In California, development of alternative fuels (including biofuels) is driven by

- The Global Warming Solutions Act of 2006 (AB 32) and
- The federal Renewable Fuel Standard.

AB 32 consists of a suite of measures designed to reduce GHG emissions to 1990 levels by 2020.

- The Low Carbon Fuel Standard (LCFS) is a key AB 32 strategy targeting the transportation sector.

- Transportation is
  - Responsible for almost 40% of total GHG emissions
  - Almost completely driven by petroleum
  - Resistant to cap and trade (another AB 32 program)
The Low Carbon Fuel Standard

**LCFS goals:**

- Reduce the carbon intensity of transportation fuels, per mega joule of fuel energy, by at least 10% by 2020
- Diversify the California fuel pool

**LCFS Approach**

- Market based
- Fuel neutral
- Performance based
- Built around life cycle analysis
Fuels above standard generate deficits

Fuels below standard generate credits
## Effects on the California Fuels Market

### Total transportation energy use reported in California’s LCFS program (million gge)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARBOB (gasoline)</td>
<td>12,948</td>
<td>13,089</td>
<td>12,788</td>
<td>13,064</td>
</tr>
<tr>
<td>ULSD (ultra-low sulfur diesel)</td>
<td>3,905</td>
<td>4,026</td>
<td>3,802</td>
<td>3,823</td>
</tr>
<tr>
<td>Ethanol</td>
<td>1,015</td>
<td>1,006</td>
<td>1,009</td>
<td>1,011</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>13.95</td>
<td>22.45</td>
<td>88.20</td>
<td>85.47</td>
</tr>
<tr>
<td>Renewable diesel</td>
<td>1.97</td>
<td>9.56</td>
<td>106.50</td>
<td>115.44</td>
</tr>
<tr>
<td>CNG/LNG</td>
<td>82.41</td>
<td>94.84</td>
<td>100.98</td>
<td>91.79</td>
</tr>
<tr>
<td>Biogas</td>
<td>1.77</td>
<td>1.79</td>
<td>11.51</td>
<td>23.79</td>
</tr>
<tr>
<td>Electricity</td>
<td>0.36</td>
<td>1.27</td>
<td>3.49</td>
<td>3.95*</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17,968</td>
<td>18,250</td>
<td>17,910</td>
<td>18,219*</td>
</tr>
<tr>
<td><strong>Alt Fuel</strong></td>
<td>1,115</td>
<td>1,136</td>
<td>1,319</td>
<td>1,331*</td>
</tr>
<tr>
<td><strong>Alt Fuel (percent of total energy)</strong></td>
<td>6.2%</td>
<td>6.2%</td>
<td>7.4%</td>
<td>7.3%*</td>
</tr>
<tr>
<td><strong>Non-biofuel portion of alt fuel</strong></td>
<td>7.6%</td>
<td>8.6%</td>
<td>8.8%</td>
<td>8.2%*</td>
</tr>
</tbody>
</table>

Source: UC Davis Institute of Transportation Studies

*Based on Q1 and Q2 Data only*
Multiple plaintiffs argued that the rule discriminated against out-of-state corn ethanol and crude oil.

Trial court found against ARB but the Appeals court overturned.

 Plaintiffs appealed to the Supreme Court, which Declined to hear the case.

Appeals court decision stands
- No “facial discrimination”
- Remanded the “discrimination in fact” question to the trial court

June 24, 2015
State Lawsuit on Process

• POET pointed to procedural shortcomings
  – Environmental impact findings
  – Certain emails qualified as public comments on the rule.

• Trial court found in ARB’s favor, but plaintiffs appealed.

• Appeals court found in favor of the plaintiffs but left the regulation in place. It ordered ARB to:
  – Re-adopt the regulation and remedy the shortcomings
  – Freeze the standard at 2013 levels pending re-adoption

Important outcome in both cases: the LCFS was not struck down.
Re-adoption

• LCFS re-adoption culminates at the July 23rd public meeting when the Board votes on staff’s proposal

• Key features of staff’s proposal:
  – Creates a $200 credit price cap and deficit rollover process (in case fuel/credit supply is short)
  – Retains the 10% CI reduction by 2020 goal (requires a re-drawn compliance curve)
  – Creates a 2-tiered pathway approval process (simplified, expedited processing of 1\textsuperscript{st}-gen. fuel pathways)
  – Replaces the direct CI model (CA-GREET) with an updated version
  – Revises and expands indirect land use change values
Beyond Re-adoption

- Reductions beyond 10% by 2020 had not been specified—until now.
- The Governor issued an Executive Order which will require additional reductions:
  - GHG emissions reductions to 40% below 1990 levels by 2030 (interim step toward existing 80% by 2050 goal).
  - All state agencies to implement appropriate measures.
  - ARB to update its climate change program scoping plan.
  - ARB has stated that the LCFS will play a major role in meeting the Governor’s targets.
  - Strong internal commitment to incorporate sustainability into the LCFS—and other programs.
Sustainability

- So far, I’ve only mentioned only one sustainability parameter: GHG emissions
- But the Board directed us to consider a full range of sustainability parameters
- That work has gone slowly due to law suits, other challenges, and basic growing pains.
- Now, staff are dedicated to developing monitoring, verification, and sustainability provisions
- Considering a unified set of requirements covering the entire supply chain.
Sustainability

- Advantage: Employ a system with state-of-the-art internal protections throughout the supply chain
  - Conflict of interest
  - Traceability
  - Transparency
  - Risk management
  - Accreditation

- Among our alternatives is adopting a “gold standard” set of requirements (e.g., World Wildlife Fund’s) as our own.

- Certification bodies willing and able to certify to our “gold standard” would be on our “approved” list.
Thank You