

Today's Agenda

- ✓ Introductions
- ✓ Bagley-Keene Review
- ✓ Review of Advisory Panel Charter
- ☐ LCFS Overview and Updates
- ☐ Draft Workplan and 2011 Agenda
- ☐ Expert Workgroup Summaries
- ☐ Method 2A/2B Review and Update
- ☐ Next Steps

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**Low Carbon Fuel Standard
Overview and Updates**

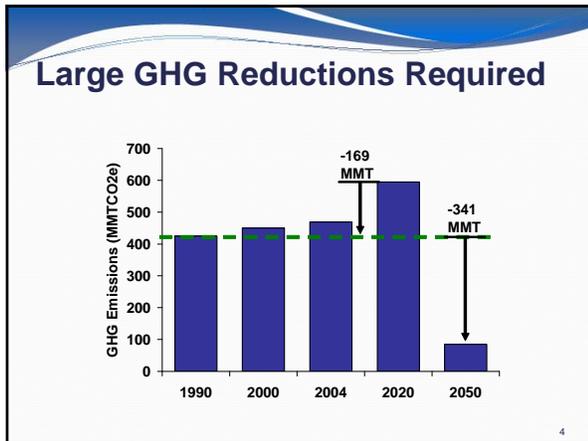
Advisory Panel Meeting
February 16, 2011

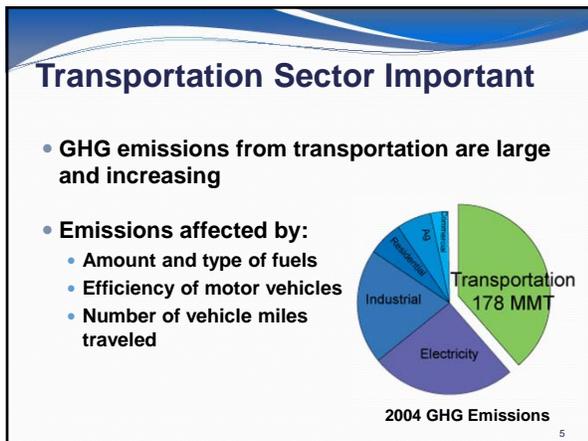
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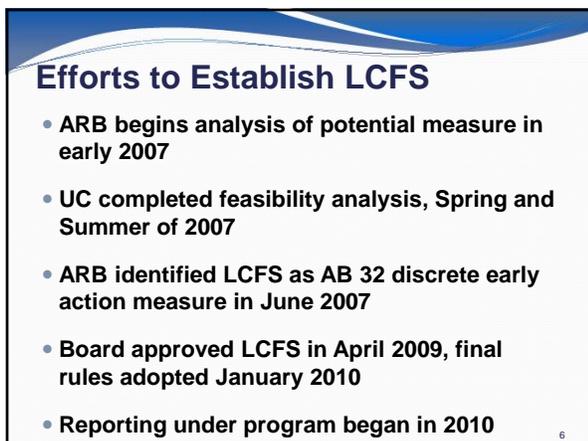
Global Warming Solutions Act

- 2020 Target: Reduce GHGs to 1990 levels
- Meeting target requires a suite of comprehensive actions
- Will help reduce GHGs to 20% of 1990 levels by 2050

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LCFS Goals and Benefits

- Reduce carbon intensity of transportation fuels (gasoline and diesel) by a minimum of 10% by 2020
- Spur technology development and increase use of low carbon intensity fuels
- Reduce amount of petroleum consumed and our dependence on foreign oil
- Will contribute about 10% overall GHG reduction to AB 32 program

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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

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LCFS Mechanics

- Baseline fuel carbon intensity is that of 2010 gasoline and diesel fuel
- Fuel producers achieve 10 percent reduction by 2020
- Reduction is gradual and weighted toward later compliance years

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Carbon Intensity

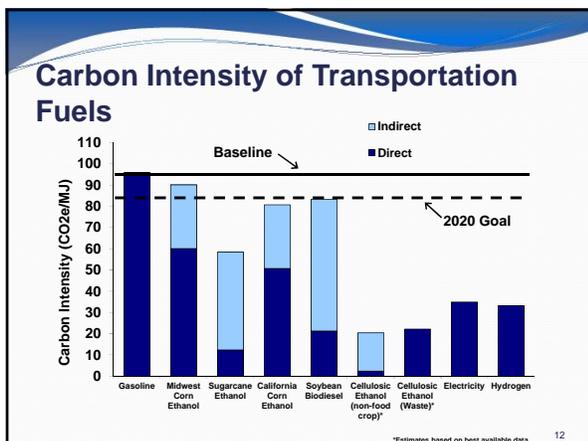
- Carbon intensity (CI) represents the GHG emissions per unit of energy
- Considered “currency” of the LCFS
- Two components to CI value:
 - Direct Emissions
 - GHG emissions from the production, transport and consumption of the fuel
 - Calculated using CA-GREET model
 - Indirect Emissions
 - GHG emissions from land use changes
 - Calculated using GTAP model

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Including Land Use Change

- Using crops for fuel displaces land currently in use for other purposes
- This displacement leads to GHG emissions
- These emissions are real and large
- Not including these effects significantly over estimates GHG benefits of some biofuels
- Motivates fuel producers to develop fuels that are lower in CI and sustainable

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Regulated Parties

- Providers of most petroleum and biofuels are 'regulated parties'
 - CARBOB
 - CARB Diesel
 - Ethanol and biodiesel
- Providers of fuels that already meet 2020 levels may 'opt in' to earn credits:
 - Electricity
 - Hydrogen
 - Natural Gas

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Compliance and Enforcement

- ARB developed web-based tool for reporting with plans to add credit-tracking feature
- Regulated parties must report at least quarterly and annually
- Enforcement to include records review, field inspections, and audits and penalties
- 2010 was reporting year, 2011 full implementation

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Summary

- Reduces emissions from transportation fuels by 10% by 2020
- Gradual phase in (modest reductions in early years with greater reductions in later years)
- Complements goals set forth by federal mandates
- Structured so program can extend beyond 2020
- Full implementation underway

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LCFS Workgroups and Other Efforts

- LCFS Reporting Tool
- High Carbon Intensity Crude Oil Screening
- Biorefinery Siting Document
- Biorefinery Registration
- E85 Specifications
- Biodiesel Multimedia
- Electricity and Hydrogen
- Sustainability

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LCFS Reporting Tool Update

- Two parallel systems: one for official reporting use and one for testing use
- Currently receiving registration and reports
- ARB and regulated parties have up-to-date view of each report
- Planned updates:
 - Credit tracking and trading
 - Integrate new fuel pathways and Biorefinery Registrations

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HCICO Screening Workgroup

- Baseline currently includes crudes that are 2.0 percent or more of the 2006 California baseline crude mix, by volume
- More GHG-intense processes used to recover certain crudes
 - Baseline crude production and transport CI-value average 8 gCO₂e/MJ
 - HCICO greater than 15 gCO₂e/MJ
- Regulation explicitly requires calculation of CI debits from the use non-baseline HCICO
- Workgroup is developing screening process
- Sixth workgroup meeting tomorrow

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Basics of Screening Process

- Crude oil is non-HCICO when:
 - Produced using recovery techniques other than thermal enhanced oil recovery or crude bitumen mining.
 - Produced from a country with an average flaring rate of less than 10 scm/bbl.
- If crude is neither of the above, it is considered "potential HCICO"
- "Potential HCICO" sources undergo a more rigorous assessment

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Biorefinery Siting Guidance Workgroup Background

- Workgroup consisted of air districts, industry, environmental and community health groups
- Guidance addresses:
 - Control technology for stationary source equipment
 - Mitigation options for mobile source emissions
- ARB staff making final edits, will release at end of this month

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Using the Biorefinery Siting Guidance Document

- Intended audience
 - Air districts
 - Land use planners
 - Environmental and public health groups
 - Project proponents
 - General public
- Use as information resource during site selection, air quality permitting, and identification of CEQA mitigation measures
- Guidance information to be kept updated via web-based clearinghouse on ARB Internet site

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Biorefinery Registration Update

- Voluntary program allows biofuel producers to provide:
 - Fuel Pathways and Carbon Intensity (CI) Values from Lookup Table and Method 2A/2B
 - Physical Pathway Demonstration (demonstrates sale and route of the fuel to California)
- Clearinghouse for biofuel producers listed on the LCFS website
- Approximately 150 ethanol and biodiesel facilities worldwide submitted thus far

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Biodiesel Multimedia Update

- Multimedia analysis required by Health and Safety Code
- Studies completed:
 - On-road and off-road emission measurement
 - NOx mitigation study
 - Human and aquatic toxicity screening
- Conclusions:
 - Biodiesel generally reduces emissions and toxicity
 - Biodiesel generally increases NOx slightly while renewable diesel does not

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E85 Specification Updates

- E85 volumes are increasing due to Federal Renewable Fuels Standard program
- E85 stations in CA are currently increasing
 - 41 retail stations and 54 fleet stations
- ASTM updated their E85 specifications
- ARB is working on updating E85 specifications
 - Planned November Board Hearing

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Electricity and Hydrogen Provisions and Staff Activities

Electricity

- Staff formed Electricity and Metering Workgroups
- Working with CPUC on rate and metering issues
- Working with stakeholders on credit ownership

Hydrogen

- Monitoring Clean Fuels Outlet and SB1505

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Sustainability

- LCFS incentivizes alternative fuels
- Fuels should be produced responsibly and sustainably
- Workgroup addressing environmental, social, and economic sustainability
- Recommendations to the Board by December 2011

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Summary

- Many workgroups addressing regulatory and technical details
- Links to all of these workgroups can be found on the LCFS webpage
- These workgroups are open to all members of the public – notices published to Fuel and LCFS listserves
- All in various stages of development
- Workgroup updates to be reflected in future Panel meetings as needed

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