



**ICAO AVIATION AND SUSTAINABLE
ALTERNATIVE FUELS
WORKSHOP**

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Financing Barriers and Solutions

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Outline



- Current and Future Production Capabilities
- Ability to Finance
- Where Facilities Could Best be Sited
- Time from Project Inception to Plant Start-up
- Public-Private Investment Opportunities
- Start-up Costs to Begin Production
- Fuel Certification
- Cost Per Gallon of Producing & Delivering Biofuel
- Importance of Long-term Offtake Contracts and Feedstock Contracts
- Federal Policies and Incentives





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Current and Future Production Capabilities



- **Barrier**: Lack of equity market to fund development of pilot and demonstration plants.
- **Solution**: Continued gov't agency support for new technologies to create a sustainable and exportable financial base and provide energy security in the marketplace.





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Ability to Finance



- **Barrier**: only a small # of technologies receive loan guarantees each year to build commercial facilities.
- **Solution**: Gov't agencies should evaluate and fund more sustainable technologies to provide for needs of tomorrow.



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Where Facilities Could Best be Sited



- **Barrier**: Finding land within a region where primary and supplementary feedstocks are readily available or easily supplied for long term use.
- **Solution**: Seek facilities in marginal lands and other grassland areas such as “military bases or airports,” for energy crop production and conversion.



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Time From Project Inception to Plant Startup



- **Barrier**: Average time for plant start-up is 3 to 5 years with extended gaps between final approval and funding commencement in financing programs.
- **Solution**: Streamline process timing to help companies move through the process in a reasonable and affordable time frame.



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Public-Private Investment Opportunities



- **Potential Barrier**: Standardization for all companies without considering regional feedstock differences, technology advancements, and regional fuel requirements.
- **Solution**: Evaluate each technology and determine economies of scale that provide maximum sustainable model and most consistent, long-term price for the fuels.



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Start-up Costs to Begin Production



- **Barrier**: Start-up costs are a formidable expense (\$5 to \$12 million)
 - site development, engineering and design fees, environmental fees, permitting costs
 - Feasibility study and business plan development, investment banking and attorney fees, and corporate overhead and travel expenses
- **Solution**: Find and utilize a wide variety of government enhanced funding programs and alternative funding sources.





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Fuel Certification



- **Barrier**: Time, expense, and risk in certifying alternative fuels hinders entry into the marketplace.
 - current timeline is two to three years
 - demonstration plant must be built to produce the amount of fuel required for the final certification
- **Solution**: Processing needs to be efficient throughout agencies and the alcohol to jet pathway needs to be approved.



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Costs Per Gallon of Producing and Delivering Biofuel



- **Barrier**: Developing long-term offtake agreement on a base price not derived from fossil fuel pricing
 - biojet fuel price to be in the range of \$2.50 - \$3.50 / gallon
 - petroleum jet fuel prices rose 45% this year
 - Could be hard to anticipate what the blended average fuel price could be over a five year period
- **Solution**: Directly relate price agreement to the final price paid for the feedstocks needed to produce the final products.



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Importance of Long-term Offtake and Feedstock Contracts



- **Barrier**: Developing long-term offtake agreements without a pre-established market and choosing feedstocks that are regionally sustainable.
- **Solution**: Secure long-term purchase contract and a long-term feedstock over the same term as the loan.
 - Important in the case of bond financing or other types of financing structures that could also be utilized.



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Federal Policies and Incentives



- **USDA 9003 Program Highlights:**

- 80% Loan Guarantee up to \$125 million
- Long-term financing up to 20 years
- Non-recourse financing
- Minimum of 20% equity contribution
- Lender of record must hold 7.5% of loan
- US and Foreign Ownership both qualify

- **Recommendations:**

- Fund program to at least \$1 billion to \$5 billion
- Expand the definition of “first commercial facility” and “first of a kind feedstock”
- Continue companies’ access to funding when it is time to construct and operate their several bio-jet fuel facilities.





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**Federal Policies and
Incentives, cont.**



- **Other programs:**
 - Grants for small scale pilot and demonstration facilities
 - Continuation of the R&D Tax Credit (depreciation in 3 years)
 - 1603 Tax Grant for advanced biofuels projects
 - Accelerated depreciation for advanced biofuels commercial projects
 - RINS for bio-jet fuels
 - A well-funded “Green” Bank that can assist in funding advanced biofuels projects
- **Recommendations:**
 - Legislate incentives to extend over a 10 year term at a minimum



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