

California Environmental Protection Agency



Air Resources Board

***Overview of the California
Low Carbon Fuel Standard***

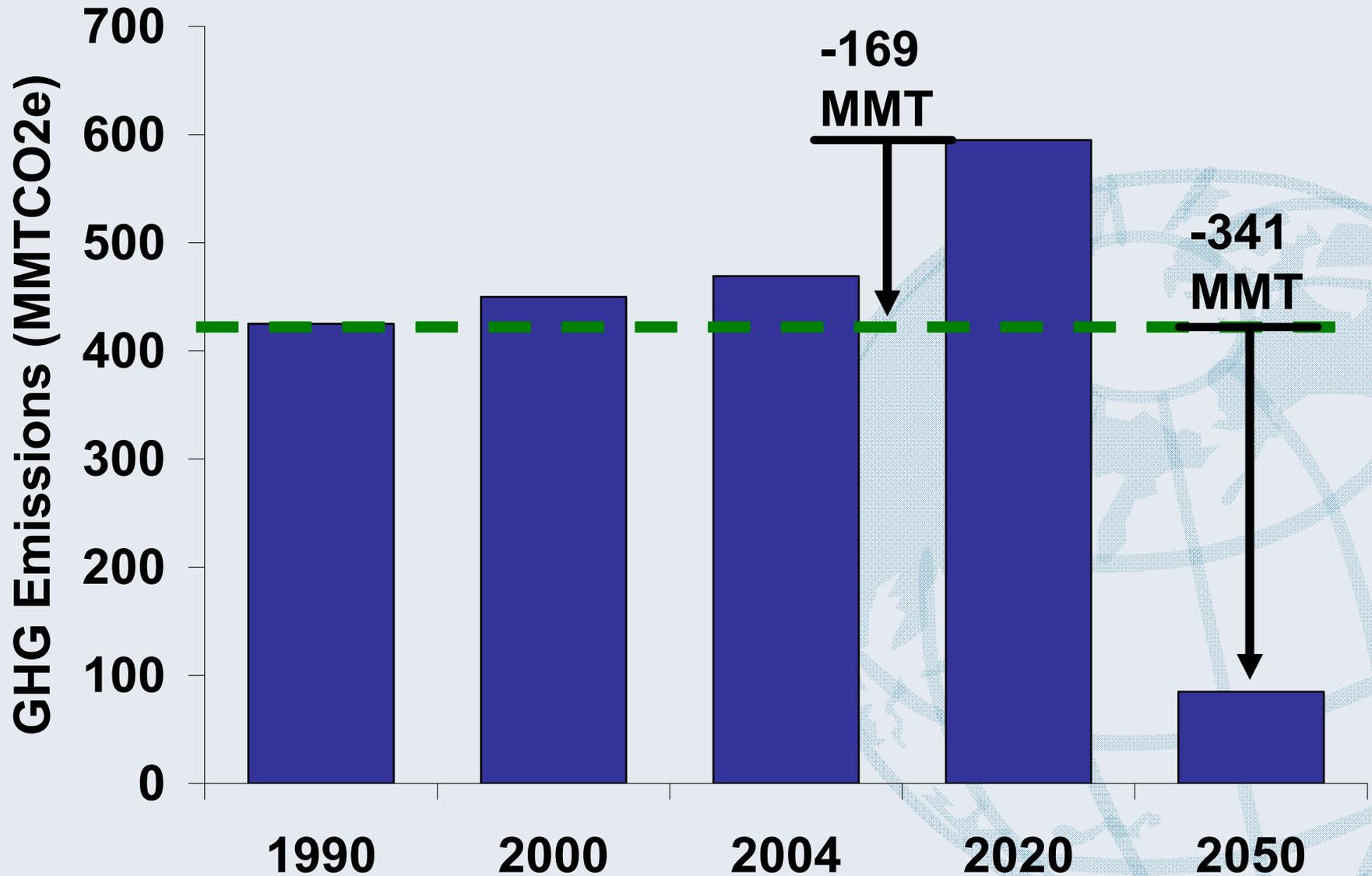


**AB 118 Investment Plan Staff Workshop
California Energy Commission
September 14, 2009**

Transportation Sector Important

- **Significant reductions needed to achieve 2020 target and 2050 goal**
- **GHG emissions from transportation are large and increasing**
- **Transportation emissions affected by:**
 - Amount and type of transportation fuels
 - Efficiency of motor vehicles
 - Number of vehicle miles traveled

Large GHG Reductions Required



LCFS Established by the Governor

- **Governor Schwarzenegger established the LCFS in January 2007**
- **UC completed analysis demonstrating feasibility in the spring and summer of 2007**
- **ARB identified LCFS as AB 32 discrete early action measure in June 2007**
- **Board approved proposal in April 2009**

Framework for Low Carbon Fuels

- **Creates durable framework for near and long term transition to low carbon fuels**
- **Encourages technology innovation**
- **Establishes a model for regional and national standards**
- **Sets stage for future reductions**

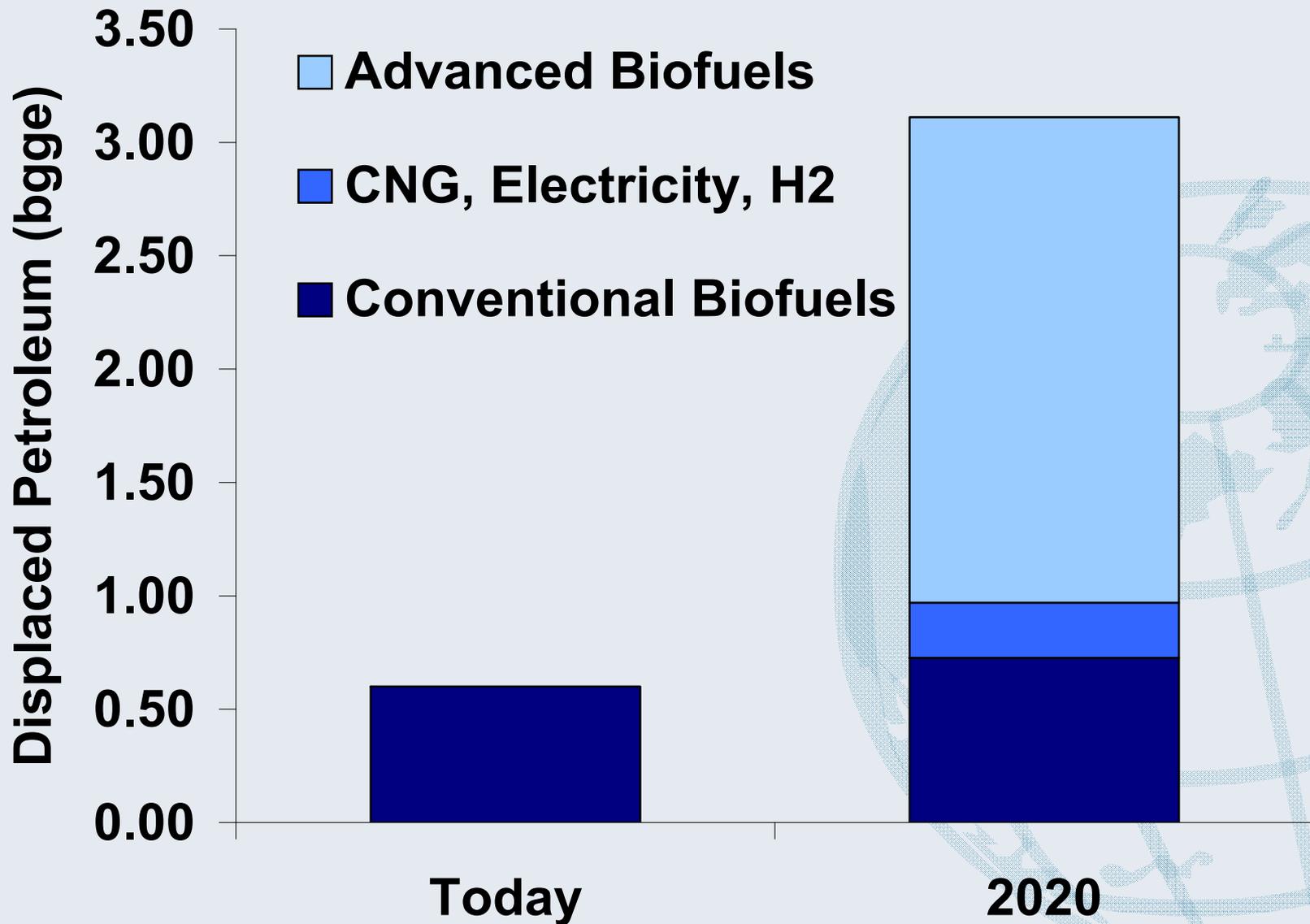
LCFS Reduces GHG Emissions

- **Results in a 10 percent reduction in the carbon intensity by 2020**
- **Reduces 16 MMT GHG emissions from the transportation sector by 2020**
- **Achieves about 10 percent of the total emission reductions required to meet the AB 32 target**

Impact on Fuels

- **Increase use of:**
 - **Biofuels**
 - **Low carbon corn or sugarcane ethanol**
 - **Cellulosic ethanol**
 - **Renewable diesel and biodiesel**
 - **Electricity, hydrogen, natural gas**
- **And decrease the use of:**
 - **Petroleum**
 - **High carbon biofuels**

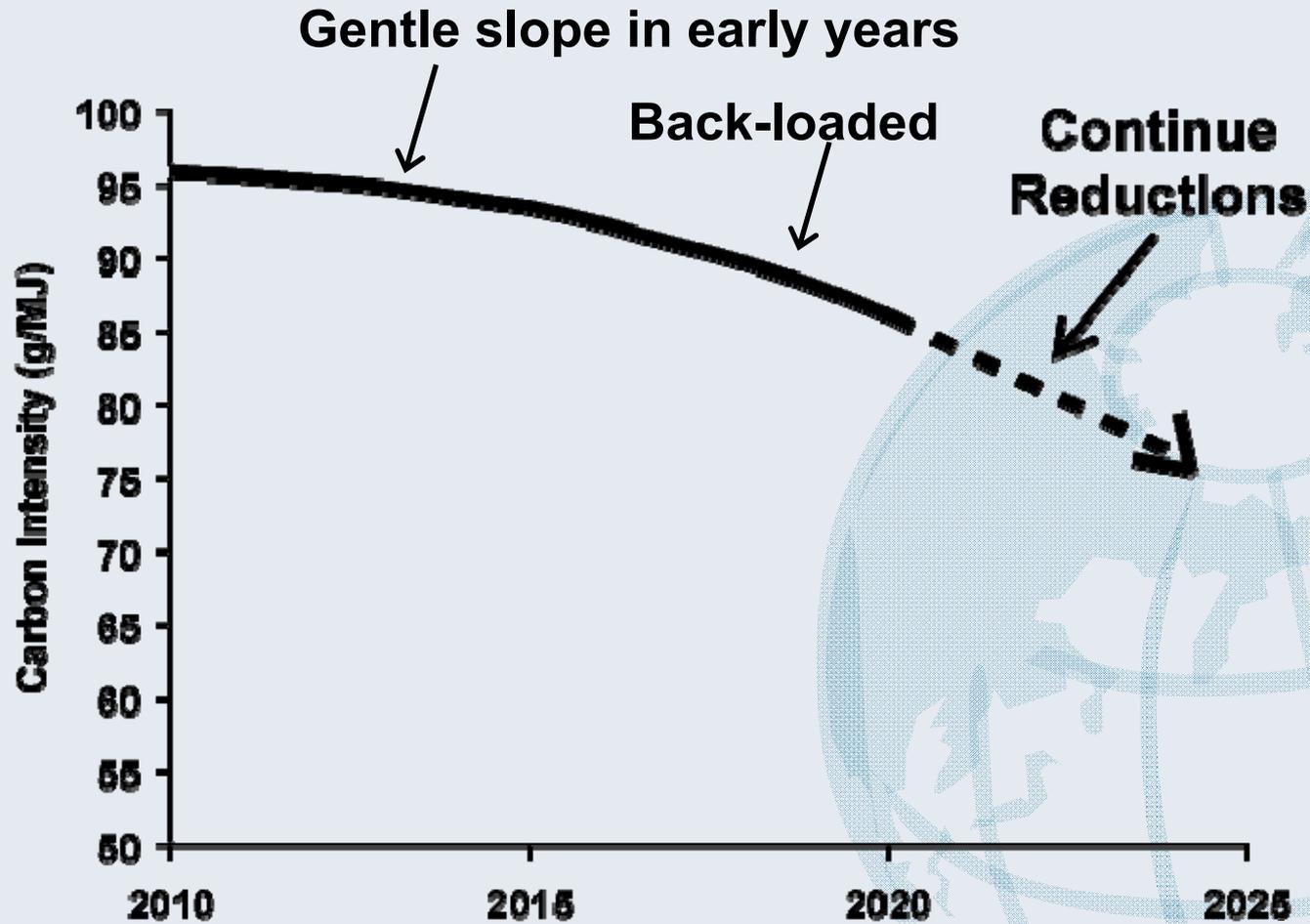
LCFS Displaces Petroleum



LCFS Mechanics

- **Baseline fuel carbon “intensity” is that of 2010 gasoline and diesel fuel**
- **Carbon intensity represents the GHG emissions per unit of energy**
- **Fuel producers achieve 10 percent reduction by 2020**
- **Reduction is gradual and weighted toward later compliance years**

The LCFS Compliance Schedule



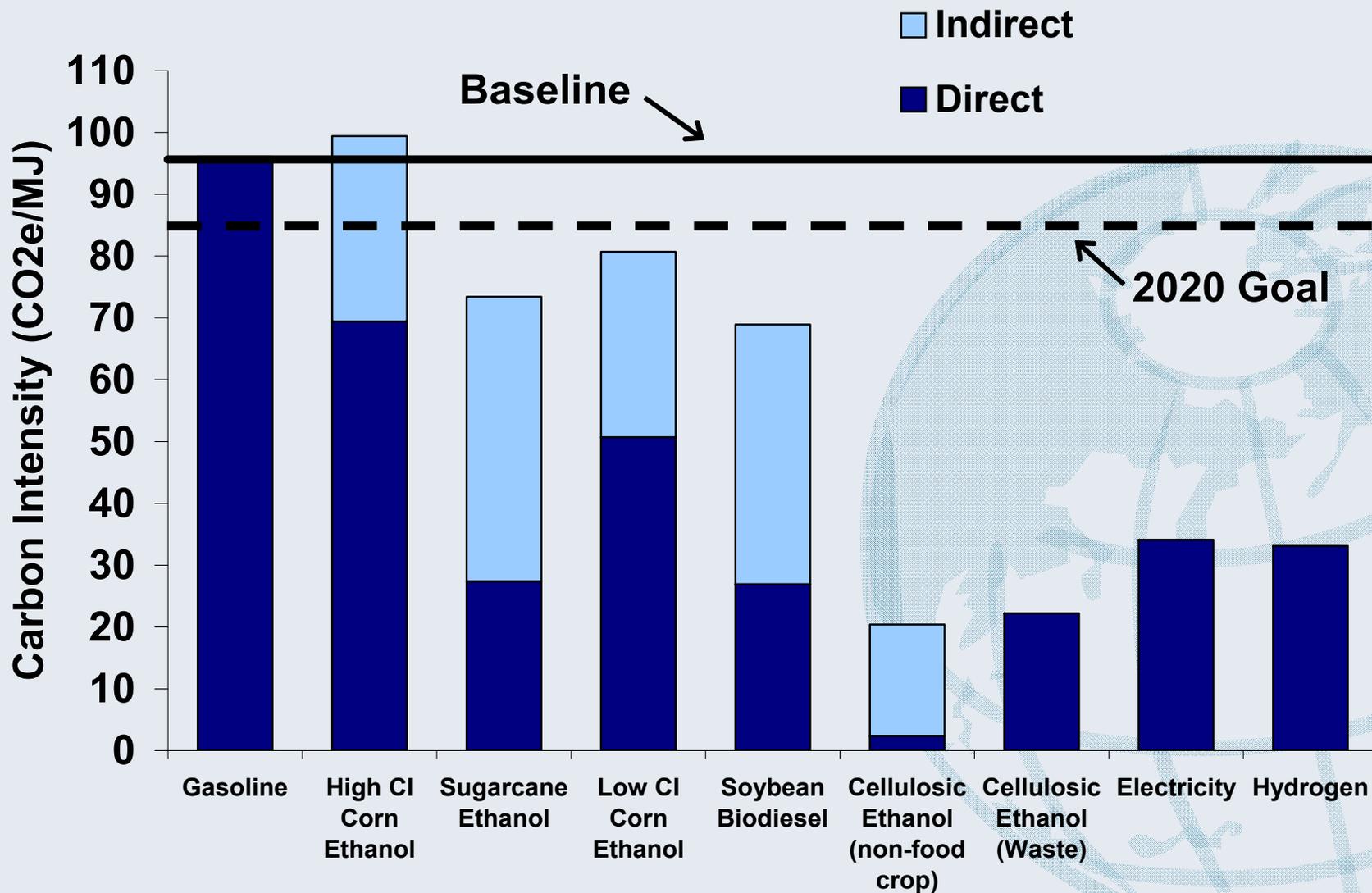
Who is Regulated?

- **Providers of most petroleum and biofuels are ‘regulated parties’**
- **Providers of fuels that meet 2020 levels must ‘opt in’ to earn credits:**
 - **Electricity**
 - **Hydrogen**
 - **Natural Gas**

Compliance and Enforcement

- **ARB to provide software tools for fuel carbon reporting and credit tracking**
- **Regulated parties report quarterly and annually**
- **Enforcement includes records review, field inspections, and audits and penalties**

Carbon Intensity of Tomorrow's Fuels



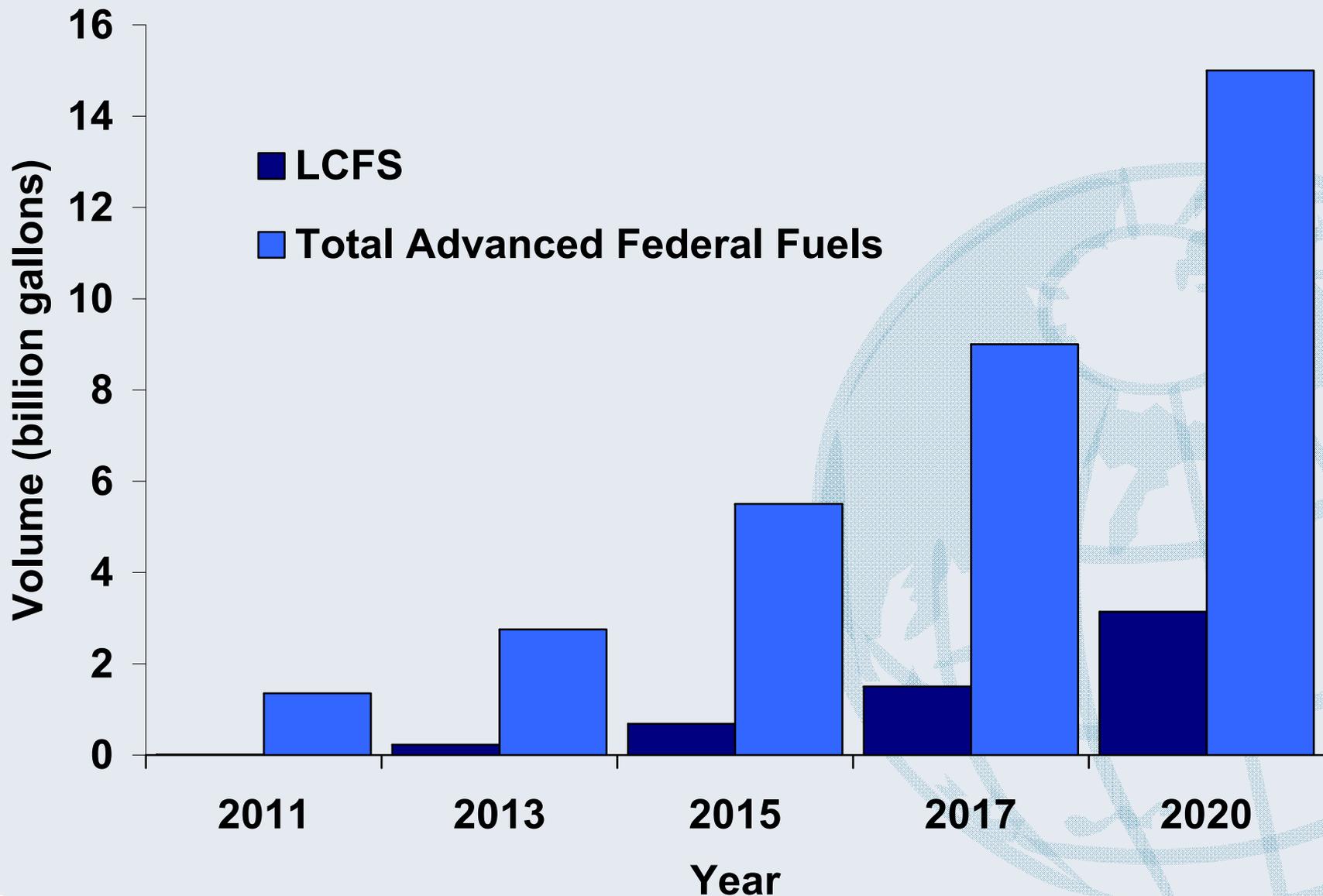
Economic Analysis

- **Cost-of-compliance basis**
- **Overall savings estimated for 2010-2020**
- **Impact dependent on crude prices and production costs of alternative fuels**
- **Recognized uncertainties could result in slight costs**

Federal Renewable Fuels Standard

- **Mandates volumes of biofuels with less focus on carbon intensity**
 - **Existing corn ethanol, no improvement**
 - **New corn facilities, 20% reduction**
 - **Other biofuels, at least 50% reduction**
 - **Cellulosic biofuels, 60% reduction**
- **Reduces GHGs nationwide by 3 percent**

Advanced Biofuel Volumes - RFS vs. LCFS



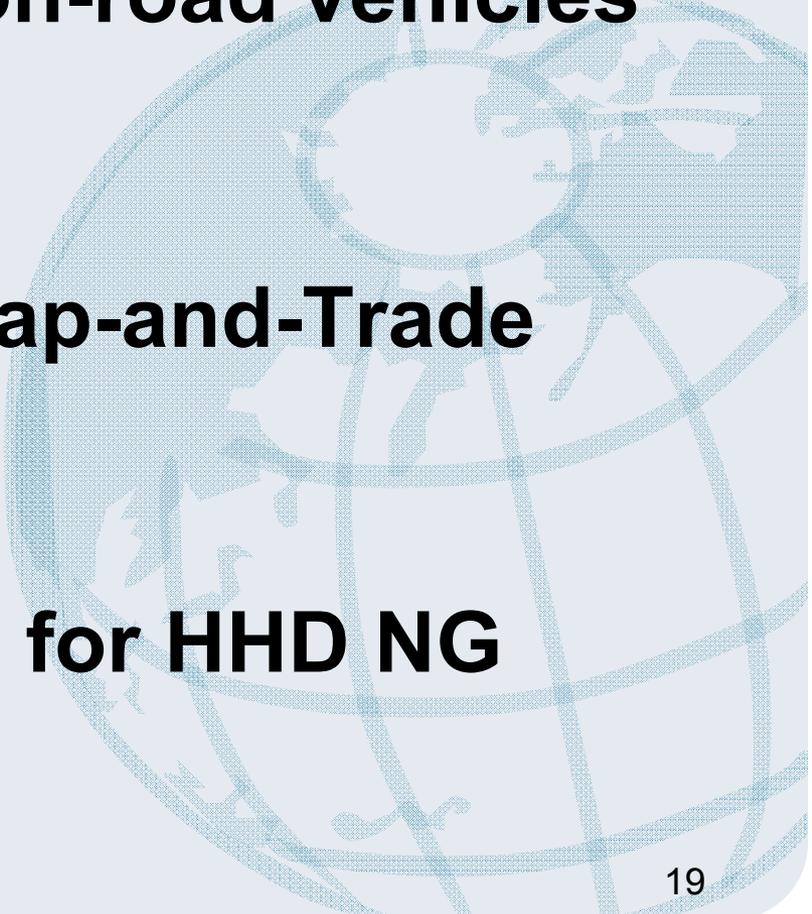
Documents to Prepare for December

- **Guidelines for developing fuel pathways**
- **Workplan for sustainability**
- **“Best Practices” guidance document for siting of new facilities**
- **List of biofuels with no inherent land use change**
- **Prioritized list of additional fuel pathways**

Working with Stakeholders

- **Expert workgroup regarding land use change**
- **Informal carbon intensity screening process for new or modified fuel pathways**
- **Specs and multimedia evaluation of biodiesel and renewable diesel**
- **Definitions of and safeguards for “biomass” and “renewable biomass”**

Review with Stakeholders

- **Regulated parties for electricity**
 - **Electricity credits for non-road vehicles**
 - **Electricity metering**
 - **LCFS as part of AB32 Cap-and-Trade**
 - **Develop fee schedule**
 - **Re-evaluate EER values for HHD NG**
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On-Going Commitments

- **Participate in environmental review of specific projects**
- **Continue collaborations with other agencies, states, and nations**



Work to be Completed for Adoption

- **Public comment period for Board-approved changes**
 - Revised regulation language
 - Additional lifecycle pathways
- **Complete administrative record by Oct 09**
 - Respond to public comments
 - Respond to significant environmental impacts

Summary

- **Reduces emissions from transportation fuels by 10% by 2020**
- **Emissions from land use changes are real, large, and positive**
- **Complements goals set forth by federal mandates**
- **Structured so program can extend beyond 2020**