Bioenergy Markets and Policies

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Topics

- Biofuels
- Biochemicals
- Markets and trends

Biofuels

- Policy is defining the market and global commodity flows are in the spotlight:
  - RFS and Set 2.0
  - 45Z and OB3 changes
  - Trade and tariff policy (China, Brazil)
  - Bumper corn and soybean harvests
  - At the state level:
    - Tax incentive programs
    - Low Carbon Fuel Standards (LCFS programs) have been market transformative

LCFS Status Update

- **Implementation Date:**
  - California (2011)
  - Oregon (2016)
  - Washington State (2023)
  - New Mexico (in program design)

- **Legislation Pending:**
  - New York
  - New Jersey
  - Massachusetts
  - Pennsyvlania
  - Illinois
  - Michigan
  - Hawaii

Biochemicals

- Limited policy intervention in the biochemicals markets
- Market driver is primarily voluntary led by sustainability goals or consumer demand
- USDA 9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program – many companies have evaluated it and are appreciative of the program design and flexibility
- DOE Loan Program Office – new Energy Dominance Financing Authority
- Trade and tariff policy is meaningful
- Manufacturing policy can matter – but lack of proactive incentives

Markets and Trends

- Mature Biofuels Markets and Technologies:
  - Ethanol
  - Biodiesel
  - Renewable diesel
  - RNG
- Developing Biofuels Markets:
  - SAF
  - Marine fuels (renewable/bio/low-carbon methanol, LNG, ammonia)
  - Liquid gases (renewable/bio/low-carbon propane, dimethyl ether)
- Developing Feedstocks
  - Waste streams
  - Woody biomass
- Developing Technologies
  - Fermentation
  - E-Fuels

Policy Takeaways

- Core Principles That Work
  - Technology neutrality
  - Feedstock neutrality

- Avoid Prescriptive Approaches
  - Set your performance goal
  - Leave everything else flexible