

CASCADIA

SUSTAINABLE AVIATION ACCELERATOR



West Coast Bioeconomy Policy & Programs Forum

The Cascadia Sustainable Aviation Accelerator

Advanced Bioeconomy Leadership Conference
San Francisco, California
Chris Cassidy, USDA Rural Development

Bioeconomy Roadmap

SAF & Marine Fuels

Sustainable aviation fuel (SAF) and marine fuels

Biotechnology & Bioenergy

Biotechnology and bioenergy opportunities in a billion-dollar market

Climate

Reduce greenhouse gas emissions

Federal Departments

Agriculture, Energy, Commerce, Defense, Transportation (FAA), EPA, and State

Technological Innovation

Public-private partnerships (PPP) to advance new technology

Partnerships

Coordinated action across government, industry, research, and communities

USDA Areas of Focus in the Bioeconomy

USDA involvement across the supply chain, from feedstock to end user



Feedstock
Production



Feedstock
Logistics



Fuel
Conversion



Conversion Process
Scale-up / Integration



Fuel Testing / Approval
Performance · Environment



Enable
Production



End User /
Buyer

USDA level of involvement

✓	✓	✓	✓	Limited	Limited	Limited

USDA Bioeconomy Supply Chain



Feedstock
Development



Feedstock
Production



Feedstock
Logistics



Conversion

Feedstock Production & Development



Conversion Process
Scale-up / Integration



Product Testing / Approval
Performance · Environment

Integration: Scale-up & Commercial Production



Enable
Production



End User
Markets

Enable Production: End Markets

Cross-cutting: Data, Policy Analyses & Evaluation, Outreach

Cascadia Partnerships, regional model

USDA Agencies

- National Institute of Food & Agriculture
- Agricultural Research Service
- US Forest Service
- Rural Development

Research & Laboratories

- PNNL–WSU
- USDA–WSU Research Center

Tribal & First Nations

- Native American Initiative
- First Nations Initiative

International & Industrial

- Embassies of Canada and Denmark: technical and financial
- Industrial and Agricultural Symbiosis Initiative (CSI)

USDA Program Support

9003	Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance	SAF
9007	Rural Energy for America Program (REAP)	
9005	Bioenergy Program for Advanced Biofuels	
9002	BioPreferred	
9011	Biomass Crop Assistance Program (BCAP)	
B&I	Business and Industry Guaranteed Loan Program	
REDLG	Rural Economic Development Loan and Grant Program	
IRP	Intermediary Relending Program	
RBDG	Rural Business Development Grant	
VAPG	Value-Added Producer Grant Program	
PART	Power Affordable Reliable Technology	
ARC	Affordable Rural Cooperative Program	
TPEP	Timber Production Expansion Program	

Cascadia has diverse regional feedstocks



Forest

- Woody biomass and trees
- Forest residuals



Agriculture

- Grasses and oil seeds
- Purpose-grown crops
- Agricultural residues
- Agricultural processing waste



Waste Streams

- Manure and animal waste
- Wastewater
- Municipal solid waste
- Construction and demolition debris



Aquatic

- Algae

SAF Conversion Technologies

All 8 approved D7566 annex pathways and 3 co-processing pathways are eligible.

Conversion technology families

Biological	Biochemical	Thermochemical	Electrochemical	Hybrids

Product Offtakes

Aviation

- SAF
- Jet A-1
- Jet A
- JP-5
- JP-8

Marine

- Marine fuels
- F-76

Alcohols

- Ethanol
- Methanol
- Butanol

Gases

- Renewable natural gas
- Hydrogen
- Ammonia

Diesel & Heating

- Biodiesel
- Home heating oil
- Renewable Diesel

REAP Grants and Loans

Renewable Energy Systems and Energy Efficiency Improvements: specific technology categories

- Biomass: digesters
- Biomass: bioenergy
- Geothermal: electric
- Geothermal: direct
- Hydrogen
- Hydropower
- Hydroelectric
- Ocean, wave, tidal
- Agrivoltaics
- Solar
- Wind
- Energy efficiency improvements

Regional Risk Mitigation

Managing project risk from first pilot to commercial replication

Technical & Financial Risk

Construction

Scale

Bench → Pilot → Demonstration → IDU → First commercial → Commercial replications

Monitoring

Definitions, payment, substantial completion, mechanical completion, commissioning, start-up, steady state, guarantees, warranties, liquidated damages

Section 9003 and SAF

Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program

Allotrope **New Energy Blue** **Meta Morph** **Alder**

Hot Trends

Emerging opportunities across the bioeconomy

