

# Synthetic Aviation Turbine Fuel (SATF) ASTM Qualification Update



Presented to **CAAIFI® Biennial General Meeting**

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Aviation Fuels

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Federal Aviation  
Administration

**STEP** // SENIOR TECHNICAL  
EXPERTS PROGRAM  
ADVANCING SAFETY THROUGH SCIENCE 

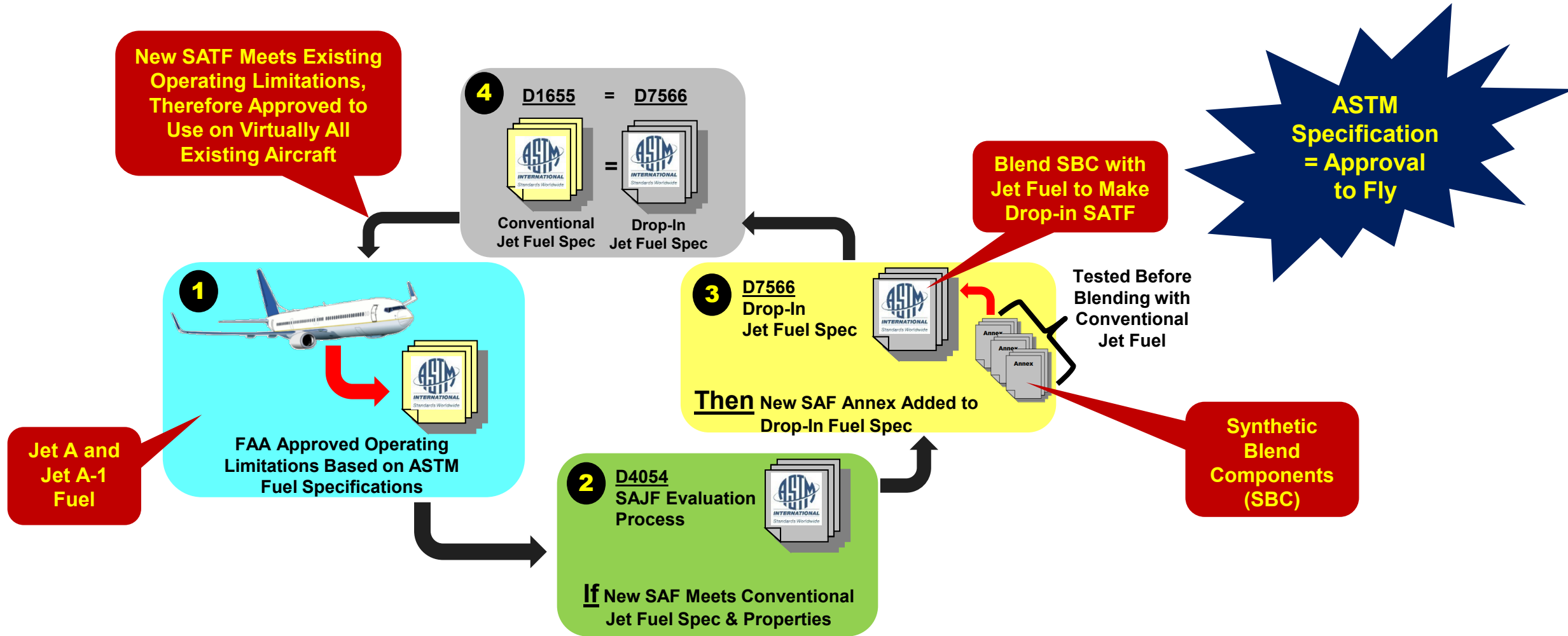
# Agenda



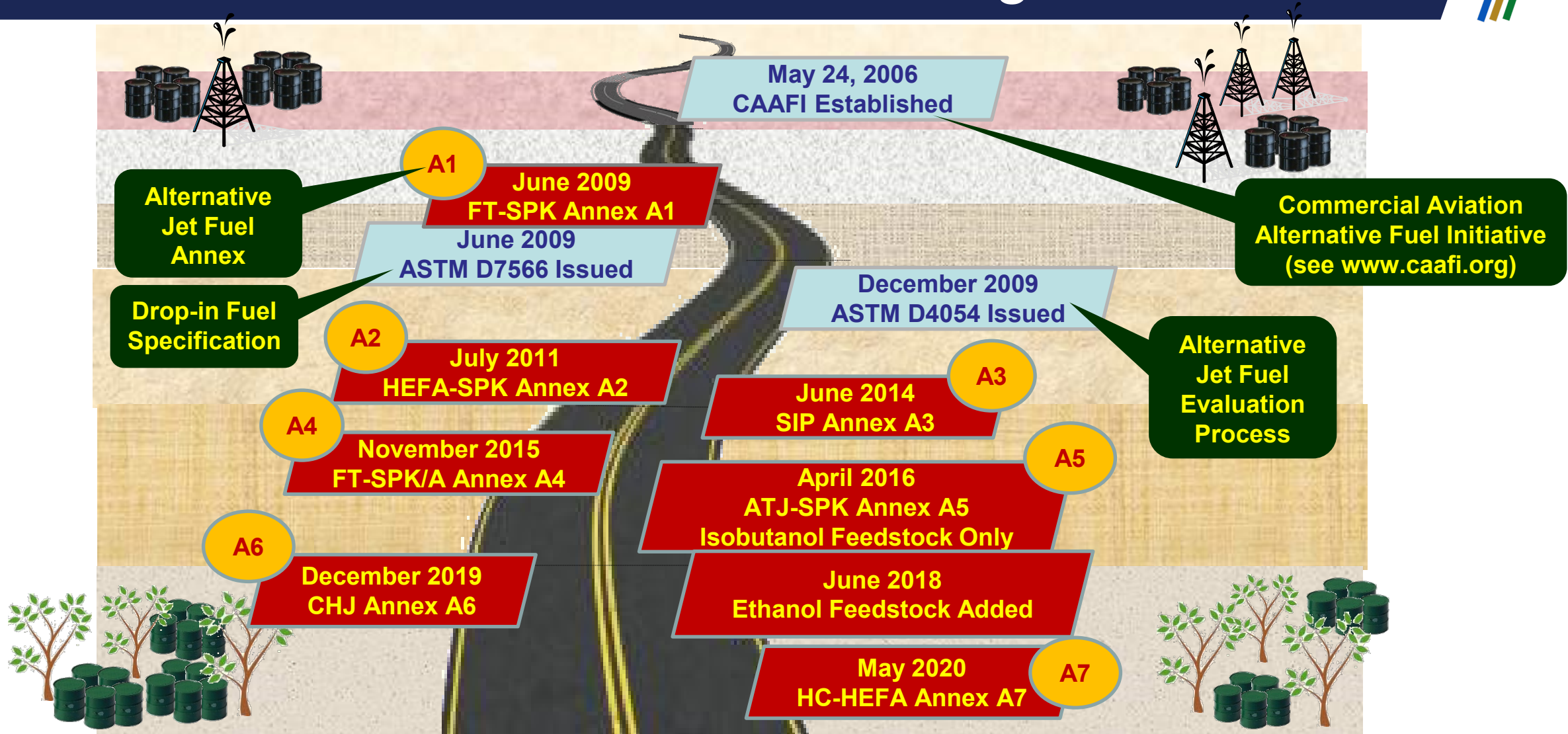
- **How are SATFs Approved?**
- **ASTM D4054 Evaluation Process**
- **FAA D4054 Clearinghouse & Activity**
- **D4054 Fast Track**
- **SATF Pre-Screening**
- **Synthetic Blend Component (SBC) Blend Limits**



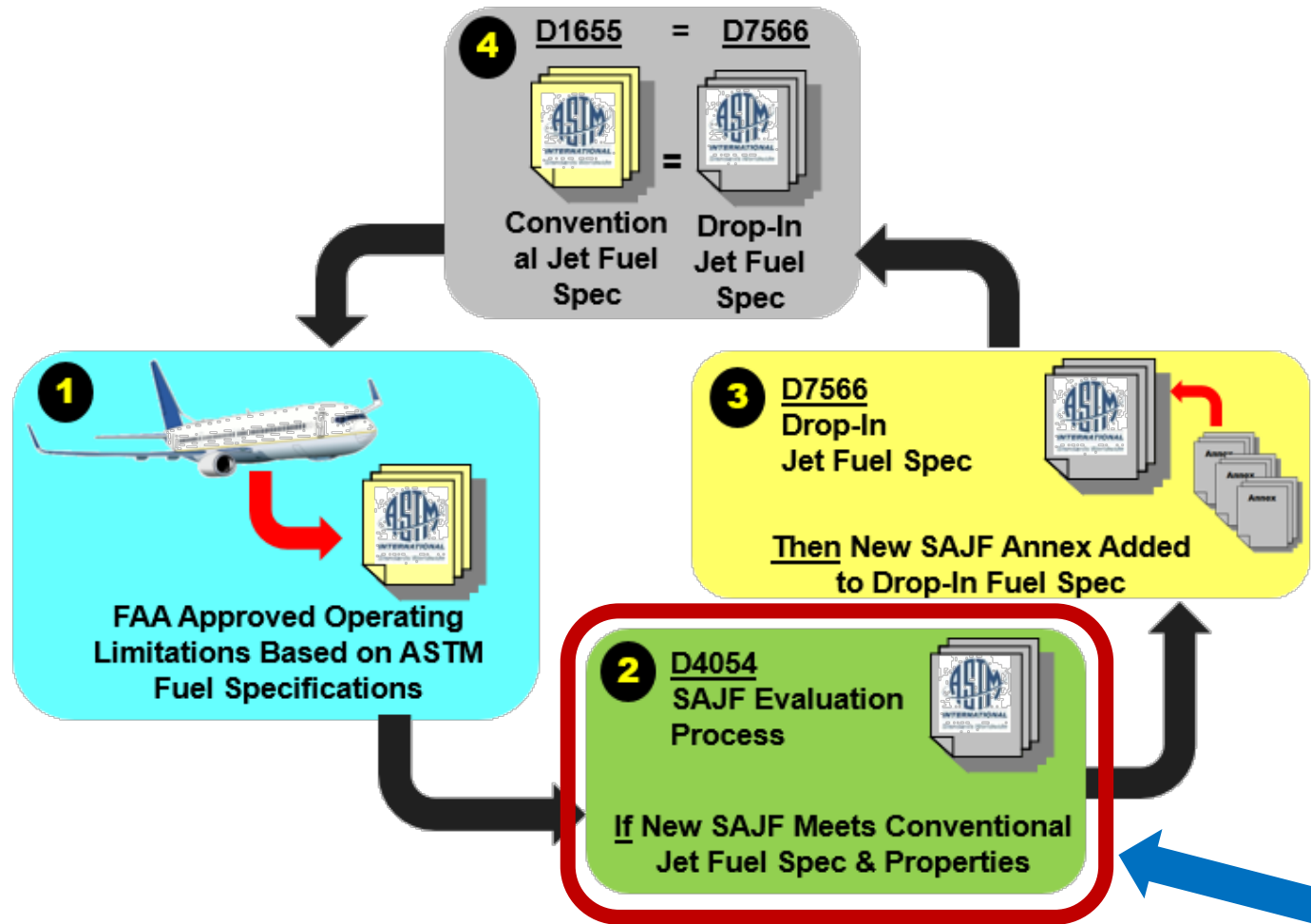
# How are SATFs Approved?



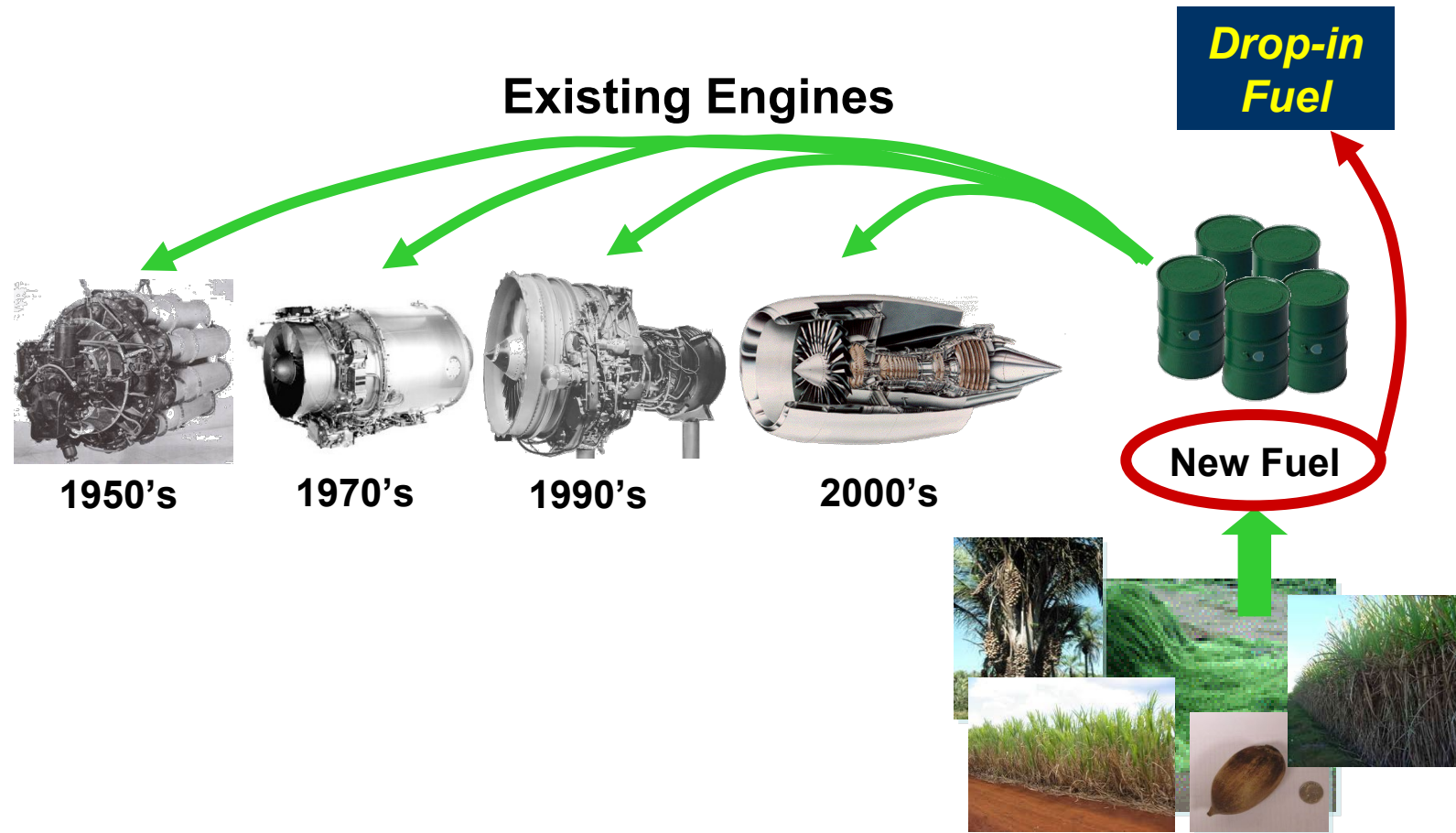
# Synthesized Aviation Turbine Fuel Progress



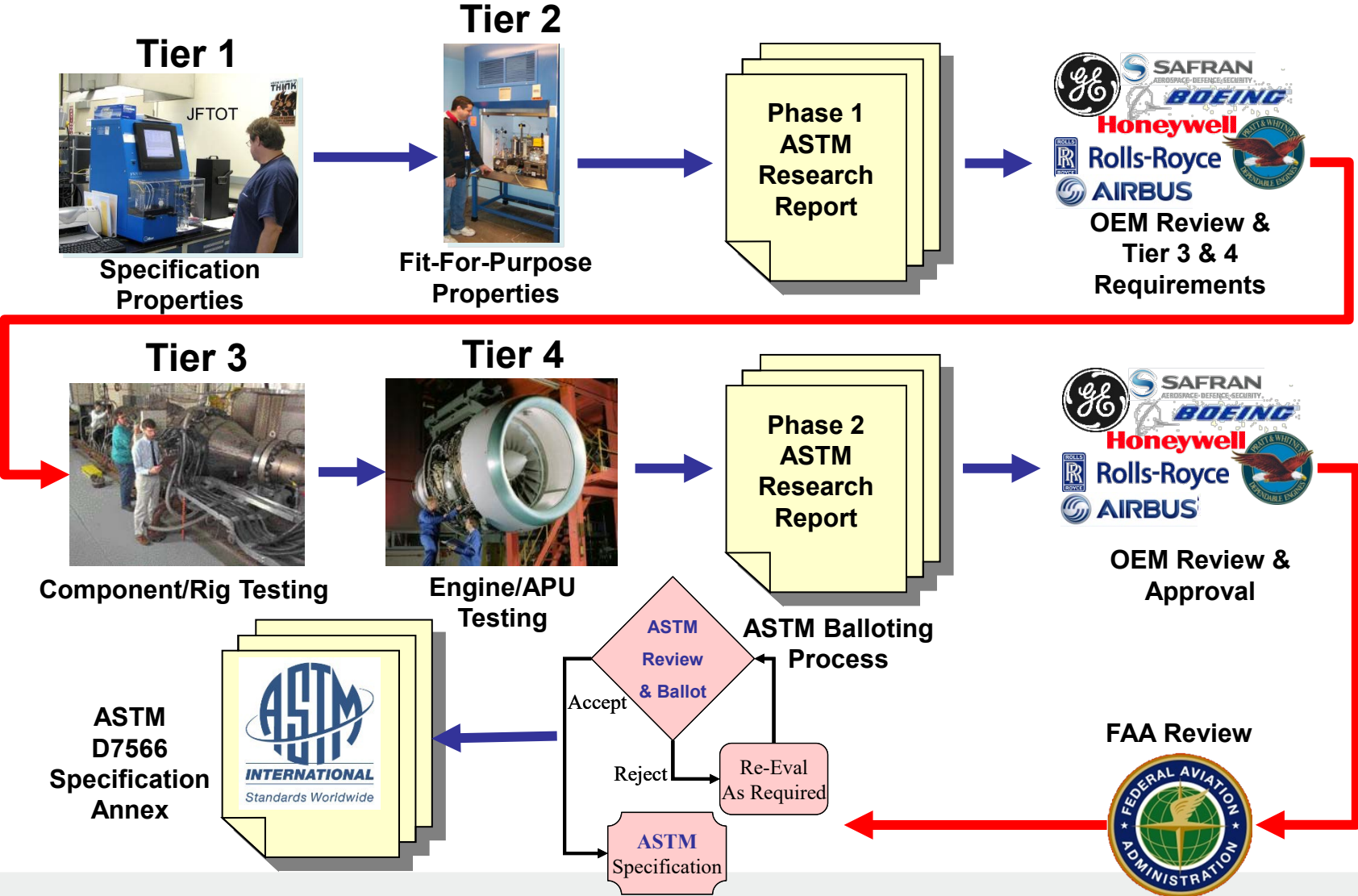
# Let's Look at the ASTM D4054 Evaluation Step



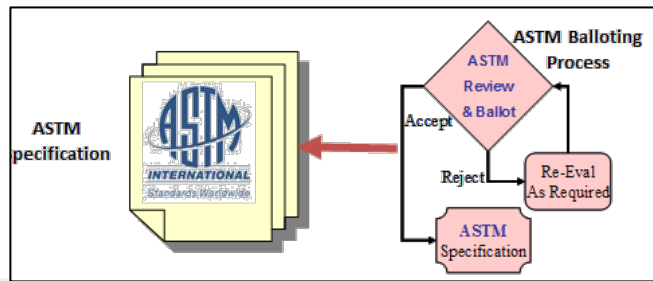
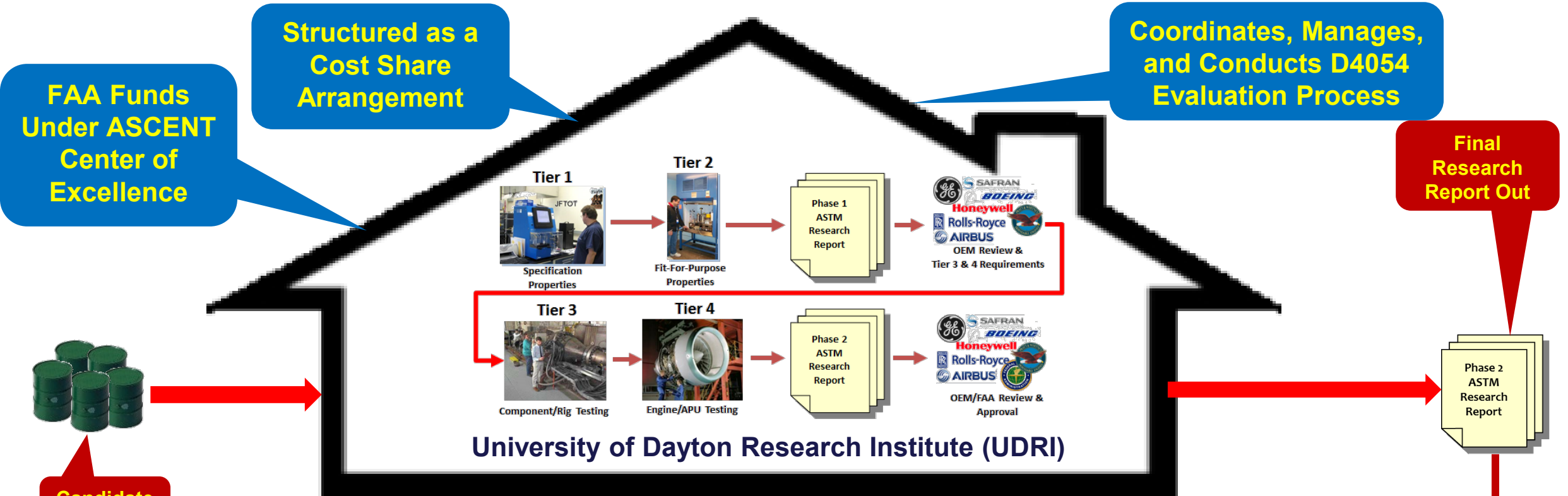
# D4054 Process Determines “Backwards Compatibility” of SAF



# ASTM D4054 Evaluation Process

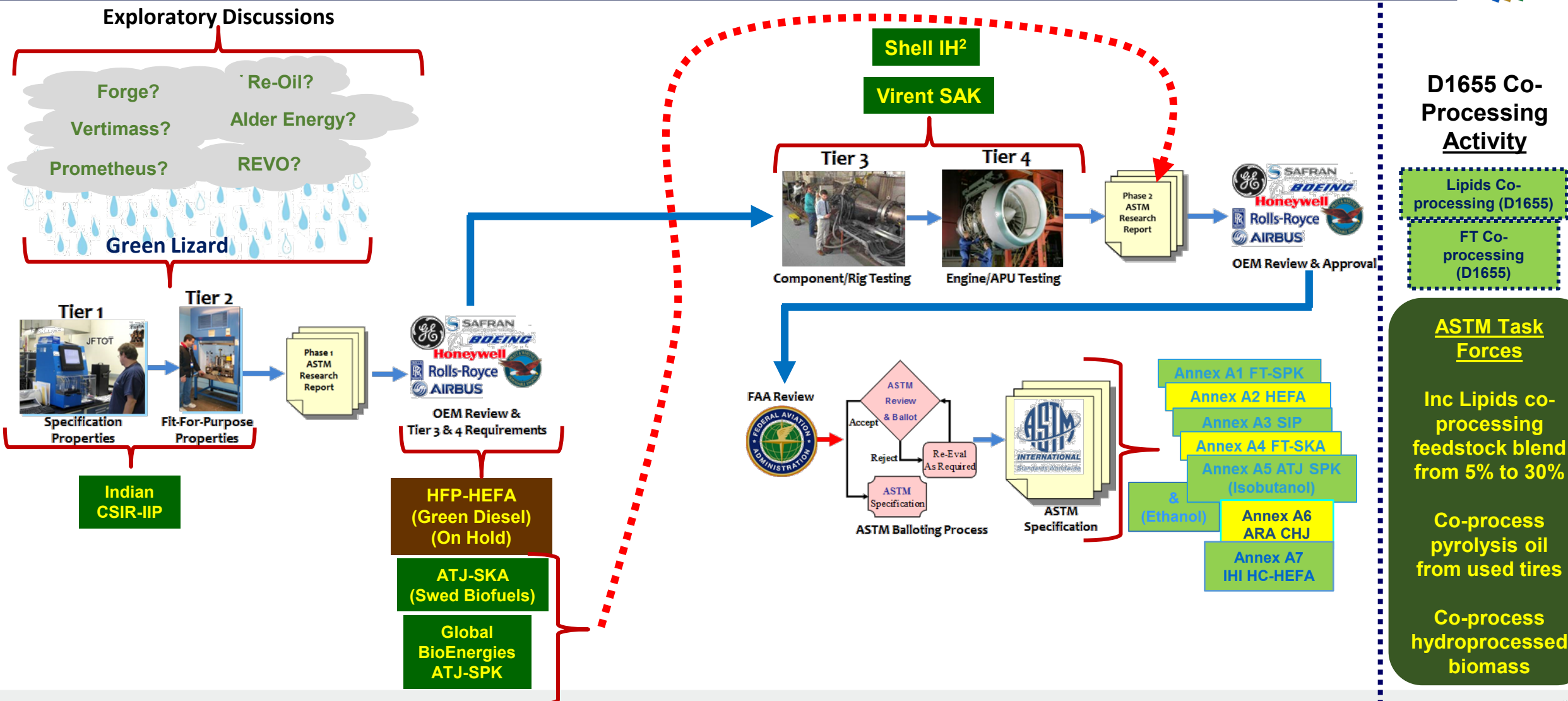


# FAA D4054 Clearinghouse

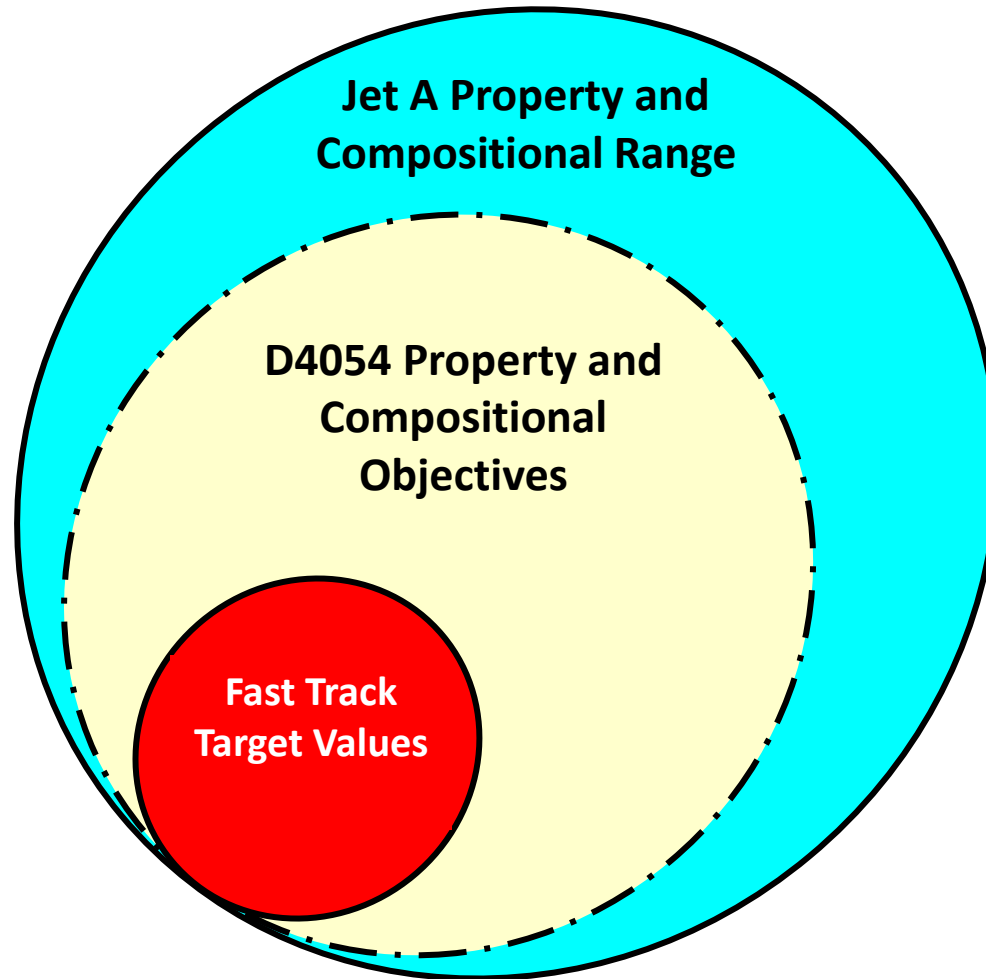




# D4054 Activity Status



# D4054 Fast Track Annex



***Lite Testing Program For SATFs with Nominal Jet Fuel Properties and Compositions***

***Limited to a 10% Blend Percentage***



# SATF Pre-Screening



Tier  $\alpha$

## Property/Performance Predictions

- GCxGC,
- IR absorption, and/or
- NMR



Tier  $\beta$

## Critical Properties

- DCN
- Density
- Distillation Curve
- Viscosity
- Surface Tension



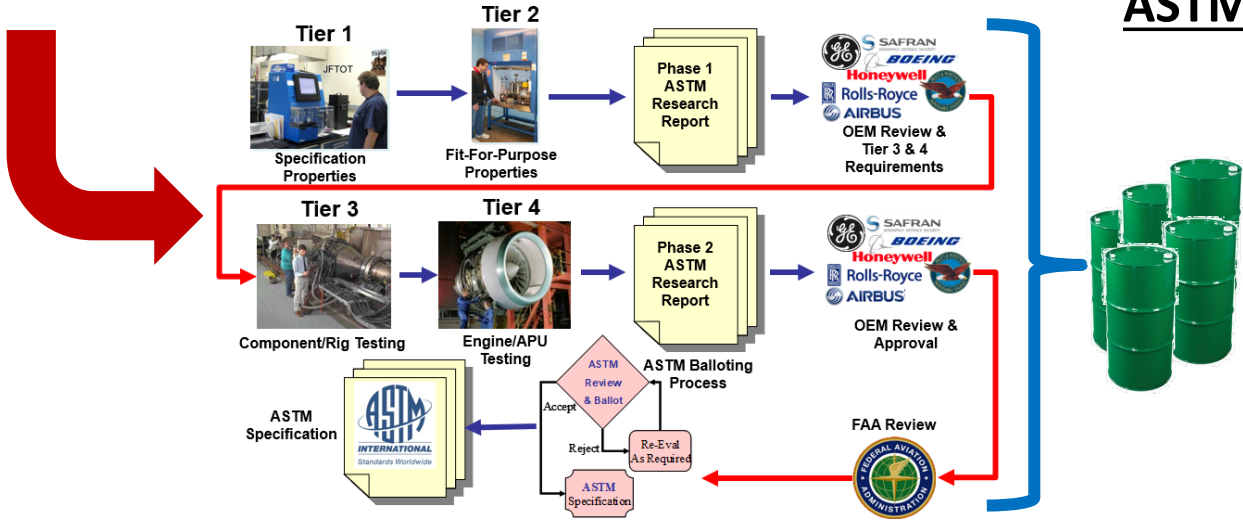
*ml's of test fuel*

## Pre-Screening Phase

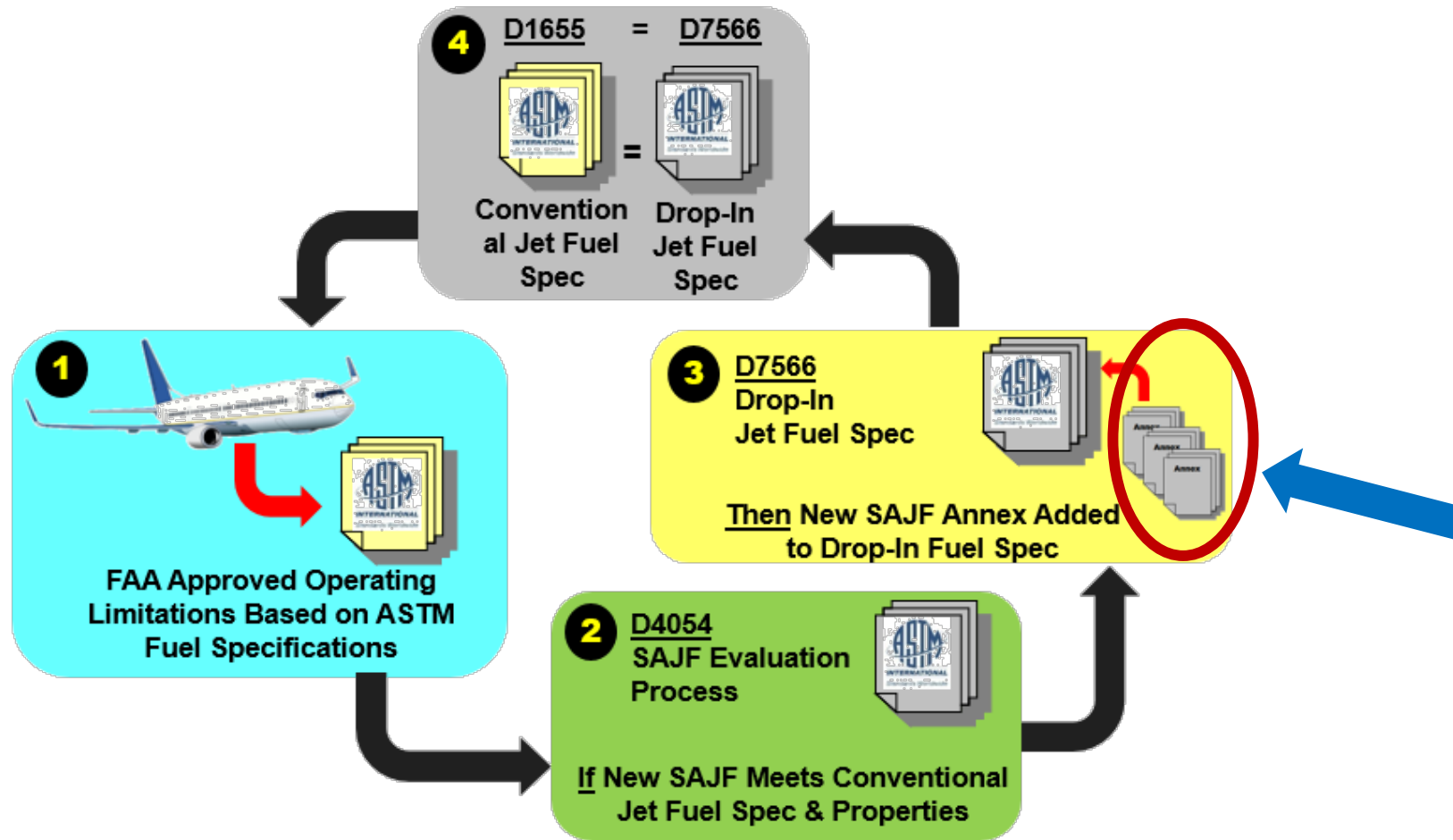
Optimize/Refine  
Conversion  
Process/Composition

## ASTM D4054 Evaluation Phase

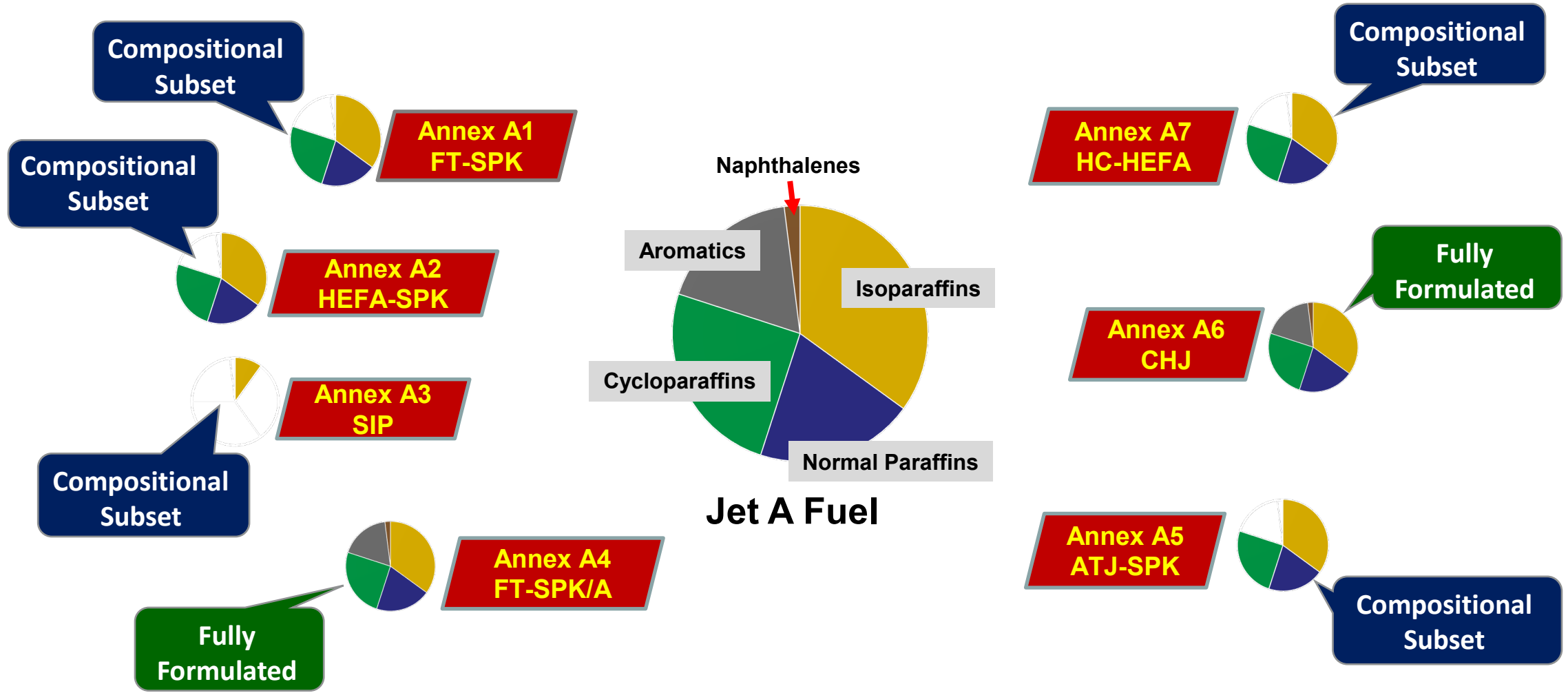
*100's to 1000's of gallons of test fuel*



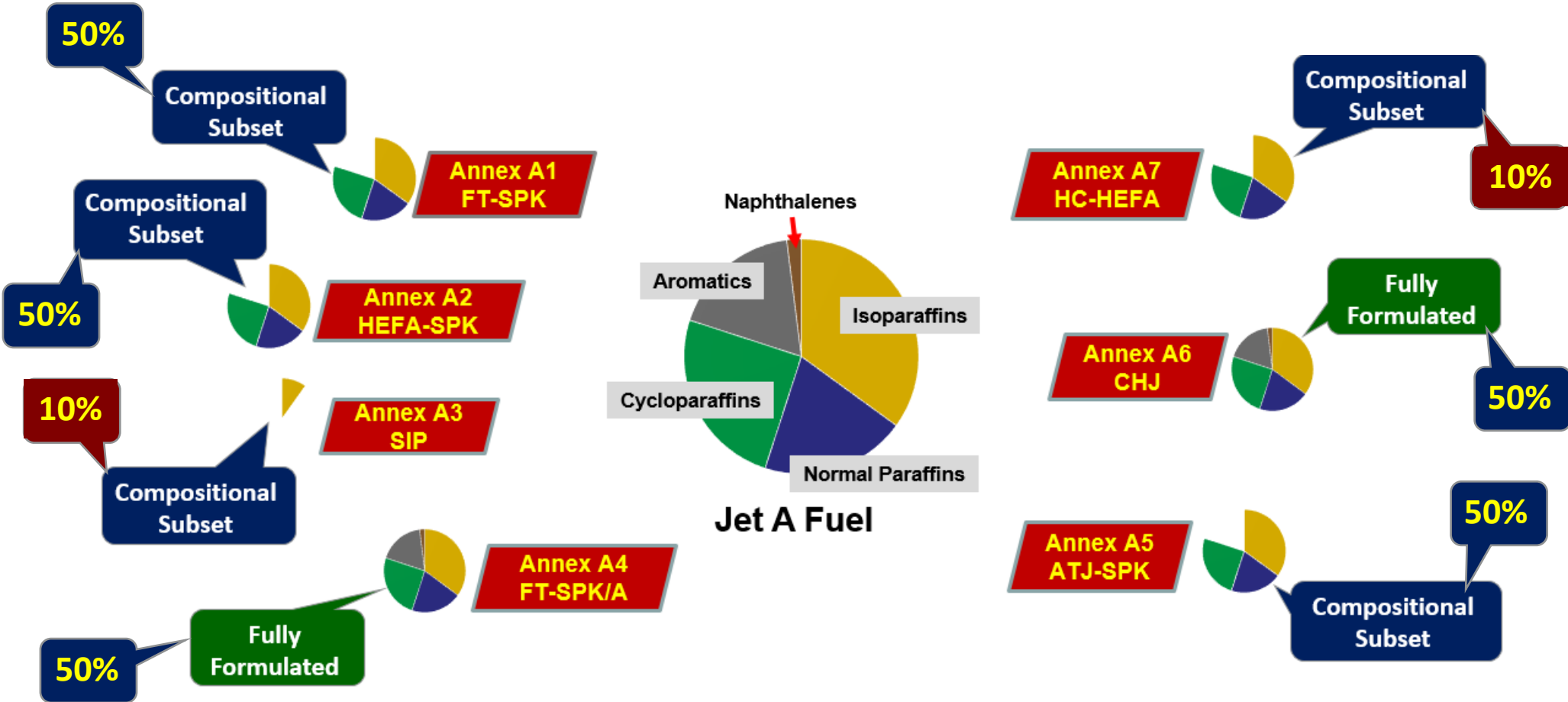
# Let's Take a Closer Look at Synthetic Blend Component (SBC) Blend Limits



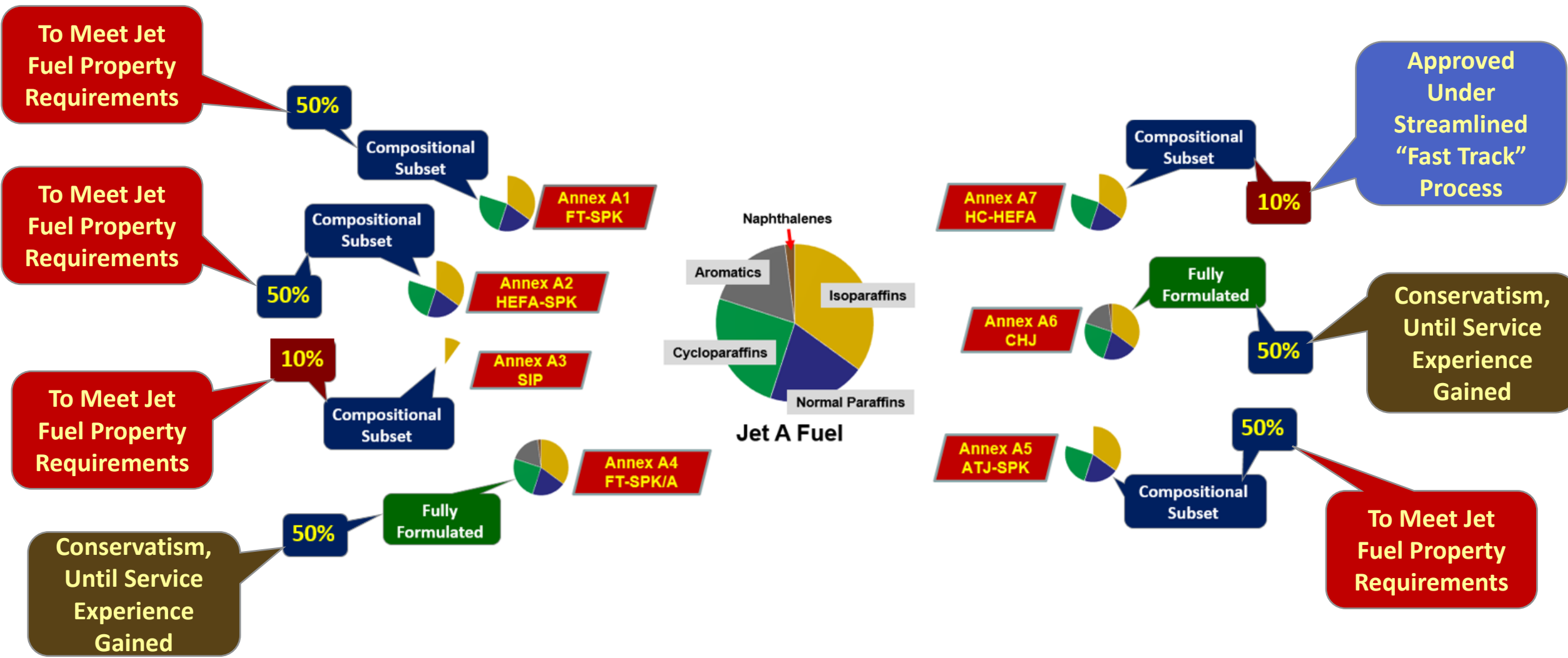
# SBC Composition Compared to Jet A Fuel



# Max Allowable Blend % in Conventional Jet Fuel



# What Determines the Maximum Blend Percentage?



# Thank You

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## *Questions?*







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