

Sustainable Alternative Jet Fuel

Creating an enabling
environment for
production and use

ICAO Sustainable Aviation Fuels Workshop

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October 20, 2011



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Outline

- **Bridging the “Valley of Death”**
- **Barriers to alternative jet fuels in U.S.**
- **Types of policies**
- **Addressing U.S. barriers**
- **Summary**



Bridging New Technology's "Valley of Death"



Chart courtesy of W. Harrison, U.S. Air Force



Barriers to alternative jet fuels in the U.S.

- **Feedstock Availability**
- **Competitive cost for alternative fuel**
- **Approval of fuels for performance/safety**
- **Uncertainties in environmental impacts**
- **Investment in production infrastructure**



Types of Policies

- **Public R&D investments**
 - Funding and/or cost sharing of technology R&D
 - Testing and analysis
- **Public Deployment Policies**
 - Fiscal incentives (tax credits/rebates)
 - Public financing (loans, loan guarantees, grants)
 - Regulations (mandates, quotas)
 - Government procurement



Addressing U.S. barriers

- **Increase feedstock availability**
 - Feedstock options & cost (e.g. Agriculture grants)
- **Reduce fuel costs through R&D investment**
 - Improve conversion cost (e.g. Energy, DARPA grants)
- **Reduce risks of approval process**
 - R&D support for testing of fuels (e.g. FAA & Defense)
 - Transparent process for certification/qualification
- **Reduce uncertainty on environment**
 - Improve quantification of benefits
 - Work towards converging standards for crediting

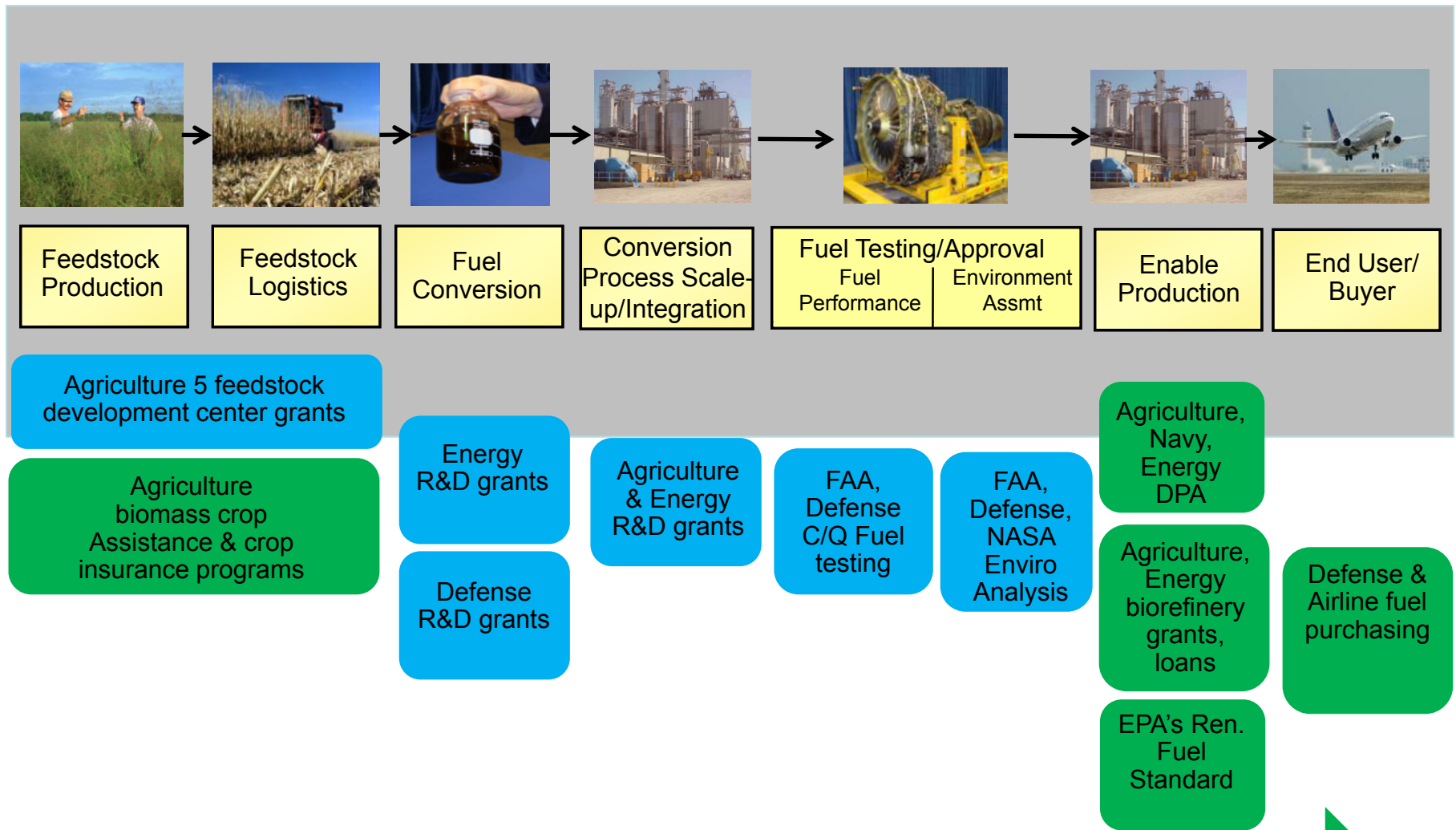


Addressing U.S. barriers

- **Increase investment in production**
 - Reduce cost & risk of production of feedstock
(e.g. Agriculture BCAP, crop insurance programs)
 - Reduce cost to finance first of a kind plants
(e.g. loan guarantees by Agriculture and Energy)
 - Direct investment in fuel production
(e.g. Navy, Energy, Agriculture Defense Production Act)
 - Provide fuel production incentives
(e.g. the U.S. Environmental Protection Agency's Renewable Fuel Standard)
 - Organize end users to create market
(e.g. Dept. of Defense and Air Transport Assoc.)



U.S. Agency complementary programs create a bridge



All links in the chain are being addressed

Summary

- **Government can address barriers & risks**
 - Fund research
 - Support deployment risk
 - Help private sector to bridge chasm from development to deployment
- **R&D and Deployment policies are more successful if coordinated**
 - Address each stage of the chain
 - Create an enabling environment
- **There is no one size fits all policy**

