The Energy Independence and Security Act – RFS 2

Global Bioenergy Partnership Task Force Meeting
March 6, 2008

Paul Argyropoulos
US EPA
Multiple Inputs -- Multiple Parties -- Multiple Perspectives -- Varying Interests

Production Technologies
- Infrastructure
- Economics

Sustainable Feedstocks
- Metrics: Lifecycle, Energy, Hybrid
- Vehicles/Engines
- Fleet Efficiency

Energy Security, Diversity and Sustainability

Public Policy

Federal / State Incentives

Environmental Protection: Multi-Media Issues

Fuel Types and Usage Scenarios

- Ethanol Equivalent Volumes Required
  - 2006: 4.0 billion gallons/yr
  - 2012: 7.5
  - 2013+: Constant %, 0.25 Bgal cellulosic std

- “Equivalence Value” for various renewables based on volumetric energy content in comparison to ethanol:
  - Corn-ethanol: 1.0
  - Biodiesel (alkyl esters): 1.5
  - Renewable diesel: 1.7
  - Biobutanol: 1.3
  - Cellulosic biomass ethanol: 2.5 (Mandated by Act thru 2012)
Other Factors and Driving Forces

- January 23, 2007 - President calls for a commitment to reduce petroleum-based gasoline consumption by 15% by 2017 through renewable and alternative fuels
  - 15% reduction in 2017 translates into a target of ~35B gallons of renewable and alternative fuel use in transportation system.
  - 5% through vehicle efficiency improvements; equivalent of ~4% per year

- April 2, 2007 - Supreme Court rules that EPA must take action under Clean Air Act regarding greenhouse gas emissions from motor vehicles
  - CO2 is a pollutant
  - EPA must use different criteria to base decision on whether or not to regulate (Endangerment finding)

- May 14, 2007 - President signs Executive Order requiring coordination among federal agencies tasked with development of any regulations affecting greenhouse gas emissions from motor vehicles
New RFS – Process and Timeline

- **Another rule required on an even shorter schedule than under EPAct 2005**
  - Final RFS 2 Rule required by December 19, 2008
  - Required to be effective January 1, 2009
    - Currently evaluating multiple development and implementation options

- **EISA also increases volume under RFS1 for 2008**
  - Volume changed from 5.4 to 9.0 bill gal
  - Implemented administratively thru new Federal Register Notice
  - No rule changes for 2008 – Use RFS 1

- **RFS 2 can build off of the foundation of RFS1**
  - RIN system may remain virtually intact
  - Intent of legislative drafters

- **Currently working through what EISA will really mean**
  - Several new challenging provisions
  - High volumes make every key issue important

- **Picking up where we left off from RFS1 with our stakeholders**
  - Engage early and often throughout the process
Primary EISA Renewable Fuel Standard Provisions

- Modifies Current RFS program
  - Volumes increase to 36 bgy by 2022
  - Establishes new renewable fuel categories and eligibility requirements
  - Provides new waivers and paper credit provisions
  - Includes new obligated parties

- New studies and reports
New Renewable Fuel Definitions

- Significantly changed from RFS1
- Creates new categories
- Eliminates some old categories
  - Waste-derived ethanol
  - "90%" cellulosic ethanol
- Definitions now include new elements
  - Lifecycle GHG reduction thresholds
  - Existing cropland criterion
## Four Categories of Fuels

<table>
<thead>
<tr>
<th>Type of Fuel</th>
<th>BGY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Renewable Fuels by 2022</strong></td>
<td>36 BGY</td>
</tr>
<tr>
<td>Corn Ethanol</td>
<td>15 BGY cap</td>
</tr>
<tr>
<td><strong>Advanced Biofuels</strong> – Includes imported biofuels and biodiesel. Includes 1 billion gpy biodiesel starting in 2009 All must achieve ≥50% reduction of GHG emissions from baseline*</td>
<td>21</td>
</tr>
<tr>
<td><strong>Cellulosic Fuels</strong> – Includes cellulosic ethanol, biobutanol, green diesel, green gasoline All must achieve ≥60% reduction of GHG emissions from baseline*</td>
<td>16</td>
</tr>
</tbody>
</table>

*Baseline = average lifecycle GHG emissions as determined by EPA Administrator for gasoline or diesel (whichever is being replaced by the renewable fuel) sold or distributed as transportation fuel in 2005*
New Obligations and Outlets

- Standard extended to:
  - Diesel fuel in addition to gasoline
  - Nonroad fuel in addition to highway

- Obligated parties now include refiners, importers, blenders of these fuels (gasoline and diesel)

- Jet fuel and heating oil aren’t covered, but renewable sold into these markets can generate RINs (credits)
New Lifecycle GHG Criteria

- Renewable fuels must now meet a 20% lifecycle GHG threshold relative to the gasoline or diesel fuel they displace
  - EPA must determine lifecycle performance the various fuels
  - Including emissions resulting from international land-use changes

- Plants that commenced construction prior to EISA are grandfathered
  - Though no clear guidance on what this means

- Anticipate extensive interaction with stakeholders
Four Renewable Fuel Categories with LC Standards

- Biomass-Based Diesel
  - E.g., Biodiesel (FAME), “renewable diesel” if fats and oils not co-processed with petroleum
  - Must meet a 50% Lifecycle GHG threshold
  - 20-50% still counts as renewable fuel

- Cellulosic Biofuel
  - Renewable fuel produced from cellulose, hemicellulose, or lignen
  - E.g., Cellulosic ethanol, BTL diesel
  - Must meet a 60% Lifecycle GHG threshold

- Advanced Biofuel
  - Essentially anything but corn starch ethanol
  - Includes Cellulosic Ethanol and Biomass-based diesel
  - But must meet a 50% Lifecycle GHG threshold

- Provisions for EPA to adjust the lifecycle GHG thresholds by as much as 10
What Ifs: EISA Waiver Authorities

- **General:** Anyone subject to the requirements can now petition for a waiver or relaxation of any of the four standards
  - Severe harm to the economy; Inadequate supply
  - EPA must approve or disapprove within 90 days but requires opportunity for notice and comment
  - Limited to one year, but can be renewed

- **Biomass Based Diesel:** EPA can lower the standard in the Act
  - If significant supply or other market circumstances lead to high prices
  - Up to 15% or 30% if renewed
  - Can reduce advanced biofuel and total renewable fuel standards accordingly

- **Cellulosic Biofuel Standard:** Irrespective of the volumes required in the Act
  - The Administrator must set the cellulosic standard each November for the following year “Based on" October EIA projections
  - If the cellulosic standard is set less than the volume required in the Act EPA must make EPA-RINs available for sale at the greater of
    - 25 cent/gallon
    - $3.00 per gallon less the wholesale price of gasoline (at today’s prices this equates to ~70 c/gal)
  - EPA can reduce the standards for advanced biofuel and total renewable fuel accordingly
New “Existing Cropland” Criteria

- Renewable fuels must now be produced from renewable biomass harvested from land “cleared or cultivated” prior to EISA

- Development of this provision will require extensive stakeholder interaction
  - Renewable fuel producers usually do not know the source of their feedstocks – enforcement?
  - How far back could it have been cropland – pre-colonial times?
  - How applied/enforced internationally?
Analyses for Rulemaking – Expect this and Much More

- Co-pollutant Inventory, Air Quality and Benefits
- Water and Soil Impacts
- Macroeconomic Impacts
- Energy Security
- Agricultural Sector Impacts
- GHG Lifecycle Modeling, Inventory, and Benefits
Next Steps

- RFS1 remains in place

- FR Notice for 2008-Completed in February
  - Volume changed from 5.4 to 9.0 bill gal

- Rulemaking process Underway
  - Stakeholder outreach
  - Analysis Plan
Questions

Thank you

Contact Info: Paul Argyropoulos
Senior Policy Advisor
Office of Transportation and Air Quality
argyropoulos.paul@epa.gov
202-564-1123