GAMA Future AVGAS Strategy & Transition (FAST) Plan
 - Introduce Less Than Optimal Fuel?
 - Aircraft/Engine Modifications?



Challenges – Fuel Approval



Draft FAA Certification Policy

Aviation Fuel

		Aviation Fuel		
		Existing Specification	New Specification	Changed Specification
Engine/Airplane	New	100LL Equipment Certification ← Establishing Operating Limitation →	Industry Qualification Equipment Certification	Industry Qualification Equipment Certification
	Existing	Autogas Fuel-Only Equipment Certification ← New Operating Limitation →	Industry Qualification Fuel-Only Equipment Certification	Industry Qualification Unchanged Operating Limitation



Prospects for Aviation Gasoline

- **Uncertain Deadline**
 - EPA Mandate?
 - TEL Supply Disruption?
- **Some Options Under Consideration**
 - 100LL without the Lead
 - Approx 94-95 Octane
 - Engine/Aircraft Modifications Required for High Performance Aircraft
 - Simplified Development/Production
 - Swift Biofuel
 - Preliminary Testing is Encouraging
 - Unanswered Questions:
 - Scale-Up to Production and Cost?





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