

Staff and Advisory Committee Workshop on the Investment Plan Process

Alternative and Renewable Fuel and Vehicle Technology Program

September 2, 2008

Peter Ward

Fuels and Transportation Division
California Energy Commission

DOCKET	
08-ALT-1	
DATE	SEP 02 2008
RECD.	SEP 02 2008



Agenda

- ❖ Introduction and Overview
- ❖ Analyses Now Underway
 - ‘Reverse Engineering’ from 2050; to 2020 and 2008
 - Gap Analysis
 - Updating fuel and technology “storylines”
- ❖ New Schedule for Investment Plan
- ❖ Status of Regulation Development
- ❖ Funding Priorities and Opportunities
- ❖ Public Comment

Comments/Dockets from July 9 Meeting

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

Overview of the Investment Plan Process

❖ Context for Program

- The goal of the 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.”
- AB 32 establishes a goal of reducing statewide GHG emissions to 20 percent below 1990 levels by 2020.
- Governor’s Executive Order S-03-05 establishes a statewide goal of reducing GHG emissions to 80 percent below 1990 levels by 2050.
- GHG reduction for the transportation sector is approximately 38 percent of the total emission reduction needed to achieve the 2020 and 2050 emission reduction targets.

Overview of the Investment Plan Process

❖ Further Context for Program

- *State Alternative Fuels Plan* specifies that the State should achieve alternative fuel use of 9 percent by 2012, 11 percent by 2017 and 26 percent by 2022.
- *Bioenergy Action Plan*. specifies in-state biofuels production goals of 20 percent by 2010, 40 percent by 2020, and 75 percent by 2050

Overview of the Investment Plan Process

❖ The Investment Plan:

- will describe categories of funding that would be eligible to receive funding under the Program
- will prioritize these categories by assigning to each a percentage of the available funds, based primarily on the GHG reduction potential
- may incorporate other considerations in determining the final percentage allocation of available funds and funding opportunities
- is adopted by the Energy Commission; all funding decisions will be consistent with the categories and allocations determined by this process

Overview of the Investment Plan Process

❖ Methodology for Allocating Program Funds

- Use of the assumptions and findings of the AB 1007 *State Alternative Fuels Plan*, which analyzed alternative and renewable fuels identified in the *State Alternative Fuels Plan*, on a full fuel cycle basis using the California-modified GREET model to focus on the period through 2022
- The 2050 Vision, an integral part of the *State Alternative Fuels Plan*, was added to better understand the fuel, technology and market changes that will be necessary (beyond 2022) to achieve the 80 percent GHG reduction goal for the transportation sector by 2050
- Updating “Storylines” for market penetration participants in the *State Alternative Fuels Plan*, with the fuel and technology working groups, will help to understand what changes may have occurred during the past two years

Overview of the Investment Plan Process

❖ Addressing Goals in the Investment Plan

- Goal-driven assumptions in the 2050 vision include: a 2050 fuel mix for light-duty vehicles made up of **electricity and hydrogen** vehicles (40%), **biofuels** (30%), and a third category including a combination of **petroleum, natural gas and propane vehicles** (30%).
- In this Investment Plan we evaluate the following categories:
 - **Super-Ultra-Low-Carbon** comprised of fuel cell, plug-in hybrid-electric and battery-electric vehicles that achieve a 90 percent GHG reduction relative to petroleum fuels and have a fleet average of 80 miles/gallon;
 - **Ultra-Low-Carbon** comprised fuel flexible vehicles that operate on biofuels that achieve an 80 percent GHG reduction relative to petroleum fuels and have a fleet average of 60 miles/gallon; and
 - **Non-Renewable Alternative Fuel** comprised of natural gas and propane vehicles that also achieve a fleet average of 60 miles/gallon.

Overview of the Investment Plan Process

❖ Sources and Steps in the Methodology

- The 2050 Vision Statement in *The State Alternative Fuels Plan* focused on the **light-duty sector**
- Fuel demand forecast through 2030 adopted by the Energy Commission in its *2007 Integrated Energy Policy Report*
- Expected benefits of the “Pavley” regulations for new passenger cars sold in California beginning in model year 2009
- Zero Emission Vehicle (ZEV) Mandate benefits
- Low-Carbon Fuel Standard benefits
- Tire Efficiency Program benefits
- The penetration of “Non-Renewable Alternative Fuels,” “Ultra-Low Carbon” vehicles, and “Super-Ultra-Low-Carbon” vehicles

Overview of the Investment Plan Process

❖ Sources and Steps in the Methodology

- Evaluation of the 2050 Vision is extended to the **medium- and heavy-duty sectors**;
 - Relying upon the transportation fuel demand forecast through 2030 from the Energy Commission's *2007 Integrated Energy Policy Report* as the basis, extended to 2050
 - Using the fuel composition effects of the Low-Carbon Fuel Standard,
 - Assuming vehicle efficiency gains, and adjustments to the land-use impacts from the reduction in on-road light-duty vehicle miles traveled, is reflected in the medium- and heavy-duty vehicle sectors by increases in public transportation energy use

Overview of the Investment Plan Process

❖ **Conducting a “Gap analysis” to determine the barriers that each fuel and technology faces and the level of funds being invested by state, federal, and private sectors to address these barriers.**

- developing complete data on state, federal, and private investments currently being made to address these barriers
- the type of work needed to address market barriers for each fuel or technology;
- the status of this work;
- the relative expense to complete this work and realize the GHG benefits

Overview of the Investment Plan Process

❖ Allocations to based on GHG reduction, and other categories and considerations

- Vehicle Efficiency Technologies
- Workforce Training,
- Public Outreach,
- Sustainability, Market and Incentive Studies,
- “Way Cool Things We Didn’t Think Of Yet”
(contingency category)



AB 118 Implementation Timeline

	Rulemaking	Investment Plan
August 26, 2008		Post AB 118 Implementation Timeline for September 2, 2008, Staff Workshop with Advisory Committee Members
August 28, 2008	Post Complete Revised Package of Draft Regulation Language including Sustainability Goals for September 9, 2008, Committee Workshop	
September 2, 2008		Staff Workshop with Advisory Committee Members
September 9, 2008	Committee Workshop to Review Revised Draft Regulation Language including Sustainability Goals	
September 15, 2008		Staff workshop with Advisory Committee members
September 19, 2008	Written Comments Due on Revised Draft Regulation Language including Sustainability Goals	
September 23, 2008		Post Notice of October 6, 2008, Advisory Committee Meeting and Revised AB 118 Investment Plan
October 6, 2008		Third Advisory Committee Meeting
October 7, 2008	Draft Regulations Submitted to Office of Administrative Law (OAL)	
October 7-31, 2008		Conduct Public Meetings on the Revised Investment Plan; three meetings planned (one in each) in Southern California, Bay Area, and Central Valley
October 17, 2008	Notice of Proposed Action (NOPA) Published by OAL in the California Regulatory Notice Register; begin 45-day public comment period	
October 31, 2008		Deadline for all comments on Revised Investment Plan to be submitted to the Energy Commission's Docket Unit
December 2, 2008*	End of 45-day Public Comment and Review Period on Draft Regulations	
December 3, 2008		Energy Commission Business Meeting to Adopt Investment Plan
January 14, 2009*	Energy Commission Business Meeting to Adopt Draft Regulations	
January 15, 2009	Regulations submitted to OAL	
March 2, 2009	End of 30-working day review period for OAL. Earliest possible date for OAL to approve and file Regulations with the Secretary of State	
April 2, 2009	Earliest possible date for Regulations to take effect by publication of regulation by Secretary of State	



Potential Strategic Alliances

- ❖ California Air Resources Board
- ❖ California State Treasurer's Office
- ❖ SCAQMD and Other Air Districts
- ❖ Ports of Los Angeles and Long Beach
- ❖ CALPERS and CALSTRS
- ❖ USEPA
- ❖ USDOE
- ❖ Sustainable Energy Finance (SEF) Alliance - Carbon Trust, STDC and Other Members
- ❖ Several Private Equity Funds
- ❖ Several Venture Capital Investment Funds
- ❖ Commercial Banks

Entities Expressing Interest

❖ Vehicle/Technology Improvements

- WestStart - CALSTART
- CalETC
- Cummins Engine Company
- Westport Innovations
- General Electric Marine
- Several Auto Manufacturers
- A-Z Bus Company
- Fuoss Maritime
- Global Electric Motor Cars
- Vectrix
- ISE Corporation
- Sustainable Transport Club
- Environmental Business Cluster – San Jose
- Natural Gas Vehicle Coalition
- Propane Energy Research Council
- Capstone Turbine Corporation
- UC Riverside Center for Nanoscale Science and Engineering
- Sturman Industries
- Roush Enterprises Inc
- International Truck and Engine Corporation
- Perfect Motor Corporation
- California Fuel Cell Partnership
- California Cars Initiative (CalCars)
- IMPCO

❖ Alternative/Renewable Fuels

- Bioenergy Producers Association
- California Ethanol and Power
- Renewable Energies, LLC
- New Fuels Alliance
- Sustainable Biodiesel Alliance
- Crimson Renewable Energy
- Next Fuels
- Biodiesel Industries, Inc
- Pacific Ethanol, Inc
- Great Valley Energy
- Cilion
- Altra Biofuels
- TSL Seed Company
- Bluefire Ethanol
- LS9, Inc
- Amyris Biotechnologies
- Swan Biomass
- American Bioethanol Corporation
- Energy and Industrial Solutions
- Hythane Company LLC
- Neste Oil
- Vinod Kosla
- Western Propane Gas Association
- Ferrellgas
- Sustainable Conservation
- Praxair
- Air Products
- Linde

Entities Expressing Interest

Fuel Infrastructure

- Pearson Ford
- Clean Energy
- Pinnacle
- Trillium
- Plug Power
- Propel Biofuels
- Propane Education and Research Council
- Delta Liquid Energy
- Clean Fuels USA
- National Hydrogen Association
- Ace Hardware Corporation
- Biofuels Logistics & Terminals, LLC
- Cascade Sierra Solutions
- Coulomb Technologies
- Clean Air Logix
- APM Terminals
- Evergreen Marine Corporation
- Long Beach Container Terminal, Inc
- Seaside Transportation Services, LLC
- Southern California Edison Company
- Pacific Gas and Electric Company
- San Diego Gas and Electric Company
- SEMPRA Energy
- Los Angeles Department of Water and Power
- Sacramento Municipal Utility District
- Imperial Irrigation District

Fleets and Other Consumers

- ❖ City of Fairfield
- ❖ City of Oceanside
- ❖ Plumas Unified School District
- ❖ Riverside County
- ❖ City of Chula Vista
- ❖ San Diego Unified School District
- ❖ Real Energy
- ❖ City of Commerce
- ❖ City of Los Angeles
- ❖ California Clean Cities Coalition
- ❖ California State Automobile Association
- ❖ CAPCOA members

