Agenda

- Introduction
- Working Group Objectives
- Staff Presentation
- Group Discussion
- Future Meetings
Objectives

- Develop a carbon intensity accounting methodology
- Establish a tracking and reporting system
- Certification/auditing process
- Compliance and penalties
Similar Initiatives in US and Europe

- U.S. EPA Renewable Fuel Standard (RFS)
- UK Renewable Transportation Fuel Obligation (RTFO)
Compliance and Enforcement Requirements in US EPA Renewable Fuel Standard (RFS)

- Apply to renewable fuel (produced from plant/animal products or wastes)
- Generate renewable identification number (RIN) and report to EPA
- Attest engagement to verify the accuracy of RIN reports
- Product transfer documents (PTDs) to ensure traceable transactions of renewable fuels
- Liabilities and Penalties
Compliance and Enforcement
Requirements in UK Renewable
Transportation Fuel Obligation (RTFO)

- Apply to biofuel
- Renewable transportation fuel certificates (RTFC)
- Carbon accounting methodology/tool
- Evidence of land use
- Biofuel sustainability reporting
- Independent verification
Compliance and Enforcement Recommendations in UC LCFS Reports

- Apply to all transportation fuels (liquid, gaseous fuels, and electricity, etc.), including bio and renewable fuels.
- Lifecycle based default and opt in system for the carbon intensity of fuels
- Third party certification/auditing
- Allow compliance by paying a fee
- High penalties for willfully misreporting data
## Comparison

<table>
<thead>
<tr>
<th></th>
<th>EPA RFS</th>
<th>UK RTFO</th>
<th>UC LCFS Recomm’d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Renewable fuels</td>
<td>Bio fuels</td>
<td>All transportation fuels</td>
</tr>
<tr>
<td>Major component</td>
<td>RIN</td>
<td>RTFC</td>
<td>GHG intensity</td>
</tr>
<tr>
<td>Carbon accounting</td>
<td>N/A</td>
<td>A combination of verified process data and default values</td>
<td>Default &amp; opt in system</td>
</tr>
<tr>
<td>Certification</td>
<td>Attest engagement</td>
<td>Independent verification</td>
<td>Third party auditing</td>
</tr>
<tr>
<td>Tracking</td>
<td>PTD</td>
<td>Chain of custody</td>
<td>Chain of custody</td>
</tr>
<tr>
<td>Compliance</td>
<td>Civil penalties</td>
<td>Buy out price</td>
<td>Pay fee/penalties</td>
</tr>
</tbody>
</table>
Potential Carbon Intensity Accounting Methodology

- Based on WTW lifecycle analysis
- Easy to use
- Cover a wide range of fuel pathways
- A default and opt in system
- Allow for trading and banking mechanism
Potential Compliance Report

- Fuel type
- Fuel feedstock
- Feedstock origin
- Volume of fuel
- Carbon intensity (gCO$_2$e/MJ)
- Impact of land use change
- Accuracy level
Tracking and Reporting System Considerations

- What to report?
- When to report? (monthly?)
- Create appropriate chain of custody
- Recordkeeping
Certification/Auditing Process

- Periodical certification
- Random auditing
- Inspection?
- Protocols to verify the accuracy of claimed credits
  - Carbon intensity
  - Evidence of land use
  - Chain of Custody
Open Discussion
Future Meetings

- Frequency of meetings
- Dates/Times
- Tentative Agenda
For More Information

Contact us:

Jing Yuan, Ph.D.
(916)322-8875; jyuan@arb.ca.gov
Wei Li, Ph.D.
(916)323-2790; wli@arb.ca.gov

Visit our website at:
http://www.arb.ca.gov/fuels/lcfs/lcfs.htm