



**The
Airline Monitor**

Alternative Aviation Fuel Essential to Airlines' Future

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The Airline Monitor

International Aviation Consulting Firm

- Founded by Don Schenk in 1989 as an aviation consulting and financial advisory firm specializing in the airline, airport and aerospace industries.
- Recently added alternate energy practice.

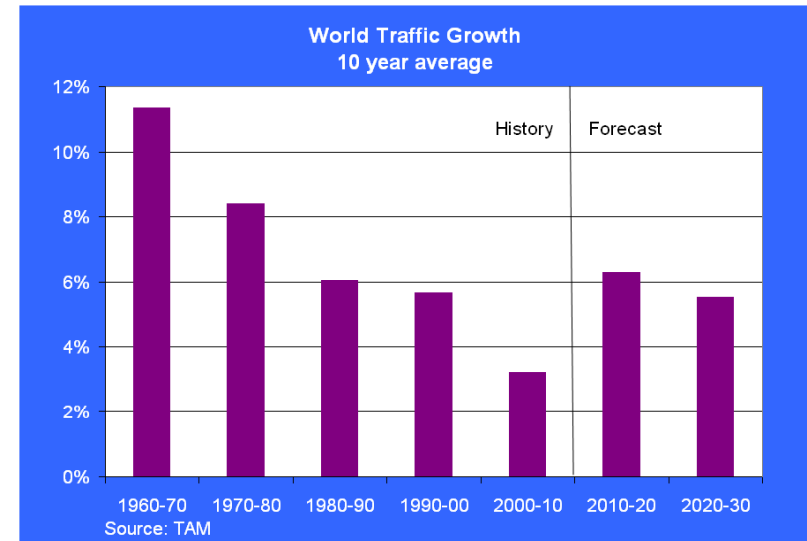
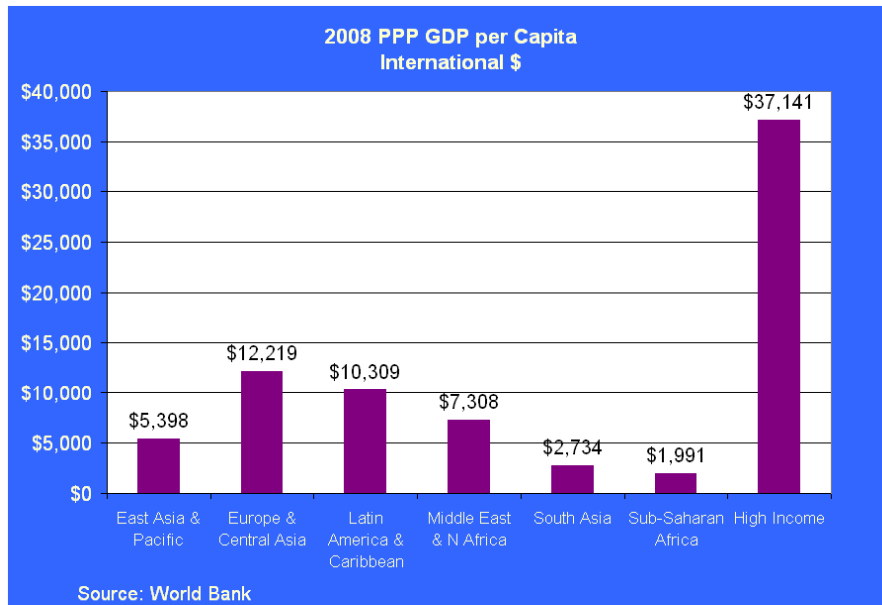
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A review of trends
in the airline and
commercial jet
aircraft industries.

- **The Airlines' Fuel Problem**
- **The Airlines' Environmental Problem**
- **CAAFI Approach to Meeting These Problems**
- **CAAFI's Achievements and Objectives**
- **Conclusion**

- Developed markets have more than 6X per capita income of medium income and 14X lower income areas

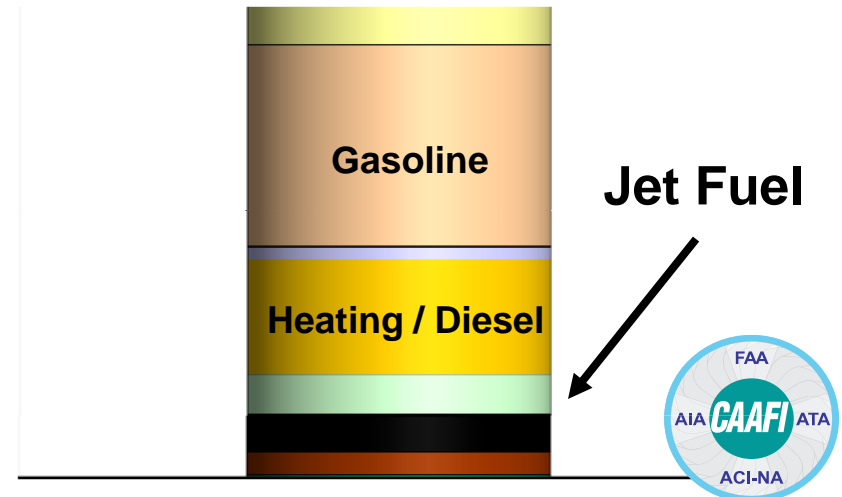
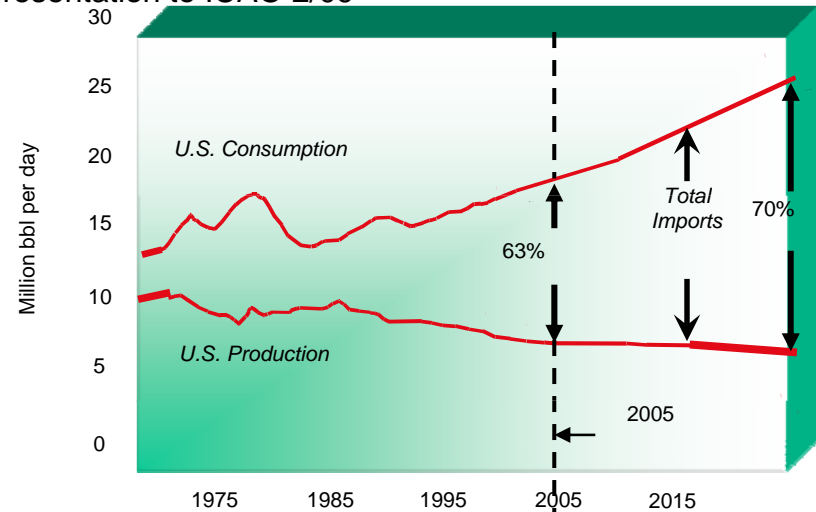


- 2010 and Beyond Driven by Developing Markets
- Global Fleet Size in Perspective
 - 1970 – 3,759
 - 1990 – 8,192
 - 2010 – 19,829
 - 2030 – 49,273

The Airline Monitor Graphics adapted from J. Heimlich (ATA) presentation to ICAO 2/09

- Aviation increasingly dependent on unstable sources of supply
- Airline fuel supply dependent on demand for gasoline
 - Refineries built to supply cars, trucks, and homes, not aircraft
 - Refineries closing in Europe and America
- Even as total jet fuel demand rises, gasoline demand falls
 - Gasoline demand peaked in US in 2007

Need to Reduce Dependence on Economics of Gasoline



IGNORANCE PRODUCES BAD POLICY

"We have to seize this moment, because it's not just an energy independence issue; it's also a national security issue, and it's a jobs issue."

.....Barack Obama

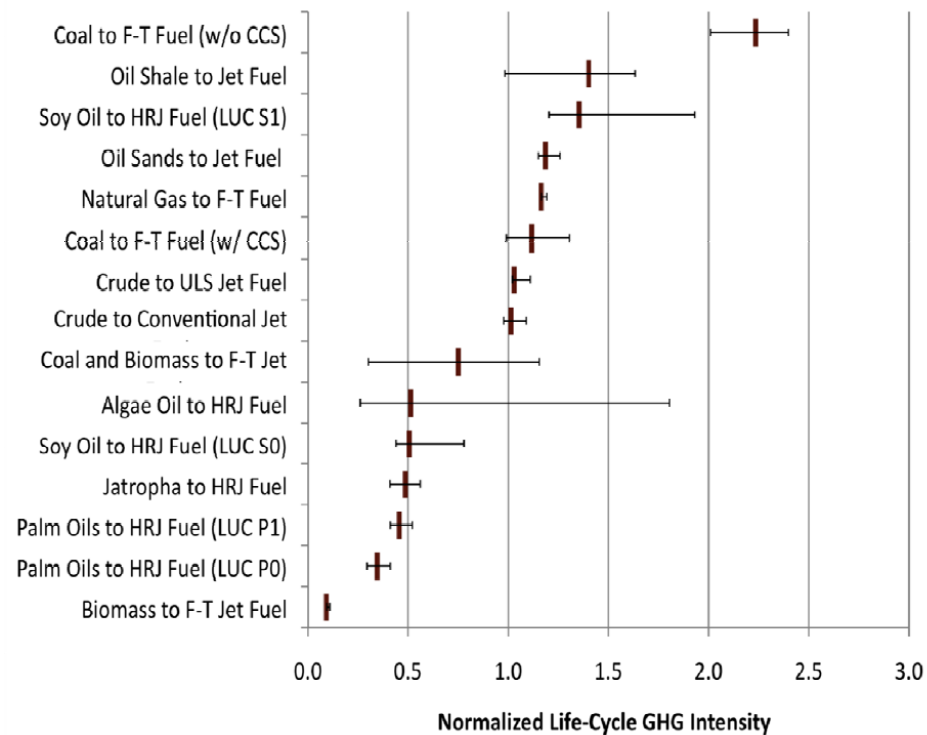
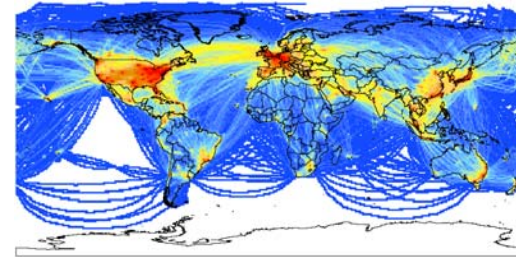
31 October 2008 response to CNN question on the need for fuel alternatives



- Airlines have NO fuel options
- Recognize length of equipment cycle in making policy
- Support conservation through ATC modernization
- Government support of transition essential

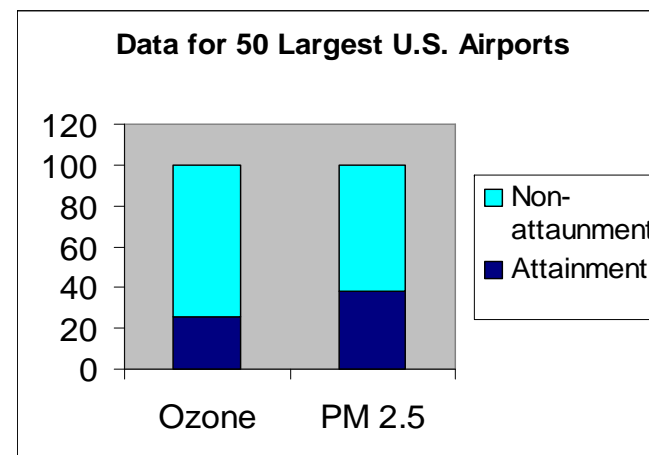
Global Climate

- ICAO goal of carbon neutral growth by 2020
- Alternate fuel life cycle greenhouse gas lower than petroleum-based

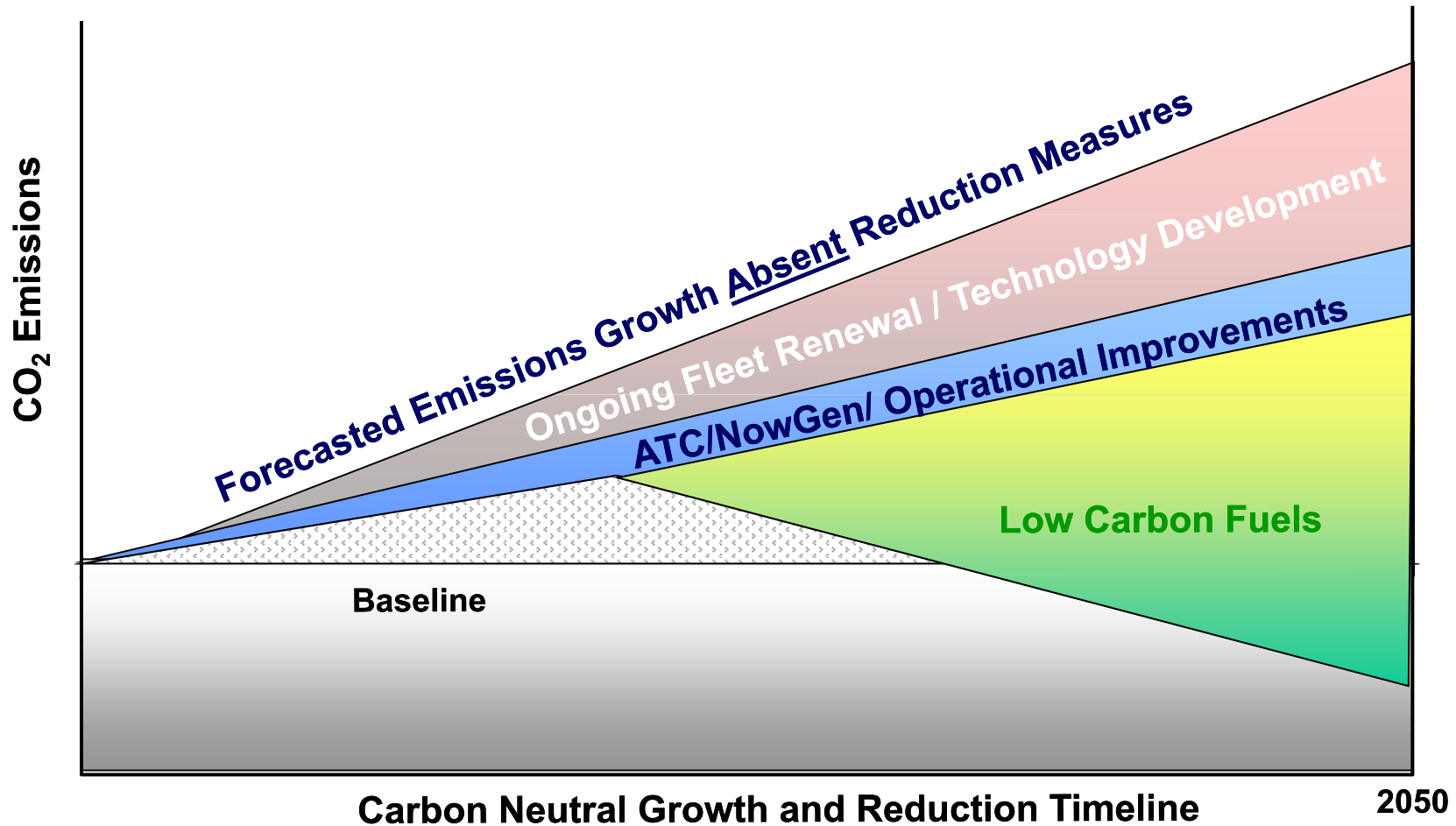


Improve Air Quality

- Majority of 50 largest U.S. airports in areas that don't meet EPA air quality measures for ozone and/or particulate matter
- Non-attainment limits critical capacity additions

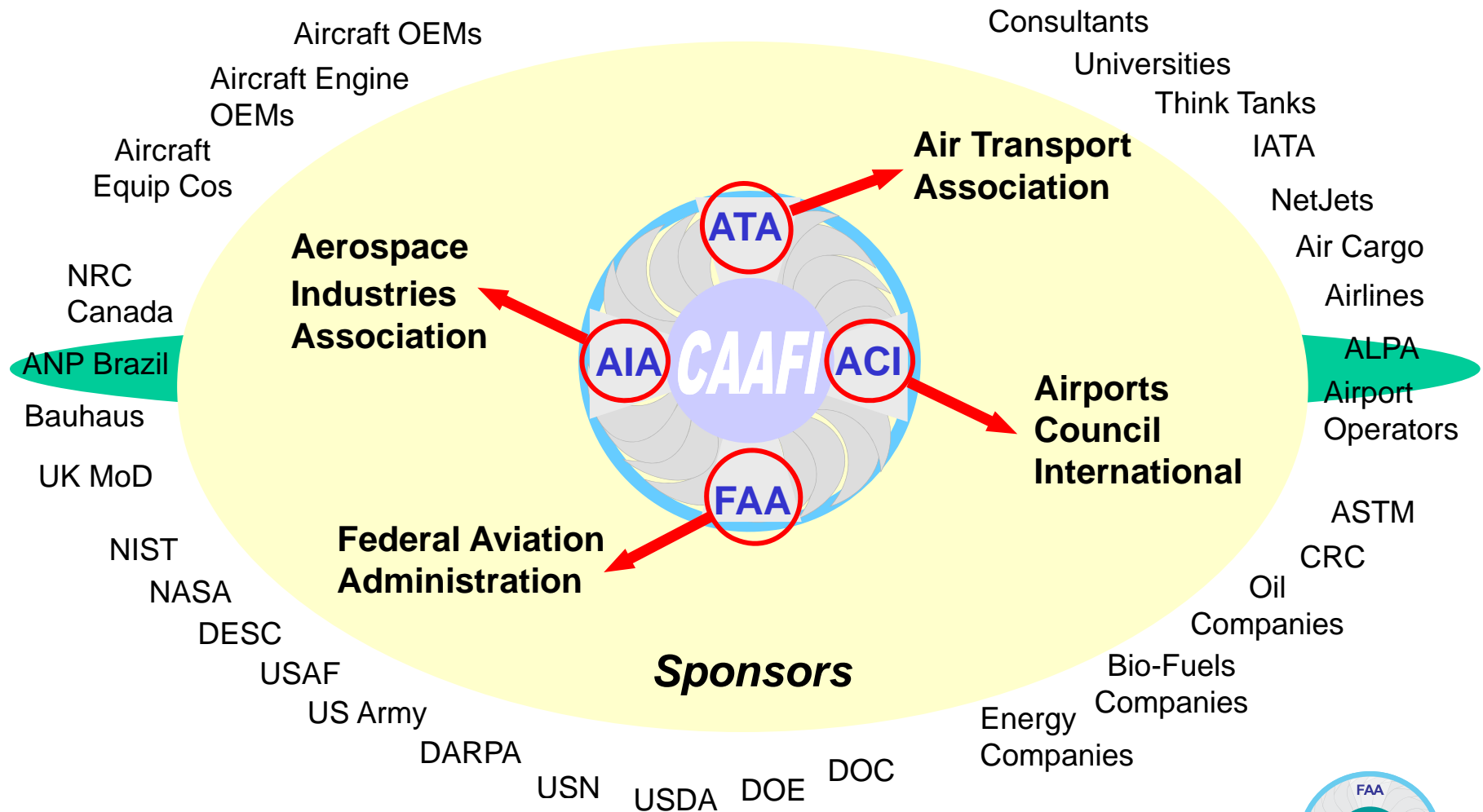


ICAO Goal of Carbon Neutral Growth by 2020



CAAFI - Strength Through Diversity

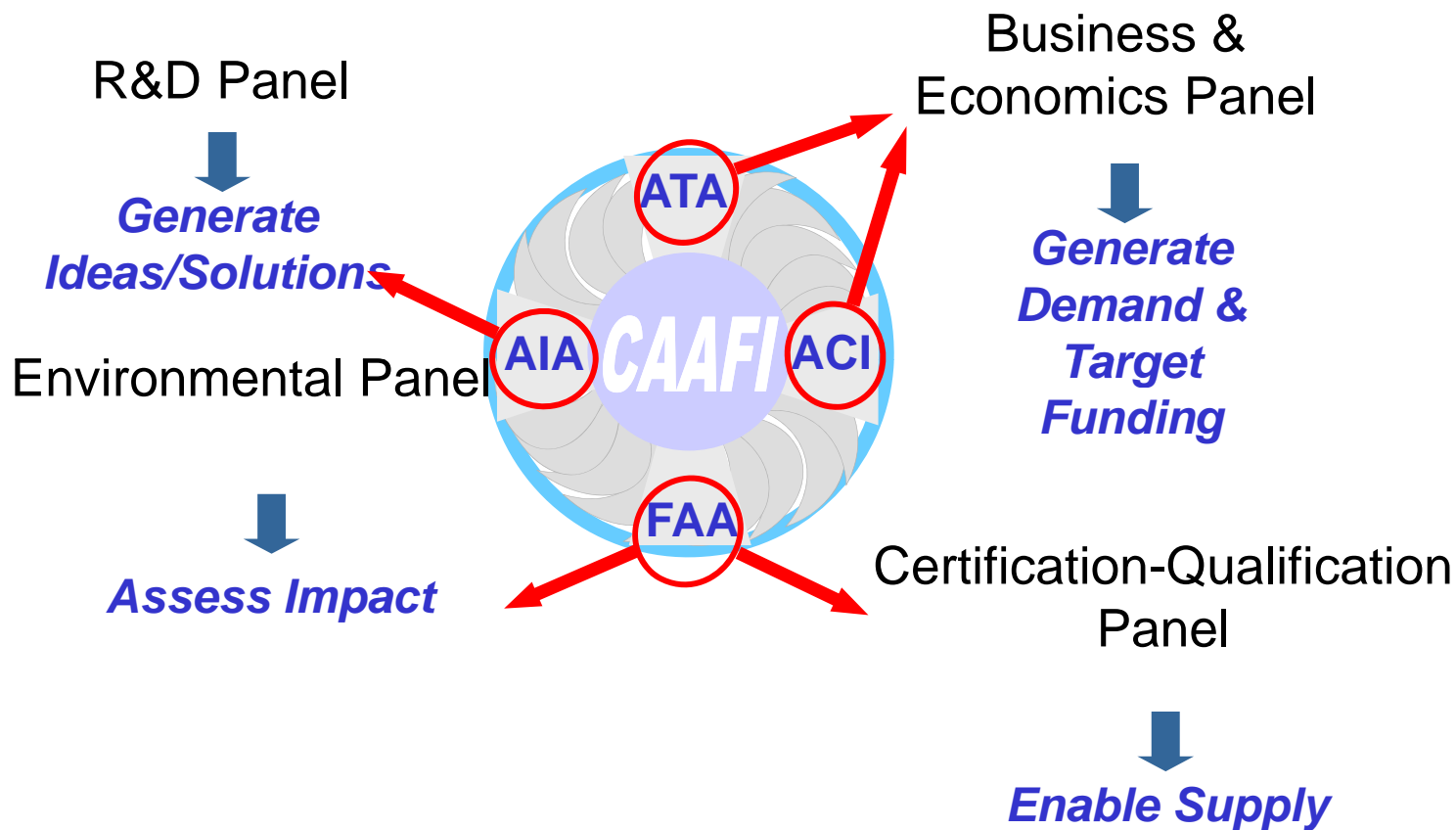
Stakeholders



...Over 300 Sponsors/ Stakeholders from all Continents



CAAFI Teams Leverage Sponsor Strengths



..... Process Owners Drive Outcomes



Team Leaders and Affiliation

| <u>TEAM</u> | <u>TEAM LEADERS</u> | <u>AFFILIATION</u> |
|---------------|---------------------|--------------------|
| R&D | Daggett & Bradley | Boeing |
| Certification | Rumizen | FAA |
| Environment | Maurice/Young | FAA/ATA |
| Business | Heimlich/Baer | ATA/US Airways |



Leveraging Demand to Support Innovation

The ATA Energy Council

| | |
|----------------------|--------------------|
| Air Canada | Evergreen Int'l |
| Air Jamaica | FedEx Express |
| AirTran Airways | Hawaiian Airlines |
| Alaska Airlines | JetBlue Airways |
| American Airlines | Mexicana |
| ASTAR Air Cargo | Southwest Airlines |
| Atlas Air | United Airlines |
| Continental Airlines | UPS Airlines |
| Delta Air Lines | US Airways |



ATA and CAAFI are working closely with the U.S. military to identify mutually attractive locations for deployment of alternative aviation fuels and other opportunities for collaboration.



CAAFI's 2009/10 Achievements

- CAAFI engaged as consultant to EU Aviation fuels initiative (04/09)
- Eight airline biofuel ground equipment agreements at LAX (08/09)
- USDA regional engagement initiated at USAF/CAAFI Biofuels Summit (09/09)
- DoD 600,000 gallon renewable biofuel purchase agreement (09/09)
- ICAO conference endorsed CAAFI, CAAFI “best practices” (11/09)
- 15 airlines from 4 countries announce MOUs with AltAir and Rentech to negotiate purchase of renewable & synthetic jet fuels (12/09)
- ATA/DESC announce strategic alliance for alternative aviation fuel (03/10)
- CAAFI receives the Joseph S. Murphy Industry Service Award from Air Transport World at the Singapore Air Show (02/10)



- Europe
 - Sustainable Way for Alternative Fuels and Energy for Aviation (SWAFEA)
 - Alfa-Bird EU
- Latin America
 - Help implementation of Embraer, Amyris, GE MOU for test flight
 - Assist Inter-American Development Bank develop alternative aviation fuel
- Africa
 - Collaborate with existing Fischer Tropsch centers of excellence
 - Integrate existing supplies of D7566 into aviation
- Asia
 - Develop relationship with Asian Development Bank

The Airline Monitor

- Identify financing requirements and sources for hydrotreated renewable jet (HRJ) supply chain in conjunction with USDA
- Work with financial community to develop a comprehensive financing program
 - Federal Financing Bank
 - Farm Credit Banks
 - Commercial Banks
- Collaborate with the Department of Defense and airlines to create “bankable” long term purchase agreements
- Collaborate with USDA and DOE to improve grant & financial guarantee programs
- Support effort to certify HRJ fuel in military aircraft
- Win ASTM approval of HRJ fuel by end 2010

Does Alternative Aviation Fuel Matter?

Failure to Manage the Future is Costly

- Airlines & Deregulation
- Media & the Internet
- “Detroit” & Consumer Needs
- Local Phone Companies & the Last Mile

- CAAFI has made tremendous progress.
 - Fischer-Tropsch (FT) Certified
 - Hydrotreated Renewable Jet (HRJ) Certification expected late 2010
- CAAFI welcomes collaboration and encourages outreach. Opportunities include:
 - Jim Lane Advanced Biofuels Leadership Conference in Washington, DC, Aviation Day April 29
 - IATA Fuel Forum in Los Angeles, May 4 to 6
 - DESC Fuel Forum in Washington, DC, May 12
- Airlines are working on long term purchase agreements with two developers and welcome additional participants. (Contact John Heimlich at fuel@airlines.org)
 - Altair - HRJ project
 - Rentech – FT project
- Become a part of the solution. Join one or more regional and or international collaborative teams.



BECOME INVOLVED – CONTACT US

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