The Advanced Biofuels Policy Environment: Framing the Debate and Laying the Foundation for Industry Expansion

Andrew Schuyler
Northeast Biofuels Collaborative, aschuyler@nebiofuels.org

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Andrew Schuyler
Director
Northeast Biofuels Collaborative
617-275-8215
aschuyler@nebiofuels.org
“From a purely American point of view, we need a president and a congress with the guts not just to invade Iraq, but also to impose a gas tax and inspire conservation. That requires a real American energy policy with long-term incentives for renewable energy—wind, solar, biofuels—rather than the welfare-for-oil-companies-and-special-interests that masqueraded as the 2005 Energy Bill…Real patriots, real advocates of spreading democracy around the world, live green. Green is the new red, white, and blue.”

-Thomas Friedman
(Amended) Renewable Fuel Standard

<table>
<thead>
<tr>
<th>Year</th>
<th>Conventional</th>
<th>Advanced</th>
<th>(Cellulosic)</th>
<th>(Biomass-diesel)</th>
<th>(Undiff. Advanced)</th>
<th>Total RFS</th>
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<tr>
<td>2008</td>
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<td>.1</td>
<td>9.0</td>
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<td>12.95</td>
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<tr>
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<td>1</td>
<td>.8</td>
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<tr>
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<td>.5</td>
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<td>1.75</td>
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<td>1.75</td>
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<td>20.5</td>
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<td>3.0</td>
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<tr>
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<td>5.5</td>
<td>3.5</td>
<td>24</td>
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<td>2018</td>
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<td>4.0</td>
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<td>2019</td>
<td>15</td>
<td>8.5</td>
<td>4.5</td>
<td>28</td>
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<td>2020</td>
<td>15</td>
<td>10.5</td>
<td>4.5</td>
<td>30</td>
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<td>18</td>
<td>4.5</td>
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<td>2022</td>
<td>15</td>
<td>16</td>
<td>5.0</td>
<td>36</td>
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</tbody>
</table>

All conventional biofuels must achieve at least 20% full lifecycle GHG reductions over gasoline.
All advanced biofuels must achieve at least 50% full lifecycle GHG reductions over petroleum fuel.
All renewable fuels must comply with land use protections contained in “renewable biomass” definition.
Policymakers Need Facts and Reasons to Act

1. Landscape is advantageous for biofuels
2. Costs of doing nothing are large
3. Biofuels policy is not complicated
4. Don’t believe the press (hype)
5. Waiting is not an option
Current Landscape Presents

Opportunities for Massachusetts

- MA uses A LOT of petroleum
- Advanced biofuel cluster
- Active venture capital sector
- Commitment to higher education
- Feedstock availability
Costs of Doing Nothing

- Climate change impacts could trump all else
- Oil dependence trends extremely problematic
  - U.S. trade deficit: $710 Billion
  - Share attributable to foreign oil: $293 Billion
  - Loss of 7.9 million jobs
  - 80 cents of oil dollar leaves state/region
Total MA Energy Spending (2004 - Million $)

- Petroleum ($9,224,115)
- Coal ($208,000)
- Nuclear ($26,700)
- Electricity ($6,045,000)
- Natural Gas ($3,911,000)
- Biomass ($68,400)

Source: DOE
Costs of Doing Nothing (continued)

- Dire national security implications
- Oil’s impact on environment is getting worse
- Marginal gallon problem
- We’re vulnerable because we don’t produce/refine oil, and we’re not connected to national pipeline system
<table>
<thead>
<tr>
<th>Region</th>
<th>Aug 29 to Sept 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>East Coast</strong></td>
<td>22.9</td>
</tr>
<tr>
<td>Midwest</td>
<td>16.5</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>14.8</td>
</tr>
<tr>
<td>Mountain</td>
<td>15.0</td>
</tr>
<tr>
<td>West Coast</td>
<td>10.2</td>
</tr>
<tr>
<td>United States</td>
<td>18.0</td>
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</table>
Establishing Sensible Biofuels
Policy is not Complicated

• 40+ states have biofuel incentives/regulations
• Biofuel sector responds to policy commitments
• Biofuels quickly impact fuel diversification with minimal infrastructural change
• EISA07 expands RFS to 36bgy alternative fuels
Beat Back Negative Press
Beat Back Negative Press

• Big Oil threatened by alternative fuels—win at all costs
• Policymakers can’t investigate every allegation made against biofuels
• Critical that experts/industry provide balance
  • Anti-biofuels resolution in MA House withdrawn
• “You’re Entitled to Your Own Opinion, but You’re Not Entitled to Your Own Facts”
• www.nebiofuels.org / www.foodpricetruth.org
Percent Increase in Earnings Over Last Year

- Dean Foods: 71.63%
- Del Monte: 28%
- Ralston Foods: 13%
- Land O' Lakes: 23%
- ConAgra: 4.88%
- Sara Lee: 4%
- Kellogg: 61.2%
- Cargill: 86%
- Kraft: 27%
- Procter & Gamble: 33%
- General Mills: 13%
Waiting is Not an Option

- Climate change increasingly urgent
- Congress may act on carbon—leadership needed
- It’s the economy (stupid)
- Several other states moving forward
- Biofuels offer immediate term solutions
  - Extend fuel supplies
  - Bring down gas prices
  - Today’s biofuels de-risk, support tomorrow’s biofuels
The Successful Policy Environment

• States committing to biofuel development achieve fuel diversification, economic development, and pollution reduction goals

• Biomass is not limited by region

• Focus on pragmatic and visionary solutions to create alternative fuel markets
State Policy Landscape Today

- **Vehicles**
  - No Flex Fuel Vehicle requirements
  - Consumer side incentives

- **Fuels**
  - Several states administer renewable fuel standards
  - MA will require biodiesel, exempt cellulosic ethanol from state gas tax
  - CA Low Carbon Fuel Standard

- **Market Readiness**
  - EISA07 addresses franchise exclusivity contracts

- **Incentives**
  - Northeast should tailor to advanced fuels
<table>
<thead>
<tr>
<th>Incentive Type</th>
<th>U.S. States w/ Incentive</th>
<th>Eastern States w/ Incentive</th>
<th>List of States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excise Tax Exemption</td>
<td>20</td>
<td>7</td>
<td>AK, AR, CA, CT, HI, ID, IL, IA, KS, ME, MN, MT, NY, NC, ND, PA, RI, SD, TX, VA</td>
</tr>
<tr>
<td>Producer Credits</td>
<td>30</td>
<td>7</td>
<td>CA, CT, DE, FL, HI, IL, IN, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NM, NY, NC, OK, PA, SC, SD, TX, VA, WA, WI, WY</td>
</tr>
<tr>
<td>Distributor/ Wholesale Credits</td>
<td>9</td>
<td>0</td>
<td>AR, HI, ID, IN, IA, KY, MT, ND, WA</td>
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<tr>
<td>Retail Outlet Incentives</td>
<td>12</td>
<td>3</td>
<td>IL, IN, IA, KY, MN, NY, ND, OH, OK, RI, SC, WA</td>
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<tr>
<td>Infrastructure Payments</td>
<td>8</td>
<td>4</td>
<td>AR, CO, FL, ME, NJ, NY, NC, TE</td>
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<tr>
<td>Vehicle Rebates or Incentives</td>
<td>5</td>
<td>3</td>
<td>IL, KS, ME, RI, WV</td>
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<tr>
<td>Fuel Rebates</td>
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<td>IL, MO, NJ, NY</td>
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</tbody>
</table>

Appendix A provides a state-by-state analysis of current state economic incentives for biofuels.
Require E10 in all Gasoline Blends

- Seamless transition—gasoline in MA contains E10
- Sets the table for emergence of cellulosic ethanol
- Provides market and investment certainty
- Assists with infrastructure and other challenges
- No cost to state, blenders, consumers
Provide Production and Other Tax Credits

- Attracts in-state production
- **Average U.S. biofuel producer payment:** 15-20 cents per gallon
- Low risk strategy, proven results
- Central driver for industry-wide siting decisions
- MA Biofuel Incentive Commission
Require Flex Fuel Vehicles

• Chicken-and-the-egg—significant increase in FFVs needed for E85 infrastructure investment
• Market fungibility allows fuels to compete on cost
• Financial implications low ($35-$100 per vehicle)
• FFV technology available today—81% of vehicles sold in Brazil are FFV
• Does not interfere with emerging technologies
• No cost to state
Implement Alternative Fuel Corridor Program

- Ensures availability of renewable fuels in highly traveled corridors
- Reaches large numbers of motorists
- State could require high volume fuel retailers to offer one alternative fuel pump
- State could provide financial assistance to retailers interested in selling alternative fuels
Support In-State R&D

• Take a page from biotech playbook—$1 Billion Life Sciences Initiative signed by Governor in June
• Leverages significant money for additional R&D
• Increases tax revenue, with high paying jobs
• UMASS/TIMBR
• Establishes MA as the leader in Clean Fuels space
Moving Forward

- Public policy is critical—cost is only one challenge
- Fuel markets are skewed, think inside and outside the box with pragmatic and visionary policies
- Every gallon of biofuel connected to MA has tangible benefits
- MA/Northeast can lead cellulosic ethanol efforts