# ENERGY COMMISSION DEVELOPMENT OF AB 118 SUSTAINABILITY GOALS

## Alternative and Renewable Fuel and Technology Program

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SUSTAINABILITY WORKING GROUP MEETING
California Energy Commission
August 15, 2008

# AGENDA

## I. Welcome and Meeting Purpose

- Introductions

## II. Energy Commission Development of AB 118 Sustainability Goals

- Review of Schedule and Relation to Investment Plan and Solicitations
- Proposed Sustainability Concepts, Goals and Characteristics
  - Staff presentation by Jim McKinney
- Stakeholder Discussion on Proposed Sustainability Goals

# Agenda (continued)

**III. Best Management Practices to Ensure Sustainable Production of California-Based Purpose Grown Energy Crops**

- Conceptual Presentation by Professor Stephen Kaffka, Co-Director of California Biomass Collaborative, University of California at Davis

**IV. Overview of Federal Work on Sustainability and Transportation Fuels in Response to 2007 Energy Security Act**

- Paul Argyropoulos, Senior Policy Advisor, Office of Transportation & Air Quality, US Environmental Protection Agency, Washington DC (11:30 to 12:00 pm)

**V. Sustainable Biodiesel Alliance: Overview of Development Work on Sustainability Definitions and Criteria**

- Jeff Plowman, Executive Director, Austin Texas

**VI. Open Stakeholder Discussion of AB 118 Sustainability Goals and Potential Projects**

**VII. Next Steps and Schedule Review**

# Energy Commission's AB 118 Schedule and Regulatory Process

# Sustainability Goals, Regulations, Investment Plan and Solicitations

- Sustainability Part of Each AB 118 Element
- **Regulations** will form implementing framework
  - Must be approved by OAL to distribute money
- **Investment Plan** will be strategic plan
- **Solicitations** (or RFPs) and other funding mechanisms will contain specific criteria and data requirements for applicants for AB 118 funding

# Sustainability and AB 118

- Statute Requires CEC to Develop Sustainability Goals
- **Regulations**
  - CEC intent to have broad, flexible sustainability goals
  - Four draft goals proposed for regulation to meet statutory obligation
- **Investment Plan**
  - Continuing development of sustainability concepts
- **Solicitation**
  - Sustainability “characteristics” and eventual evaluation “criteria” incorporated in IP and Solicitation

# Sustainability Working Group

- CEC forms multi-stakeholder technical working group for sustainability issues
- Key Forum to Develop and Test Concepts
- Representatives from:
  - Biofuels Industry (growers, producers, distributors)
  - Government Agencies (ARB, Food and Ag, US EPA)
  - Environmental NGOs
  - Academia (UC Berkeley, UC Davis)
  - Infrastructure developers

# AB 118

## Implementation Schedule

| | Rulemaking | Investment Plan |
|---|---|---|
| **July 8** | Public Workshop to review draft regulations. Release of Sustainability Concept Paper and Proposed Goals | |
| **August 14** | | Proposed Advisory Committee Update Conference Call- Revised Investment Plan outline. |
| **August 15** | Working group meeting on sustainability goals. | |
| **August 19** | | Post meeting notice and documents for September 2 meeting. |
| **August 25** | Post draft sustainability regulations. | |
| **September 2** | | Advisory Committee WebEx Conference Call (staff-led) |
| **September 9** | Public workshop to review draft sustainability regulations. | |
| **September 16** | | Possible Advisory Committee conference call or status email. |
| **September 19** | Written comments due on draft sustainability regulations. | |
| **September 23** | | Post revised AB 118 Investment Plan with Advisory Committee Meeting Notice. |
| **October 6** | | Third Advisory Committee Meeting |
| **October 7** | Draft regulations submitted to Office of Administrative Law (OAL). | |
| **October 7-31** | | Investment Plan regional public meetings; three meetings planned in Southern California, Bay Area and Fresno. |
| **October 20** | | Deadline for all comments on revised Investment Plan to be submitted to the Docket. |
| **October 17** | Notice of Proposed Action (NOPA) published. | |
| **November 3** | | Submit Investment Plan for Commission Business Meeting approval. |
| **December 1** | 45 day public comment and review period ends. | |
| **December 3** | | Business Meeting: CEC Adoption of AB 118 Investment Plan. |
| **January 14** | Business meeting: If approved, final package will be submitted to OAL. | |
| **March 2** | End of 30 working day review period for OAL. Earliest possible date for OAL to approve and publish Regulations with the Secretary of State | |
| **April 2** | Earliest possible date for Regulations to take effect. | |

# Questions or Comments on AB 118 Regulatory Process and Schedule?

# AB 118: General Overview and Statutory Provisions for Sustainability

# AB 118 Basics

- **Purpose**

  To transform California's transportation market into a diverse collection of alternative fuels and technologies and reduce California's dependence on petroleum.

  *"…develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies."* (Health and Safety Code Section 44272(a))

- **Funding**

  For the *Alternative & Renewable Fuel and Vehicle Technology Program*, the Energy Commission will receive $120 million/year for over 7 years.

  $75 million allocated for Fiscal Year 2008-09

  ARB will receive $80 million/year for over 7 years for *Enhanced Fleet Modernization* and *Air Quality Improvement.*

# Program Elements

- Implementing Regulations
  - Establish Sustainability Working Group
- Investment Plan
  - Annual Solicitations
- Advisory Committee
- Schedule
  - Adopt Regulations and Investment Plan to Disperse Initial Funds in April 2009

# Program Goal

- The goal of the Alternative and Renewable Fuel and Vehicle Technology Program is to *"…develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies."*

(Health and Safety Code Section 44272(a))

# Additional AB 118 Goals

- Meet standards established by ARB and the Low Carbon Fuel Standard to reach emission reduction goals
- Achieve petroleum reduction
- Encourage and support in-state production of alternative fuels
- Develop and deploy new vehicle technology
- Create jobs for Californians through education and workforce training

# AB 118 Context

- California uses 20 billion gallons of fuel - 95% petroleum
- State Alternative Fuels Plan Goals (AB 1007)
  - 9 percent by 2012 increasing to 26 percent by 2022
  - 20 percent at 2020 means
    - Displacing 4 billion gallons of petroleum-based fuel
    - 370 million gallons of new alternative supply annually
    - Current in-state production is 80 million gallons ethanol and 25 million gallons biodiesel
- Bioenergy Action Plan
  - 20% of biofuels used in 2010 to be produced in California
- AB 32: Reduce GHG levels to 1990 levels by 2020
  - 80% of 1990 levels by 2050
- Low Carbon Fuel Standard: Reduce carbon intensity of all transportation fuels 10% by 2020

# AB 118 Sustainability Provisions

*Section 44271(a)(2)*

"Establish sustainability goals to ensure that alternative and renewable fuel and vehicle deployment projects, on a full fuel-cycle basis, will not adversely impact the state's natural resources, especially state and federal lands."

# Preferences to Projects Maximizing Environmental Criteria

*Section 44272(b)*

- Consistency with Climate Change Policy and Low Carbon Fuel Standard
- Project's ability to reduce criteria pollutants and multi-media impacts
- Project's ability to decrease water pollutants
- No adverse impact to sustainability of state's natural resources
- Project's ability to reduce GHG emissions by at least 10% from petroleum baseline on a life-cycle basis

# STAFF FINDINGS, INTERPRETATIONS AND RECOMMENDATIONS ON SUSTAINABILITY FOR AB 118

Summary of Draft Staff Paper:

*Regulatory Concepts on Sustainability Goals for the Alternative and Renewable Fuel and Vehicle Technology Program*

July 2008, CEC Publication No. 600-2008-006-D

# Staff Findings on Sustainability

- Energy Commission recognizes sustainability concerns with alternative fuels, especially biofuels
- California market size creates risk of induced environmental & social damage from large volumes of alternative fuels
- Staff finds no singular off-the-shelf sustainability model or program
- Sustainability issues complex & continuously evolving

# Staff Assumptions

- Sustainability means “lower impact” not “zero impact”
- Sustainability encompasses global environmental and social issues and cannot be limited to “state’s natural resources”
- Sustainability goals and measures will require environmental performance and production practices that exceed extant regulatory standards
- Infrastructure cannot be separated from fuel pathway

# Staff Goals for Sustainability Program

- Flexible framework for evolving Investment Plans
- Promote sustainability without undue burden to emerging technologies
- Recognize long-lead time for some fuels
- Continue to learn about Indirect Land Use Effects and Food v. Fuel issues
- Compliment the work of ARB on LCFS

# Staff Goals for Sustainability Program

- Identify benchmark-caliber systems for sustainability and certification that can be used in California markets
- Balance “California-centric” provisions of AB 118 with reality of global market
- Leverage California’s market size and environmental ethic to drive international standards towards systems of certified, sustainable production.

# Energy Commission Approach

- Initial focus on bioenergy crops and biomass sources due to controversy over natural resource impacts and land use effects
  - Will eventually address other pathways with environmental effects
- Initial California focus
  - Statutory direction
  - Assuming sustainability means environmental performance beyond regulatory standards, need to develop new concepts to implement
- National-Level Sustainability Definitions and Criteria
  - Track work from federal agencies and national working groups
- International Certification of Sustainable Production
  - Staff tracking main international programs
  - No assessment work yet

# What Types of Things Do We Measure?

| Ecological Components | | Social Components |
|---|---|---|
| Energy Use | Habitats & Ecosystems | Public Health |
| GHG Emissions | Biodiversity | Economics |
| Water Use | State / Federal Lands | Land Use Changes |
| Waste Water Discharge | Criteria Pollutants | Environmental Justice |
| Forest Cover | Toxics Emissions | |

# Fuel Pathway Elements

- Feedstock Production
- Production
- Distribution Infrastructure
- End-Users

- See practical examples from July 24 presentation

# Potential Projects and Fuel Pathways (Red = Initial Focus)

| Alternative Fuel Types | Feedstocks | Source | Processing and Distribution Infrastructure |
|---|---|---|---|
| **Biodiesel** | Domestic and foreign energy crops (algae, soy, palm oil), waste grease and oils, | Row crops, aquaculture, Waste collection | Industrial processing, distribution, fueling stations |
| **Biomethane** | Landfill gases, feedlots, biomass | Landfills, feedlots | Gas processing, distribution, fueling stations |
| **Biomass to Diesel (Fischer-Tropsch)** | Wood wastes, ag wastes, energy crops | | Industrial processing |
| **Butane** | Petroleum refining and natural gas | Refineries | |
| **Electricity** | Cal. grid – renewable and fossil, National and International grids | Natural gas, nuclear, hydro and coal powerplants. Renewables | Transmission and distribution lines, residential and commercial charging stations |
| **Ethanol** | Bioenergy crops (corn, sugar cane, sorghum), farm & feedlot waste streams, fiber and woody materials (cellulosic materials) | Row crops, woodlots, farms, feedlots | Industrial processing, distribution, fueling stations |
| **Dimethyl Ether** | Propane / natural gas derivative | | |
| **Hydrogen** | Natural gas and electricity derivatives, industrial byproducts (nuclear), water cracking (energy intensive) | Refineries | Distribution, fueling stations |
| **Renewable Diesel** | Domestic and foreign energy crops, waste grease and oils, algae | Row crops, aquaculture, Waste collection | Industrial processing, distribution, fueling stations |
| **Natural Gas** | Domestic and Canadian wells, LNG imports | Natural gas and petroleum wells | Transmission and distribution pipelines, residential, commercial, institutional charging stations |

# Sample Frameworks to Assess Sustainability

CEC staff has identified 3 general approaches to assess sustainability:

1. Science and Standard-Based Assessments like CEQA and Environmental Performance Reporting
2. Documented adherence to applicable laws and regulations
3. Adoption of Best Management Practices

# Sample Frameworks
## (from July 24 presentation)

- CEQA & Major Environmental Permit Approach
- UK's Renewable Transport Fuel Obligation
- Roundtable for Sustainable Palm Oil
- Brazilian Ethanol Sustainability Factors
- Cal. Sustainable Winegrowing Alliance
- Energy Independence and Security Act
- Environmental Performance Reporting - *IEPR*

# Additional Sustainability Frameworks

- UC Berkeley recommendations to ARB for the Low Carbon Fuel Standard
- Roundtable on Sustainable Biofuels
- Sustainable Biodiesel Alliance
- European Commission – Directorate General for Transport and Energy
  - Dutch report on Sustainability and Certification

# AB 118 Sustainability Provisions

*Section 44271(a)(2)*

"Establish sustainability goals to ensure that alternative and renewable fuel and vehicle deployment projects, on a full fuel-cycle basis, will not adversely impact the state's natural resources, especially state and federal lands."

# Staff Interpretations of Statute

- "Not adversely impact" means projects subject to CEQA must fully mitigate impacts to non-significant level
- "State's natural resources" include:
  - Forests, range lands, waters and watersheds, biodiversity (fish, wildlife, flora) resources and habitat, coastal land and water, minerals, farmland
- "State and federal lands"
  - surface and subsurface (water bottoms and tidal zones) lands owned wholly or in part by any branch or division of California State and federal government

# Sustainable Fuel Production

- Amounts of land and natural resources used for alternative fuel production, and the resulting pollution loading from air, water, toxic and solid waste streams, do not further and unacceptably degrade already damaged ecosystems, water basins and air basins in California, the U.S., and around the world.

# Sustainable Fuel Production

- Sustainable practices recognize and respect the physical carrying capacity limits of natural systems at the local, regional and global scale.
- Sustainable practices respect human dignity and contribute to the economic welfare of people around the world.

# Proposed Sustainability Goals

1. Reduce GHGs to attain AB 32 Goals
2. Protect natural resources and environmental quality
3. Promote international production through certification of sustainable production
4. Avoid unanticipated consequences

# Characteristics

- The proposed project “characteristics” will likely evolve into some type of evaluation criteria in the Investment Plan and Solicitation to assess how proposed projects meet the sustainability goals

# Sustainability Goal No. 1

**Identify and Support Fuel and Technology Options with the Best Potential for Meaningful Reductions in Transportation-Related GHGs to Meet California's 2020 and 2050 Targets (29% and 80% below 1990 baseline)**

Characteristics

1. Minimum 10 percent life cycle reduction in GHG emissions for direct and indirect land-use effects
2. Recognize potential of "bridging technologies" and "long-term incubation" effects to further goals

# Sustainability Goal No. 2

**Support production of fuels and technologies that are more environmentally efficient and less environmentally damaging when compared to petroleum, agricultural & natural resource baselines.**

**Ensure that natural resources used for alternative fuel production – and resulting pollution loading from air, water, toxic and solid waste streams – do not unacceptably degrade ecosystems, water basins and air basins.**

# Sustainability Goal No. 2 - Characteristics

3. Maximize waste-stream feedstock use
4. Purpose-grown energy crops with Best Management Practices
   - Cooperative effort with UC Davis
5. Use recognized certification / reporting systems
6. Biofuels suitable to CA resource/climate constraints
7. Use extant agricultural lands to minimize ecosystem impact
   - Exclude feedstocks from Conservation Reserve Lands?
8. Renewable energy/cogeneration used in production

# Sustainability Goal No. 3

**Identify and promote practices and programs to support certified, sustainable production of alternative fuels from around the world to provide California markets with low GHG fuels while providing economic benefits to producer countries**

9. Recognize best-available sustainable production methods and practices.
10. Recognize use of internationally recognized certification and reporting systems.

# Sustainability Goal No. 4

**Minimize risk of unanticipated consequences from alternative fuel production**

- Use Adaptive Management approach to update characteristics and evaluation criteria in response to new information
- Continue developing GREET and other data management and analytic tools to assess sustainability
  - Develop database for data from post-project monitoring
- Support on-going research into emerging topics:
  - Indirect Land Use

# Working Group Open Discussion on Proposed Sustainability Goals

- Friendly Reminder: Energy Commission seeking discussion and comment on **goals** in order to complete initial regulatory portion of AB 118 program