



Destination Green

ICAO Symposium on Aviation and Climate Change, "Destination Green", 14 – 16 May 2013

Commercial Issues/How Aviation Can Drive Alternative Fuels

The Commercial Aviation Alternative Fuels Initiative[®]
Coalition Approach

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CAAFI Is a Coalition of Coalitions: Bringing Interested Parties Together

Destination Green



15 Aircraft,
Engine, Subsystem
OEM's



19 Countries /
5 Continents



30 U.S.
Government
Offices

15 U.S. States /
Universities



20 Airlines,
Military,
Airport orgs.

54 fuel
producers

**4 Sponsors; 300 Global Stakeholders;
180 Organizations**



How CAAFI Works: Leveraging Efforts of Interested Parties



- **Four Teams Aimed at Addressing Key Questions to Get Sustainable Alternative Aviation Fuel to Commercially Viable Deployment**
 - Certification/Qualification (jet fuel specs & qualifications)
 - Research and Development (suitable fuels/feedstocks)
 - Environment (confirming methods, tools)
 - Business & Economics (finance/commercial terms)



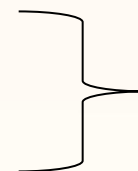
What We Need to Get to Commercially Viable Deployment



1) Safety/Suitable Fuels

–This is addressed through

- (a) The jet fuel specification; and
- (b) Application of procedures to assure fuel quality is maintained

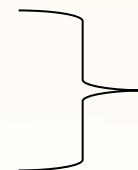


We now know how to do this

2) Environmental Benefit

–This is being addressed through

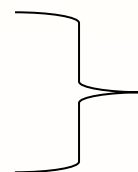
- (a) Lifecycle greenhouse gas emissions; and
- (b) Sustainability review



Need confirmed methods and regulatory and contract acceptance

3) Commercial Viability – in addition to Safety & Environmental Benefit ...

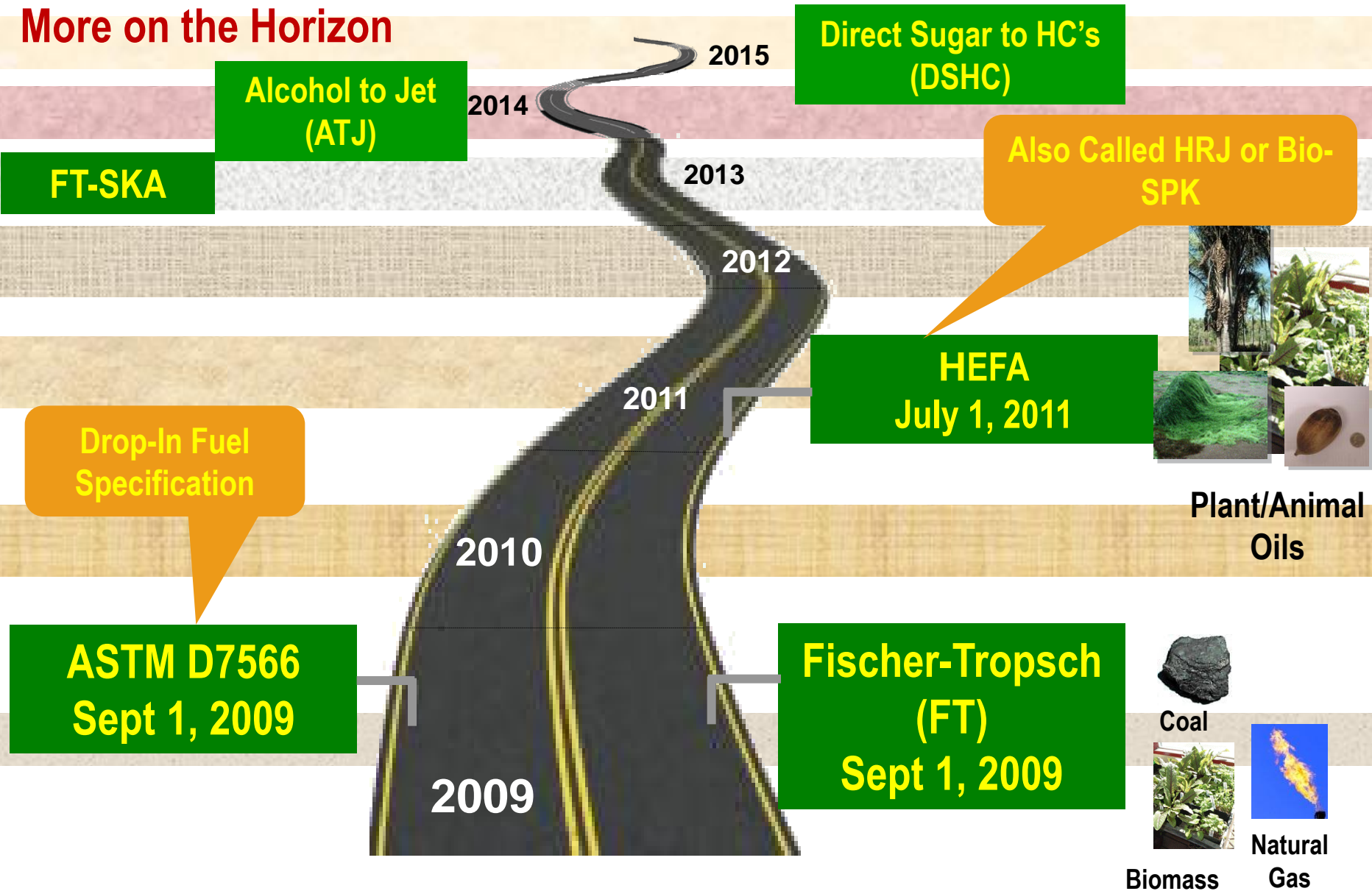
- Need cost competitiveness &
- Supply reliability



These pose the highest hurdles at this stage

Jet Fuel Specification – Two Pathways Approved

More on the Horizon



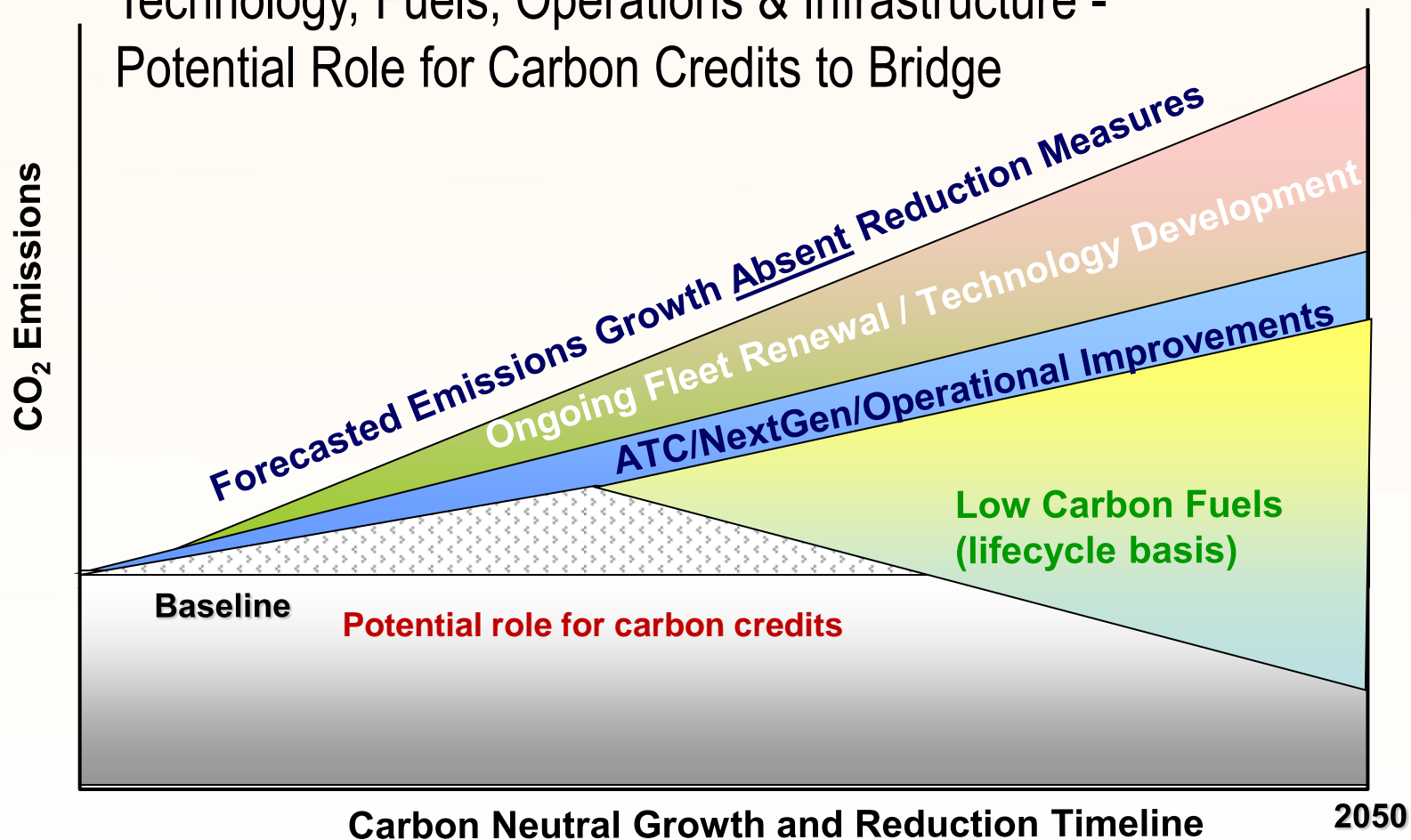
Slide/graphics source: Mark Rumizen, U.S. FAA/CAAFI Certification/Qualification Team Leader



Confirming Environmental Benefit: Critical for Meeting Our Targets



Technology, Fuels, Operations & Infrastructure -
Potential Role for Carbon Credits to Bridge





CAAFI Environment Team: Advancing Methods and Tools



- Greenhouse Gas Emissions Life Cycle Analysis (LCA)
 - Key guidance
 - Case studies
 - Included jet fuel pathways into ANL Greet Model
 - Currently working on a project to compare GHG LCA results from different models/tools
 - U.S. EPA-RFS2
 - EU Renewable Energy Directive – BioGrace
 - GREET

For now, accepted country-based tools are fine; but eventually will need mutual recognition for proper crediting of environmental benefit (alternative fuel for international flights)



CAAFI Environment Team: Methods & Tools (continued)



- Sustainability - (Draft) “Impact Matrix” and Guidance
 - Identifies areas of concern – key environmental indicators
 - Identifies relevant metrics for reflecting potential impact
 - Overview of existing regulatory and voluntary sustainability regimes
 - “Impact Matrix” sets out sustainability impact issues across the aviation alternative fuel supply chain
- Environmental Progression
 - Puts “environmental readiness” on a scale with feedstock readiness and fuel readiness



Meeting the Challenge of Cost Competitiveness & Supply Reliability



- What Is Needed
 - Consistent energy/biofuels policy from governments
 - Alternative fuels development, incentive and deployment programs must include aviation (not just ground-based fuels)
 - Public-private partnerships to scale up supply and prove commercial supply chains
 - Proper crediting of environmental benefit with fuel purchases (book & claim accounting)
 - Market signals from fuel purchasers



A Quick CAAFI Case Study



- Using Public-Private Coalitions to Marshal Resources
 - CAAFI - alliances with Brazil, Germany, EU, Australia, etc.
 - A4A “Strategic Alliance” with the U.S. Military
 - FAA – CLEEN program research & development
 - *Farm to Fly* with the U.S. Department of Agriculture and Boeing (and other partners) – just extended through 2018
 - Primary focus on linking feedstock supply chain with fuel production and end users; leverage agricultural programs
 - U.S. Department of Agriculture, Department of Energy and Navy initiative to stand up supply chains with industry
 - U.S. Renewable Fuel Standard (RFS) credit available for aviation fuels

- Airlines Sending Market Signals – pre-purchase agreements



If You Want to Feel Good About the Future: Look Up!



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