



**ICAO AVIATION AND SUSTAINABLE
ALTERNATIVE FUELS
WORKSHOP**

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Financing Alternative Fuels

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Outline



- Money – the limiting factor
- Project identification & development
- Importance of harmonization of regulations
- Evaluation tools
- Progress to date
- Conclusion



Money – the Limiting Factor



- 2010 global jet fuel consumption is ~ 70 billion US gallons (based on IATA est)
 - Consumption grows with time
- Current potential market for alternative aviation fuel is ~ 35 billion US gallons
- Capital required to satisfy demand as much as \$1,000 billion

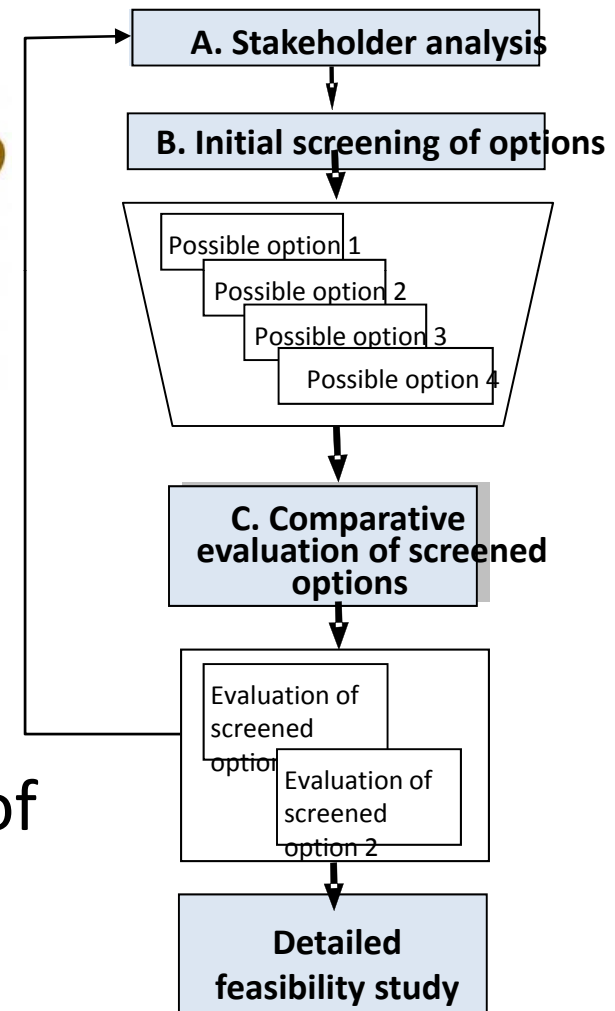




Project Identification & Development



- Methodical, time consuming process
 - Diverse stakeholders
 - Feedstock, technology
 - Economics
- Governments and development banks can help finance the initial steps
- Harmonization and consistency of regional rules are critical



Graphic from Metron/ACRP 02-18

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Importance of Harmonization



All stakeholders need confidence that ground rules are defined and stable

- Fuel specifications
- Definition of sustainability
- LCA analysis
- Regulatory framework





Current Status of Ground Rules

- Fuel specification
 - Global agreement on ASTM 7566 Specification
 - FT and HEFA approved
- Definition of sustainability
 - U.S. RINs governed by Renewable Fuel Standards (RFS)
 - EU covered by Renewable Energy Directive (RED)
 - Roundtable on Sustainable Biofuels (RSB) sets voluntary standards (IATA supports)
- LCA analysis
 - Not consistent across RFS, RED, RSB
- Consistency of regulatory framework
 - International rules governed by ICAO
 - Domestic rules set by each government



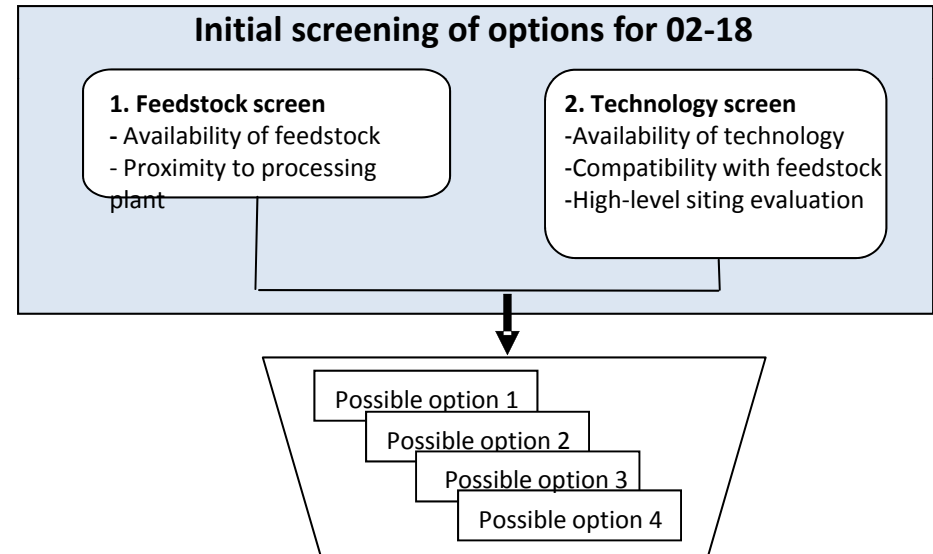
dreamstime.com



Evaluation Tools



- Fuel Readiness Level (CAAFI)
ICAO adopted tool kit
- Feed Stock Readiness Level (CAAFI)
- ACRP 02-18 (Metron/ACA) handbook for airports considering AAF
- ACRP 02-36 (Metron/ACA) handbook for airports considering distribution of all alternate fuels



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Progress to Date



- Fuel specifications set
- Analytical toolkits available
- Banking standards established
 - Feasibility issues known
- Financing solutions being developed
 - U.S. government (e.g., \$510 million initiative)
 - Regional development banks (e.g., IDB)
- FT and HEFA production facilities operational



Conclusion



- Financing environment improving
 - Over \$50 billion invested in FT facilities
 - Commercial scale HEFA technology proven
- Work remains on harmonization of sustainability and LCA criteria
- Analytical toolkits available
 - CAAFI (fuel, feedstock readiness levels)
 - Metron/ACA (project identification & analysis)
- Alternative aviation fuel is a reality



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How You Can Help



Become Involved – Contact Us

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Introduction to ACA



International Aviation Consulting Firm

- Founded 1989 as an aviation consulting and financial advisory firm specializing in the airline, airport and aerospace industries.
- Alternate energy practice <http://www.aca-assoc.com/alternative.php>.



A review of trends
in the airline and
commercial jet
aircraft industries.

