

Alternative Jet Fuel Qualification

**CAAFI Mini Symposium
June 3, 2021**

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Administration**

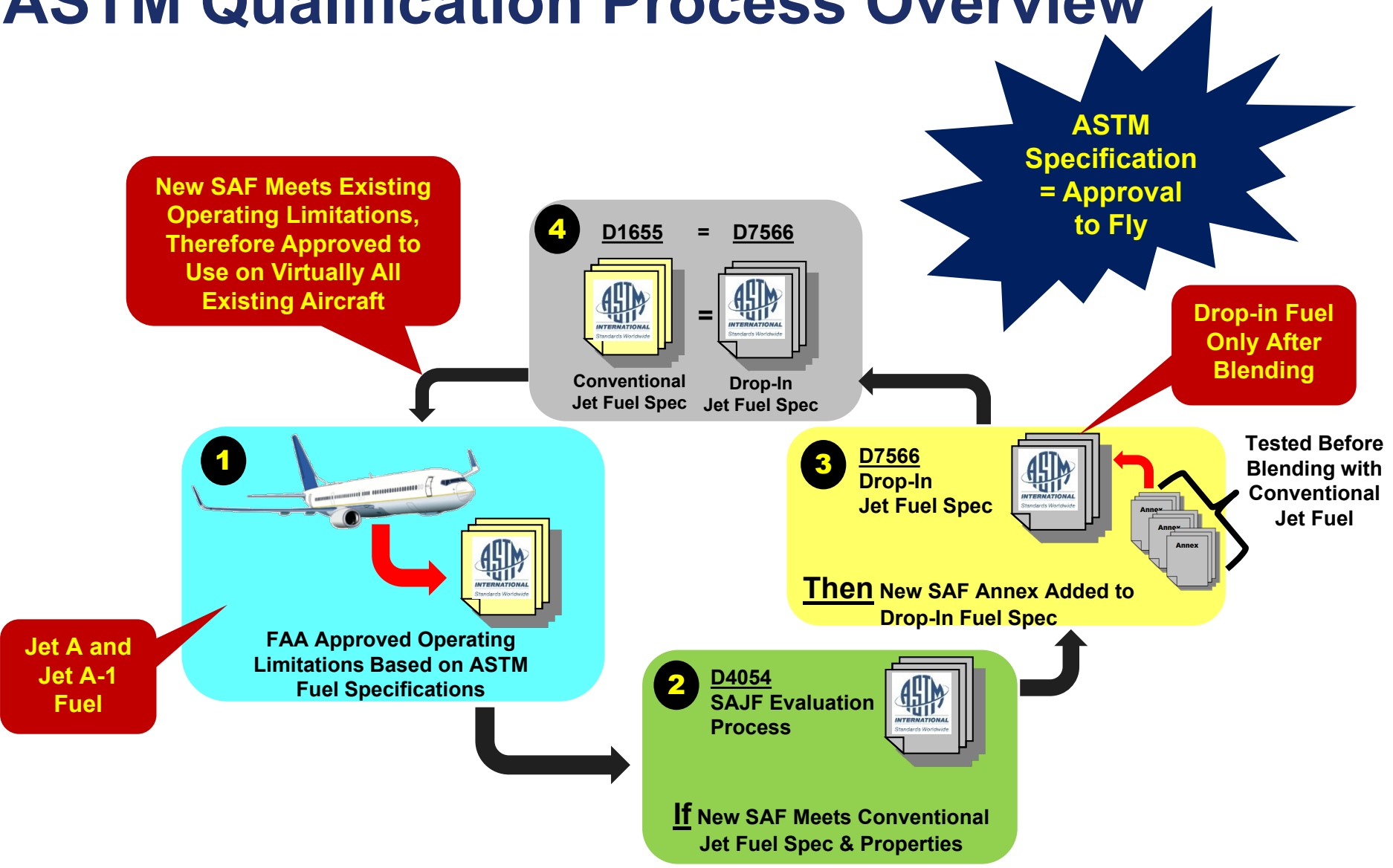


Presentation Overview

*Why Does
ASTM Specification Issuance
= Approval to Fly?*

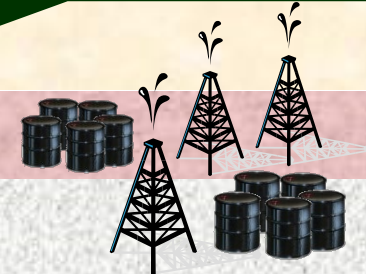
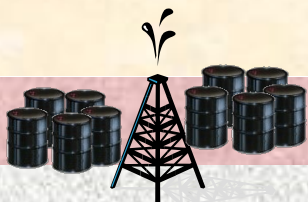


ASTM Qualification Process Overview



Over a Decade of Progress

Commercial Aviation Alternative Fuel Initiative (see www.caafi.org)



May 24, 2006
CAAIFI Established

Alternative Jet Fuel Annex

A1
June 2009
FT-SPK Annex A1

June 2009
ASTM D7566 Issued

Drop-in Fuel Specification

A2
July 2011
HEFA-SPK Annex A2

December 2009
ASTM D4054 Issued

Alternative Jet Fuel Evaluation Process

A3
June 2014
SIP Annex A3

A4
November 2015
FT-SPK/A Annex A4

A5
April 2016
ATJ-SPK Annex A5
Isobutanol Feedstock Only

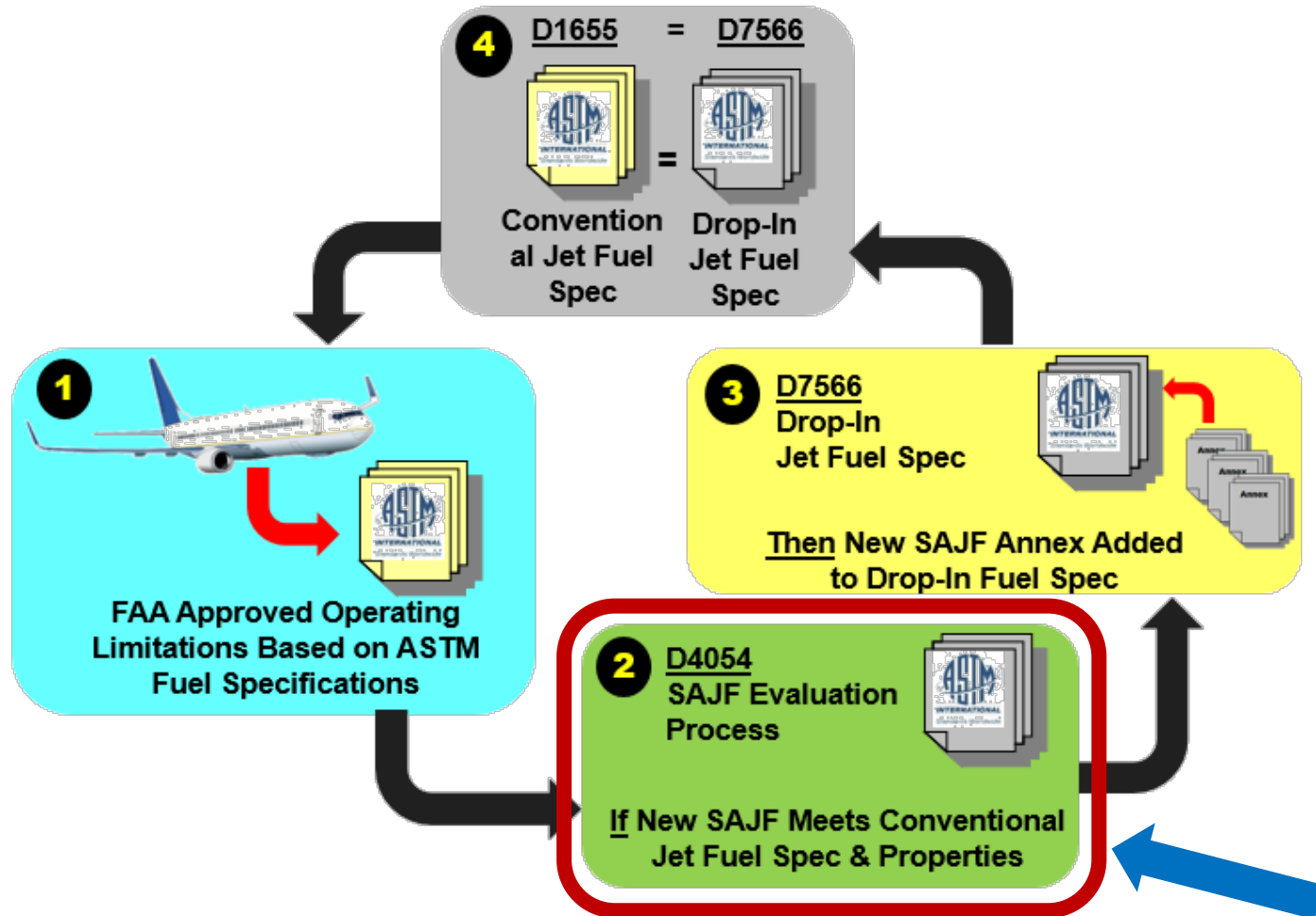
A6
December 2019
CHJ Annex A6

June 2018
Ethanol Feedstock Added

A7
May 2020
HC-HEFA Annex A7

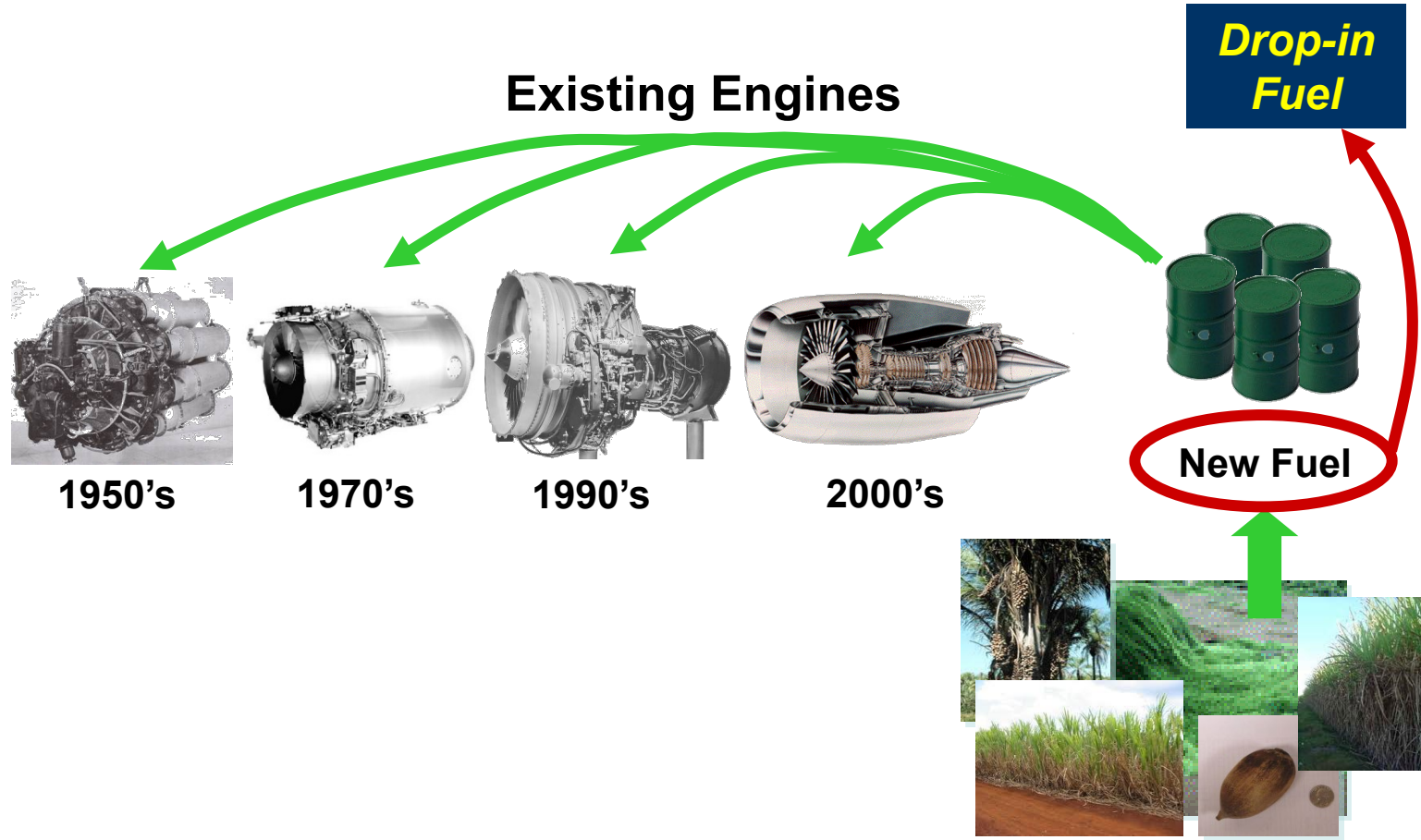


2. ASTM D4054 Evaluation Process

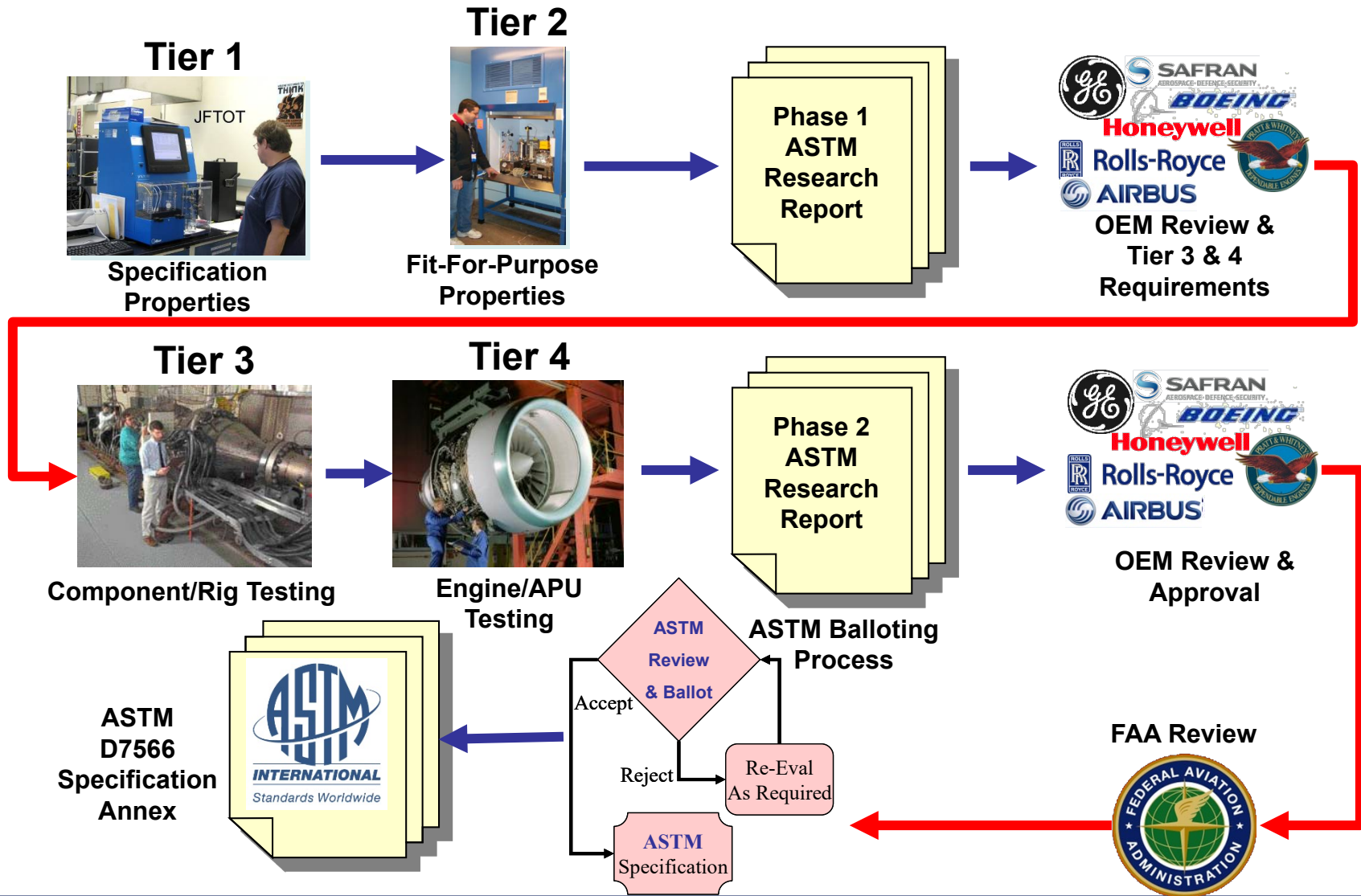


Alternative Jet Fuels Must Be Drop-in Fuels

Formulate New Fuel to Meet Design & Operational Requirements of Existing Fleet of Engines & Aircraft



ASTM D4054 Evaluation Process



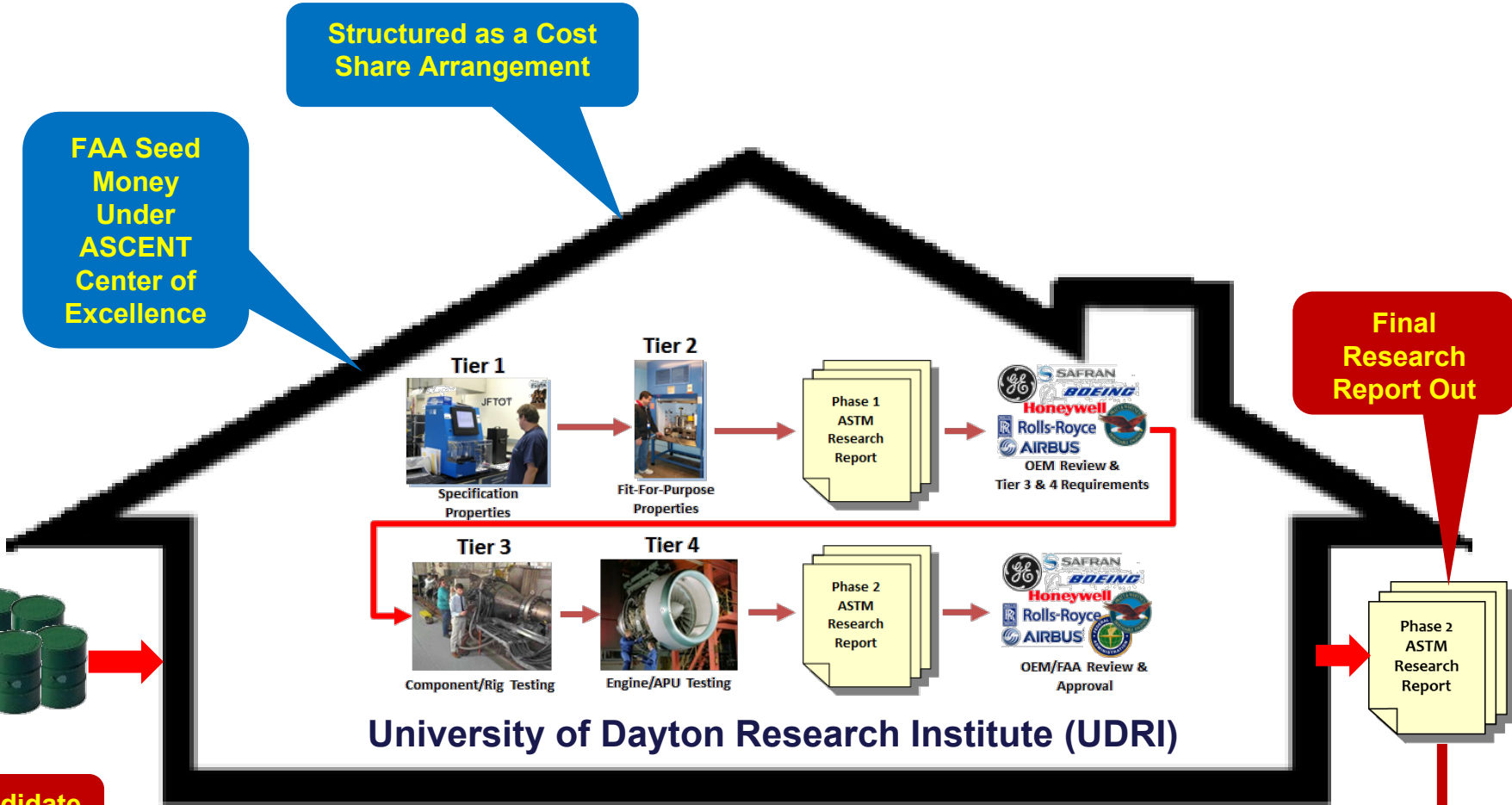
Process Improvement: D4054 Clearinghouse

Structured as a Cost Share Arrangement

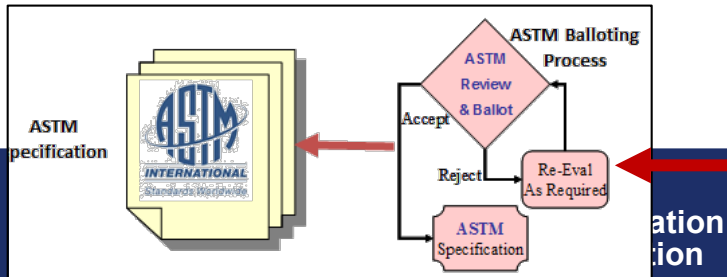
FAA Seed Money Under ASCENT Center of Excellence



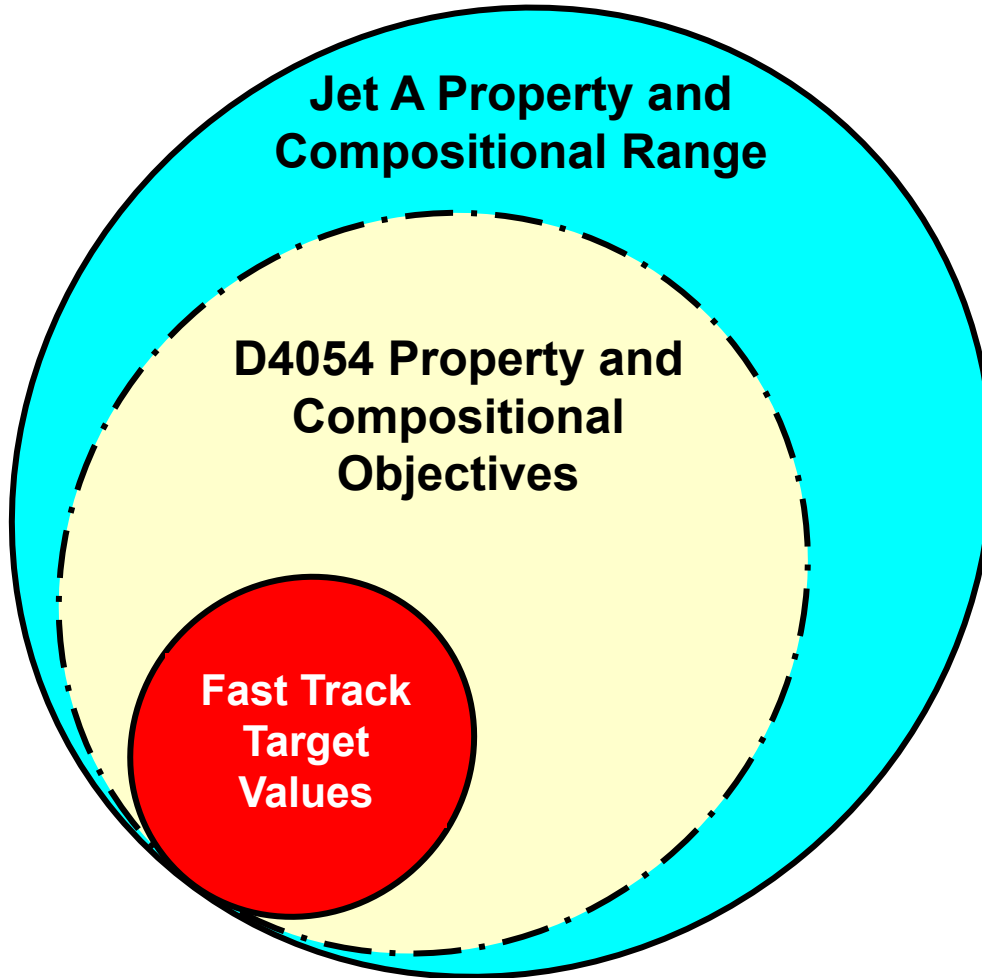
Candidate AJF In



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Process Improvement: D4054 Fast Track Annex



***Lite Testing Program
For AJF's with
Nominal Jet Fuel
Properties and
Compositions***

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

Process Improvement: Alternative Jet Fuel Pre-Screening

Pre-Screening Phase



Tier α

Property/Performance Predictions

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



Tier β

Critical Properties

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

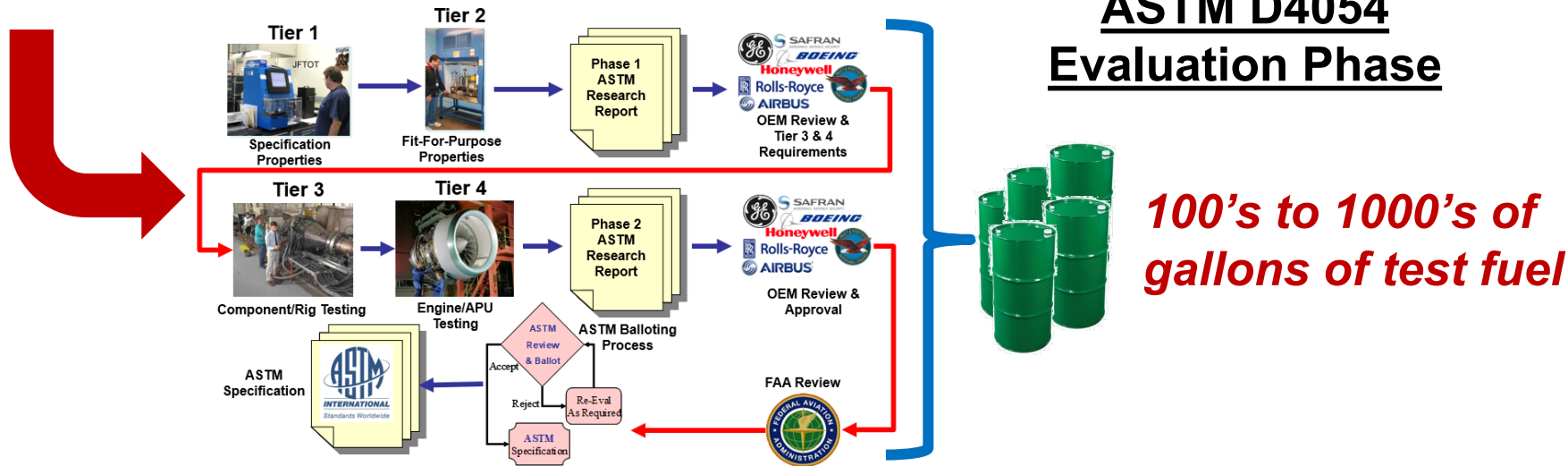


ml's of test fuel

Optimize/Refine Conversion Process/Composition

ASTM D4054 Evaluation Phase

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



Federal Aviation Administration

Thank You



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Questions?

