The Future of Biofuels: Policy Drivers

National Conference of State Legislatures

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Forces driving adoption of biofuels

- Energy security
- Climate change
- Rural development

Federal policies can be linked back to these drivers
Various Governmental Policies Supporting Biofuels Growth
BP Biofuels: out of many options, a focused strategy

Building a sustainable, scalable, low cost, and low carbon global biofuels business focusing on advantaged feedstocks and advantaged molecules

**Advanced technology** (lignocellulosics)

**Advantaged molecules** (Biobutanol, Sugar-to-Diesel)

**Sugarcane ethanol** (Brazil)

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**Sustainable Feedstocks**
- Sugar cane
- Grain
- Energy Crops

**Advanced Conversion**

**Advantaged Fuel Molecules**
- Ethanol
- Butanol
- Diesel

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Gasoline

Diesel
What is an energy grass?
What is an energy grass?

• Energy Grasses
  • Switchgrass (5-10 dt/acre)
  • Miscanthus (10-15 dt/acre)
  • Energycane/Napiergrass (15-25 dt/acre)

• Perennial crops
  • Plant once every 5-20 years
  • Large GHG benefit

• New Agriculture Opportunity
  • Well suited for non-food growing areas of the US
Federal Policy: Renewable Fuels Standard
Volume Mandates vs. Incentives

- Conventional
- Advanced
- Cellulosic
- Biodiesel

Mandates

Incentives

RFS1

RFS2

Today

Source: EPA
• 10% reduction in lifecycle carbon intensity of gasoline and diesel fuel by 2020

• Goal: Drive low carbon innovation in transportation sector

• Need clear market signal to drive innovation
Basic Policy Categories

- **Foundational** – long-term framework

1. Renewable Fuels Standard creates separate markets and separate pricing
   - Defines volumes
   - Encourages development of new technologies
   - Has “relief values” where there is greater uncertainty

2. Low Carbon Fuels Standard
   - California
   - Defines carbon reduction
   - Broad scope - not limited to biofuels
Basic Policy Categories

• **Transitory** – short-term framework
  1. Tax incentives
     - Investor, Producer, or User
     - Annual renewals
     - Subject to budget cuts
  2. Crop assistance (BCAP)
     - Subject to budget cuts
  3. Loan Guarantees
     - Incubational
Financing is our biggest industry gap

USDA – seed funds focused through agriculture
DOE – seed funds focused through technology
Venture Capital – seed funds for business/technology development
… but the industry needs more than seed funds!
It is not about more technology, it is about more financing.

- The industry needs the Commercial Banking sector to participate

- Cellulosic Ethanol
  - 16 billion gallons
  - $80-160 billion of capital to build plants
Commercial financing sector is not a pretty picture
Focus on reducing investment risk

- Policy stability (RFS and LCFS)
  - “AND” policies rather than “OR” policies
- Strategic investors with the ability to self fund can be first movers
  - Reduce technology, market, and regulatory risk for the industry
- Loan guarantee programs for small companies
- Enablers
  - Longer-term investment, production, user tax incentives
  - Enterprise zones
  - Permitting transparency and assurance
    - No ambiguity, no surprises, clear processes
  - Good infrastructure
    - Water, transport, power (including power sales)
In Summary

• There is a huge market opportunity for Biofuels
• Policy needs to reduce financing risk and create stable long-term market opportunities.
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