



C A L I F O R N I A E N E R G Y C O M M I S S I O N

The Investment Plan for the The Alternative and Renewable Fuel and Vehicle Technology Program

AB 118 Advisory Committee Meeting

January 8, 2009

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California Energy Commission**

DOCKET

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Program Purpose and Objectives

- AB 118 Program Purpose:
 - “develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies”
- Creating a Framework for Sustainability:
 - “establish sustainability goals to ensure that alternative and renewable fuel and vehicle development projects, on a full fuel-cycle assessment basis, will not adversely impact natural resources, especially state and federal lands”
- Investing in Clean Economic Development:
 - Financial incentives and private investment
 - Encourage market creation and consumer choice
 - Leverage innovation and use renewable and waste resources



Agenda

- **Advisory Committee Suggestions**
- **Analyses Performed**
- **Regulations Prepared and Submitted**
- **Draft Investment Plan Summary Review**
- **Proposed Funding Recommendations**
- **Advisory Committee Comments**
- **Stakeholder Presentations and Public Comments**
- **Investment Plan Workshops Schedule**
- **Program Implementation Schedule**



Advisory Committee Suggestions

- **Guided by FFCA - Commitment to Updating**
- **Goal Driven Methodology for Allocating Funds**
- **“Reverse Engineering” from 2050 Vision for GHG Reduction**
- **Perform “Gap Analysis”**
- **Continue Sustainability, Market, and Incentive Studies**
- **Coordination with PIER Alternative Fuels Roadmap**
- **Evaluate Capital Efficiency**
- **Emphasize Economic Development, Workforce Training**



Analyses Performed

- **Updating GREET Full Fuel Cycle Assessment**
- **“Back-casting” from the *2050 Vision* (*AB 1007*)**
 - **Initially Light-Duty Vehicles - Applied CALCARS Model**
 - **Evaluated Medium- and Heavy-Duty Vehicles**
- **Performed GAP Analysis - TIAX**
- **Evaluated Partner and Stakeholder Inputs**



Regulations Prepared and Submitted

- **Criteria For Project Funding**
- **Sustainability Goals and Evaluation Criteria**
- **Definitions**
- **Funding Restrictions**
- **Advisory Body, Member Selection, Duties**
- **Purpose of Investment Plan**



Summary-Draft Investment Plan

- Determining Priorities and Opportunities
 - AB 32 goal to reduce GHG emissions back to 1990 levels by 2020
 - Governor's Executive Order S-03-05 goal to reduce GHG emissions 80 percent below 1990 levels by 2050
 - Use *2050 Vision* from *State Alternative Fuels Plan* to examine and set necessary “trajectory” to achieve state's climate change goals
 - Establish market mechanisms to complement existing and future regulations



Summary-Draft Investment Plan

- Step 1: Relative Greenhouse Gas Reductions
 - Use *2050 Vision* (light-duty vehicles only) as starting point, and expand to include medium- and heavy-duty vehicles
 - Establish relative contributions for each fuel and vehicle category - to meet 2020 and 2050 goals
 - Use of Energy Commission's fuel demand forecast; incorporating effects of: "Pavley" regulations, the Low-Carbon Fuel Standard and assumptions for the reduction in vehicle miles traveled



Summary-Draft Investment Plan

- Relative Greenhouse Gas Reductions
 - Evaluates potential scenario to meet “fair share” reduction targets for transportation targets for 2020 and on to 2050
 - Works backward from *2050 Vision*, and populates assumptions with CALCARS model, and extrapolates vehicle/fuel efficiencies expected in 2050
 - Estimates the necessary carbon intensity of 2050 fuels
 - Assumes 20 percent reduction in vehicle miles traveled in 2050
 - Establishes 3 Fuel/Vehicle categories; **Super-Ultra-Low-Carbon, Ultra-Low-Carbon and Low-Carbon**
 - Establishes **Additional Fuel Economy Improvements** category



Summary-Draft Investment Plan

- Step 2. Gap Analysis
 - Determine where existing public and private funding is in place and adequate
 - Determine where “gaps” of needed funding exist in the development and deployment of alternative and renewable fuels and advanced vehicle technologies
 - Determine which identified funding gaps are anticipated and assumable by industry and stakeholders, and where additional funding is not needed



Summary-Draft Investment Plan

- Super-Ultra-Low-Carbon needs:
 - Support for fleet and retail hydrogen fueling stations
 - Support for mixed-use hydrogen fueling infrastructure (with transit, CNG/hydrogen, light-duty fleets and forklifts)
 - Support for low-cost renewable hydrogen production
 - Coordinated support (with ARB's AQIP) for light-, medium-, and heavy-duty PHEVs and BEVs
 - Support for early conversions for PHEVs and BEVs, and charging infrastructure



Summary-Draft Investment Plan

- Ultra-Low Carbon needs
 - Facilitate transition from existing ethanol production to lower-carbon feedstock production facilities
 - Develop new ethanol, renewable diesel, and biomethane production for use as transportation fuels
 - Expand installation of E-85 based on geographic distribution of FFVs
 - Develop fuel storage and blending terminals for renewable diesel distribution in Northern and Southern California



Summary-Draft Investment Plan

- Low-Carbon needs
 - Provide purchase incentives for light-, medium-, and heavy-duty vehicles coordinated with ARB, local air districts and ports
 - Support development of advanced medium- and heavy-duty natural gas and propane engines, and fueling and fuel storage technologies
 - Support new and refurbished natural gas and propane fuel infrastructure, in proximity to existing and planned vehicle fleets and populations



Summary-Draft Investment Plan

- Improved Vehicle Efficiency needs
 - Develop and demonstrate new light-duty engine design and vehicle component efficiency improvements
 - Support coordinated (with ARB's AQIP) development and demonstration of medium- and heavy-duty hybrid technology with diesel and alternative and renewable fuel engines



Summary-Draft Investment Plan

- **Non-Greenhouse Gas Funding Categories**
 - Sustainability Studies
 - Analytical and Program Support
 - Workforce Training / Economic Development
 - Support for Standards and Certifications
 - Public Education
 - Outreach



Summary of Funding Recommendations

	Relative GHG %	08/09 Recommend	%	09/10 Recommend	%	Total Recommend	%
Low-Carbon	33	26M	35	36M	36	62M	35
Ultra-Low-Carbon	12	10M	13	12M	12	22M	13
Super-Ultra-Low-Carbon	16	18M	24	23M	23	41M	23
Efficiency Improvements	39	7M	9	15M	15	22M	13
Non-GHG Categories	--	9M	12	10M	10	19M	11
Manufacturing & Production	--	5M	7	5M	5	10M	6
	100	75m	100	101M	101	176M	101



Program Implementation Schedule

- January 8, 2009 - Fifth Advisory Committee Meeting
- January 2009 - Public Workshops on the Investment Plan and the AB 118 Program
- February 2009 - Energy Commission Adoption of Investment Plan
- February/March 2009 - Solicitation Preparation and Release
- March/April 2009 - Proposal Evaluation; Recommendations for Funding
- April/May 2009 - Energy Commission Business Meeting Approval
- May 27, 2009 - Target Effective Date for Program Regulations